

The latest research points to a critical truth: Early intervention in the primary grades can prevent reading problems for most children and significantly reduce reading disabilities. Early intervention allows students to get help before reading problems become entrenched and complicated by self-concept issues. It can impact how children think, how they learn, and who they are, changing the lives of tens of millions.

Our students' futures are all but determined by how well they learn to read. In a nation that offers few career opportunities to the illiterate, teaching children to read is the most important single task in public education.

Yet, we are not succeeding. Nearly **40 percent of fourth graders do not read even at a basic level**, while 68 percent do not read at a proficient level, the National Center for Learning Disabilities reports.

The problems begin in the earliest weeks of school. Sadly, a student who fails to learn to read adequately in the first grade has a **90 percent probability of remaining a poor reader by Grade 4** and a 75 percent probability of being a poor reader in high school.

This limits opportunities for success in school and out, destroys the natural love of learning, and results in crushing embarrassment. Those who struggle with reading early on, later struggle with life as virtually unemployable adults with low self-worth.

The reading crisis will impact our nation for decades to come

Multiplied by millions of lives, this scenario has a devastating impact on our nation. The problems are well documented. Without intervention, more than

74 percent of children entering first grade at risk for reading failure have reading problems as adults, the National Institute of Child Health & Human Development (NICHD) reports.

What happens to those adults? The National Institute for Literacy found that **43 percent of Americans with the lowest literacy skills live in poverty**. Seventy percent have no job or a part-time job. Because 70 percent of inmates read below the fourth grade level, some states even do prison planning based on the level of reading failure in their schools.

The problem is not improving. The National Center for Educational Statistics reported in 2002 that **36 percent of fourth graders couldn't read and understand even a short paragraph** like those in children's books.

What is even more striking is that reading failure is disproportionately prevalent among children living in poverty. Many low-income urban school districts report up to 70 percent of fourth grade students cannot read at a basic level.

It does not have to be this way. Millions of children can avoid the devastating consequences of reading failure, as well as the embarrassment of being labeled with reading disabilities, if educators act early.

Educators can confidently predict which children are at risk by Grade 1

One of the most exciting developments in reading over the past 20 years is a dramatic growth in understanding about which skills predict later reading problems associated with a phonologic processing core deficit. No reason exists to wait for a child to fail and then see if the child qualifies for special services. Instead, we can identify at-risk children early, provide high quality intervention before failure occurs, and, in most cases, normalize reading ability.

The early literacy skills that have been demonstrated to accurately predict risk in young children include:

- Phonemic awareness (the ability to search the individual sounds within words)
- Knowledge of letter names and sounds
- Speed of lexical retrieval, measured through the rapid naming of objects, colors, digits, and letters

Early identification and intervention solve most children's reading problems

Intervention is most effective when it occurs as early as first grade. When children at risk for reading failure are identified early and provided with systematic, explicit, and intensive instruction, they can learn to read at average or above levels. Ultimately, as documented in NICHD research, this could reduce the percentage of children reading below the basic level in fourth grade from 38 percent to 6 percent or less.

Over the past decade, a series of neuroscience breakthroughs and educational findings has led to an entirely new understanding of how children learn to read. Research, such as studies taking place at the University of Texas-Houston Medical School involving Magnetic Resonance Imaging technology, have examined brain activation patterns of very young children as they learned to read.

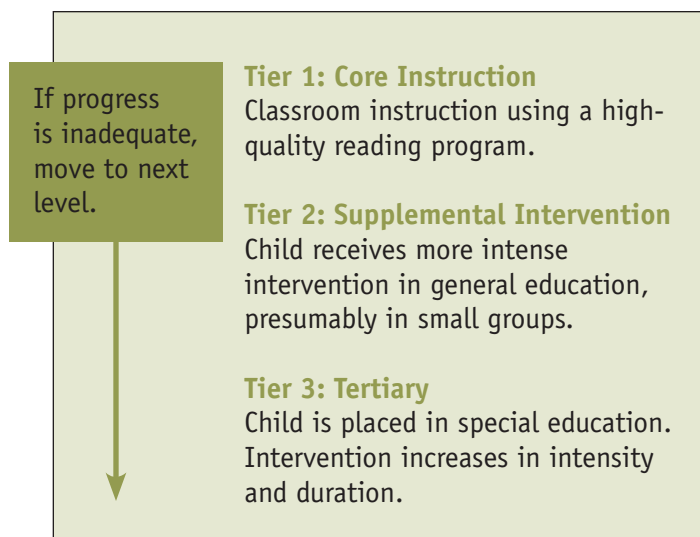
The patterns for children at risk of developing reading problems at the end of Kindergarten were different from the children who were not at risk and similar to those of older children with dyslexia. Yet researchers also found that the brain activation patterns of the children with dyslexia can be normalized with quality instruction. Early intervention even seems to have an impact on the children's patterns of brain function.

