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Dyslexia

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Theories and Definitions

Dyslexia describes a difficulty in learning to read, write and/or spell. The term comes from the Greek word 'dys-' which means difficulty with and '-lexia' which means words or language. Dyslexia is an umbrella term that refers to a range of disorders which may be mild to severe, rather than a specific, narrowly defined problem. Dyslexia affects a person's ability to process information that is presented in written language. It may affect the way a person receives, remembers, retrieves or structures information as well as the speed at which they process the information. Dyslexia, therefore, impacts reading, writing, spelling, and using symbols (which may impact math). Dyslexia also may overlap with other disorders such as dyspraxia, attention deficit disorder with or without hyperactivity, and/or dysphasia.

There are a number of things that are generally agreed upon about dyslexia. First, dyslexia is not related to intelligence, and many people with dyslexia have above normal IQ scores. There is a physiological basis for dyslexia as evidenced with brain scans. There is general agreement that people with dyslexia process information that they receive through their senses differently from the majority of the population. Dyslexia has a genetic connection, so many people diagnosed with dyslexia have a family member with dyslexia as well. All theories of dyslexia indicate that phonological deficits are a main feature of dyslexia. There is also strong evidence that dyslexia creates social difficulties and that the educational challenges that a student with dyslexia face must be addressed along with the academic needs.

There are many different theories and definitions of dyslexia. A number of researchers from differing fields of medicine, psychology and education are studying dyslexia from different perspectives. It is important to remember that research on the topic is ongoing and partial. Because of this, there are also a number of different approaches to instructing students with dyslexia, and looking at a variety of perspectives is likely to give a more holistic perspective that would allow a teacher to individually evaluate the strengths and needs of their student in order to plan and instruct them in ways that are most appropriate.

In brief, biological theories implicate the following as impacting students identified with dyslexia: genetic factors; differences in the processing of the language areas of the brain; difference in the structure or function of the cerebellum (the 'hind brain'); and impaired development of magnocells, which are large neurons in the brain that direct the timing of sensory and motor events. Cognitive theories focus on phonological processing difficulties; visual difficulties; temporal or timing difficulties (such as disfluent reading that is too slow); lack of automaticity; inefficient working memory; and differences in learning that are not addressed by current educational methods and

curriculum. Social/interactional theories address problems with a social perspective that views some learning differences as deficits; valuing some forms of literacy in ways that disvalues those who cannot access those forms; definitions of intelligence and educability that are based on a narrow range of literacy skills; perspectives that link speed of information processing as a marker for intelligence; and perspectives that link the retrieval of information from short term memory as a marker of intelligence. There are also different researchers who place more or less emphasis on the impact of children's environment, language experience and education as influences of dyslexia.

Because of the range of theories about the causes of dyslexia, there are different perspectives on both the definition of dyslexia and the approaches for instruction. The State of Ohio has passed recent legislation which views dyslexia from a more biological perspective and which defines the term in a "broad" view, placing most difficulties with learning reading under the dyslexia umbrella. Lawmakers claim that educators and schools historically have not recognized or used the term "dyslexia" and thereby have limited the opportunities of students with reading challenges. This is most likely since the term 1) describes a range of reading, writing and spelling difficulties so educators prefer to use more specific descriptors, 2) dyslexia frequently co-exists and overlaps with other disorders so may not be considered as the sole and primary disability that would qualify a student for services and 3) has historically been defined in multiple and conflicting ways so may not be a term that is understood by all stakeholders in unified ways that make it useful for providing services.

Please go to the following link and review the powerpoint that has been distributed by the Ohio Board of Regents that outlines the state's perspective, recent legislation and mandates for instruction. You may stop reading at the SECOND slide entitled "Dyslexia Defined" which gives a list of characteristics related to dyslexia (slide 31).

https://www.ohiohighered.org/files/uploads/education-prep/documents/dyslexia/Presentation_02.2013.pdf

Implications for Ohio Reading Teachers

Based on the Ohio definition and mandates, what can teachers do?

The first step involves identification of students with dyslexia (or any delays/hurdles in reading development since the term is used in a broad sense). Evidence indicates that the earlier a student receives intervention, the less severe the consequences will be. An important feature is to recognize that many students with dyslexia have developed "camouflage" strategies to hide their inabilities to meet expectations.

