

## **Executive Summary**

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Reading is essential to success in our society. The ability to read is highly valued and important for social and economic advancement. Of course, most children learn to read fairly well. In this report, we are most concerned with the large numbers of children in America whose educational careers are imperiled because they do not read well enough to ensure understanding and to meet the demands of an increasingly competitive economy. Current difficulties in reading largely originate from rising demands for literacy, not from declining absolute levels of literacy. In a technological society, the demands for higher literacy are ever increasing, creating more grievous consequences for those who fall short.

The importance of this problem led the U.S. Department of Education and the U.S. Department of Health and Human Services to ask the National Academy of Sciences to establish a committee to examine the prevention of reading difficulties. Our committee was charged with conducting a study of the effectiveness of interventions for young children who are at risk of having problems learning to read. The goals of the project were three: (1) to comprehend a rich but diverse research base; (2) to translate the research findings into advice and guidance for parents, educators, publishers, and others involved in the care and instruction of the young; and (3) to convey this advice to the targeted audiences through a variety of publications, conferences, and other outreach activities.

### **THE COMMITTEE'S APPROACH**

The committee reviewed research on normal reading development and instruction, on risk factors useful in identifying groups and individuals at risk of reading failure, and on prevention, intervention, and instructional approaches to ensuring optimal reading outcomes.

We found many informative literatures to draw on and have aimed in this report to weave together the insights of many research traditions into clear guidelines for helping children become successful readers. In doing so, we also considered the current state of affairs in education for teachers and others working with young children; policies of federal, state, and local governments impinging on young children's education; the pressures on publishers of curriculum materials, texts, and tests; programs addressed to parents and to community action; and media activities.

Our main emphasis has been on the development of reading and on factors that relate to reading outcomes. We conceptualized our task as cutting through the detail of mostly convergent, but sometimes discrepant, research findings to provide an integrated picture of how reading develops and how its development can be promoted.

Our recommendations extend to all children. Granted, we have focused our lens on children at risk for learning to read. But much of the instructional research we have reviewed encompasses, for a variety of reasons, populations of students with varying degrees of risk. Good instruction seems to transcend characterizations of children's vulnerability for failure; the same good early literacy environment and patterns of effective instruction are required for children who might fail for different reasons.

Does this mean that the identical mix of instructional materials and strategies will work for each and every child? Of course not. If we have learned anything from this effort, it is that effective teachers are able to craft a special mix of instructional ingredients for every child they work with. But it does mean that there is a common menu of materials, strategies, and environments from which effective teachers make choices. This in turn means that, as a society, our most important challenge is to make sure that our teachers have access to those tools and the knowledge required to use them well. In other words, there is little evidence that children experiencing difficulties learning to read, even those with identifiable learning disabilities, need radically different sorts of supports than children at low risk, although they may need much more intensive support. Childhood environments that support early literacy development and excellent instruction are important for all children. Excellent instruction is the best intervention for children who demonstrate problems learning to read.

## **CONCEPTUALIZING READING AND READING INSTRUCTION**

Effective reading instruction is built on a foundation that recognizes that reading ability is determined by multiple factors: many factors that correlate with reading fail to explain it; many experiences contribute to reading development without being prerequisite to it; and although there are many prerequisites, none by itself is considered sufficient.

Adequate initial reading instruction requires that children:

- use reading to obtain meaning from print,
- have frequent and intensive opportunities to read,
- are exposed to frequent, regular spelling-sound relationships,
- learn about the nature of the alphabetic writing system, and
- understand the structure of spoken words.

Adequate progress in learning to read English (or any alphabetic language) beyond the initial level depends on:

- having a working understanding of how sounds are represented alphabetically,
- sufficient practice in reading to achieve fluency with different kinds of texts,

- sufficient background knowledge and vocabulary to render written texts meaningful and interesting,
- control over procedures for monitoring comprehension and repairing misunderstandings, and
- continued interest and motivation to read for a variety of purposes.

Reading skill is acquired in a relatively predictable way by children who have normal or above average language skills; have had experiences in early childhood that fostered motivation and provided exposure to literacy in use; get information about the nature of print through opportunities to learn letters and to recognize the internal structure of spoken words, as well as explanations about the contrasting nature of spoken and written language; and attend schools that provide effective reading instruction and opportunities to practice reading.