Three-tier model reduces reading problems while allowing best use of school resources

A three-tier model for early intervention is an effective way to reduce overall reading problems by providing intensive, early intervention for the children most at risk for reading difficulty. The model emphasizes using scientifically based practices in reading instruction, utilizing student assessment data, and providing small-group, supplemental intervention.

When children are identified as at-risk, they go into Tier 1, where classroom-level general education instruction is improved, often by introducing the intervention components of the core reading program.

Children who still experience difficulty after receiving quality classroom-level instruction move into Tier 2, receiving more intense, carefully designed instruction in small groups.



The Tier 2 program supplements Tier 1 instruction and provides carefully designed, intense instruction focusing on the five critical elements of reading instruction. It must incorporate an emphasis on systematic, explicit instruction in alphabetic reading skills balanced with meaningful experiences with authentic texts and writing. It must be of sufficient duration to provide continued support beyond the initial acquisition of reading skills to ensure continued academic growth into the upper grades.

Only after these two levels of intervention have failed would a child be considered reading disabled. At this point, the child requires Tier 3 intervention,

typically special education services with greater intensity and duration than Tier 2.

Because many reading problems are resolved in Tiers 1 and 2, school systems can provide special education services to children who need them the most with more focus and intensity.

Success hinges on high quality of intervention programs at each tier

The three-tier model unifies general, special, and compensatory education services into one unit, focused on five critical elements of reading instruction to ensure that every student receives quality reading instruction. This content must help emergent readers develop phonological awareness, letter-knowledge, and concepts of print. For beginning readers, this instruction ensures the acquisition of accurate and quick word recognition, increasing the speed and ease of reading connected text, and providing strategies for processing text.

Most crucial of these elements is systematic instruction in phonological decoding (sounding out words) as well as a word recognition strategy. Phonological decoding appears to account for individual differences in word recognition in both children and adults.

Beyond phonological decoding and alphabetic knowledge, the children must be able to read connected text with speed and relative ease in order to access meaning and develop mature

comprehension strategies. Early literacy instruction that integrates alphabetic knowledge into the actual act of reading meaningful text enhances both fluency and comprehension. Children who are competent at comprehension typically follow a generalized plan when approaching text. Those who do not develop this independently must be taught to do it.

Researchers create intervention program specifically for Tier 2 use

To study the impact of the three-tier model, researchers created a curriculum specifically to meet the requirements for Tier 2. The program, now called *SRA Early Interventions in Reading*, was designed to incorporate the latest information on the most successful ways to facilitate reading growth in struggling readers into a method that teachers can readily use in classroom situations daily.

The program was first implemented in the Leon County Public Schools in Tallahassee, Florida, in 1999 as part of an NICHD-funded research project. Since then, it has been the primary intervention in a series of federally funded studies conducted in Florida and Texas.

After the program was proven to be highly effective, SRA/McGraw-Hill decided to make it available to teachers for use with at-risk children in Grades 1 and 2. *SRA Early Interventions in Reading* is not a substitute for a quality core reading program, but works in

Critical Content in *SRA Early Interventions in Reading*

SRA Early Interventions in Reading has content critical to a quality early intervention.

Phonemic Awareness

- Phoneme discrimination
- Phoneme segmentation and blending
- Segmenting individual sounds
- Blending sounds back into words
- Spelling sounds in the order students hear them

Letter-Sound Correspondences Strand

- Letter-sound correspondences introduced every two or three lessons starting in the first lesson
- Auditory segmenting and blending activities before learning symbols for phonemes

- Daily cumulative review of letter-sound correspondences
- Teaching multiple ways to represent phonemes

Word Recognition and Spelling Strand

- Includes both phonetically regular and irregular (tricky) words
- Strategy taught for sounding out words
- Words presented in lists in the Teacher's Editions or in the Activity Books
- Teaching students to decode unknown words representing six syllable types

Fluency Strand

- Application and practice of word recognition strategies
- Connected text read in each lesson starting in Lesson 7
- Fluency built through repeated, timed readings

Comprehension Strategies

- Setting a purpose for reading
- Sequencing
- Making and verifying predictions
- Story grammar
- Sharing prior knowledge and reading to learn about a topic
- Identifying the main idea

conjunction with that program to ensure all students' needs are addressed.

Program offers teachers in-depth support and research-proven techniques

The comprehensive, integrated curriculum details how to deliver explicit phonemic awareness and phonics instruction, ensure application of this knowledge to words and text, and engage children in drawing meaning from what they have read.

