



Dyslexia: A Blessing and A Curse

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**Our Mission is to
EMPOWER TEACHERS**
to ensure that every child learns
to read well by third grade.
Our Core Values
guide our intentions, actions and character.
Accountability
Passion
Lifelong Learning
Professionalism
Collaboration
Empowerment



We believe that every child has the right to read.

We know that 95% can be taught to read.
Literacy is the language of opportunity.

We believe that teachers--not programs or products--
teach students to read, write and spell.

So we empower teachers with the best ways to teach.

Today's Talk

- Signs and symptoms of dyslexia
- The impact that dyslexia has on academic learning
- Instructional implications
- SRBI best practices, including progress-monitoring reading assessments
- The positive side of dyslexia

Teaching Children to Think About What They Read

"We feel quite truly that our wisdom begins where that of the author ends... by a law which says we can receive the truth from nobody, that which is the end of their wisdom appears to us as but the beginning of ours."

On Reading, Marcel Proust
Maryanne Wolf, *Proust and the Squid*

Reading Instruction

The results of well designed and carefully controlled school-based studies suggest that at least 95% of the total student population can attain average word reading abilities with the implementation of intensive and systematic intervention.

Torgeson, 2004

My Dyslexia

"I was suffering the mysterious, perplexing, and previously unacknowledged manner in which I received and absorbed all information of any import. I was suffering, to a noticeable degree, by the very manner in which my mind received and then attempted to process information – I was becoming conscious of the convoluted way my mind worked."

Philip Schultz, 2011

Dyslexia: The Curse



My Dyslexia

"For a long time I couldn't imagine my life amounting to anything.. I didn't know there was something wrong or different about how my brain processed information and language; I believed there was something wrong with ME. I still, on occasion, believe this. Perhaps I always will."

Philip Schultz, 2011

What is Dyslexia?

Dys (difficulty) + lexis (words) = difficulty with words

Congenital word-blindness (Hinshelwood, 1902)

Strophosymbolia = twisted symbol (Orton, 1925)

Children Who Cannot Read (Monroe, 1932)

“The diagnosis of dyslexia is as precise and scientifically informed as almost any diagnosis in medicine.”

Overcoming Dyslexia, Shaywitz, 2003

Facts about Reading Disabilities

RD affects at least 80% of the LD population.

There is more empirical evidence regarding cause, course, and effective treatment for RD than any other LD.

There is now a consensus that phonologically based processes constitute the core deficit in most RD.

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Signs and Symptoms of Dyslexia

Preschool – difficulty with:

Learning numbers or the letters of the alphabet

Rhyming words (recognizing and producing)

Remembering colors or days of the week

Oral language (late talkers, rearranging syllables in words)

Elementary – difficulty with:

- Sounding out words
- Reading or spelling errors
- Reversing numbers or letters
- Remembering facts, including math facts (dyscalculia)
- Misunderstanding arithmetic signs
- Handwriting (dysgraphia)
- Written expression

Signs and Symptoms (continued)

Middle School – difficulty with:

- Reading comprehension
- Written expression or spelling
- Understanding word problems
- Organizing, planning or managing time
- Completing or handing in assignments
- Concentrating or paying attention

Signs and Symptoms (continued)

High School – difficulty with:

- Reading fluency and comprehension
- Organizing and expanding ideas in written expression
- Remembering and retrieving detailed information
- Comprehending more complex information

Dyslexia is a brain-based type of learning disability that specifically impairs a person's ability to read. These individuals typically read at levels significantly lower than expected despite having normal intelligence. Although the disorder varies from person to person, common characteristics among people with dyslexia are difficulty with phonological processing (the manipulation of sounds), spelling, and/or rapid visual-verbal responding. In individuals with adult onset of dyslexia, it usually occurs as a result of brain injury or in the context of dementia; this contrasts with individuals with dyslexia who simply were never identified as children or adolescents. Dyslexia can be inherited in some families, and recent studies have identified a number of genes that may predispose an individual to developing dyslexia. **National Institute of Health**

My Dyslexia

"The mind of a dyslexic is different from the minds of other people. Learning that my problem with processing language wasn't stupidity seemed to take most of my life. Like every other important trade-off in life, giving up this negative image of myself has been complicated and difficult."

Philip Schultz, 2011

1. Dyslexia occurs primarily at the level of the single word and involves the ability to decode printed words. This has been known for many years. It has not been clear why.

My Dyslexia

"I've learned to read the way a runner learns to expect and find his second and third winds, the way an athlete pushes himself beyond where it is comfortable to go. I read word by word, sometimes congratulating myself on the completion of each sentence, each paragraph and chapter. Perhaps that is why it's particularly hard for me to read anything that isn't well written and moving; why I became a poet, because poetry is so compressed and is often beautifully written and moving."