OBSERVE
Things to look for:

1) Records or histories of reading difficulty; family history of reading difficulties
2) Discrepancies between oral responses and ability to complete work with texts
3) Persistent errors or lack of progress despite the use of a range of teaching methods
4) Poor spelling that is inconsistent with phonetic spelling; persistent errors in commonly used words
5) Avoidance strategies – efforts to avoid participation or resistance to teacher requests particularly in "public" activities involving text; reliance on peers for support to complete tasks; frequent absences; signs of stress
6) Irregular progress where the student appears to be making progress but then falls back.
7) Disorganization such as general disorganization of materials, irregular handwriting, difficulty completing tasks in a time frame despite being intellectually able and motivated.
8) Poor performance in tests of phonological awareness and rapid letter naming for pre-readers (NOTE: once students begin to read, these assessments are no longer correlated as predictors of reading ability)

ASSESS

Depending on the system at your school, utilize existing assessments to identify any patterns that characterize the learner. If existing assessments are not sufficient or lack detail, assess the student using an individualized assessment. This may be completed by you or other personnel who may be available to do the assessment. Collaborate with Reading Specialists, Educational Psychologists, Speech/Language Specialists and/or Intervention Specialists to most accurately assess the students' strengths and needs. Results of assessments should be recorded and communicated to all appropriate stakeholders. After intervention has begun, regular and ongoing formative assessment should monitor the effectiveness of instruction and guide further interventions.

INSTRUCT/INTERVENE

Based on identified learning needs, provide the student with appropriate instruction. This may be in a large- or small-group setting or in a one-on-one setting as needed. In this intervention, the student should receive instruction using a wider range of teaching methods than is offered in the general education curriculum. Alternative strategies for learning should be applied to address the particular learning needs of the child. Ohio principles of **intensive instruction** encourage a one-to-one or homogeneous (skill-based) small group instruction for a minimum of 4-5 times per week, 45-60 minutes per session. Assistive technology may also be utilized to address learning needs and to keep students from falling behind in their grade-level work.

SPECIFIC STRATEGIES

Research indicates that the use of explicit, multisensory teaching methodology may be effective in assisting students with dyslexia to read. Things to consider when developing alternative strategies may be 1) the child's overall development. Children normally learn to read between ages 5-9, so some students may still be developing the

visual-motor skills needed (most literate countries don't begin reading instruction until ages 7-8). Students who have additional challenges such as learning to read in a second language or multiple languages also sometimes just take more time. 2) The pace of classroom instruction. Students whose oral language and/or social practices differ from school expectations may be overwhelmed by the volume of material. Reduce the volume of instruction and repeat/review frequently. 3) Consider whether students' vision and eye tracking may be causing some issues. Though this is controversial, vision therapy has been very helpful to some students. 4) Consider the challenges for students who are not auditory learners. The current curriculum relies heavily on listening and hearing sounds for phonics and reading instruction. Consider multi-sensory or highly visual methods.

Explicit instruction that involves a combination visual, auditory and kinesthetic strategies is recommended for students with dyslexia. The Ohio legislation demands that, "Concepts are clearly and directly explained, no assumptions are made about the student's ability to make inferences." In addition, the legislation expects **systematic** instruction based on the principles of sequenced instruction and mastery. The law requires: "Planned teaching of all useful correspondence patterns in a sequence of instruction; progress in measureable and manageable steps. Skills are continually reviewed, practiced, extended, and once mastered, applied to more and more difficult text." (OhioHigherEd.org, "Options for Addressing Dyslexia" powerpoint)