Building on the principles of direct instruction, the program has 120 carefully integrated lessons that build student mastery skills through activities along five central content strands: phonemic awareness, letter-sound correspondence, word recognition and spelling, fluency, and comprehension strategies.

Teachers follow a highly detailed daily lesson plan that fully explains each aspect of each activity. They teach small homogenous groups of three to five struggling readers who sit in a semi-circle around the instructor. Each lesson requires about 40 minutes. The small group instruction includes:

- Explicit instruction in phonics, with an emphasis on fluency
- A carefully constructed scope and sequence that prevents confusion
- Systematic cueing of appropriate strategies to help children learn to apply new skills
- Suitable levels of scaffolding to promote independence
- Ongoing progress monitoring so teachers can evaluate progress and make decisions about instruction needs

Research studies confirm that the program helps virtually all struggling readers

Results from federally funded research studies using the materials confirm that, after using *SRA Early Interventions in Reading* for one year, nearly all students at risk of reading failure at the start of the academic year were no longer at-risk. Struggling readers significantly improved in their abilities in word attack, word identification, passage comprehension, and oral reading fluency, closing the gap with average performers.

The following summaries provide an overview of the initial three studies. Additional studies that use the program are ongoing.

Study 1: Tallahassee, Florida

This two-year study involved students from five schools roughly representative of the Leon County Public Schools population that used an *Open Court* program as the core reading program for Grade 1. The study included the 18 percent of the 1,000 students screened who were most at risk for reading failure, based on their performance on screening tests of letter-sound knowledge and rapid naming ability. About 40 percent qualified for free or reduced lunches, and about 40 percent were minorities, mostly African-American.

Researchers randomly assigned each student to either an experienced reading teacher or a well-trained, carefully selected uncertified teacher who did not have previous experience teaching reading. They were taught in groups of either three or five students in 40-minute sessions every weekday from October through May, for a total of about 91 hours of intervention. All conditions produced dramatic growth in reading ability, with no differences across the four instructional conditions. On a measure of reading accuracy (the Word Identification Subtest from the Woodcock Reading Mastery Test – Revised), **the groups improved from the ninth percentile in the fall to the 64th percentile in May**, a standard score of 112. They also performed at average on both an individually administered (Passage Comprehension from the WRMT-R) and a group-administered (SAT/9) measure of reading comprehension.

By spring, the capability of the intervention groups grew from an average of about one correct word per minute on a measure of oral reading fluency to an average of about **55 words per minute on end of Grade 1 passages**. This placed them well within normal parameters for reading fluency.

Variable	Average Standard Score	Percentage of children who would remain below 25%tile
Word Attack	112	.4%
Word Identification	105	.1%
Passage Comprehension	99	2%
Oral Reading Fluency	55 words correct per minute	2%

Table 1: Average scores and percentage of children remaining below the 25th percentile after participating in SRA Early Interventions in Reading for one year.

The researchers estimated that on a school-wide basis, only 1.6 percent of all children would finish the Grade 1 year as poor readers performing below the 25th percentile in word reading accuracy if they were provided classroom and intervention instruction similar to that provided in the study. If the outcome measure was the SAT/9 test of reading comprehension, the estimated percentage of children who would perform poorly at the end of first grade was 3 percent.

The study concluded that a combination of high quality classroom instruction, coupled with intensive and systematic interventions for the most at-risk students, could reduce the percentage of students who still struggle on beginning reading skills at the end of Grade 2 to a very small number.

Study 2: Houston, Texas

The second study using *SRA Early Interventions in Reading* took place in the Houston Independent School District to investigate the effectiveness of the three-tier model.

The study provided the program to Grade 1 students at risk for reading difficulties in groups of three. The students were assessed on various reading and reading-related measures associated with success in beginning reading.

The results indicated that Grade 1 students at risk for reading failure who received *SRA Early Interventions in Reading* scored significantly higher on measures of reading and reading-related skills than students who received only enhanced classroom instruction. The percentage of students who remained at risk was reduced to less than one percent. All children in *SRA Early Interventions in Reading* made substantial growth in reading across the year, closing the gap between average and struggling readers. This growth is illustrated in Figures 1 and 2, shown below.

Table 2 shows the very strong effect sizes achieved for *SRA Early Interventions in Reading*. Effect sizes at or above .30 are considered by educational researchers as important, wherein the larger the effect size, the stronger the impact of the intervention. An effect size larger than 1.0 indicates a very powerful effect, with a level of impact rarely seen in intervention research.

