

CHAPTER 1

Understanding Dyslexia

WHAT WOULD YOU DO?

Valentina is a rising eighth grader who has received Tier 2 intervention services since first grade. Reading concerns were first identified in kindergarten, when Valentina had difficulty learning her letter names and sounds. Teacher report card comments indicated that Valentina needed more practice with reading at home despite Valentina's mother reading to her every night and practicing letters and sounds with flash cards. Valentina's mother made sure to do this, as she had difficulty reading as a child herself and received special education services and wanted to avoid the same plight for her daughter. In first grade, Valentina was flagged for extra reading support and began receiving pull-out reading instruction from an Academic Intervention Services (AIS) reading teacher. Valentina continued to struggle with reading throughout elementary school and remained in AIS reading. Although she was reported to have strong background knowledge and actively participated in classroom discussions, her mother reported a general dislike of reading and difficulty with sounding out words. Valentina's mother was repeatedly told that Valentina was just below grade level and would eventually catch up. Upon advancing to middle school, AIS reading services consisted of a reading lab in which a computer-based reading intervention program was delivered. The program targeted reading fluency, even though Valentina's mother still had concerns about her ability to read words, especially multisyllabic terms. Valentina is now about to start her eighth-grade year, and her mother is concerned about her difficulty with reading comprehension, as Valentina is currently struggling with both sounding out and understanding what she is reading. Additionally, Valentina, who used to love school as a child, has shown less enthusiasm about school and no longer reads for pleasure. She has described herself as "stupid" and feels that her friends are much smarter than she is because they read so much faster and earn higher grades than she does.

QUESTIONS:

- What risk factors are present?
- How should those be addressed?
- What would you do differently if you worked at Valentina's middle school? Elementary school?

INTRODUCTION

Reading has the power to transform lives. As a school psychologist—or other educator responsible for conducting effective dyslexia assessments—it is critical that you understand the most important findings from scientific research on reading and how they provide an essential framework for understanding, identifying, and addressing the challenges that students with reading difficulties face. Our goal is to clarify what dyslexia is and offer a comprehensive discussion of the skills that are essential for effective reading. This knowledge is important when considering what assessment tools should be used to drive a dyslexia assessment and how to interpret those findings to produce salient and effective recommendations for students with dyslexia. As two school psychologists with over 50 years of combined experience in schools or school-related settings, we have encountered far too many students who missed what could have been critical instruction, leading to long-standing impairments in academic, behavioral, and social–emotional functioning. In addition, we have worked in private practice for a combined 20 years. To our dismay, evaluations for dyslexia comprise the vast majority of the caseload in our private practice. In our experience, most of these students could have been easily identified and helped by their school systems much sooner. Our goal in writing this book is to ensure that educators and school psychologists have the knowledge they need to help students with reading difficulties so that all students have access to timely, effective identification and intervention.

DYSLEXIA DEFINITION AND HISTORY

Let's start by delving into the history and definitions of dyslexia. The lack of clarity and consensus on the term dyslexia is likely one of the contributing factors to the high rate of private evaluations sought for these students. In examining the etiological origins of the term *dyslexia*, the *dys* comes from classical Greek and means “bad” or “difficult” (S. E. Shaywitz & Shaywitz, 2020a), similar to its use in words such as *dysfluency*, which describes stuttering, or *dysfunction*, which refers to something going wrong. *Lexia*, on the other hand, is derived from the Greek word *lexis*, meaning “word,” “phrase,” or “speech” (Diggle et al., 2021; www.merriam-webster.com/dictionary/lexia). Literally translated, then, the term *dyslexia* means a difficulty with words. However, it has come to specifically refer to difficulty with *written* words, particularly reading, but as we know, it also commonly involves difficulty with spelling words. Although this seems rather straightforward, there is much controversy over the definition, prevalence rates, and criteria used to identify dyslexia. This chapter is intended to address the first two of these components, whereas later chapters will target assessment tools for diagnosing dyslexia as well as remediation strategies. As part of this chapter, we will also address some of the common misunderstandings associated with dyslexia in relation to both the term itself and its use within the school setting.

First called “word blindness” by Adolph Kussmaul (1877) and also called “strephosymbolia”¹ (Orton, 1928), the term *dyslexia* is thought to trace back to 1887 and is

¹An interesting note for the word nerds among us, *strephos* translates to “turned,” thus likely referring to letter reversals.

credited to Dr. Rudolf Berlin, an ophthalmologist and medical doctor (Kirby & Snowling, 2022).