Philip Schultz, 2011

Alphabetic Principle

- Print represents speech through the alphabet
- Words are composed of internal units based on sound called "phonemes"
- In learning to read, the child must make explicit an implicit understanding that words have internal structures linked to sounds

2. Reading problems occur as part of a natural, unbroken continuum of ability--what causes good reading also causes poor reading.

We only need one theory to explain success and failure in reading.

3. Neurological in Origin

- Many cases of dyslexia are genetically determined
- The most heritable traits are difficulty with phonological processing and spelling
- Dyslexic brains show different activation patterns
- However, there is not one spot in the brain associated with RD

Language, Reading and the Brain

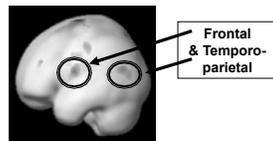
Spoken language is a biological specialization but written language is largely a cultural invention. Moreover, spoken language is mastered naturally in almost all people, without direct instruction, but reading is difficult and reading failure occurs in large numbers of children across all written languages.

How does literacy acquisition modify brain organization for language? The brain of young children has tremendous "plasticity"; great capacity to learn, and modify circuitry.

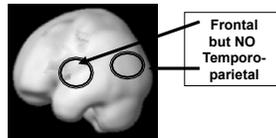
Ken Pugh, Haskins Labs

Normal & Dyslexic Reading Children

Normal Readers



Dyslexic Readers



4. Children with dyslexia have problems beyond phonology

Phonology explains the reading problem, but reading is not the only problem of students with dyslexia

Comorbidity- academics, ADHD

Word recognition is not the only type of RD

Co-Morbidity

25-45% of children with RD may have independent, co-occurring ADHD (Shaywitz, 1995)

40-60% of students with ADHD have language processing disorders

ADHD, language processing, and reading comprehension difficulties tend to co-occur

These children may have working memory problems

Co-morbidity of ADHD and language processing problems leads to weaknesses in language comprehension and reading comprehension

5. Of all children identified as learning disabled in schools, 80-90% are primarily impaired in reading; most of these children have problems with word recognition skills.

6. Children Do NOT Outgrow Dyslexia

- Over 70% identified as dyslexic in Grade 3 remained dyslexic as adults
- Without adequate intervention, dyslexia is a lifelong, chronic disorder
- *Connecticut Longitudinal Project*- Shaywitz et al., Pediatrics, 1999

The Reading Brain

“Reading can be learned only because of the brain’s plastic design, and when reading takes place, that individual brain is forever changed, both physiologically and intellectually.”

Maryanne Wolf

Myth: The Gift of Time

Some children are not ready to learn to read when they come to school. They need to have more time to develop their social and emotional skills and less time focused on ‘academic skills.’

Reality

Many children do need to develop social and emotional skills when they enter school. However, teachers can also help students learn early literacy skills that are developmentally appropriate and engaging.

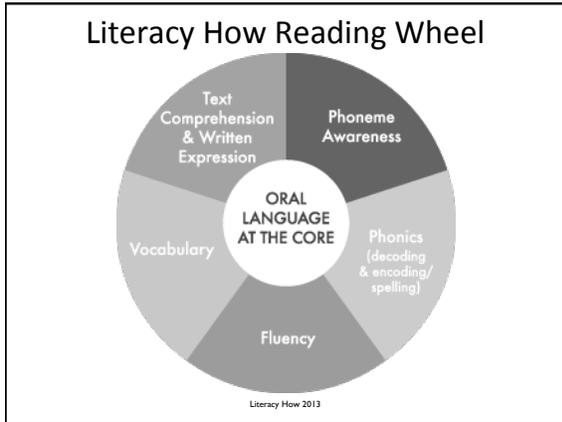
Incidence of Dyslexia

- 15-20% to a moderate degree
- 2-5% have severe long-lasting reading disabilities that require specialized instruction throughout school
- RD affects children of all backgrounds and races -- and both genders are represented equally

One Size Doesn't Fit All

Student's difficulties must be identified and interventions adjusted to meet each one's individual needs.





**Phoneme Awareness
Definition**

Phoneme awareness is an awareness of
and the ability to manipulate the
individual sounds (phonemes) in spoken
words.

Research

- Phonemic awareness constitutes a necessary underlying skill for mapping alphabetic symbols to spoken words and **can be developed through instruction** (Ehri, 2004).
- It is **one of the strongest predictors** of reading success (Blachman, 1989; Adams, 1990).
- Teaching phoneme awareness **reduces the incidence of reading problems** (Fowler, 2001).
- **Linking phoneme awareness with letter instruction** facilitates transfer to reading and spelling (Ehri, 2004).
- Instructional **approaches that are the most phonemically explicit** have the greatest impact (Torgensen, 2002).