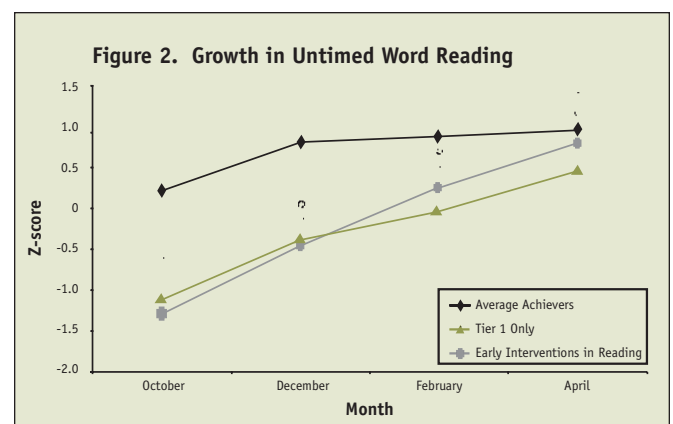
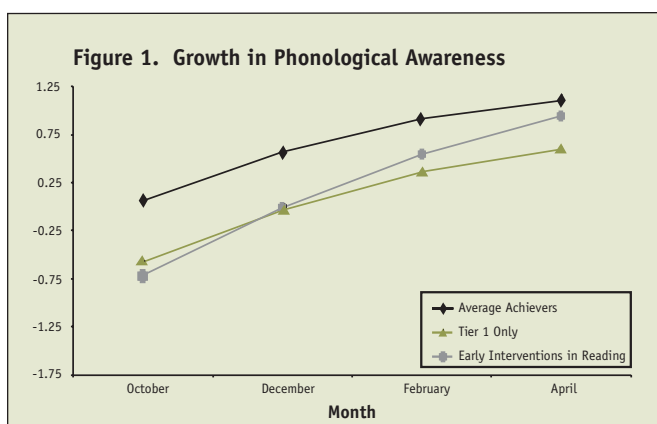
Measure	Growth	End of year
Phonological Awareness	.81	1.76
Untimed Word Reading	.47	1.03
Timed Word Reading Fluency	1.13	1.33
Oral Reading Fluency	.33	1.62

Table 2: *SRA Early Interventions in Reading Effect Sizes Compared to Enhanced Classroom Instruction on Growth Across the Year and End-of-Year Outcomes.*

Study 3: Houston and Brownsville, Texas

A third study including *SRA Early Interventions in Reading* focused on English-language learners who were native Spanish speakers and also were at risk for learning to read in Spanish as well as in English. This study was conducted in Houston and Brownsville Texas over two years. Students received core reading instruction in English in a structured immersion model, then received a second dose of reading using *SRA Early Interventions in Reading*.

Researchers screened 216 Grade 1 students in both English and Spanish from 14 classrooms in four schools in two districts. The 48 students who did not pass the screening in both languages were randomly assigned within schools to an intervention or contrast group. After seven months, 41 students remained in the study.



Intervention groups of three to five students met for 50 minutes daily for a 40-minute *SRA Early Interventions in Reading* lesson and additional 10-minute Storybook Retell activity designed to promote oral language development.

The intervention and contrast group had no differences in either language on any measures at pretest, but had significant posttest differences in favor of the intervention group for these outcomes: phonological awareness, listening comprehension, word attack, word identification, and passage comprehension. The effect sizes also demonstrated a positive impact of the intervention as compared to children who received the standard educational program.

Measure	Effect size for end-of-year outcome
Phonological Awareness	.76
Letter-Sound Identification	.48
Non-Word Repetition	.37
Word Attack	.87
Dictation	.42
Passage Comprehension	.81

Table 3: *SRA Early Interventions in Reading effect sizes with ELL students learning to read in English compared to the school's normal reading program on end-of-year outcomes.*

Early intervention can save millions of children from the harsh impact of reading failure

While researchers continue to study reading disabilities, the current research gives educators and parents new hope. Well-implemented, quality intervention on a three-tier model can vastly reduce the struggles with learning to read. In fact, the NICHD states that the 20 million American children suffering from reading failure could be reduced by at least two-thirds.

This indicates a giant step in a positive direction: The necessity of labeling children as reading disabled can be largely ended through high quality instruction provided early in the child's education.

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Dr. Mathes received the Interpretive Scholar award from the American Educational Research Association in 2002. She is the author of numerous articles, chapters, books, and curricular materials related to learning and reading disabilities, accommodating academic diversity, and best practices for struggling readers. Further, she serves on the editorial board of several scholarly journals and provides nationwide teacher/staff development focused on translating research into practice. She is the author of the SRA Early Interventions in Reading program.

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