

Dyslexia: What Teachers Need to Know

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By understanding the characteristics of dyslexia and implementing specific strategies, teachers can effectively address their students' instructional needs.

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Jennifer's first year of teaching first grade had been a good one, in spite of the fact that she spent most of her nights and weekends preparing for class. She had poured her heart and soul into her first group of students and—with much help from her teacher mentor, Teacher Assistance Team, and parents—all of her students had emerged from first grade as readers.

The second year of teaching had gone more smoothly and, by December, all of her students except Mason were beginning to read with varying degrees of proficiency. Mason's mother had called for a conference to discuss her son's difficulty with reading, and Jennifer felt confident that her recommendations for Mason's mother would help. When Mason's mother came into the classroom for the conference, her first question was, "Do you think Mason has dyslexia?" She added, "I saw a program on dyslexia last week, and I am almost 100 percent sure that he is dyslexic. What can the school do to help him?"

Jennifer had heard of dyslexia, but very little in her teacher preparation program had been said about it. She remembered that it had been mentioned briefly in her special education survey course, but she had no idea about what she needed to do if Mason did, in fact, have dyslexia. This was a problem that Jennifer had not anticipated, and she was baffled about how to best help Mason.

Dyslexia Defined

Though the term *dyslexia* is familiar to the American public and is frequently seen in the media, it often is misunderstood, even in the educational setting (Hudson, High, and Otaiba 2007). The International Dyslexia Association ([IDA] 2002) established the following definition of dyslexia:

Dyslexia is a specific learning disability that is neurological 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 International Dyslexia Association (2008) also described the characteristics of dyslexia in young children: difficulty reading single words, difficulty learning to associate letters and sounds, confusion of small words such as

"at" and "to," letter reversals, and word reversals. Because these difficulties with letter and word reversals are developmental in nature and are found typically in readers up through the age of 7, children who demonstrate the characteristic of dyslexia may sometimes not be identified as being dyslexic.

Myths about Dyslexia

Though dyslexia has been clearly defined and its characteristics are known, a number of myths surround this disability. One of the most common beliefs is simply untrue; letter and word reversals alone are not predictors of dyslexia (Badian 2005). In addition to the indicators listed previously, other signs of dyslexia include language difficulties, articulation or pronunciation problems, and word-finding problems (Siegel 2008).

Dyslexics have difficulty on an auditory level with phonological awareness. They have problems with rhyming and hearing individual sounds, syllables, and words in sentences. The individual sounds are called *phonemes*, which dyslexic children have difficulty separating and blending. Children with dyslexia often are late in developing language and may have difficulty formulating speech sounds after the age when these are typically acquired (Siegel 2008). They may use terms such as *things* or *stuff* because they cannot think of the specific word they want to use at the moment.

A number of myths about dyslexia need to be dispelled (Dyslexia Awareness and Resource Center 2002). First, dyslexia is not the result of brain damage (Shastry 2007). While the term *dyslexia* was used in early case

studies of individuals with brain damage, today the term dyslexia is used to refer to a specific type of reading disability that is neurological in nature. As affirmed by genetic studies (Galaburda 2005; Shastry 2007), dyslexia tends to run in families.

Second, words do not "jump around on the page" for persons with dyslexia (Badian 2005). Dyslexia is basically a language-based problem associated with difficulties in auditory processing, as opposed to a visual problem. The use of visual strategies such as ocular training and work on visual perception has not been successful (American Academy of Pediatrics 1972; Shastry 2007). Though there may be some visual confusion of letters and words, as well as delays in learning letters, the difficulty lies in auditory processing and memory (Badian 2005). Some Web sites promote the use of covered overlays with dyslexics (National Reading Styles Institutes 2008). Colored overlays are plastic sheets of various colors that can be placed over a text to make the text easier to read. The use of colored overlays, however, has not been found to be differentially effective with children who have dyslexia (Iovino et al. 1998).

Third, girls are just as likely to have dyslexia as boys. The fact that boys are more frequently diagnosed than girls is a function of the greater likelihood of teachers and parents to refer boys for testing (Shaywitz et al. 1990).

Finally, children with dyslexia do not have low intelligence (Shastry 2007). Their IQ scores may not accurately indicate their actual abilities; this is likely a function of the language requirements of most IQ tests. Myths and truths about dyslexia are summarized in table 1.