Disruption of any of these developments increases the possibility that reading will be delayed or impeded. The association of poor reading outcomes with poverty and minority status no doubt reflects the accumulated effects of several of these risk factors, including lack of access to literacy-stimulating preschool experiences and to excellent, coherent reading instruction. In addition, a number of children without any obvious risk factors also develop reading difficulties. These children may require intensive efforts at intervention and extra help in reading and accommodations for their disability throughout their lives.

There are three potential stumbling blocks that are known to throw children off course on the journey to skilled reading. The first obstacle, which arises at the outset of reading acquisition, is difficulty understanding and using the alphabetic principle--the idea that written spellings systematically represent spoken words. It is hard to comprehend connected text if word recognition is inaccurate or laborious. The second obstacle is a failure to transfer the comprehension skills of spoken language to reading and to acquire new strategies that may be specifically needed for reading. The third obstacle to reading will magnify the first two: the absence or loss of an initial motivation to read or failure to develop a mature appreciation of the rewards of reading.

As in every domain of learning, motivation is crucial. Although most children begin school with positive attitudes and expectations for success, by the end of the primary grades and increasingly thereafter, some children become disaffected. The majority of reading problems faced by today's adolescents and adults are the result of problems that might have been avoided or resolved in their early childhood years. It is imperative that steps be taken to ensure that children overcome these obstacles during the primary grades.

Reducing the number of children who enter school with inadequate literacy-related knowledge and skill is an important primary step toward preventing reading difficulties. Although not a panacea, this would serve to reduce considerably the magnitude of the problem currently facing schools. Children who are particularly likely to have difficulty with learning to read in the primary grades are those who begin school with less prior knowledge and skill in relevant domains, most notably, general verbal abilities, the ability to attend to the sounds of language as distinct from its meaning, familiarity with the basic purposes and mechanisms of reading, and letter knowledge. Children from poor neighborhoods, children with limited proficiency in

English, children with hearing impairments, children with preschool language impairments, and children whose parents had difficulty learning to read are particularly at risk of arriving at school with weaknesses in these areas and hence of falling behind from the outset.

## **RECOMMENDATIONS**

The critical importance of providing excellent reading instruction to all children is at the heart of the committee's recommendations. Accordingly, our central recommendation characterizes the nature of good primary reading instruction. We also recognize that excellent instruction is most effective when children arrive in first grade motivated for literacy and with the necessary linguistic, cognitive, and early literacy skills. We therefore recommend attention to ensuring high-quality preschool and kindergarten environments as well. We acknowledge that excellent instruction in the primary grades and optimal environments in preschool and kindergarten require teachers who are well prepared, highly knowledgeable, and receiving ongoing support. Excellent instruction may be possible only if schools are organized in optimal ways; if facilities, curriculum materials, and support services function adequately; and if children's home languages are taken into account in designing instruction. We therefore make recommendations addressing these issues. (The complete text of all the committee's recommendations appears in Chapter 10.)

### **Literacy Instruction in First Through Third Grade**

Given the centrality of excellent instruction to the prevention of reading difficulties, the committee strongly recommends attention in every primary grade classroom to the full array of early reading accomplishments: the alphabetic principle, reading sight words, reading words by mapping speech sounds to parts of words, achieving fluency, and comprehension. Getting started in alphabetic reading depends critically on mapping the letters and spellings of words onto the speech units that they represent; failure to master word recognition can impede text comprehension. Explicit instruction that directs children's attention to the sound structure of oral language and to the connections between speech sounds and spellings assists children who have not grasped the alphabetic principle or who do not apply it productively when they encounter unfamiliar printed words.

Comprehension difficulties can be prevented by actively building comprehension skills as well as linguistic and conceptual knowledge, beginning in the earliest grades. Comprehension can be enhanced through instruction focused on concept and vocabulary growth and background knowledge, instruction about the syntax and rhetorical structures of written language, and direct instruction about comprehension strategies such as summarizing, predicting, and monitoring. Comprehension also takes practice, which is gained by reading independently, by reading in pairs or groups, and by being read aloud to.

We recommend that first through third grade curricula include the following components:

- Beginning readers need explicit instruction and practice that lead to an appreciation that spoken words are made up of smaller units of sounds, familiarity with spelling-sound correspondences and common spelling conventions and their use in identifying printed words, "sight" recognition of frequent words, and independent reading, including reading

aloud. Fluency should be promoted through practice with a wide variety of well-written and engaging texts at the child's own comfortable reading level.