In 1896, physician W. Pringle Morgan described in the *British Medical Journal* a case of Percy F., a 14-year-old who presented with word blindness (B. A. Shaywitz & Shaywitz, 2020). Throughout the 1900s, new cases were reported and there was debate regarding the defining characteristics and whether dyslexia existed separately from other reading disabilities. This culminated in a joint effort of the International Dyslexia Association (IDA), the National Center for Learning Disabilities (NCLD), and the National Institute of Child Health and Human Development resulting in the Dyslexia Consensus Project (Dickman et al., 2002). They produced a definition that was widely accepted and used for more than 20 years. Recently, to remain current with the science, a new definition was developed after a rigorous process and adopted by the IDA Board of Directors in October 2025.

Dyslexia is a specific learning disability characterized by difficulties in word reading and/or spelling that involve accuracy, speed, or both and vary depending on the orthography. These difficulties occur along a continuum of severity and persist even with instruction that is effective for the individual's peers. The causes of dyslexia are complex and involve combinations of genetic, neurobiological, and environmental influences that interact throughout development. Underlying difficulties with phonological and morphological processing are common but not universal, and early oral language weaknesses often foreshadow literacy challenges. Secondary consequences include reading comprehension problems and reduced reading and writing experience that can impede growth in language, knowledge, written expression, and overall academic achievement. Psychological well-being and employment opportunities also may be affected. Although identification and targeted instruction are important at any age, language and literacy support before and during the early years of education is particularly effective (IDA, 2025).

According to the definition, dyslexia is a specific learning disability that can affect the accuracy and speed of word reading, spelling, or both. The notation, “vary depending on the orthography,” reflects the fact that dyslexia manifests somewhat differently across languages. In more transparent orthographies like Spanish or Italian, where letter–sound correspondences are more consistent, difficulties with reading fluency tend to be more prominent than are those with accuracy (Seymour et al., 2003). In English, with its more opaque and irregular orthography, both accuracy and fluency deficits are common (Share, 2008; Ziegler & Goswami, 2005). These problems often result from difficulties with phonological and morphological processing, making dyslexia a language-based learning disability and not a visual disability as one might intuitively assume. It is important to note that the definition specifies that morphological and phonological difficulties are “not universal,” acknowledging the heterogeneity in dyslexia profiles. Additionally, early oral language weaknesses are highlighted, suggesting that difficulties with phonological awareness, letter–sound learning, or vocabulary development in preschool and kindergarten may be early indicators of dyslexia risk. Note, too, that there are often concomitant cognitive difficulties in students with dyslexia. For example, these students often have deficits in working memory and rapid automatic naming (Araújo et al., 2015; Norton, 2020; Norton & Wolf, 2012; Swanson et al., 2009), both of which may contribute to weaker performances on overall measures of cognitive ability.

Some additional elements of this definition, some new, some just more nuanced, warrant further discussion. First, the difficulties “occur along a continuum of severity.” This means that dyslexia is not a binary condition that one either “has” or “doesn’t have” but rather one that occurs on a spectrum from mild to profound. The continuum nature has important implications for identification: Students cannot be classified based solely on whether they fall above or below an arbitrary cutoff score (such as the 25th percentile). Rather, practitioners must consider the degree of impairment, the student’s response to evidence-based instruction, and the functional effects of the difficulties.

The definition also addresses causation, taking a multifactorial view indicating that dyslexia often runs in families (genetic component), involves differences in how the brain processes written language (neurobiological component), and is influenced by variables such as quality of instruction and other environmental factors. Importantly, these factors interact: Genes are not destiny, and high-quality evidence-based instruction can make a profound difference, even for students with strong genetic risk. Additionally, although environmental factors are important, this is not to say that reading to your child will prevent dyslexia.

The concept of difficulties that “persist even with instruction that is effective for the individual’s peers” is critical for helping to distinguish dyslexia from reading difficulties that stem primarily from inconsistent or inadequate instruction. This persistence is an attempt to distinguish students with dyslexia from those whose difficulties would resolve with consistent, quality, evidence-based teaching. For outside evaluators who may not be privy to the educational curricula of school districts, this can be challenging to evaluate. One can examine attendance records to ensure that the student is attending school on a regular basis and is not missing instruction, particularly reading instruction. However, this alone does not indicate whether the type of instruction the student has received is effective or evidence based. It is recommended that, whenever possible, information about classroom reading and intervention curricula is gathered to ensure that they have been shown in research to be effective and are systematic, sequential, and explicit. More discussion on appropriate instruction will be provided in Chapter 4, but it is critical to examine both the frequency and quality of instruction and/or intervention that a student has received. This is even more important in the aftermath of the COVID-19 pandemic, when many schools were shut down for extended periods. Data from the National Assessment of Educational Progress (NAEP, 2024) assessment indicate that here in the United States, we are not doing well in meeting the literacy needs of our students. Most recent data from the NAEP indicate that, as a nation, our reading scores are declining. On the 2024 assessment, average reading scores had dropped at both the fourth and eighth grade levels from 2019 and 2022. Thirty-one percent of fourth graders scored at or above NAEP proficiency levels versus 35 and 33% in 2019 and 2022, respectively. Similarly, 30% of eighth graders scored at or above NAEP proficiency levels, which is lower than the 34 and 31% performances attained in 2019 and 2022, respectively. Findings indicate that we have a nationwide literacy problem, with less than one-third of fourth- and eighth-grade students reading at proficient levels.

