

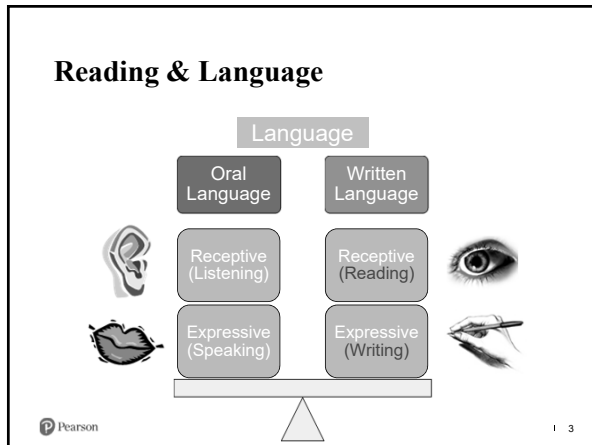
## Best Practices for Evaluation of Dyslexia and SLD in Reading

Anise Flowers, Ph.D.

936-321-7663  
anise.flowers@pearson.com

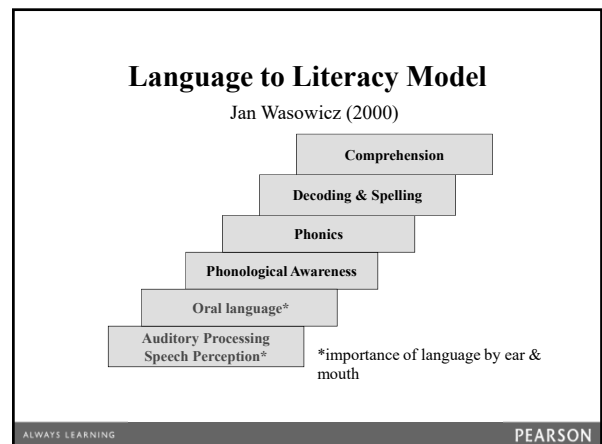
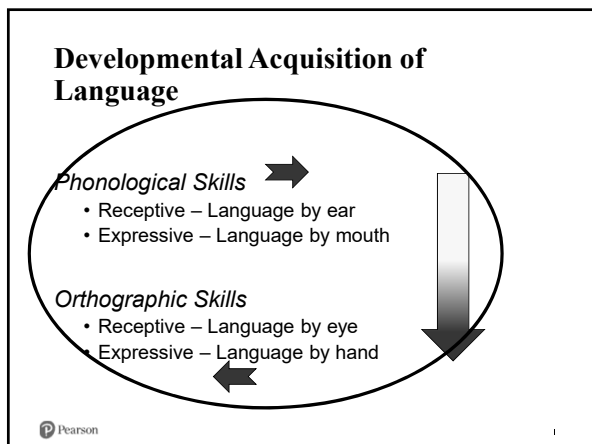
## Development of Reading:

Investigating “typical” to find what’s “atypical”



### Acquisition of Language versus Reading

- Language is a NATURAL process
- Reading is an LEARNED process



### Developing Language Competence (ASHA, 2001)

What is the connection between oral and written language?

- a. Oral language provides the foundation for the development of reading and writing;
- b. the relationship between oral language and literacy development is reciprocal in nature, with interconnections originating in early childhood;
- c. children with speech and language impairments are at increased risk for difficulties with early and conventional literacy development; and
- d. intervention for oral language can positively influence literacy development, and vice versa.

Pearson

7

### 3 Phases of Reading Development

- Phase 1: Letters and sounds
  - Learn letter names and sounds
- Phase 2: Phonic decoding
  - Combine letter-sound knowledge with phonological blending to sound out familiar words
- Phase 3: Orthographic mapping
  - Efficiently expand sight word vocabularies

Pearson

8

### Developing Reading Skills

- Decode single, pronounceable words accurately and fluently (non-words).
- Decode real words accurately and fluently.
- Integrate word decoding and sentence comprehension.
- Read for comprehension.

