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Dyslexia

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In the United States 80% of children identified as having a learning disability have a difficulty learning how to read commonly known as dyslexia. Unfortunately, there remains widespread misunderstanding as to what dyslexia is among parents and professionals.

G. Reid Lyon, Ph.D. head of the branch of the National Institutes of Child Health and Human Development responsible for researching learning disabilities has said, "If you don't know the cause you get instructional paradigms built on faulty assumptions." The Center for Effective Collaboration and Practice in 1998 took the position that one must "look beyond the overt topography of behavior, and focus, instead, upon identifying biological, social, affective, and environmental factors that initiate, sustain, or end behavior."

Sometimes the cause for behavior is counterintuitive. The following is an example that helps explain the counterintuitive nature of an understanding of the cause of dyslexia.

1. Read the following sentence aloud.

FINISHED FILES ARE THE RESULT OF YEARS OF SCIENTIFIC STUDY COMBINED WITH THE EXPERIENCE OF YEARS.

2. Before going on, go back and count how many Fs appear in the above sentence.

3. The answer to your question as to why I am asking you to do this is in the endnote below.¹



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Most of the world assumes that dyslexia is a visual problem involving such things as reversals, transpositions, words "dancing" on the page, and the like. Hence, there is a long history in the reading field of worthless "instructional paradigms built on faulty assumptions."

Louisa P. Moats has said, "It is not self evident that phonological processing underlies reading disability."

Jeanne S. Chall said:

"The reading gaps of the deaf as compared to the blind seem almost a contradiction. Common sense tells us that the deaf would be the better readers because they can see the print. Yet the blind are the better readers. This happens because reading is closer to hearing than to seeing."

On August 3, 2002, a scientific consensus meeting was held in Washington, D.C., to address the need to update the research definition of Dyslexia adopted by NICHD in 1994. This group came to consensus on the following definition:

Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.

The various concepts in the definition can be broken down as follows:

1. "Dyslexia is a specific learning disability . . ."

This definition recognizes the existence of other specific learning disabilities and its place on the taxonomic hierarchy of the concept learning disability.

2. " . . . that is neurobiological in origin."

The deficit is cognitive, intrinsic to the individual, and occurs at the level of neuronal activity.

3. "It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities."

Prior definitions focused on decoding as the performance deficit caused by a cognitive deficit in phonological processing and spelling and fluency problems were considered derivative to the decoding deficit. This definition recognizes fluency, automaticity, and spelling along with decoding as being directly influenced by the cognitive deficit involved. As a result, the definition has greater relevance to written



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languages that are more phonologically regular and transparent, e.g., Italian, or that are non-alphabetic, e.g., Chinese.

4. "These difficulties typically result from a deficit in the phonological component of language. . . "

The core cognitive deficit of dyslexia resides in the phonological system.

5. ". . . that is often unexpected in relation to other cognitive abilities . . ."

Consistent with the definition of learning disabilities, the cognitive deficit involved exists in the presence of cognitive assets and is not expected as the result of a generalized developmental disability. The factor distinguishing a Learning Disability from a Developmental Disability is not the character of the deficit, which may be similar, but the existence of relative cognitive strengths. It is critical to recognize the relative nature of the comparison of deficit to assets. In other words, there is nothing in this definition that would preclude an individual with a generalized developmental disability from also being dyslexic if his cognitive assets were relatively superior to his "deficit in the phonological component of language."

6. "and the provision of effective classroom instruction."

Individuals who can't read due solely to poor instruction (curriculum casualties) are not dyslexic.

7. "Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge."

The primary goal of reading is to comprehend the meaning of text. The dyslexic individual does not, without comorbid weakness, have a cognitive deficit that directly impacts the ability to comprehend. However, if you can't decode a word - you don't have access to its meaning and if you don't read - the vocabulary and background knowledge necessary for efficient comprehension does not develop. Therefore, comprehension suffers indirectly. Almost like the family that suffers when the head of the family is injured and can't work.



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Dyslexia in a nutshell:

- Cognitive deficit = phonological
- Performance deficit = decoding, fluency, spelling
- Manifest Disability = reading
- Derivative impact = comprehension

1. There are 6 F's. All written languages are a code for spoken language. In an alphabetic language letters and letter combinations represent phonemes, the smallest unit of sound in the spoken language being encoded. Good readers automatically make symbol to sound and sound to symbol correspondence. In this case, the instruction to count F's was automatically interpreted by the brain to mean the unvoiced /f/ sound that most often corresponds to the f symbol and an accomplished reader overlooks the voiced /v/ sound in the word "of." This is one test that good readers most often fail and non-readers always get correct.

2. Participants: Susan Brady, University of Rhode Island; Hugh Catts, University of Kansas; Emerson Dickman, Secretary IDA, Project Leader; Guinevere Eden, Georgetown University; Jack Fletcher, University of Texas Medical School, Houston; Jeff Gilger, California State University/LA; G. Reid Lyon, Chief, Child Development and Behavior Branch, NICHD; Bennett Shaywitz, Yale University, Discussion Leader definition of "dyslexia;" Sally Shaywitz, Yale University; and Harley Tomey, President, IDA.

3. Toward a Definition of Dyslexia

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