Let’s examine the secondary consequences that are also described within the IDA definition of dyslexia. The definition stipulates that “secondary consequences include reading comprehension problems and reduced reading and writing experience.” It’s important to

note that these are typically secondary to the word reading difficulties rather than primary language comprehension deficits. Concerning comprehension, students have only so much working memory, and if they are devoting all their cognitive resources to sounding out the words, this leaves less available for understanding what they are reading. The definition also mentions reduced reading experiences of poor readers. Why is this? Many factors come into play, but a major one is the amount of time that it takes poor readers to read. Slower readers have fewer opportunities to respond within the same period than faster readers have. Additionally, poor readers feel less successful and therefore may be more reluctant readers. We have interviewed many students with dyslexia who overwhelmingly say that they do not read unless required. Reading is not “fun” for them. We understand this, too. As poor golfers with limited motivation to improve or time to devote to lessons or practice, both of us tend to avoid the sport. However, reading cannot be avoided in the school setting if one hopes to achieve academically.

How does reduced reading lead to weaker vocabulary and background knowledge? This phenomenon can be explained by a concept known as the Matthew effect. According to the *Matthew Effect* (Stanovich, 1986), those who begin reading early are exposed to far greater vocabulary and literary terms than those who are late readers, and it can be very challenging to “close the gap” for students who struggle with learning how to read. So, the biblical reference goes, the rich get richer, and the poor get poorer. Back in the context of reading, early readers read and learn more and later, poor readers less. Importantly, this reduced opportunity to learn things from print can also influence the verbal and vocabulary skills of poor readers, affecting verbal IQ scores (Stanovich, 1986). The definition acknowledges that these “secondary consequences . . . can impede growth in language, knowledge, written expression, and overall academic achievement,” highlighting the cascading effects of untreated dyslexia.

Secondary outcomes also extend beyond difficulties with reading. In her book *Reader, Come Home*, reading researcher Mary Ann Wolf addresses how those who read less also experience less perspective taking. This makes sense, as when reading books, particularly fiction, you are putting yourself in someone else’s shoes and visualizing situations from another’s perspective. According to Wolf, less practice with reading results in fewer opportunities for learning from diverse views and potentially less empathy toward others. This could ultimately affect social interactions with others (Wolf, 2018). The new definition also acknowledges that “psychological well-being and employment opportunities . . . may be affected,” recognizing that dyslexia affects more than just academic achievement. Students with dyslexia often experience frustration, anxiety, and reduced self-efficacy related to their struggles with reading and writing, psychological consequences that can exacerbate difficulties with school performance, social relationships, and long-term career outcomes.

Finally, the definition highlights the effectiveness of early intervention, reflecting the research on neuroplasticity and the developing brain (Shaywitz et al., 2004) showing that early intervention can lead to neural reorganization and development of more typical reading pathways. However, the phrase “important at any age” is equally crucial. We should never adopt a “too late to help” mentality, as older students and adults can make significant gains with appropriate, intensive intervention.

PREVALENCE RATES OF DYSLEXIA

Dyslexia is found throughout the world and across languages (Erbeli, et al., 2022). Dyslexia has been called the most common type of reading disability, but it is important to recognize, as discussed above, that the severity of the condition can vary. According to the IDA (2020), approximately 85% of students identified with a learning disability have a primary impairment in reading. Students with dyslexia, if deemed eligible for special education services, would receive services under the classification of a specific learning disability in basic reading, reading fluency, and/or spelling. It is also possible, however, for students to not require specialized instruction, even with a diagnosis of dyslexia. Prevalence rates in the general public vary significantly depending on the criteria used to establish dyslexia. These can consist of cutoff scores, discrepancy from cognitive abilities, and poor performance relative to same-aged peers or to their own performance in other subject areas (Wagner et al., 2020). The IDA (2020) proposed that 15–20% of the population presented with symptoms of dyslexia, whereas Petscher et al. (2019) suggested that 5–17% of children are affected. Although prevalence estimates for dyslexia range from 5 to 20% depending on the approach used, most estimates of dyslexia prevalence fall just below 10% (Hoeft et al., 2015). What is clear is that dyslexia is part of a continuum, similar to autism spectrum (ASD) disorder and attention-deficit/hyperactivity disorder (ADHD). We know that reading ability is continuously distributed across the population, so to make a categorical determination (e.g., does or does not have dyslexia) requires a decision of where to place a cut point on this continuum (Erbeli et al., 2022). Therefore, dyslexia prevalence would depend on what value is used for the cutoff on the continuum, with higher cutoffs associated with greater identification and lower cutoffs restricting the number of students potentially identified.