- Children who have started to read independently, typically second graders and above, should be encouraged to sound out and confirm the identities of visually unfamiliar words they encounter in the course of reading meaningful texts, recognizing words primarily through attention to their letter-sound relationships. Although context and pictures can be used as a tool to monitor word recognition, children should not be taught to use them to substitute for information provided by the letters in the word.
- Because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency, both of the latter should be regularly assessed in the classroom, permitting timely and effective instructional response when difficulty or delay is apparent.
- Beginning in the earliest grades, instruction should promote comprehension by actively building linguistic and conceptual knowledge in a rich variety of domains, as well as through direct instruction about comprehension strategies such as summarizing the main idea, predicting events and outcomes of upcoming text, drawing inferences, and monitoring for coherence and misunderstandings. This instruction can take place while adults read to students or when students read themselves.
- Once children learn some letters, they should be encouraged to write them, use them to begin writing words or parts of words, and use words to begin writing sentences. Instruction should be designed with the understanding that the use of invented spelling is not in conflict with teaching correct spelling. Beginning writing with invented spelling can be helpful for developing understanding of the identity and segmentation of speech sounds and sound-spelling relationships. Conventionally correct spelling should be developed through focused instruction and practice. Primary grade children should be expected to spell previously studied words and spelling patterns correctly in their final writing products. Writing should take place regularly and frequently to encourage children to become more comfortable and familiar with it.
- Throughout the early grades, time, materials, and resources should be provided with two goals: (a) to support daily independent reading of texts selected to be of particular interest for the individual student, and beneath the individual student's frustration level, in order to consolidate the student's capacity for independent reading and (b) to support daily assisted or supported reading and rereading of texts that are slightly more difficult in wording or in linguistic, rhetorical, or conceptual structure in order to promote advances in the student's capabilities.
- Throughout the early grades, schools should promote independent reading outside school by such means as daily at-home reading assignments and expectations, summer reading lists, encouraging parent involvement, and by working with community groups, including public librarians, who share this goal.

### **Promoting Literacy Development in Preschool and Kindergarten**

It is clear from research that the process of learning to read is a lengthy one that begins very early in life. Given the importance identified in the research literature of starting school motivated to read and with the prerequisite language and early literacy skills, the committee recommends that all children, especially those at risk for reading difficulties, should have access

to early childhood environments that promote language and literacy growth and that address a variety of skills that have been identified as predictors of later reading achievement. Preschools and other group care settings for young children often provide relatively impoverished language and literacy environments, in particular those available to families with limited economic resources. As ever more young children are entering group care settings pursuant to expectations that their mothers will join the work force, it becomes critical that the preschool opportunities available to lower-income families be designed in ways that support language and literacy development.

Preschool programs, even those designed specifically as interventions for children at risk of reading difficulties, should be designed to provide optimal support for cognitive, language, and social development, within this broad focus, however, ample attention should be paid to skills that are known to predict future reading achievement, especially those for which a causal role has been demonstrated. Similarly, and for the same reasons, kindergarten instruction should be designed to stimulate verbal interaction, to enrich children's vocabularies, to encourage talk about books, to provide practice with the sound structure of words, to develop knowledge about print, including the production and recognition of letters, and to generate familiarity with the basic purposes and mechanisms of reading.

Children who will probably need additional support for early language and literacy development should receive it as early as possible. Pediatricians, social workers, speech-language therapists, and other preschool practitioners should receive research-based guidelines to assist them to be alert for signs that children are having difficulties acquiring early language and literacy skills. Parents, relatives, neighbors, and friends can also play a role in identifying children who need assistance. Through adult education programs, public service media, instructional videos provided by pediatricians, and other means, parents can be informed about what skills and knowledge children should be acquiring at young ages, and about what to do and where to turn if there is concern that a child's development may be lagging behind in some respects.

### **Education and Professional Development for All Involved in Literacy Instruction**

The critical importance of the teacher in the prevention of reading difficulties must be recognized, and efforts should be made to provide all teachers with adequate knowledge about reading and the knowledge and skill to teach reading or its developmental precursors. It is imperative that teachers at all grade levels understand the course of literacy development and the role of instruction in optimizing literacy development.

Preschool teachers represent an important, and largely underutilized, resource in promoting literacy by supporting rich language and emergent literacy skills. Early childhood educators should not try to replicate the formal reading instruction provided in schools.

