



READING DIFFICULTIES: RISK FACTORS AND EARLY CHILDHOOD PREVENTION

Special Report

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The Problem

Reading is essential to success in America. In a technological society such as ours, the demands for higher literacy are always increasing, raising the specter of a bleaker future and ever more grievous consequences for the child who falls short.

The good news is most children learn to read fairly well.

However, too many children find their education imperiled by reading difficulties. There are many reasons why. Ineffective instruction is a major factor putting children at risk of reading problems. Some children are at risk simply because they live in homes where reading is considered of little value. For others, reading difficulties are linked to cognitive deficiencies or conditions such as a hearing impairment.

The problem has not gone unnoticed. Reading difficulties are often central in public debate over the effectiveness of schools and curriculum. Perhaps the highest profile and most contentious debate in education in recent years has been over which strategy for teaching reading is best, traditional phonetics or the newer whole-language approach.

Learning to read and write begins long before the grade-school years. Children who begin school with less knowledge in domains such as letter knowledge, awareness of the sounds of language, and the basic purposes and mechanics of reading are more likely to have trouble learning to read – regardless of which teaching strategy is used.

Good reading instruction is still the best way to prevent reading difficulties. And prevention can, and should, begin early -- at home, in day care, preschool, and in kindergarten. To that end, school officials, teachers, caregivers, policymakers, and parents share the responsibility of seeing to it that children enter school already on their way to becoming successful readers.

Although the precise number of U.S. children with reading difficulties remains elusive, estimates suggest a large number are having trouble.

One measure is the number of children receiving special education. The Department of Education reported that among the nation's 57.8 million school children, 2.5 million (4.4%) received special education services during the 1994-95 school year. If estimates that reading disabilities account for about 80% of all learning disabilities are accurate, then 3.5% of all school children that year received services for a reading disability.

Other studies that measured low achievement in reading among specific populations report higher numbers. One estimates that as many as 17.5% of Connecticut children in primary and middle school grades have reading difficulties.¹

Such findings suggest that millions of children face the grave consequences that can befall those who cannot read or read well.

Specifically, children's reading skills at the end of the third grade have been found to predict whether or not they will graduate from high school. Those who are not at least moderately skilled in reading by then are unlikely to earn a high school diploma.

Without a high school diploma, they are more likely to find themselves unemployed. In 1993, 9.8% of those without a high school degree were unemployed, compared to 5.4% of those with a high school degree, and 2.6% of those with a college degree.

Moreover, jobs increasingly require high school graduates be more than merely literate. They must be able to read challenging material, perform sophisticated calculations, and solve problems independently. In fact, the demands of the workplace are greater today than those placed on schooled, literate Americans as recent as a quarter of a century ago.²

Risk Factors

In some cases, the source of reading difficulties is clear, such as biological limitations that make the processing of sound-symbol relations difficult. In other cases, the source is related to certain experiences, such as poor reading instruction.

Child-Based Factors

Some reading and more general learning problems are thought to result from cognitive or sensory limitations. These conditions include:

- **Cognitive deficiencies.** Children with severe cognitive deficiencies usually fail to learn to read well, if at all.
- **Hearing impairment.** Hearing impairment or deafness is associated with reading difficulty. Chronic ear infections can lead to intermittent hearing loss and the effect of this common problem on language development and reading is a concern.
- **Early language impairment.** Although the rate at which children acquire language varies widely during the first four years of life, some lag very far behind. In many cases, delayed language development indicates a broader condition, such as hearing impairment or a general developmental disability. Others are simply not exposed to an adequately responsive language environment. As many as 75% of preschoolers with early language impairment develop reading difficulties later.³
- **Attention deficits.** Although evidence suggests that attention deficit/hyperactivity disorder and reading disability are distinct disorders, they often occur together and do so more frequently as a child matures. Among first graders with attention problems, 31% also have a reading disability; among ninth graders, 50% also have a reading disability.⁴

Poor Instruction

A large number of children who, given proper instruction, should be capable of reading adequately are not doing so. This suggests they are receiving poor instruction.

If poor instruction is confined to an individual

teacher, a child's progress may be slowed for the year spent in that classroom, but will likely recover if exposed to more skilled teachers and better instruction in the following years. There appears to be one exception, however. Children who receive poor instruction in first grade are more seriously harmed by that experience and tend to do poorly throughout their school years.⁵

In some schools, low achievement is schoolwide and persistent. Although poor instruction can sometimes be traced to the lack of appropriate curriculum, it is more often the result of several coexisting conditions. These may include low expectations for success on the part of teachers and administration; slow-paced, undemanding curriculum; teachers poorly trained in effective methods for teaching beginning readers; a poor supply of books; and noisy, overcrowded classrooms.

Unfortunately, instructional factors are rarely given serious consideration when a child is referred for evaluation for a suspected reading difficulty.

School Factors

Schools determine the effectiveness of directly teaching reading, as well as the opportunities for children to learn and polish skills and attitudes important to reading.