HERITABILITY AND COMORBIDITIES OF DYSLEXIA

Again, as noted in the definition above, it is important to keep in mind that as a neurodevelopmental disorder, dyslexia is a heritable condition with early onset. Family history of reading problems in a parent or sibling increases the risk of reading disabilities, with average estimates of heritability of reading-related skills and dyslexia ranging from 40 to 70% (Erbeli et al., 2022). In their review of the genetics research, these authors found that the mean prevalence of dyslexia in children with family risk was 45%. Furthermore, the lower a student performed on reading and spelling measures, the higher their likelihood of having a positive family history of reading disability. They also found that the genes that contribute to dyslexia also play a role in reading skills in general. This means that even people without dyslexia may have some of the same genetic traits that influence how well they read. Studies suggest that dyslexia is caused by a combination of many genetic factors, not just one gene. Additionally, the same genetic influences linked to dyslexia are also connected to other neurodevelopmental disorders, like developmental language disorder and dyscalculia or math disability (Erbeli et al., 2022). This is consistent with behavioral research showing that about 40% of children with a reading disorder will have a co-occurring neurodevelop-

mental disorder (Moll et al., 2014). Most common among these are developmental language disorder (DLD), also considered a risk factor for dyslexia, attention disorders, and math disabilities (Snowling et al., 2020).

USE OF THE TERM *DYSLEXIA* IN SCHOOLS

Perhaps the biggest question for school practitioners, particularly school psychologists, is whether the term *dyslexia* can be used within the school setting. United States Federal guidance would indicate that the answer is “yes.” Dyslexia is explicitly identified as a specific learning disability in H.R.1350, the Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004).

- (10) Specific learning disability—
- (i) General. Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.
 - (ii) Disorders not included. Specific learning disability does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disability, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

Although this definition highlights that learning disabilities can affect various academic areas, it also identifies dyslexia as one type of specific learning disability. Thus, the notion that specific learning disability and dyslexia can be used interchangeably is not accurate. Dyslexia is a particular type of specific learning disability—namely, one that affects reading decoding, reading fluency, and/or reading comprehension. Importantly, if only reading comprehension is impaired, a classification of dyslexia would not be warranted, a distinction that will be further explored in later chapters. As the IDA definition of dyslexia specifies, dyslexia affects decoding and spelling skills directly, whereas weaker reading comprehension may be a secondary consequence of these difficulties. However, students with impairments in decoding and spelling may present with weaker reading comprehension skills as well.

Further examination of the “exclusionary clause” in the IDEA definition is also warranted. Specifically, the rule-outs for dyslexia would include learning difficulties that may result from an impairment of hearing and/or vision. Although reading difficulties would likely still co-occur with deficits in either area, this does not constitute a classification of dyslexia. Similarly, motor impairments may often co-occur with dyslexia, as many students exhibit fine-motor and handwriting difficulties (Brooks et al., 2011), though that would not be the sole condition causing reading difficulties. Additionally, individuals with intellectual

disabilities; emotional disabilities; and/or environmental, cultural, or economic disadvantage may also display reading difficulties, but these would be primarily the result of the other conditions more so than a product of dyslexia. For example, if a student has an emotional disturbance leading to emotional breakdowns and behavioral outbursts resulting in a frequent need of breaks and/or de-escalation, poor reading skills due to such disrupted learning would not constitute dyslexia.