The preschool and primary school teacher's knowledge and experience, as well as the support provided to the teacher, are central to achieving the goal of primary prevention of reading difficulties. Each of these may vary according to where the teacher is in his or her professional development. A critical component in the preparation of pre-service teachers is supervised,

relevant, clinical experience providing ongoing guidance and feedback, so they develop the ability to integrate and apply their knowledge in practice.

Teachers need to be knowledgeable about the research foundations of reading. Collaborative support by the teacher preparation institution and the field placement is essential. A critical component for novice teachers is the support of mentors who have demonstrated records of success in teaching reading.

Professional development should not be conceived as something that ends with graduation from a teacher preparation program, nor as something that happens primarily in graduate classrooms or even during in-service activities. Rather, ongoing support from colleagues and specialists, as well as regular opportunities for self-examination and reflection, are critical components of the career-long development of excellent teachers.

### **Teaching Reading to Speakers of Other Languages**

Schools have the responsibility to accommodate the linguistic needs of students with limited proficiency in English. Precisely how to do this is difficult to prescribe, because students' abilities and needs vary greatly, as do the capacities of different communities to support their literacy development. The committee recommends the following guidelines for decision making:

- If language minority children arrive at school with no proficiency in English but speaking a language for which there are instructional guides, learning materials, and locally available proficient teachers, then these children should be taught how to read in their native language while acquiring proficiency in spoken English, and then subsequently taught to extend their skills to reading in English.
- If language minority children arrive at school with no proficiency in English but speak a language for which the above conditions cannot be met and for which there are insufficient numbers of children to justify the development of the local community to meet such conditions, the instructional priority should be to develop the children's proficiency in spoken English. Although print materials may be used to develop understanding of English speech sounds, vocabulary, and syntax, the postponement of formal reading instruction is appropriate until an adequate level of proficiency in spoken English has been achieved.

### **Ensuring Adequate Resources to Meet Children's Needs**

To be effective, schools with large numbers of children at risk for reading difficulties need rich resources--manageable class size and student-teacher ratios, high-quality instructional materials in sufficient quantity, good school libraries, and pleasant physical environments. Achieving this may require extra resources for schools that serve a disproportionate number of high-risk children.

Even in schools in which a large percentage of the students are not achieving at a satisfactory level, a well-designed classroom reading program, delivered by an experienced and competent teacher, may be successful in bringing most students to grade level or above during the primary

grades. However, achieving and sustaining radical gains is often difficult when improvements are introduced on a classroom by classroom basis. In a situation of school-wide poor performance, school restructuring should be considered as a vehicle for preventing reading difficulties. Ongoing professional development for teachers is typically a component of successful school restructuring efforts.

### **Addressing the Needs of Children with Persistent Reading Difficulties**

Even with excellent instruction in the early grades, some children fail to make satisfactory progress in reading. Such children will require supplementary services, ideally from a reading specialist who provides individual or small-group intensive instruction that is coordinated with high-quality instruction from the classroom teacher. Children who are having difficulty learning to read do not, as a rule, require qualitatively different instruction from children who are "getting it." Instead, they more often need application of the same principles by someone who can apply them expertly to individual children who are having difficulty for one reason or another.

Schools that lack or have abandoned reading specialist positions need to reexamine their needs for specialists to ensure that well-trained staff are available for intervention with children and for ongoing support to classroom teachers. Reading specialists and other specialist roles need to be defined so that two-way communication is required between specialists and classroom teachers about the needs of all children at risk of and experiencing reading difficulties. Coordination is needed at the instructional level so that intervention from specialists coordinates with and supports classroom instruction. Schools that have reading specialists as well as special educators need to coordinate the roles of these specialists. Schools need to ensure that all the specialists engaged in child study or individualized educational program (IEP) meetings for special education placement, early childhood intervention, out-of-classroom interventions, or in-classroom support are well informed about research in reading development and the prevention of reading difficulties.

Although volunteer tutors can provide valuable practice and motivational support for children learning to read, they should not be expected either to provide primary reading instruction or to instruct children with serious reading problems.

## **CONCLUSION**

Most reading difficulties can be prevented. There is much work to be done, however, that requires the aggressive deployment of the information currently available, which is distilled in this report. In addition, many questions remain unanswered concerning reading development, some of which we address in our recommendations for research. While science continues to discover more about how children learn to read and how teachers and others can help them, the knowledge currently available can equip our society to promote higher levels of literacy for large numbers of American schoolchildren. The committee's hope is that the recommendations contained in this report will provide direction for the first important steps.

<http://www2.ed.gov/inits/americanreads/index.html>