



Essentials

of **Dyslexia Assessment and Intervention**

- A practical guide to understanding, assessing, and helping individuals who have dyslexia
- Expert advice and tips throughout
- Conveniently formatted for rapid reference

Nancy Mather

Barbara J. Wendling

Alan S. Kaufman & Nadeen L. Kaufman, *Series Editors*

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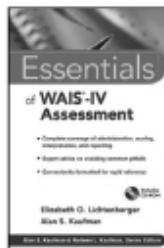
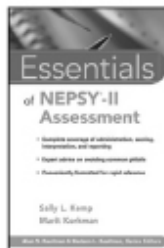
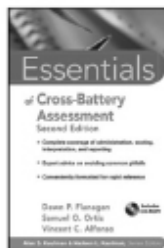
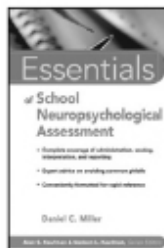
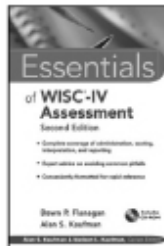
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of Dyslexia Assessment
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*I dedicate this book to my wonderful nieces and nephew:
Kristen, Nancy, Charlie, Joanna, and Emily. You are the
best!!!*

—Aunt Nancy

*In loving memory of my father and in honor of my mother.
Thank you for giving me life!*

—Barbara

There are many poor readers among very bright children, who, because they are poor readers, are considered less keen than their class-mates. This book should really be dedicated to the thousands of bright children thus misjudged.

—Stanger & Donohue, 1937, p. 43

SERIES PREFACE

In the *Essentials of Psychological Assessment* series, we have attempted to provide the reader with books that will deliver key practical information in the most efficient and accessible style. The series features instruments in a variety of domains, such as cognition, personality, education, and neuropsychology. For the experienced clinician, books in the series will offer a concise yet thorough way to master utilization of the continuously evolving supply of new and revised instruments, as well as a convenient method for keeping up to date on the tried-and-true measures. The novice will find here a prioritized assembly of all the information and techniques that must be at one's fingertips to begin the complicated process of individual psychological diagnosis.

Wherever feasible, visual shortcuts to highlight key points are utilized alongside systematic, step-by-step guidelines. Chapters are focused and succinct. Topics are targeted for an easy understanding of the essentials of administration, scoring, interpretation, and clinical application. Theory and research are continually woven into the fabric of each book, but always to enhance clinical inference, never to sidetrack or overwhelm. We have long been advocates of "intelligent" testing—the notion that a profile of test scores is meaningless unless it is brought to life by the clinical observations and astute detective work of knowledgeable examiners. Test profiles must be used to make a difference in the child's or adult's life, or why bother to test? We want this series to help our readers become the best intelligent testers they can be.

Essentials of Dyslexia: Assessment and Intervention is designed for assessment professionals, educators, and parents who are interested in understanding, assessing, and helping individuals who have dyslexia. This new *Essentials* book meets the demands of current educational reforms.

Instead of focusing on the use and interpretation of assessment instruments, the focus is squarely upon the most common type of learning disability: dyslexia. In order to diagnose a disability, one must first understand the nature of the disability. The authors of *Essentials of Dyslexia: Assessment and Intervention*, world-renowned intervention experts Nancy Mather and Barbara Wendling have created a readable resource that makes current research accessible to a variety of audiences. A glossary is included to assist readers who may be unfamiliar with some of the terms.

Each chapter focuses on a different aspect of dyslexia, beginning with helping the reader to understand what dyslexia really is. Subsequent chapters deal with the history of the disorder; research related to the brain, genetics, and environment; assessment of the cognitive and linguistic correlates of dyslexia; assessment and instruction of reading and spelling skills; technology applications; and dyslexia in other languages. In addition to all of the instructional strategies contained within the chapters, a detailed appendix includes summaries of evidence-based commercial programs for the treatment of dyslexia. This book demonstrates how targeted assessments resulting in an accurate diagnosis can lead to the most appropriate interventions for the many students who struggle to learn to read and spell.