Despite clarity regarding the use of the term dyslexia in federal special education law, it is still not uncommon for school districts to say they cannot test for dyslexia and/or that dyslexia is a “medical diagnosis” and thus parents should consult with the child’s pediatrician. The unfortunate result of this misinformation is that the child continues to struggle while their parents desperately seek outside options such as pediatricians, neuropsychologists, or licensed psychologists, often at great personal expense and time. In response to these common practices, Decoding Dyslexia, a grassroots movement initiated by parents and families of students with dyslexia, captured the attention of the U.S. Department of Education. In 2015, the U.S. Department of Education distributed a letter notifying school districts that federal law names dyslexia as a type of reading disability (Yudin, 2015). Also, some states provided additional guidance documents related to use of the term dyslexia. For example, New York State issued state guidance in 2018 for students with dyslexia, dysgraphia, and dyscalculia. As part of this guidance, it explicitly says that dyslexia falls under the umbrella of a specific learning disability and emphasizes that school district personnel may use the terms when reporting on evaluation results for students suspected of having a disability and when developing a student’s individualized education program (IEP). Nonetheless, both authors have worked in many districts across New York State that refuse to use the term dyslexia in evaluation reports and/or IEPs.

COMMON MISCONCEPTIONS ABOUT DYSLEXIA

Part of the confusion about whether dyslexia can be identified in the schools likely stems from widespread misunderstanding about the condition (as seen in Table 1.1, which catalogues and corrects some of the most common misconceptions). Additionally, because dyslexia exists on a continuum, similar to ASD and intelligence, determining where to set the “cutoff” for classifying a reading performance as dyslexia can be challenging. Furthermore, due to many factors, such as history of evidence-aligned instruction, stage of reading development, and even oral vocabulary (more on this in Chapter 2), dyslexia may present differently in different individuals.

Although the research is clear that readers with dyslexia, or word-level reading difficulty, struggle to decode unknown words and to remember the words they have read (see, e.g., Ehri & Saltmarsh, 1995; Share & Salev, 2004) much confusion remains. By definition, students with dyslexia often have a core phonological deficit (see IDA, 2005; Vellutino et al., 2004). At beginning stages (not based on age but more dependent on history of instruction and severity of impairment), these readers will demonstrate difficulty recognizing and isolating phonemes in words. Phonemes represent the smallest units of spoken language that

TABLE 1.1. Common Misconceptions about Dyslexia

Misconception	Clarification
Dyslexia cannot be identified in schools.	Dyslexia can be identified in schools; confusion often arises from misconceptions about its definition and presentation.
Dyslexia looks the same in everyone.	Dyslexia varies across individuals depending on instruction history, reading development, and vocabulary.
Dyslexia is a visual problem.	Dyslexia is a language-based disorder involving difficulties in phonological processing, not visual processing.
Students with dyslexia see or write letters backwards.	Reversals are common in early readers and do not define dyslexia. Persistent reversals may signal dyslexia if accompanied by phonological deficits.
Dyslexia can be treated with colored overlays or vision therapy.	There is no evidence that these methods treat dyslexia.
More boys than girls have dyslexia.	Dyslexia affects boys and girls at similar rates; boys are identified more often due to behavioral visibility.
Dyslexia affects only English-speaking individuals.	Dyslexia occurs across all written languages, but it may appear differently depending on orthographic transparency.
All students with dyslexia need special education.	Some students with dyslexia may not need specially designed instruction if they respond well to evidence-based reading interventions.
Dyslexia can't be identified or treated after a certain age.	Dyslexia can be identified and remediated at any age with appropriate instruction.
Dyslexia is associated only with reading difficulties.	Dyslexia can have broader life consequences, including increased risk of dropout, lower socioeconomic status, and mental health issues.

allow us to tell one word from another. For example, if one ignores the spellings and focuses on the sounds, the words in each of the following pairs differ by a single phoneme: *toe/go*, *said/sad*, *dove/duck*. The empirical evidence showing that those with dyslexia struggle with breaking words into phonemes and/or blending phonemes to form words is extensive (e.g., Fletcher et al., 2019; Melby-Lervåg et al., 2012; Share, 2021; Vellutino et al., 2004). Students with such difficulties may rely on their visual memory to guess at words based on how the words look or the initial letters in the word rather than using a phonetic approach to sound out those words.

Many students with phonological issues will benefit from basic phonemic awareness training. Once they have acquired basic segmentation and blending skills, they can apply phonics, so if you test them at this stage, they will appear to have “mastered” both phonemic awareness and basic decoding skills. However, they may not be fluent with either and they

frequently do not “remember” a word they have phonetically decoded from one page to the next. This is likely because they have not reached the level of phonemic proficiency necessary to orthographically map those words. Orthographic mapping is the mental process that stores written words in long-term memory for later instant recognition. Ehri describes orthographic mapping as the process of bonding the word’s spelling, or letter sequences, to its sequences of phonemes in the word’s pronunciation and, in turn, connecting this bonded entity to its meaning in memory. This enables the reader to see the whole word instantly instead of decoding letter by letter (see, e.g., Ehri, 2014, 2020). We will discuss this more in the next chapter, but the important point here is to clarify that although it may *look* like some students have phonological processing deficits and others have orthographic processing deficits, the processes are too interconnected for such a distinction to be meaningful. Students with a core phonological deficit may develop phonological skills to the degree that they are directly instructed, but they do not continue to develop the highly proficient phonemic skills through reading instruction as do their typical peers. As a result, they do not efficiently orthographically map words for later instant recognition. Therefore, distinctions between dyslexia *subtypes* such as phonological and surface or orthographic, are not necessarily precise and have not been considered a valid or useful distinction by researchers who have reviewed the relevant research (e.g., Fletcher et al., 2019; Kilpatrick, 2018; Vellutino et al., 2004).