Table 1. Myths and Truths about Dyslexia

Myths	Truths
Dyslexia is the result of brain damage.	The term <i>dyslexia</i> grew out of studies of persons with brain damage, but children with dyslexia do not have brain damage.
Words "jump around on the page" for persons with dyslexia.	Dyslexia is a problem with language processing at the phoneme level rather than a visual problem.
Reversals of letters and words are a sign of dyslexia.	Reversals of letters and words are typical of children up to age 7.
Dyslexia occurs more often in boys than in girls.	Boys may be referred for testing for dyslexia more often than girls.
Colored overlays improve the reading skills of children with dyslexia.	Colored overlays do not improve reading rate or accuracy.
Children with dyslexia have low intelligence.	Children with dyslexia have average and above average intelligence.

Public Education and Dyslexia

In public schools in the United States, the terms *reading disability* and *learning disability* are more likely to be used than *dyslexia*. This is because most states do not have programs specifically addressing dyslexia, and those that do may not provide additional funding for instruction.

Most college textbooks in literacy education and special education mention dyslexia, but provide scant information for preservice teachers about this problem. College instructors in general education typically imply that dyslexia is a special education issue, and special education instructors see dyslexia as a general education problem. Hence, dyslexia often is considered a minor problem that is beyond the scope of the regular classroom, but not serious enough to merit special education services. In one survey of 250 faculty members and students in the college of education at a large southern university, 87.8 percent of the survey participants reported that their formal education had not prepared them to work with students with dyslexia (Wadlington and Wadlington 2005).

The federal laws addressing learners with disabilities—the Individuals with Disabilities Education Improvement Act ([IDEA] 2004) and the earlier Education of All Handicapped Children Act (1975)—both addressed dyslexia under the category of learning disabilities. According to IDEA § 300.8 (c) (10), a specific learning disability is defined as follows:

(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 mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

To receive services under IDEA, the student must meet disability criteria that are defined individually by each state. Prior to 2004, when IDEA was enacted, most states required students to demonstrate a discrepancy between their IQ and achievement before receiving services under the category of learning disability. However, proving a discrepancy is difficult. Those same underlying characteristics of children with dyslexia—particularly dif-

ficulty with language, memory, auditory processing, and processing speed—often cause them to score lower on IQ tests (Berninger 2001). In addition, the nature of dyslexia in itself can cause children of average or above average intelligence to perform poorly academically. As a result, children had to be severely deficient in reading skills before a discrepancy could be found between IQ and achievement, and children waited many years to receive appropriate service (Kavale and Forness 2000).

Under IDEA, states no longer are required to use a discrepancy formula. Instead, many states use Response to Intervention (RTI), a system of universal screening and progress monitoring, to identify learning disabilities. Additionally, IDEA allows states to use up to 15 percent of their IDEA funding for early intervening services. These two provisions of the law have enabled schools to provide services to struggling readers at the primary grades so that more serious problems can be prevented.

Early intervening methods typically take a “protocol approach” at the initial level, where teachers work with students using reading strategies that are effective with most students, such as additional instruction and practice with letter sounds, sound blending, and sight words (Marston 2005). If these techniques are not effective, the RTI process typically calls for a more diagnostic approach to determine the nature of the problem. Once the problem is identified, teachers can use appropriate and effective instructional methods that target the specific areas of weakness.

Unfortunately, many schools do not provide effective early intervening services, and older students, in general, have not received the type of help they needed in the primary grades. These older students may have been identified as learning disabled and placed in special education resource rooms, where teachers instruct learners with various disabilities and at varying grade and ability levels. Others students never were identified and have languished in general education classes, where they are now at high risk for dropping out and serious social problems.

In recent years, many schools have been developing and implementing universal screening procedures to identify those students who are likely to have reading disabilities (Shinn 2007). Because students with dyslexia need intensive instruction using specific research-based techniques, it is critical that teachers recognize the indicators of dyslexia and know the strategies that are useful in meeting the needs of these learners.

Characteristics of Dyslexia

Physiologically, dyslexia is a disorder of the language processing systems in the brain (Hudson et al. 2007).

Though both reading and speaking are dependent on the phoneme, which is processed in the brain, speaking is natural and reading is not (Shaywitz 2003). Yet, a variety of dyslexic characteristics cause difficulty not only with reading, writing, and spelling, but also with oral expression. These degrees of difficulty vary and are influenced by the intelligence and educational opportunities of the student.

Consider the following examples of areas that are difficult for students with dyslexia (Porch and Gilroy 2003).