Pearson

1

### Phonological Code: Developmental sequence

- Learn to rhyme (preschool)
- Perceive syllable structure of words (Kdg)
- Manipulate phonemes in monosyllabic words (end of 1<sup>st</sup>)
- Segment phoneme & rime units in polysyllabic words

ALWAYS LEARNING

PEARSON

### Orthographic Awareness: Developmental sequence

- Recognize & produce letter-like symbols (preschool)
- Produce letters (Kdg)
- Represent written words in memory
  - Code whole written words (Kdg/1<sup>st</sup>)
  - Then single letters in words
  - Finally, letter clusters (by 3<sup>rd</sup>)

ALWAYS LEARNING

PEARSON

### History: A Look Back

- Aptitude-treatment models
  - Targeted visual learners with sight words & auditory learners with synthetics phonics approach
  - Research does not support “visual learners” and “auditory learners”
  - Instead
    - Orthographic (not visual) & phonological (not auditory) processes involved in word recognition
    - Orthographic & phonological are part of a *language* system; not a sensory system
    - Word recognition requires BOTH processes
    - Students are NOT exclusively visual or auditory learner; but a mix of both

ALWAYS LEARNING

PEARSON

**History: A Look Back**

- 1970's Reading considered visual-perceptual process
  - Reading is a language process
  - Process training of visual-perceptual or visual-motor skills did not transfer to improved reading
  - Visual training can improve tracking but this also did not improve reading skills

ALWAYS LEARNING PEARSON

**Lots of entities have a lot to say about Reading**

It is a politically charged topic in education  
Enter the US Congress...

ALWAYS LEARNING PEARSON

**National Reading Panel, 2000**

- Of the 100,000 articles on reading published since 1966, 98% were discarded by the panel
- Identified 5 "pillars" to reading success

ALWAYS LEARNING PEARSON

**National Reading Panel (2000)  
Five Components of Reading**

ALWAYS LEARNING PEARSON

**National Reading Panel Conclusions for K-1 children (summarized Feifer, 2007)**

- the younger the child, the better the outcome
- "at-risk" child responds best to small group instruction (3:1), with phonological awareness training combined with explicit phonics instruction
- highly trained teachers achieve the best results

ALWAYS LEARNING PEARSON

**National Reading Panel Conclusions for K-1 children (summarized Feifer, 2007)**

- frequency of instruction (4-5 days per week) was more effective than sporadic instruction (2 days per week)
- gains were maintained in most children at long-term follow up
- following characteristics were associated with poor outcomes:
  - a) attention or behavior concerns
  - b) low socioeconomic status
  - c) poor verbal skills
  - d) poor rapid naming skills

ALWAYS LEARNING PEARSON

**National Reading Panel  
Conclusions Grades 2 - 6  
(summarized by Feifer, 2007)**

- Children at this age respond to explicit phonological instruction, though gains not as strong as with younger children
- Children at this age less responsive to explicit phonological instruction, though did better in 1-to-1 or small group
- more intensive work for a longer duration required

PEARSON

**National Reading Panel  
Conclusions Grades 2 - 6  
(summarized by Feifer, 2007)**

- spelling & fluency did not improve much, though some improvement with reading comprehension
- computer instruction an effective aid, but not effective by itself
- The following characteristics were associated with poor outcome:
  - a) attention or behavior concerns
  - b) low socioeconomic status
  - c) poor verbal skills
  - d) poor rapid naming skills

PEARSON

**Why are older children  
less responsive to  
intervention?**

- Neural Darwinism – Use it or lose it
- Ratey (2001) “neurons which fire together, wire together”

???