It is also important to note that students who have learned the phoneme–grapheme code but are still not able to recognize words in an automatic manner (i.e., because they have not orthographically mapped those words) use up valuable working memory needed for comprehending what is read. Some people also confuse reading comprehension difficulties with dyslexia, but comprehension difficulties are typically believed to be a secondary consequence of word reading difficulties rather than a primary feature of dyslexia.

A common misconception is the belief that dyslexia is a visually based condition. In reality, dyslexia is a language-processing deficit that affects the phonological processor in the brain. Students with dyslexia do *not* see letters or words backwards. As discussed, research clearly demonstrates that dyslexia affects how the brain processes phonemes in words (phonological processing), making it hard to connect letters to their sounds and store words in memory. These students might reverse letters when reading or writing because of their difficulties retrieving and organizing letter–sound relationships, not because they see them backwards (Lyon et al., 2003; Vellutino et al., 2004).

Relatedly, reversals in children’s reading and/or handwriting is sometimes believed to be a sign of dyslexia. A common misunderstanding is that students with dyslexia write backwards or in mirror imaging. In reality, reversals of letters are quite common in beginning readers who are learning how to connect phonemes (sounds) with letters (graphemes). According to Adams (1990), reversals indicate that letters and words have not been well established in long-term memory. Research suggests that reversals are common in kindergarten and early first grade as children are still developing their visual and spatial awareness. By the end of first grade, most children will outgrow frequent reversals as they progress in their reading and writing development, although occasional reversals may occur. Wolf (2018) suggests that most children stop reversing letters in second grade as their ortho-

graphic mapping skills improve and that continued reversals may signal difficulties with automatic word (and letter sequence) retrieval which is common in dyslexia. S. E. Shaywitz and Shaywitz (2020b) further suggest that persistent reversals beyond age eight may signal a red flag for dyslexia if they are accompanied by phonological processing deficits.

The fact that dyslexia is not a visually based learning disability also debunks misconceptions such as colored overlays or vision training can treat dyslexia. Although vision training may help with ocular dysfunction, vision training alone has no empirical support as an intervention for dyslexia (Handler & Fierston, 2011; Williams et al., 2004). Some individuals may have a condition in which reading causes eye discomfort, in which case, colored overlays may feel more comfortable. But overlays do not make them better readers, just happier ones!

Additional misunderstandings persist and include that significantly more boys than girls have dyslexia and that dyslexia affects only English-speaking individuals (University of Florida Literacy Institute, 2025). Rather, Shaywitz et al. (1990) and S. E. Shaywitz and Shaywitz (2020a) suggest that dyslexia affects boys and girls nearly equally, although boys are more often identified. This can be due to multi-tiered systems of support (MTSS) processes in schools and the tendency for girls to be more likely to internalize frustration and boys to be more likely to externalize or act out and/or have comorbid ADHD (Arnett et al., 2017; Willcutt & Pennington, 2000). Ultimately, what we do know is that although there may be slightly more boys than girls with dyslexia in research and population studies, the difference is not as significant as that suggested by school and clinical samples (Fletcher et al., 2019). Concerning erroneous beliefs about an English-specific aspect of dyslexia, Pugh and Verhoeven (2018) found that dyslexia exists in all written languages, and this is true for both alphabetic and logographic languages. As discussed above, some languages are considered more shallow, or transparent, as the phoneme/grapheme correspondences are more consistent, whereas others, such as English, are considered deeper, or more opaque. English is opaque for two reasons. First, it is complex because it contains 26 letters that are used to represent the 44 phonemes (sounds) in the spoken language. It does this by relying on various letter combinations (e.g., *aw*, *ch*, *oo*, *ow*, *ph*, *sh*, *th*). Second, English has many inconsistencies in the correspondences between phonemes and graphemes. For example, *go* does not rhyme with *do*, *one* does not rhyme with *cone*, and *what* does not rhyme with *hat*. Both the complexity and the many irregularities make English a challenging language to learn. Ziegler and Goswami (2005) report that in the English language, individuals encounter difficulty with decoding words that they have not encountered previously, whereas individuals exposed to more shallow orthographies may learn decoding more easily. However, like English-language individuals with dyslexia, those with dyslexia who speak transparent written languages struggle with fluency (Rakhlin et al., 2019).