Reading

- Confusion over the direction letters and numbers face: b/d, p/q, 9/6
- Difficulty learning that letters make sounds and that those sounds are sequenced into words: cat = [k] [ă] [t]
- Difficulty blending sounds into words: [k] [ă] [k] = cake
- Inefficient decoding

Writing and Spelling

- Confusion with vowels, especially vowel digraphs and diphthongs
I ned my cot becuase its cld.
- Difficulty hearing syllables within words and phonemes within syllables
I was sprised at frst that I lerned all the prsdnts.
- Difficulty visualizing the correct spelling of words
I hav enoughf mony to buy a gam.
- Does not seem to understand spelling rules or sentence structure
You finnish the storie befor peple wil go relly.
- Consistent confusion with homophones
allowed/aloud
there/their/they're
grate/great

Speaking

- May have delay in learning to talk
- May have difficulty in rhyming
- May have difficulty in sequencing: saying the alphabet, the days of the week or months of the year, or counting
- May have difficulty in remembering words
- May have difficulty pronouncing words: "aminal" for "animal," "busgetti" for "spaghetti"

Even though they often may be reprimanded for not trying, students with dyslexia are not lazy or unmotivated. Their limited academic success may cause them to become frustrated and even to avoid reading and other assignments. Learning to read, write, and spell

using traditional teaching methods does not seem easy for them. It is important for teachers, therefore, to understand strategies that are not only helpful, but also necessary for unlocking the language and literacy processes for students with dyslexia.

Strategies that Work

A successful instructional program for students with dyslexia focuses not only on students' weakness, but also on their strengths. Identifying students' strengths in thinking and reasoning is a key to success. Concentrating only on the phonological weakness will result in an imbalance in instruction (Shaywitz 2003). It is important to consider critical thinking and problem-solving as assets for dyslexics. Shaywitz (2003) described these thinking skills as a "sea of strengths" surrounding a weakness in decoding. The strengths include reasoning, concept formation, comprehension, general knowledge, problem solving, vocabulary, and critical thinking.

Effective instruction for students with dyslexia also uses multisensory instruction to present sequential and cumulative language concepts and skills. Providing information that is auditory, tactile, kinetic, and visual sends information along multiple pathways to the brain (Wadlington, Jacob, and Bailey 1996). Additional strategies and concepts for working with students with dyslexia are described in table 2 (next page).

Closing Thoughts

When teachers understand the nature and characteristics of dyslexia, they are better able to address their students' needs. To better prepare preservice teachers, teacher preparation programs should include dyslexia in their course content. Beginning teachers like Jennifer—described at the start of this article—will have a stronger instructional foundation if their university course work includes dyslexia characteristics and strategies.

The instructional requirements of students with dyslexia are specific to the individual student, but the techniques are typically within the teacher's repertoire of instructional strategies if he or she has a background in what dyslexia is and how to work with dyslexic children. Targeted instruction helps these students manage their difficulties with phonemic awareness and language, while honoring their strengths and abilities. When teachers are able to balance these two factors, students can improve their reading ability, which can make a significant difference during their academic years and in their future.

Table 2. Suggestions for the Classroom Teacher

Instruction

- *Phonemic awareness* must exist or be explicitly and directly taught *before* phonics instruction begins. Otherwise, the phonics instruction will not make sense to the student with dyslexia.
- Use explicit, direct, systematic, organized teaching. Teach to mastery.
- Work intensively, individually, for as long as it takes (2–3 years). Be sure to pass along information to the student's next teacher.
- Integrate skills into all classes (frequent, distributed practice).
- Teach the structure of language at all levels. Teach sounds, symbols, syllables, word structure, word meaning, grammar, sentence structure, paragraph structure, text organization, and study skills.
- Be multisensory—read, write, speak, listen.
- Emphasize constructive problem-solving and active use of memory strategies (*metacognition*) during language study.
- Teach comprehension: summarize, question, clarify, and predict (Palinscar and Brown 1984).
- Use recorded books.
- Allow sub-vocalizing (saying the words under your breath).

Building the student's self image

Find a way, such as those suggested here, for the

student to contribute to the class in areas of his or her special talents.

- Hobbies/sports
- Demonstrations
- Mechanical projects
- Poetry
- Art projects
- Oral reports
- Building three-dimensional projects

Emphasis on verbal participation

- Reduce reading load.
- Grade oral work in addition to written.
- Decrease the amount of written work in favor of oral.
- Call on the student to read aloud only when he or she volunteers.
- Allow oral and untimed testing whenever possible.

Communicating with the student

- Make directions simple and brief.
- Question the student briefly to make sure he or she understands.
- Give only one step at a time.
- Give examples.
- Encourage questions and treat each question as perfectly appropriate.
- Allow students time to think and time to read.

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