Strategies for visual learners focus on using visual memory to substitute for auditory deficits. Since students also may have short term memory deficits, words need to be introduced, then reviewed in multiple formats including writing to move them into long term memory. Teaching a set of common sight words that allow for getting "most" of the words has been an effective strategy. One set of common words is Fry's *100 High Frequency Words*. These words account for the majority of written words. "Understanding text relies in part on the immediate recognition of these high-frequency words." Studies of print have found that just 109 words account for more than 50% of all words in student textbooks, and a total of only 5,000 words accounts for about 90% of the words in student texts (Adams, 1990; Carroll, Davies, & Richman, 1971). A second set of common words are the Dolch Sight Word Lists. The Dolch Word List is a list of commonly used English words that was originally compiled by Edward William Dolch, PhD and published in his 1948 book, "*Problems in Reading*". Edward Dolch compiled this list based on children's books of the period, and selected 220 "service words" which children need to recognize in order to achieve reading fluency. Dolch excluded nouns from his main list, but did compile a separate 95-word list of nouns. Many of the 220 words in the Dolch list, cannot be "sounded out", and hence must be learned by sight. Hence the list is often referred to as "Dolch Sight Word List", and the words on it, as "Dolch Sight Words."

Strategies that have been shown to be effective include:
- Incorporating a combination of direct instruction and LOTS of practice. Students need to see words multiple times to recognize them automatically (sometimes up to seven times in multiple formats). Use LOTS of games. Don't assume that

students have an understanding of how language works. Explain the things that they aren't able to implicitly pick up.

- Mastery levels – Practice with a set of words until students are reading at a pace of 30-50 words/minute with no more than 3 errors. Then add more words.
- Connect reading to meaning. Discuss the readings, have students do meaning-based activities (follow directions and actually make things or go places, etc.) Avoid repetitive worksheets and "drill and kill." Students with dyslexia often have more difficulty working with disconnected text like flashcards or nonsense words. Use the words in connected text or for writing sentences/stories/poems that they create for reading.

SPECIALIZED PROGRAMS

Many of the strategies outlined above have come from the research and implementation of specialized programs for students with dyslexia. Though there are others, some common programs that are implemented in Ohio are the following:

Orton-Gillingham- "The Orton-Gillingham methodology utilizes phonetics and emphasizes visual, auditory and kinesthetic learning styles. Instruction begins by focusing on the structure of language and gradually moves towards reading. The program provides students with immediate feedback and a predictable sequence that integrates reading, writing, and spelling." "The Orton-Gillingham method is language-based and success-oriented. The student is directly taught reading, handwriting, and written expression as one logical body of knowledge. Learners move step by step from simple to more complex material in a sequential, logical manner that enables students to master important literacy skills. This comprehensive approach to reading instruction benefits all students." (Orton-Gillingham.com, September 17, 2009)

Wilson Reading System - "Although it's easy to blame the educational system, overcrowded classrooms and dwindling budgets for this problem, the fact is that many people, regardless of their age, have not been able to acquire reading and writing skills because their learning needs have never been properly assessed. The majority of these people are subject to a core deficit at the most basic level of language skill: that of phonologic coding. They have never acquired what so many of us take for granted - an internalized ability to analyze the structure of words in English and apply their understanding of that structure when reading and spelling.

Whether caused by dyslexia or some other language-based learning difficulty, a late introduction to English or over-reliance on whole language programs, this deficit must be corrected by direct, multisensory, structured language teaching."
www.wilsonlanguage.com September 17, 2009

Reading Recovery–This program developed in New Zealand by Mari Clay seeks to identify students early before students dislike reading. Instruction proceeds in small bites with individual instruction. The program is characterized by ongoing formative assessment and responsive instruction based on Running Records. Reading is

connected to spelling and writing. Instruction also incorporates repeated readings of known words for automaticity.

SOCIAL CONCERNS

Students with dyslexia frequently face social pressures and stigmas because of their inability to keep up with classroom expectations. Along with academic concerns, it is important to address the student's anxiety, frustration and feelings of rejection or incompetency. Many students will lack confidence and consider themselves to be hopeless at reading. They do not form a sense of themselves as "a reader." It then becomes the task of the teacher to address those issues, helping the student to understand their learning challenges and recognize their areas of strength. The teacher may also need to address the ways that peers demoralize or marginalize students with reading challenges. It is important to allow the student to be meaningfully involved in all classroom activities and not allow them to be silenced by others. Older students with dyslexia have a history of school frustration and failure which is harder to overcome. However, transparency about the challenges and a willingness to provide needed supports will allow educators to address the social and emotional challenges that dyslexia creates.