PEARSON

**Formula for Reading**

*Simple View of Reading*

$R = D \times LC$

Reading =  
Decoding x Linguistic Comprehension

PEARSON

**Components of Word Level Reading**

- ❖ Cipher Knowledge
  - ❖ Using the code of written English to pronounce words
  - ❖ Recognizing that letters represent phonemes
- ❖ Word-specific knowledge
  - ❖ Familiarity with a word or word part
  - ❖ “Sight word knowledge is built up from basic letter-sound knowledge & experience with specific words”

Kilpatrick, 2015

**Components of Linguistic Comprehension**

- ❖ Vocabulary – semantic knowledge
- ❖ Syntactic-grammatical knowledge
- ❖ Background knowledge
- ❖ Working memory
- ❖ Attention
- ❖ Interencing
- ❖ Comprehension monitoring
- ❖ Nonverbal visual-spatial skills

PEARSON

### Alphabetic Principle

The **alphabetic principle** is the understanding that words are made up of letters and letters represent sounds. If a child understands these letter-sound associations, s/he is on the way to reading and writing words.

ALWAYS LEARNING PEARSON

### Alphabetic Principle

- **Alphabetic Awareness:** Knowledge of the letters of the alphabet coupled with the understanding that the alphabet represents the sounds of spoken language and the correspondence of spoken sounds to written language.
- **Alphabetic Understanding:** Understanding that the left-to-right spellings of printed words represent their phonemes from first to last
- **Phonological Recoding:** Translation of letters to sounds to words to gain lexical access to the word (meaning).

ALWAYS LEARNING PEARSON

### Phonological Awareness

- **Phonological Awareness**
  1. Recognizing Word/Sentence Length
  2. Rhyming
  3. Syllabication
  4. Segmenting Onset/Rime
  5. Phonemic Awareness
    - awareness of individual sounds/phonemes in spoken words

ALWAYS LEARNING PEARSON

### Phonemic Awareness Skills

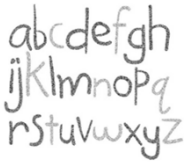
- Identifying Sounds
- Categorizing Sounds
- Blending Sounds
- Segmenting/Sounds
- Deleting Sounds
- Adding Sounds
- Substituting Sounds

ALWAYS LEARNING PEARSON

### The Connection Between Phonological Awareness and Phonics

Phonics

1. Letter / Sound Associations
2. Decoding (reading words)
3. Encoding (spelling)



This photo by Unknown Author is licensed under CC BY

ALWAYS LEARNING PEARSON

### Importance of Phonics Instruction

- **Systematic and Explicit Phonics Instruction Leads to:**
  - Understanding of alphabetic principle
  - Significant improvement in Kindergarten and first grader's word recognition, spelling, and reading comprehension
  - Benefits regardless of socioeconomic status of the students

ALWAYS LEARNING PEARSON

### Could we have missed something?

- Reading researchers cite additional skills (beyond the National Reading Panel and most conventional curriculum programs) that impact reading
- Instruction in specific skills that have shown significant gains in reading is available
- Schools and DOE's are slow to accept the research
- WHY?

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliate(s). All rights reserved. PEARSON

### Reading Research and Practice

- Is there a gap between reading research and classroom practice?
- Example: It was well established in 1980 that Phonemic Awareness was an essential element for successful reading. However PA was not integrated into classroom and instruction. Importance not widely acknowledged until the National Reading Panel in 2000.
- Why the 20 year delay?

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliate(s). All rights reserved. PEARSON

### Reading Research and Practice

- "A Chasm exists" between scientific research into literacy and classroom practice. Quote from American Federation of Teachers (Kilpatrick, 2015)
- Most teachers are unaware of the vast amounts of reading research being conducted annually
- Sally Shaywitz "expresses frustration" over the relative lack of dissemination and practical application of these remarkable advances (2003).
- Undergraduate and graduate textbooks on literacy that were designed to train teachers drew very little from the empirical findings on reading (Kilpatrick, 2015)

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliate(s). All rights reserved. PEARSON

### Reading Research and Practice

- The Reading Wars of the 1980's
  - Heated debates about Whole Language, Phonics, and Reading
  - Many states legislated against scientifically sound reading practices
  - Balanced Approaches were considered unpopular in 1980's
- Inaccessibility of research articles, journals, etc.