What to Do

- Picture sorts
- Say It and Move It (Blachman, Road to the Code)
- Elkonin Boxes
- Lindamood Phoneme Sequencing Program (LiPS)



Phonics Definition

Phonics is the study and use of sound/spelling correspondences and syllable patterns to help students read written words.

Research

- **Systematic phonics instruction is more effective** than instruction that includes nonsystematic or no phonics instruction. (National Reading Panel, 2000).
- Word recognition skill fosters comprehension (Ehri, 2004)
- Skill in word recognition and reading comprehension are well correlated, especially in beginning readers (Shankweiler et al., 1999).
- **Teaching the vowel patterns** ensures that about 85% of words can be decoded accurately (May, 1988).

What to Do

- Practice the speech to print match (mapping sounds to letters).
- Begin with the most transparent patterns first (closed syllables).
- Sequentially teach the syllable/vowel patterns to mastery.

s	a	d		
th	i	n		
s	l	ee	p	
s	t	r	ea	m
f	l	u	ff	

Dyslexia and Spelling

- While most individuals with dyslexia can learn to decode words accurately, the majority will never spell well.
- Accommodating for spelling difficulty is essential!
 - Grade work on content.
 - Use assistive technology and proofreading assistance.
 - Encourage students to turn in rough drafts so that spelling errors can be checked and corrected spellings can be incorporated into revisions.

Fluency Definition

Reading fluency refers to reading text with sufficient speed, accuracy and expression to support comprehension.

What It Takes to Be a Fluent Reader

- Accuracy (know the spelling patterns)
- Automaticity (recognize and apply the patterns in words instantly – i.e., less than one second)
- Phrasing (group the words in grammatical entities – i.e., elaborated noun phrases, prepositional phrases, verb + adverb phrases)
- Intonation (read it as though you're telling someone a story or conveying information)

Problems that Impact Fluency (a broader definition)

- Attention and concentration
- Slow processing speed
- Automaticity of lower-level skills
 - Automatic production of alphabet letters
 - Knowing spelling patterns
 - Poor handwriting

Dyslexia and Fluency

What To Do

- Develop accurate reading using decodable text.
- Use repeated reading to develop prosody.
- Understand that oral reading is difficult for most students.

What Not To Do

- Promote memorization of sight words.
- Emphasize speed.
- Use the 3 Cueing System model.
- Drill and kill.

Interventions That I've Used

- Orton-Gillingham
- *RAVE-O*
- *Wilson*
- *Lindamood-Bell*
- *Read Naturally*
- *Lexia*
- *Language!*

Vocabulary Definition

Vocabulary refers to the body of words and their meanings that students must understand to comprehend text.

Research

- There is a 30 million word gap by age 3 between children in poverty and those who are in middle class families (Hart & Risley, 2003).
- Vocabulary is foundational to reading but its role in comprehension is complex (McCardle et al., 2008).
- The major challenge facing beginning readers is **accessing a word that they know which is in their lexicon (mental dictionary) but have never seen before in print** (Gough & Hillinger, 1980).
- Vocabulary is the best predictor of reading and language comprehension by grade 3 or 4 (Biemiller, 2011).
- **Robust vocabulary instruction is not only effective for learning meaning of words, but also for affecting reading comprehension** (Beck et al., 1982, 2001).

**Text Comprehension & Written Expression
Definition**

Text comprehension, the ability to make meaning, is the ultimate goal of reading. It requires specific skills and strategies, vocabulary, background knowledge and verbal reasoning skills.

Written expression refers to a highly complex, cognitive, self-directed process. Components of the process include planning, drafting, sharing, revising, editing, evaluating, and publishing.

***Disabilities related to comprehension
are usually related to oral language.***

“The comprehension deficit experienced by the poor comprehender is clearly not specific to reading, but rather represents a general language comprehension limitation.”

Stothard & Hulme, 1996

Written Expression: A Complex Process

Writing requires the simultaneous and sequential integration of many subprocesses:

- Lower-level skills
 - Handwriting (gross and fine motor)
 - Spelling
 - Higher-level (language and higher order cognition)
 - Sentence structure
 - Text structure (narrative vs. expository)
 - Ideation
 - Vocabulary
 - Executive Functions (i.e., attention, organization, working memory, self-monitoring)
- Literacy How, Inc. 2010

Handwriting Instruction



Handwriting automaticity at an early age (writing alphabet letters quickly from memory) is a strong predictor of the quality of composition in older, normally developing writers.

If letter production is automatic, then the child is able to attend to higher level composing processes, such as deciding what to write about, what to say, and how to say it.