Another common misunderstanding is that if a student has dyslexia, he or she would require special education services. It is important to recognize that the identification of dyslexia and determining eligibility for special education services are two distinct processes. To meet eligibility for a learning disability, according to IDEA, the disability must adversely affect educational performance and the child must require specially designed instruction. It is possible that a child can meet the criteria for dyslexia but not require specially designed

instruction, particularly if the student has had extensive evidence-based, systematic, and explicit phonics-based instruction and can continue to access this as needed in the general education setting. In this case, students may be eligible for accommodations and/or modifications as part of Section 504 of the Rehabilitation Act (1973). To qualify under Section 504, a child must have a physical or mental impairment that substantially limits one or more basic life activities. For example, a child with dyslexia who did not qualify for special education services may require extra time to take tests due to a reading fluency delay.

Another misconception is that there is a “learning window” for students and that dyslexia identified at older ages or even in adulthood cannot be remediated. This is not true. Given the right type of reading instruction, gains in reading decoding, fluency, and comprehension can be made for individuals of all ages (Fletcher et al., 2019; Truch, 1994). However, the earlier that students who are at risk for reading difficulties are provided with the right type of intervention, the more likely that reading difficulties may be minimized and the dosage of intervention required in later grades lessened (Fletcher et al., 2021; Morrison et al., 2020; National Reading Panel, 2000).

CONSEQUENCES OF DYSLEXIA

Additionally, it is important to acknowledge that there can be long-term consequences of failing to identify dyslexia in early grades. Individuals with dyslexia are more likely to drop out of school, have lower socioeconomic status, suffer from mental and physical health challenges, and have greater difficulty understanding and accessing health-related information (Boyes et al., 2020; Hernandez, 2011; Livingston et al., 2018; Macdonald et al., 2016; Schelbe et al., 2022; S. E. Shaywitz & Shaywitz, 2020a). Similarly, marginalized populations are often overrepresented in groups with reading difficulties. There can be a lack of equity in receipt of interventions and support, which can result in disproportionate numbers of students being classified for special educational services. Additionally, the term *school-to-prison pipeline* has been coined to describe students, often from minoritized populations, who fail to receive the proper type of educational support and end up in the juvenile court system (Winn & Behizadeh, 2011). It is no surprise then that large numbers of incarcerated individuals have reading difficulties, including dyslexia (Robinson, 2018; Shippen et al., 2010).

SUMMARY

Although some confusion persists, it is generally agreed that dyslexia is a neurobiological condition involving impaired reading decoding, reading fluency, and/or spelling skills. It is important that we dispel misconceptions about dyslexia, including the need for a medical diagnosis and that dyslexia cannot be diagnosed within schools. The reality is that dyslexia is listed in U.S. federal IDEA regulations and federal guidance documents have been in place

since 2015, encouraging use of the term dyslexia. In addition to misunderstandings pertaining to dyslexia and lack of knowledge about how or whether to identify it in schools, we have heard concerns from school district administrators who fear that identifying dyslexia means they will have to provide a specific type of remediation. We hope to put all of these concerns to rest and provide you with the knowledge you need to ensure that students with dyslexia receive the support they need in school. As you will learn in Chapter 4, reading instruction that works for students with dyslexia is systematic evidence-based phonics instruction that is supplemented with phonemic awareness training and opportunities for practicing learned skills using appropriate level texts. These instructional approaches work for students who are classified with dyslexia as well as other low readers. All school psychologists, special education teachers, and other educators should be knowledgeable about dyslexia, should know risk factors associated with dyslexia, and should know intervention approaches that work with remediating reading difficulties. A thorough history and record review is an important place to start. See Figure 1.1 for a sample dyslexia record review for our chapter case, Valentina. At the end of the chapter, you will find a blank copy for your use.

WHAT WOULD YOU DO? CASE ANALYSIS

VALENTINA, SEVENTH GRADE

In the case study at the beginning of this chapter, what risk factors are present for Valentina?

- There is a significant family history for learning difficulties, as Valentina's mother had difficulty reading as a child and received special education services.
- Valentina had difficulty learning her letter names and numbers in kindergarten. This was not due to lack of practice and exposure, as parent reinforcement was occurring and Valentina was exposed to books.
- Valentina performed below grade-level benchmarks in first grade, which is why she qualified for AIS reading support.
- Valentina displayed stronger language comprehension skills than reading decoding skills (e.g., solid background knowledge and active participation in class).