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliate(s). All rights reserved. PEARSON

### Could we have missed something?

- Yes, Orthographic Mapping
  - "The most important scientific discovery you've never heard of"
- Definition: The mental process used to store words for immediate, effortless accessibility.
  - Mechanism for **sight word** learning
- Orthographic Mapping is the process children use to turn unfamiliar written words into instantly accessible (recognizable) sight words. (Kilpatrick, 2015)
- Requires letter-sound knowledge, the alphabetic principle, phonological awareness, blending, & vocabulary (Kilpatrick, 2015)

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliate(s). All rights reserved. PEARSON

The image shows the front cover of a book titled "Essentials of Assessing, Preventing, and Overcoming Reading Difficulties". The cover features a photograph of a person's face looking at a document. The title is prominently displayed in a large, serif font. Below the title, there are bullet points highlighting key features of the book: "Provides step-by-step guidelines for organizing an assessment, selecting appropriate instruments, and interpreting results", "Expert advice on formulating interventions and educational programming", and "Conveniently formatted for rapid reference". The authors' names, David A. Kilpatrick, Alan S. Kaufman, and Nadeen L. Kaufman, are listed at the bottom, along with the Wiley logo.

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliate(s). All rights reserved. PEARSON


**International Dyslexia Association**

*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.*

P Pearson 137

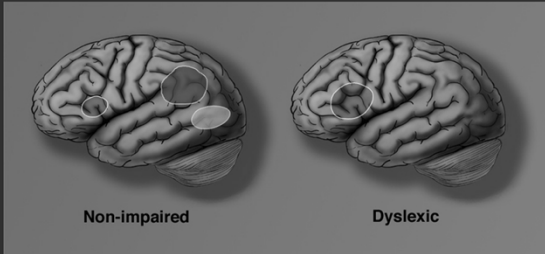
**The Neurobiology of Reading (Typical)**



- ☆ **Vocalization, Articulation**  
(Inferior Frontal Gyrus)
- ☆ **Word Analysis**  
(Parieto-Temporal)
- ☆ **Word Recognition, Automaticity**  
(Occipito-Temporal)

P Pearson Shaywitz (2004) 1 38

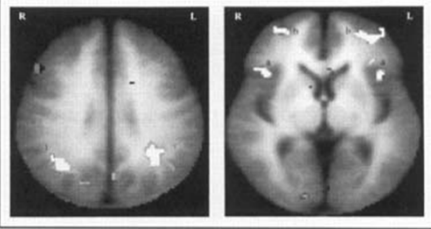
**Neural Signature for Dyslexia:  
Inefficient Posterior Reading Systems**



(Adapted from Shaywitz S. Overcoming dyslexia: a new and complete science-based program for reading problems at any level. New York, 2003. Alfred A. Knopf. Copyright 2003 by S. Shaywitz. Adapted with permission.)

P Pearson

**fMRI Activation: Non-impaired vs. Dyslexic Individuals**



FOR EDUCATIONAL PURPOSES ONLY, with permission  
Shaywitz, S. & Shaywitz, B. (2001)  
<http://www.ncsall.net/index.html#d=278.html>

P Pearson 1 40

**Dyslexia Identification and Services in Texas**

**Texas Education Code (TEC)§38.003** defines dyslexia and mandates testing and the provision of instruction

**State Board of Education (SBOE)** adopts rules and standards for administering testing and instruction

**TEC §7.028(b)** relegates responsibility for school compliance to the local school board

**19 (TAC)§74.28** outlines responsibilities of districts and charter schools in the delivery of services to students with dyslexia

**The Rehabilitation Act of 1973, §504**, establishes assessment and evaluation standards and procedures for students (34 C.F.R. Part 104)

P Pearson 141

**Dyslexia Definition (in Texas)**

**Texas Education Code (TEC)§38.003 definition:**

1. "Dyslexia" means a disorder of constitutional origin manifested by a difficulty in learning to read, write, or spell, despite conventional instruction, adequate intelligence, and sociocultural opportunity.
2. "Related disorders" include disorders similar to or related to dyslexia such as developmental auditory imperceptions, dysphasia, specific developmental dyslexia, developmental dysgraphia, and developmental spelling disability.