Alan S. Kaufman, PhD, and Nadeen L. Kaufman, EdD, Series Editors

Yale University School of Medicine

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Chapter One

UNDERSTANDING DYSLEXIA

In the first half of this century the story of dyslexia has been one of decline and fall; in the second half it has culminated in a spectacular rise. From being a rather dubious term, dyslexia has blossomed into a glamorous topic; and rightly so, for with a prevalence of around 5% the condition is remarkably common.

—Frith, 1999, p. 192

WHAT IS DYSLEXIA?

Steven, a second-grade student, knows only four letters of the alphabet. His teachers have tried to help him memorize letters and their sounds, but he always seems to forget what he has learned the next day. Lately, he has started to say that he is dumb and that's the reason he can't learn to read and spell.

Maria is in middle school. She is often confused by letters that have similar sounds, such as spelling *every* as *efry*. These subtle sound confusions are also apparent in her speech when she pronounces certain multisyllabic words, saying "puh-si-fic" when she means to say "specific." She sometimes confuses words that have similar sounds. Even though she has a good vocabulary, she may say "that book really memorized me" when she really meant "mesmerized." At times, she avoids saying certain words because she is unsure about their pronunciation.

Jeff is a junior in high school. He recently took the SATs and only finished half of each section. He said he knew how to do the rest of the questions, but he didn't have enough time to attempt them. He wonders why his peers seem to always have plenty of time when reading takes him so long.

Mr. Brogan has just attended his fifth-grade son's Individualized Education Program (IEP) meeting at the local elementary school. His son, Matthew, is having great difficulty learning to read and spell. Even though he has an adapted spelling list, Matthew still forgets how to spell the words when the weekly spelling test is given. He spells words just the way they sound, not the way they look, such as spelling *they* as *thay*. When Mr. Brogan hears Matthew's fifth-grade teacher, the special education teacher, and the school psychologist describing his son's severe reading and spelling difficulties, he immediately thinks: "That was just like me."

What do these four people who struggle with certain aspects of literacy have in common? They all have dyslexia. Although this seems to be an accurate label to explain difficulty in learning to read and spell, confusion exists regarding what having dyslexia actually means.

WHAT DYSLEXIA IS AND IS NOT

What is dyslexia? This simple question is asked every day by both parents and teachers as they struggle to understand why a child is not learning to read with ease. It is a question asked by Matthew who wonders why reading and spelling are so difficult. It is also a question asked by older students like Jeff as they attempt to determine why reading is so effortful and why they read so much more slowly than their peers. Although Mr. Brogan was well aware that he had always struggled with reading, when he hears the description of Matthew's difficulties and that the school

team thinks that Matthew has dyslexia, he realizes that he too has dyslexia that was never diagnosed. He now understands the reasons why he never reads for pleasure and why the stack of books that others have suggested he read sits undisturbed by his bedside.

Over the last century, researchers who are concerned with the diagnosis and treatment of dyslexia have attempted to answer the following three questions (Turner & Greaney, 2010, p. 229):

1. What is it?
2. What causes it?
3. What can be done about it?

The goal of this book is to attempt to answer these three questions in a straightforward way so that dyslexia can be easily understood by educational professionals and parents alike, as well as by individuals who have dyslexia. Although we do not yet have conclusive answers to the questions above, fortunately, over the last century, researchers, medical professionals, and practitioners have learned a lot about dyslexia, as well as how this disorder affects reading and spelling development.

DON'T FORGET

Dyslexia is a neurobiological disorder that affects the development of both decoding (written word pronunciation) and encoding (spelling).

