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Dyslexia at an Early Age and Its Impact on Early Socio-Emotional Development

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Introduction

Developmental dyslexia was first reported in 1896, by a British physician, W. Pringle Morgan, who described Percy F., a young student who was bright in every way, except for his inability to read.[1] Today, over a century later, we continue to see bright children who struggle to read. Dyslexia refers to an unexpected difficulty in reading; “unexpected” meaning the child appears to have present all the factors necessary for reading (intelligence, motivation and at least adequate reading instruction), and yet is still struggling to read.[2] Although referred to as an “invisible” disability, dyslexia has profound effects on a child, both through the impact of the effort reading requires and through the great cost in terms of shame and anxiety associated with not being able to read quickly or smoothly.

Subject

The key discovery related to reading is that reading is not natural, but is acquired and must be taught. Although reading has its roots in spoken language, there are profound differences

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between reading and speaking. Spoken language is natural; expose an infant to a speaking environment and that child will learn to speak on his/her own. Reading is acquired and must be taught. To read, a child must learn how to connect the abstract lines and circles (letters) on a page to the sounds of spoken language. This process has two components. First, the child must develop an awareness that spoken words are comprised of elemental particles called phonemes; for example, the spoken word “mat” has three underlying phonemes (“mmmm”-“aaaa”-“t”). This ability to notice and identify the individual sounds of spoken words is called *phonemic awareness.* Next, the child learns how to link letters to these individual sounds, a process called *phonics*. This process begins with a child learning the names and shapes of the individual letters, recognizing them and then learning how to print the letters. As the letters are mastered, the child begins to learn how letters represent speech sounds and then how to use this knowledge to decode or sound out individual words. Much of this activity involving speech sounds and letters begins in the preschool period, when a solid foundation for reading is developed.

Simple rhyming games help children as young as three years old begin to appreciate that spoken words come apart; to know that mat, hat and cat rhyme, a child must be able to focus on only a part (the rhyme) - the “at” in this series of words. Progressively, preschool children go on to compare sounds in different words and then learn to “work on words,” pulling them apart (segmenting), pushing them together (blending), and moving the parts within a word around.[3] Simple activities such as clapping to the number of sounds (syllables) in a spoken word help children learn how to pull apart words. Currently, there are several commercial programs that help to teach these early skills to young children.[4]

Problems

Reading difficulties are not only highly prevalent (estimates range from 25% to 40%);[5-7] they are also persistent.[3,8-9] This is in contrast to the widely held, but incorrect, notion that reading problems in young children represent a developmental lag that will be outgrown. Knowledge that early reading problems persist adds a sense of urgency to providing young children with effective reading instruction. Seventy-five percent of children who struggle to read in third grade will continue to struggle throughout school.[3,7]

Research Context

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A range of studies, both in the laboratory and in the classroom, have examined the ”what” and the “how” of teaching reading, that is, the influence of providing instruction in the specific components of the reading process and how they are most effectively taught. In particular, these studies have served to address questions related to two competing hypotheses of teaching children to read. The first hypothesis posits that children best learn to read naturally by learning to construct meaning from print,[10] and the components of reading are learned implicitly. The second suggests that the major components of the reading process need to be taught by methods that are explicit and provide systematic instruction about how letters relate to sounds.

Key Research Questions

Reflecting the prevalence and persistence of reading problems, the critical question is: what are the most effective methods and approaches for providing reading instruction to young children to help them become skilled readers?

Recent Research Results

In 1998, the U.S. Congress, concerned about the high prevalence of reading difficulties, mandated that a National Reading Panel be appointed and review the existing reading research literature to determine the most effective methods to teach reading to young children. Two years later, the Panel reported its findings.[11] To learn to read, children must be taught five elements of reading: 1) phonemic awareness; 2) phonics; 3) fluency (the ability to read not only accurately, but rapidly and with good understanding); 4) vocabulary; and 5) reading comprehension. The Panel reported on the most effective methods for teaching each of these components; furthermore, the evidence indicated that children learn best when they are taught explicitly in an organized, systematic fashion. The findings of the Panel represent a landmark in the development of “evidence-based education,” where instruction is based on rigorous research findings rather than anecdotal information or philosophical leanings. Intervention studies have confirmed the significant impact of such instruction.[12,13] With the advent of new brain imaging techniques, we can now appreciate the impact of instruction from a neurobiological perspective. Such brain imaging studies have revealed differences in brain activation patterns between good and poor readers; good readers activate three systems on the left side of the brain, while struggling readers show diminished activation in two of these areas located in the back of the left side of the brain.[14,15] Importantly, these imaging studies demonstrate that when young children are taught with such “evidence-based” methods, the neural systems within their brains

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are able to take advantage of the instruction, reorganizing to resemble the brain activation patterns observed in children who are good readers.[16] This study demonstrated beyond a doubt that teaching matters. Recent evidence suggests both genetic[17] and environmental influences in the development of dyslexia.

Conclusions

Dyslexia is both highly prevalent and persistent. As children mature, they increasingly depend on print to gain knowledge. While beginning readers learn more from what they hear than from what they see, by seventh grade the balance tips to favour reading so that by college, most of students' knowledge and vocabulary are gained from reading.[18] Children learn about 3,000 new words a year; this means that a dyslexic child who is not identified and taught by effective methods until third grade is already close to 10,000 words behind his peers,[19,20] and must not only catch up, but keep up as well. Converging evidence indicates that reading is acquired and the critical difficulty reflects a problem in phonological processing.[21] A new evidence-based approach to teaching children to read is now emerging; behavioural as well as neurobiological studies indicate the effectiveness of such approaches, particularly in the early school years. Studies indicate that reading difficulties are multifactorial, influenced by both inherent (genetic) and experiential factors. By providing help early, many of the associated problems that affect self-esteem and emotional well-being may be avoided.

Implications

The findings that reading problems persist and that evidence-based approaches are effective in remediating these difficulties in young children have significant implications for policies affecting the education of young children. In addition, the knowledge that the ability to notice and manipulate the sounds of spoken language as well as letter knowledge are key to developing a foundation for reading means that such skills and awareness can be taught to young children, even before they are expected to read. And there is now accumulating evidence that these early reading skills can be taught to young children in ways that are both enjoyable and effective. Children who enter formal schooling prepared to learn to read are at a distinct advantage over those who do not possess these skills. Boys and girls who come from disadvantaged backgrounds with less exposure to language often do not have the vocabulary skills or background knowledge necessary to develop strong reading comprehension skills and are especially at risk for developing reading difficulties. Such children benefit from very early exposure to vocabulary

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development and to learning about the world around them. How this is best accomplished remains an open question. What is not open to question is that preparing young children to become readers has salutary effects on their socio-emotional development as well as their schooling.

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