P Pearson 142

### Dyslexia Screening

TEC §38.003(a) requires students to be screened or tested, as appropriate, for dyslexia and related disorders at appropriate times in accordance with a program approved by the SBOE. Screening must occur at the end of the school year of each student in **kindergarten** and each student in the **first grade**.

Additionally, students enrolling in public schools in Texas must be assessed for dyslexia and related disorders “at appropriate times” (TEC §38.003(a))

### Dyslexia Guidelines in Texas - 2018

## THE DYSLEXIA HANDBOOK

2018 Update

Procedures Concerning  
Dyslexia and Related  
Disorders

### TX Handbook: Dyslexia Difficulties

- Students identified as having dyslexia typically experience primary difficulties in phonological awareness, including phonemic awareness and manipulation, single-word reading, reading fluency, and spelling.
- Consequences may include difficulties in reading comprehension and/or written expression.
- These difficulties in phonological awareness are unexpected for the student’s age and educational level and are not primarily the result of language difference factors.
- Additionally, there is often a **family history** of similar difficulties.

### TX Handbook: Primary Dyslexia Characteristics

- Difficulty reading words in isolation
- Difficulty accurately decoding unfamiliar words
- Difficulty with oral reading (slow, inaccurate, or labored)
- Difficulty spelling

### TX Handbook: Reading/Spelling Characteristics

- Segmenting, blending, and manipulating sounds in words (phonemic awareness)
- Learning the names of letters and their associated sounds
- Holding information about sounds and words in memory (phonological memory)
- Rapidly recalling the names of familiar objects, colors, or letters of the alphabet (rapid naming)

### TX Handbook: Consequences of Dyslexia

- Variable difficulty with aspects of reading comprehension
- Variable difficulty with aspects of written language
- Limited vocabulary growth due to reduced reading experiences

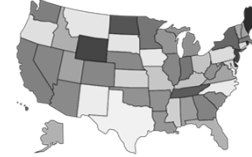


**TX Handbook: Associated Academic Difficulties**

- May also have problems in written expression, reading comprehension, and mathematics
- Most common co-occurring disorders are ADHD & specific developmental language disorders
- May also experience symptoms such as anxiety, anger, depression, lack of motivation, or low self-esteem

**Depends upon**

- Where you live
- How the terms are defined



*Despite claims to the contrary, it is incontrovertible that there are many people who struggle to learn to read (decode) for reasons other than poor teaching. While this condition is widely known as dyslexia, achieving a clear, scientific, and consensual understanding of this term has proven elusive.*

The Dyslexia Debate  
Elliot & Grigorenko, 2014

**History of Dyslexia**

- Dates back to 19<sup>th</sup> century as “word blindness”
- “Dyslexia” first used in 1887 by an ophthalmologist
- Professionals now see dyslexia as Language-based
  - But public still defines as a Visual problem

**Dyslexia and Reversals in Writing**

- **Myth: Dyslexia is a visual problem – dyslexics see words backwards and letters reversed.**  
**Fact:** This was proven inaccurate by a study by Vellutino. He asked dyslexic and non-dyslexic students to reproduce a series of Hebrew letters that none of them had ever seen before. The dyslexic students were able to perform the task just as accurately as the non-dyslexic students, showing that their dyslexia did not affect their eyesight.
- **Myth: Any child who reverses letters or numbers has dyslexia.**  
**Fact:** Up to a certain point, it is considered normal for children to reverse their letters and numbers, and is actually quite common. However, if this does not stop after two years of handwriting instruction, it becomes a red flag for dyslexia

**PROBLEMS**

- Wide ranging incidence rates from 3% to 20%
- Researchers don’t agree on the nature and features of “dyslexia.”
  - Definitions for research different from defining for educational resources
- Research is not clear on the cause of early reading difficulties
  - Deficits are Phonological? Visual & auditory? Rapid naming? Working memory?