Literacy How, Inc. 2010

Executive Function (Including Working Memory)

- Metacognition, attention and memory, self-regulation
 - Cognitive processes that have a great impact on academic performance, including writing
 - These functions affect a writer's ability to plan, organize, monitor, and revise text
- (Singer & Bashir, 2004)

Forming letters, mechanics, spelling patterns, memory for facts and ideas, vocabulary and word finding

Technology: The Great Equalizer

CAST is an educational research & development organization that works to expand learning opportunities for all individuals through Universal Design for Learning (UDL).

www.cast.org

Learning Ally (Reading for the Blind and Dyslexia) provides audiobooks and textbooks to students with LD.

www.learningally.org

www.bookshare.org

<http://readeasy.si.edu/>

It's All About the Teacher!!

“One of the most important conclusions from research is that for children with learning problems, learning is hard work. A corollary to this finding is that for their teachers, instruction is very hard work and requires an enormous amount of training and support. Children who have difficulty learning to read or completing mathematics problems will likely not benefit from ‘more of the same’ but require an alternative method of teaching to assist their learning.”

Semrud-Clikeman, 2005

Knowledge and Practice Standards

- <http://www.interdys.org/standards.htm>
- The document will serve as a guide in endorsing programs that prepare teachers of reading and/or programs that specialize in preparing teachers to work with students who have reading difficulties and disabilities.
- Common Core State Standards
<http://www.corestandards.org/>

‘At Risk’ Students

“Although a naturalistic, informal, whole language approach to beginning literacy instruction may be suitable for many children, children at risk appear to require a more highly structured, systematic approach with particular attention focused on the development of phonologically-based skills and strategies”

Tunmer, Chapman, and Prochnow, 2002

Common Elements of Successful Interventions

1. They include multiple instructional components, but always focus on **explicit** and **systematic** instruction in **phonology** and the **alphabetic code**.
2. They are **engaging** and **interactive**, often incorporating manipulatives.
3. They allow students **many opportunities to respond**.
4. Students are provided **many opportunities to practice** through **cumulative reviews** to support **mastery learning**.
5. Data are used to **monitor progress** and ensure **intervention fidelity**.

Al Otaiba, Connor, et al., 2009

Student Response and Feedback

‘Students need to practice new material. The teacher’s questions and student discussion are a major way of providing this necessary practice. The most successful teachers (in these studies) spent more than half of the class time lecturing, demonstrating, and asking questions. Questions allow a teacher to determine how well the material has been learned and whether there is a need for additional instruction. The most effective teachers also ask students to explain the process they used to answer the question to explain how the answer was found.’

Rosenshine, 2012

What the legislation says

- A State must adopt, consistent with 34 CFR 300.309, criteria for determining whether a child has a specific learning disability as defined in 34 CFR 300.8(c)(10). In addition, the criteria adopted by the State:
 - **Must not require the use of a severe discrepancy** between intellectual ability and achievement for determining whether a child has a specific learning disability, as defined in 34 CFR 300.8(c)(10);
 - **Must permit the use of a process based on the child’s response to scientific, research-based intervention;**
 - May permit the use of other alternative research-based procedures for determining whether a child has a specific learning disability, as defined in 34 CFR 300.8(c)(10)
- IDEA 2004

Dyslexia: The Blessing

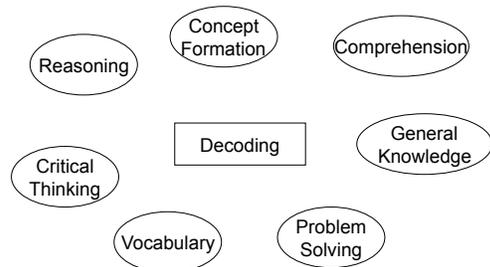
CELEBRATING CEREBRODIVERSITY

Dyslexia and Visuospatial Processing

'The behavioral and neuroimaging data suggest that people with dyslexia process certain kinds of visuospatial information more efficiently... The dyslexic brain is not associated with disadvantages across all perceptual domains... a finding consistent with the notion of cerebrodiveristy.'

Ken Pugh, 2014

Sea of Strengths Model of Dyslexia



In dyslexia, an encapsulated weakness in decoding is surrounded by many strengths (Shaywitz, 2003).

Dyslexia Strengths

Spatial analyses
Mechanical/digital aptitude
Creative approaches to problem-solving
Connecting disparate pieces of a puzzle
Visualization
Artistic expression
Athletics

Embrace Dyslexia

- <http://www.embracingdyslexia.com/>
- *The Dyslexia Empowerment Plan: A Blueprint for Renewing Your Child's Confidence and Love of Learning*, Ben Foss
- dyslexicadvantage.com (Fernetette and Brock Eide)
- Neurodiversity – Cerebrodiversity in the Classroom (Gordon Sherman)

Thank You!!

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