Studies shed light on schoolwide and classroom characteristics that contribute to poor student outcomes. In less effective schools, students spend less time on specific learning tasks, and teachers are less likely to present new material, express high academic expectations, or use positive reinforcement. Classrooms are seen to be less friendly than those of effective schools, and there are more classroom interruptions and more reported discipline problems.

Family-Based Factors

Parents and home environment also influence a child's reading development.

Children whose parents and siblings have reading difficulties are more likely to have trouble reading themselves. And young children less exposed to books and given fewer opportunities to acquire reading-related knowledge and skills are more likely to have trouble reading than those who find a rich literacy environment at home.

Five broad areas of family functioning that may influence reading development include:⁶

Prevention During Early Childhood

- **Value placed on literacy.** By reading themselves and encouraging reading, parents demonstrate they value literacy.
- **Press for achievement.** By expressing their age-appropriate expectations for achievement, providing reading instruction, and responding to the children's reading interest, parents can help a child aspire to achieve.
- **Availability and use of reading materials.** Literacy experiences are more likely to occur in homes that contain children's books and other reading and writing materials.
- **Reading with children.** Reading to and with preschoolers contributes to their development as readers.
- **Opportunities for verbal interaction.** Fewer opportunities for verbal interaction at home is a factor related to lower child vocabulary scores, which in turn is related to poorer reading outcomes.⁷

Evidence suggests that home literacy environment plays different roles at different ages. During preschool years, it may contribute primarily to a child's attitudes toward reading, knowledge of the purpose and mechanics of reading, and skills that aid learning later in school. Once the child begins school and starts to read, help with homework, listening to the child reading aloud, and the availability of resources such as a dictionary or encyclopedia are factors important to high achievement in school.

Socioeconomic Status

Low socioeconomic status carries with it conditions that may limit the development of children, including reading difficulties, raised in less educated families, receiving less adequate health care, and attending substandard schools.

Although socioeconomic status is a factor related to school achievement, it is more telling of the status of a school or community than of the abilities of children. Low-income children are much less at risk for poor achievement if they attend moderate or upper-status schools, rather than schools where most, if not all, students are low-income.

Efforts to prevent reading difficulties among children is rife with challenges. Differences among children, settings, the measures used by different research teams, and even in the definitions used to characterize reading problems, complicate the task of comparing studies.

Despite the limitations, findings culled from the literature on reading interventions suggest promising efforts are being made to prepare infants, toddlers, and preschoolers for reading instruction and to prevent reading difficulties in the early grades.

Preschool

The evidence of the potential of preschool to improve children's early language and literacy development is heartening.

Studies suggest, for example, that phonological awareness training given in preschool has helped children develop an important understanding of how words can be broken into sounds. Children with developed phonological awareness are aware of, and better able to recognize, the sounds of language.

In one study, all but one of the 21 preschool children given phonological awareness training were later able to make rhymes, while only nine of the 21 children who did not receive the training could later rhyme.⁸

Comprehensive preschool programs, in particular, appear to make an impact on later reading ability. In the Abecedarian Project, infants received enriched day care that stressed language and cognitive development through age 5. At follow-up, the children showed significantly higher reading achievement from grade 3 through grade 8.⁹

However, not all preschools offer adequate language environments. One study found that public preschools in North Carolina rated lower on language and reasoning measures than on other aspects of the Early Childhood Environment Rating. The findings suggest the language development needs of the children were not being fully met and that mechanisms for improvement were not available. A study of 32 Head Start classrooms also found the lowest scores on the test to be for language and reasoning.¹⁰

In North Carolina and elsewhere, studies of preschool literacy conclude that overall program quality is an important factor in determining the effects preschool will have on the language and preliteracy skills of children.

Studies also suggest that preschool teachers are an important – and underutilized – resource in promoting literacy. Central to a preschool's role in the prevention of reading difficulties is each teacher's knowledge and experience, and the support its teachers are given.

Parents As Teachers

A child's attitude about learning to read is likely to be influenced by the attitudes, values, and expectations of his or her parents with regard to reading.

Children of parents who view reading as a source of entertainment have a more positive view of reading than do children whose parents emphasize the skills aspect of reading development.¹¹ Children who view learning in school as irrelevant to life outside school are less motivated to invest time and effort in learning to read.¹²

Parents and family can also contribute by promoting awareness, concepts and functions of reading, knowledge of narrative structure, and vocabulary and discourse patterns.

Parent-oriented early intervention services aimed at improving literacy and language outcomes are typically built around regular home visits by a parent educator who offers information and guidance on child development and how to prepare children for school.

Studies suggest some of these services strengthen important aspects of reading development. An example is Parents As Teachers, a voluntary parent program that begins in the third trimester of pregnancy and continues until the children are 3 years old. Children in the program performed significantly better than comparison children on tests of cognition and language at age 3 years. At follow up, program children scored much higher on standardized tests for reading ability in first grade, and parents were more involved in their children's education than were parents of children in the comparison group.¹³

Family Literacy

Wide variations exist among programs that seek to enhance literacy within families as a way to improve the reading skills of children and avoid having them struggle with literacy and language in school.