**PROBLEMS**

- Dyslexia is supposed to be brain based (not environment/poor teaching) but difficult to tease out the difference
- Lack of agreement about role of IQ
- Label of dyslexia doesn't suggest intervention different from those for other poor decoders

P Pearson 55

**Dyslexia Symptoms**

- Difficulty with decoding single words
  - All poor decoders or just a subset??
- May also have problems with comprehension, fluency, motivation
  - Fletcher calls this "Decoding bottleneck"
- Symptoms have included poor phonological awareness, working verbal memory, weak spelling, slow processing, impaired verbal fluency, frequent letter reversals, and more...

P Pearson 56

**UNEXPECTED?**

- Definitions often include "unexpected poor performance"
  - Difficult to define unexpected
  - Based on intelligence testing? Or failure to respond to intervention?
- Shaywitz says within a "sea of strengths"
  - But some poor readers have flat cognitive profiles
  - Certainly not everyone with dyslexia is gifted...
- IQ does not appear to predict which poor readers will be successfully remediated

P Pearson 57

**Only Smart Kids ??**

*Special difficulties processing the phonological features of language, that can co-exist with above average, average, or below average general intellectual ability.*

Arkansas Dyslexia Resource Guide 2014

ALWAYS LEARNING PEARSON


*The belief that those with dyslexia are high-functioning poor readers, rather than those who represent the full continuum of intellectual ability, has continued to persist despite all evidence to the contrary.*

The Dyslexia Debate  
Elliot & Grigorenko, 2014

P Pearson 59

**Who has Dyslexia?**

- Struggles with accurate single-word decoding
- Struggles with accurate and/or fluent decoding
- Scores at lower end on a test of reading accuracy or fluency
- Decoding difficulties cannot be explained in alternative ways
- Significant discrepancy between decoding performance & IQ
- Decoding difficulty is unexpected
- Decoding skills contrast with strengths in other domains
- Decoding problems are biologically determined
- Decoding problems marked by associated cognitive difficulties (phonological, rapid naming, working memory deficits)
- History of very poor spelling
- Discrepancy between decoding and listening comprehension
- Fail to make progress in decoding with high-quality, evidence-based intervention



P Pearson 60

### General Agreement on

- Importance of phonological awareness, especially in the early years
- Importance of early intervention for reading difficulties
- Instruction should be structured, comprehensive, and individualized
  - Highest effect sizes for early intervention (1st grade) and smaller group sizes
  - Lack of evidence for visual/auditory training, visual-motor activities, vision therapy, tinted lenses, biofeedback, fatty acids

P Pearson 61

### Cognitive Deficits in Dyslexia

- **Primary: Phonological deficit**
- Also have been researched:
  - Rapid Naming
  - Working Memory
  - Auditory processing
  - Visual processing

P Pearson 62

*Although the phonological deficit theory continues to dominate, the notion of a single homogeneous deficit is now recognized as inadequate. Phonological weakness, seemingly the most influential cognitive component, cannot account for the difficulties of all those with reading disability.*

The Dyslexia Debate  
Elliot & Grigorenko, 2014

P Pearson 63

### Dyslexia is often synonymous with

Reading Disability  
Reading Disorder  
Learning Disability in Reading  
Specific Reading Disability  
Specific Reading Difficulty

*Sometimes used to refer to a more specific group of **poor decoders***

P Pearson 1

### The Paradox of Dyslexia

Amy has difficulty reading the word *volcano*.

Shaywitz, S. (2003). Overcoming dyslexia: a new and complete science-based program for reading problems at any level. New York: Knopf.


ALWAYS LEARNING PEARSON

### The Paradox of Dyslexia

When shown a picture of a volcano, she retrieves *tornado*, a word that sounds similar.

ALWAYS LEARNING PEARSON

### The Paradox of Dyslexia



Once Amy hears the word *volcano*, it's clear she knows exactly what it means.

ALWAYS LEARNING PEARSON

### What we all know... (is impressive!)

- We all know reading disabilities when we see them. (No operational model, psycho-educational testing, score wizardry, psychometric gymnastics, or state regulations needed)
- No matter how you operationalize the concept or diagnosis/identify a learning disability, it does come down to some type of discrepancy.
- Again - with no testing or scores involved - dyslexia is determined here from the fact that Amy's reading skills are discrepant from her level of knowledge. (This is what we mean by "unexpectedness" when we talk about a learning disability.)