The word *dyslexia* comes from the Greek words $\delta\upsilon\sigma$ - dys- (“impaired”) and *lexis* (“word”). Although numerous definitions exist, dyslexia can be most simply defined as a neurobiological disorder that causes a marked impairment in the development of basic reading and spelling skills. More specifically, dyslexia is manifested in deficiencies in word-level reading skills; it affects decoding (pronouncing printed words) and encoding (spelling words; Vellutino & Fletcher,

2007). Thus, dyslexia is a complex cognitive disorder of neurobiological origin that affects the development of literacy (Shastry, 2007; Vellutino & Fletcher, 2007).

Both parents and professionals are often confused regarding the difference between a specific learning disability (SLD) and dyslexia. They often wonder if a student is diagnosed with an SLD in reading, does this mean that he has dyslexia? The answer to this question is: Maybe. Essentially, SLD is a broader category that encompasses several different types of disorders, including dyslexia, the most common and carefully studied type of SLD (Shastry, 2007). In addition, the terms *dyslexia*, *specific developmental dyslexia*, *specific reading disability*, and *reading disability* are often used interchangeably to describe this neurodevelopmental disorder (DeFries, Singer, Foch, & Lewitter, 1978; Vellutino & Fletcher, 2007).

In some school districts, school psychologists and special and general educators do not use the word *dyslexia* when describing students with severe reading disabilities. In fact, the term *dyslexia* has fallen in and out of popularity from the early 1930s (Rooney, 1995). Some states do not use the word “dyslexia” in their state regulations, whereas a few, such as Texas and Arkansas, have specific laws that must be adhered to regarding both assessment and service delivery to school children with dyslexia. As of 2018, 42 states had specific statewide dyslexia laws. One state, Alaska, has a law that is pending. The seven states that do not have a dyslexia law include Idaho, Michigan, Montana, North Dakota, South Dakota, Wisconsin, and Vermont. Although South Dakota does not have a dyslexia law at this time, it has developed a statewide dyslexia handbook. Because of widespread legislation and increased public awareness, in the coming years, we are likely to hear the term “dyslexia” being used more often.

The addition of “dyslexia” as a separate disorder was considered in the proposed text revisions of the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5), the guidelines of the American Psychiatric Association that are widely used by psychologists and mental health professionals. The final guidelines, however, did not change the category of Reading Disorder to Dyslexia, but instead subsumed it under Specific Learning Disorder, a diagnosis made when deficits exist in an individual’s abilities to perceive or process information accurately or efficiently. Typically with dyslexia, the impairments would be seen in word reading accuracy, reading rate and fluency, and spelling accuracy. Rapid Reference 1.1 provides a review of DSM-5 criteria for Specific Learning Disorder.

Rapid Reference 1.1

DSM-5 Criteria for Specific Learning Disorder

- Specific Learning Disorders fall under the broad category of Neurodevelopmental Disorders and can occur in individuals who are intellectually gifted.
- The Specific Learning Disorder can be in reading, written expression, or mathematics and is manifested during the years of formal schooling.
- If the impairment is in reading, the clinician would specify if the problem affects word reading accuracy, rate or fluency, or reading comprehension.
- If the impairment is in writing, the clinician would specify if the problem affects spelling accuracy, grammar and punctuation accuracy, or clarity and organization of written expression.
- If the impairment is in mathematics, the clinician would specify if the problem affects number sense, memorization of arithmetic facts, accurate or fluent calculation, or accurate math reasoning.
- The current level of severity is specified: mild, moderate, or severe.

SUBTYPES OF READING PROBLEMS AND DYSLEXIA

Not all types of reading problems are considered to be dyslexia. Gough and Tunmer (1986) developed a model that they called the simple view of reading (SVR). This model has two major components: decoding (reading words) (D) and oral language or listening comprehension (LC), which results in this simple equation: Reading Comprehension (RC) = D × LC. This equation suggests that reading performance is influenced by both word recognition skill (D) and listening comprehension or the ability to understand what is being read orally (LC). Aaron, Joshi, and Quatroche (2008) have modified the formula slightly to $RC = WR \times LC$, where RC is reading comprehension, WR = word recognition, and LC = Listening Comprehension. The only difference in this modification is that word recognition (WR) replaces decoding (D).