Successful family literacy programs, however, have several features in common, including: taking steps to ensure participation, such as arranging transportation; tailoring the program to the specific needs of families; using instruction that is meaningful and useful; assem-

bling a staff that is stable and who bring diverse expertise to the project; and securing funds necessary to sustain the project over time.

The Even Start Literacy Program, an attempt to unify early childhood education and adult education for parents, is one family literacy program that has been evaluated by a large-scale national survey and a long-term study. It was found to have its greatest impact in improving the availability of reading materials in the home, parents' expectations of their children's success in school, and the school readiness of children.

Policy Implications

In 1998, The National Research Council published the findings of an exhaustive, two-year study of reading difficulties among young children. The 17-member study committee, for example, concluded that:

- Most of the reading problems faced by today's adolescents and adults could have been avoided or resolved in the early years of childhood.
- Children need to enter first grade with a strong basis in language and cognitive skills and be motivated to learn to read to benefit from classroom instruction.
- Preschool children need high-quality language and literary environments in their homes and in out-of-home settings.
- Many preschool programs fail to focus on language and literacy experiences.
- Preschool teachers represent an important and largely underutilized resource in promoting literacy.
- Reading problems are disproportionately high among minorities, non-English speaking children, and children raised in poor or urban neighborhoods.

The report also recommended ways to help prevent reading difficulties early in childhood. The recommendations included the following:

- Affordable, language-rich preschool programs should be available to all children.
- Government and education officials should provide

research-based guidelines for parents, pediatricians, and preschool teachers that will help them identify children with hearing impairments and other conditions or delays that may jeopardize a child's chances of becoming a successful reader.

- Prevention programs that target at-risk children should focus on social, language, and cognitive development, not just literacy.
- Programs that educate early childhood professionals should require mastery of information about the knowledge and skills children can learn in preschool that will help them with reading in later grades. Such topics range from the development of fine motor skills to understanding young children's sensitivity to sounds.
- Government and organizations concerned with early education should target parents, caregivers, and the general public in campaigns to promote public understanding of the way young children learn to read. Such programs should include ways to use books and how to create opportunities for building language skills and promote literacy growth through everyday activities.

The report makes clear that effective reading is achieved by children who are given the opportunities to learn and develop literacy skills early in life.

References

National Research Council (1998). *Preventing Reading Difficulties in Young Children*, C.E. Snow, M.S. Burns, & P. Griffin, (Eds.). Washington, DC: National Academy Press.

EDITOR'S NOTE: This report, written by Jeffery Fraser, is based on the above-referenced publication. It is not intended to be an original work but a summary for the convenience of our readers. References noted in the text of the report follow.

- ¹Shaywitz, S.E., & Shaywitz, B.A. (1996). Unlocking learning disabilities: The neurological basis. In S.C. Cramer & W. Ellis, (Eds.). *Learning disabilities, lifelong issues* (pp. 255-260). Baltimore: Paul H. Brookes.
- ²Murname, R., & Levy, F. (1993). Why today's high-school-educated males earn less than their fathers did: The problem and an assessment of responses. *Harvard Educational Review* **63**, 1-19.
- ³Aram, D.M., & Hall, N.E. (1989). Longitudinal follow-up of children with preschool communication disorders: Treatment implications. *School of Psychology Review* **18**, 487-501.
- ⁴Bishop, D.V.M., Adams, C. (1990). A prospective study of the relationship between specific language impairment, phonological disorders and reading retardation. *Journal of Child Psychology and Psychiatry* **31**, 1027-1050.
- ⁵Pianta, R.C. (1990). Widening the debate on educational reform: Prevention as a viable alternative. *Exceptional Children* **56**, 306-313.
- ⁶Hess, R.D., & Holloway, S. (1984). Family and school as educational institutions. In R.D. Parke, (Ed.). *Review of child development research, 7: The family* (pp. 179-222). Chicago: University of Chicago Press.
- ⁷Hart, B., & Risely, T.R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Paul H. Brookes Publishing Co.
- ⁸Brady, S., Fowler, A., Stone, B., & Winbury, N. (1994). Training phonological awareness: A study with inner city kindergarten children. *Annals of Dyslexia*, **44**, 27-59.
- ⁹Campbell, F.A., & Ramey, C.T. (1994). Effects of early intervention on intellectual and academic achievement: A follow-up study of children from low-income families. *Child Development*, **65**, 684-698.
- ¹⁰Bryant, D.M., Peisner-Feinberg, E., & Clifford, R. (1993). *Evaluation of public preschool programs in North Carolina*. Chapel Hill: Frank Porter Graham Center, University of North Carolina.
- ¹¹Baker, L., Scher, D., & Mackler, K. (1997). Home and family influences on motivations for reading. *Educational Psychologist*, **32**, 69-82.
- ¹²Stipek, D., Feller, R., Daniels, D., & Milburn, S. (1995). Effects of different instructional approaches on young children's achievement and motivation. *Child Development* **66**, 209-221.
- ¹³National Diffusion Network (1996). *Educational programs that work: 22nd Edition*. Longmont, CO: Sopris West.