ALWAYS LEARNING PEARSON

### Dyslexia Facts

- In the US, NIH research has shown that dyslexia affects 5-10% of the population
- Some people may have more mild forms, while others may experience it more severely.
- Dyslexia is one of the most common causes of reading difficulties in elementary school children.
- Only 1 in 10 children with dyslexia will qualify for an IEP and receive special education services

ALWAYS LEARNING PEARSON

### Why is it more desirable to have dyslexia than a reading disability?

- Dyslexia is a meme
  - Unit of cultural transmission
  - Meme survives because it's easy to understand, communicate & remember
    - Not because it is true, useful, or potentially harmful

»*The Dyslexia Debate*

ALWAYS LEARNING PEARSON

### Mascolo says.....

- "Overall, it can be useful to adopt a "shared language" when speaking of SLD - - a group of terms that we can filter other diagnostic labels through so that we can readily understand what is being talked about"
- Mascolo, J. (2015). Learning disability identification: Linking assessment to intervention. Webinar series: Cause and effect: Why your students are struggling and what to do about it. Downloaded March 12, 2015 from <http://www.pearsonclinical.com/events/webinars/topiclisting/cause-and-effect.html>
- The importance of a shared language...

ALWAYS LEARNING PEARSON

### Qualifying for Special Education

1. Student has an IDEA disability condition
2. Student has a need for special education and related services

Specially Designed Instruction (SDI) = adapting the content, methodology, or delivery of instruction to address the unique needs of the student that result from the disability

ALWAYS LEARNING PEARSON

### Types of Reading Difficulties

R = D X LC

	Strong Language Comprehension	Weak Language Comprehension
Strong Word Reading	<b>Typical Reader</b>	<b>Hyperlexic</b>
Weak Word Reading	<b>Dyslexic or Compensator</b>	<b>Mixed Reading Difficulty</b>

ALWAYS LEARNING PEARSON

### Importance of Understanding the Written Word

- The snables tramped the mengs to the dwip. The dwip fropped. The Mengs clambd a sib boogle. The snables gicked and gicked.
- What did the snables do first?
- What happened to the dwip?
- What kind of boogle did the Mengs clamb?
- What did the snables eventually do?
- Why can you answer these questions? What do you know?

Kilpatrick, (2015), p. 48

ALWAYS LEARNING PEARSON

### What do we know about Reading Problems?

Students have persistent reading and/or writing problems for different reasons.

- Word reading and spelling may be impaired relative to verbal comprehension
- Handwriting and/or spelling may be impaired relative to verbal comprehension
- Language processing and verbal expression may be impaired relative to verbal comprehension

ALWAYS LEARNING PEARSON

### What do we know about Reading Problems?

- Students have persistent reading and/or writing problems for a variety of reasons.
- One reason is dyslexia, which is *impaired word reading and spelling* relative to verbal comprehension, in a profile of otherwise normal cognitive and language development.
- Students with dyslexia may also have dysgraphia.
- Dysgraphia is impaired *handwriting and/or spelling* relative to verbal comprehension, despite otherwise normal cognitive and language development.
- Dysgraphia may or may not occur simultaneously with dyslexia.

ALWAYS LEARNING PEARSON

### Reading Facts:

- Many referrals are due to Reading Comprehension weaknesses
- For best results intervening with young children, focus on:
  - Alphabetic Principle
  - Phonemic Awareness
  - Fluency

ALWAYS LEARNING PEARSON

### Virginia Beringer Research Findings

- 1) Early intervention makes significant difference, can improve skills of at-risk learners to expected levels.
- 2) Intervention instruction must be explicit.
- 3) Balanced and integrated approach for reading/writing instruction is most effective.
- 4) Phoneme awareness and decoding skills are crucial for learning to read.

ALWAYS LEARNING PEARSON

### Berginger Research Findings

- 5) Not the same thing:
  - qualifying student as LD for special education services
  - diagnosing a specific learning disability
- 6) Students do NOT outgrow reading/writing disabilities over time. Critical developmental periods for instruction.
- 7) Instruction can occur in a variety of general and special educational settings.
- 8) Intervention should facilitate the development of a **functional reading and writing system**.