The SVR model then predicts that three different types of poor readers exist: (1) those who can understand the text when it is read aloud, but have trouble reading the words (dyslexia); (2) those who can read words accurately but do not comprehend what they read (poor comprehenders); and (3) those who have trouble with both (mixed reading disability). Readers with mixed reading disability often have oral language impairments or limited access to linguistic and experiential opportunities during their preschool years (Tunmer & Greaney, 2010). Although many poor readers have poor comprehension or a mixed disability that requires interventions directed toward improving both oral language and reading, the focus of the book is on readers with dyslexia who have listening comprehension and verbal abilities that are often higher than their word reading and spelling skills.

Throughout the century, varying subtypes of dyslexia have been described. In the 1930s, Orton described both word blindness (trouble remembering word images) and word deafness (trouble with word sounds; Orton, 1937). Currently, the most common subtypes of dyslexia identified by research include phonological, surface, and deep. Other terms used to describe dyslexia subtypes include auditory (dysphonetic) or visual (dyseidetic; Boder, 1971; Johnson & Myklebust, 1967), that are similar to phonological and surface dyslexia, respectively.

In the 1970s, the theory of a dual route model of reading was proposed. This theory specified that two interactive, yet distinctive pathways exist: a direct, lexical route for automatic recognition of high-frequency words and an indirect, sublexical phonological decoding route for pronunciation of unfamiliar words (Coltheart, 1978, 2007). A weakness in either pathway could affect the development of reading skills and result in two different subtypes of dyslexia: phonological dyslexia (i.e., difficulty with nonword reading) and surface dyslexia (i.e., difficulty with irregular word reading; Castles & Coltheart, 1993; Coltheart, 2007). An individual with phonological dyslexia experiences trouble with phonological awareness tasks and applying phonics, whereas an individual with surface dyslexia is able to read phonically regular nonwords but experiences greater difficulty with exception words or words with an irregular element that do not have regular, predictable grapheme-phoneme correspondences (e.g., *once*). The two critical indicators of surface dyslexia are the (1) regularization of the spellings of words with irregular elements (e.g., they as *thay*) and (2) poorer performance reading irregular words than phonically regular words. Although a difference between nonword reading and irregular word reading and spelling is insufficient to identify different subtypes, these

differences in performance may be indicative of different etiologies of dyslexia.

DON'T FORGET

A difference between the ability to read and spell nonwords and the ability to read and spell irregular words may have clinical significance and be indicative of different subtypes of dyslexia.

Impairments in nonword reading can range from mild to a complete inability to read nonwords. Deep dyslexia is a term that has been used to describe a severe impairment in nonword reading. Deep dyslexia is accompanied by other types of word reading errors, including: semantic errors (e.g., gate is read as fence), visual errors (e.g., house is read as horse), and derivational errors (e.g., mountain is read as mountainous; Coltheart, Patterson, & Marshall, 1980). Deep dyslexia is often described as an acquired reading disorder due to stroke or other brain injury. These individuals seem unable to use letter-sound relationships to decode words. They have difficulty reading function words (e.g., as, the, so), infrequent words, and nonwords, and make semantic substitutions and morphological errors (Rastle, Tyler, & Marslen-Wilson, 2006). Individuals with phonological dyslexia often exhibit symptoms of deep dyslexia, leading some researchers to state that both types of dyslexia are simply different points on a continuum of severity (Crisp, Howard, & Lambon Ralph, 2011; Crisp & Lambon Ralph, 2006; Freidman, 1996).

DON'T FORGET

Dyslexia is not a primary problem in reading comprehension, but rather a problem in reading and spelling words.

CHARACTERISTICS OF DYSLEXIA