How should those be addressed?

- Although Valentina had been receiving academic support since first grade, the intervention changed based on programmatic convenience rather than being data driven. The school psychologist and reading specialist/AIS teacher should collect curriculum-based measures to document Valentina's specific areas of weakness.
- They should collect baseline data using benchmark information, administer a diagnostic measure to identify skills established and skills that still need to be explicitly taught, and should examine the interventions delivered to Valentina to make sure that they are appropriately targeting her reading needs.

Student Name: Valentina Grade: 7

Family History (Check all that apply)

- Family history of dyslexia/reading difficulty (specify): *Mom received special education support in reading.*
- Family history of language disorder (specify) :
- Other relevant family history (specify):
- No known history

Other relevant Risk Factors: *Difficulty learning letters and numbers despite reinforcement at home. Stronger language comprehension skills (as demonstrated by active class participation and good background knowledge) than reading decoding skills (e.g., below benchmark beginning in first grade). No longer reads for pleasure, lots enthusiasm for school, feels "stupid."*

History of Early Intervention/CPSE Services: *n/a*

History of School-Aged Special Education Services: *History of AIS beginning in first grade.*

Attendance History:

- No attendance concerns
- Frequent absences (specify grade and/or time of day, reasons if known):

History of Academic Interventions

Grade level	Intervention(s) received	Outcome/notes
Before Kindergarten	<i>Teacher recommended reading to her at home and extra practice with letters and sounds.</i>	<i>Mother read to Valentina nightly throughout elementary school and worked on flashcards for letters throughout kindergarten.</i>
Elementary	<i>Tier 2 intervention consisted of Leveled Literacy Intervention three times per week in a group of four.</i>	<i>Valentina remained just below benchmark throughout elementary school and continued to get intervention.</i>
Middle School	<i>Tier 2 intervention consisted of Read Naturally computerized intervention three times per week.</i>	<i>Valentina continued to remain below benchmark</i>
High School	<i>n/a</i>	

Presenting Concerns: *Despite years of intervention, Valentina is struggling to decode unknown words and to recognize multisyllabic words. Reading comprehension is impeded.*

Additional Information to Review: *Benchmark data*

Next Steps/Recommendations: *Discuss moving forward with dyslexia evaluation with multidisciplinary team*

FIGURE 1.1. Initial Dyslexia Record Review for Valentina.

- Specific goals should be set using rate of improvement from the progress monitoring measure along with grade-level benchmarks.
- Should Valentina fail to progress despite receipt of evidence-based, aligned instruction and intervention, consideration of classification as a student with a specific learning disability in basic reading skills and receipt of specialized reading instruction may be warranted.

What would you do differently if you worked at Valentina's middle school?

- First and foremost, it is critical to examine what is happening in the Tier 2 AIS intervention. Is an evidence-based program being used? Is the program appropriate given Valentina's reading strengths and weaknesses?
- Next, it is important to collect regular progress monitoring data on students receiving AIS support and set objective goals, not only for Valentina but for all students in the school receiving AIS support.
- Students who fail to meet the goals should either be referred to the school MTSS team or should be considered for Tier 3 intervention support, which increases dosage of the intervention by providing more individualized support and/or increasing the frequency.

Elementary school?

- A dyslexia screener that captures developmental history and/or family history of learning difficulties might have identified Valentina as a student at risk of dyslexia prior to Valentina starting kindergarten. This would have allowed for more regular progress monitoring and potentially have identified Valentina's reading lags sooner to allow for more immediate and intensive reading support. For example, at the kindergarten screening, collecting information about a parent's reading history could be beneficial for helping to identify students that may need to be closely monitored.

HELPFUL RESOURCES

University of Florida Literacy Institute (UFLI) *Definitions of Dyslexia*

International Dyslexia Association (IDA)'s definition of dyslexia. See also fact sheets and other resources: <https://dyslexiaida.org/definition-of-dyslexia>

Decoding Dyslexia, an International, Parent-led dyslexia organization: www.decodingdyslexia.net

The Reading League offers webinars (Virtual Professional Learning) on Understanding Dyslexia and Assessing Dyslexia: www.thereadingleague.org/online-academy

National Center on Improving Literacy. (2024). *Understanding dyslexia: Myths vs. facts*. U.S. Department of Education, Office of Elementary and Secondary Education, Office of Special Education Programs, National Center on Improving Literacy. Retrieved from www.improvingliteracy.org/resource/understanding-dyslexia-myth-vs-facts