ALWAYS LEARNING PEARSON

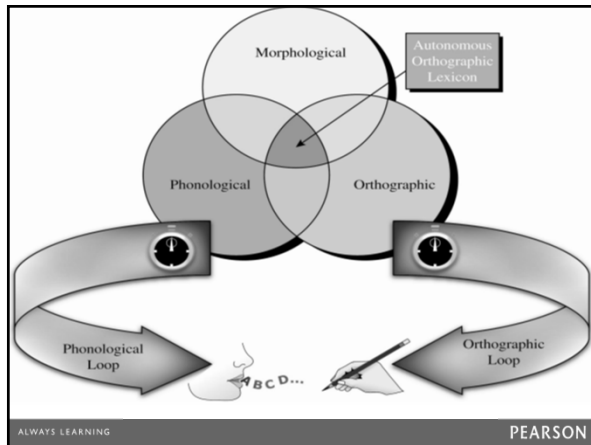
### Basic Definitions

Phonology – How sounds (*phonemes*) are organized and used to produce meaning

Orthography – How sounds are represented by written or printed symbols (*graphemes*)

Morphology – How words are formed or structured (from *morphemes*)

ALWAYS LEARNING PEARSON



### Beringer: Types of Learning Disabilities

Scientifically supported diagnosis is as important as scientifically supported instruction.

3 Research-Supported Specific Written Language Disabilities

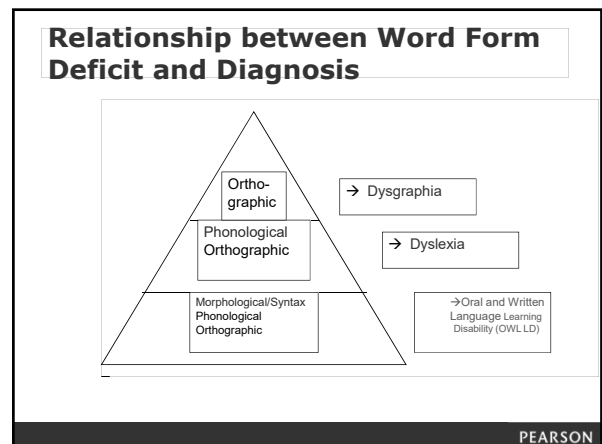
- Dyslexia, or a Specific Reading Disability
- Oral/Written Language LD
- Dysgraphia

ALWAYS LEARNING PEARSON

### Differential Diagnosis Related to Coding of Three Word Forms

- The nature of the specific written language deficit is related to the coding operation (storage and processing for phonological, orthographic, and morphological word forms) that is impaired.
- Those with orthographic coding impairment only are likely to have dysgraphia.
- Those with orthographic coding and phonological coding impairment are likely to have dyslexia.
- Those with impaired orthographic, phonological, and morphological/syntactic coding are likely to have OWL LD.

ALWAYS LEARNING PEARSON



### Not all Reading Problems are Dyslexia (Berninger, 2006)

- **Dyslexia** is a specific type of reading disability affecting accuracy and rate of reading real words, phonological decoding, oral reading of passages, and written spelling.
- Dyslexia: Phonological core deficit in storage, phonological loop, and executive functions.
- Except for phonological processing, oral language skills are spared and comprehension is good.

ALWAYS LEARNING

PEARSON

### Not all Reading Problems are Dyslexia (Berninger, 2006)

#### OWL LD

- In oral and written language learning disability (OWL LD), oral language skills, including comprehension, are impaired in addition to the same skills that are impaired in dyslexia.
- Preschool history of some difficulty learning oral language
- Problems in decoding, reading words, oral reading fluency, and/or reading comprehension

ALWAYS LEARNING

PEARSON

### Not all Reading Problems are Dyslexia (Berninger, 2006)

#### OWL LD con't

- Problems in writing (spelling + syntax)
- But substantial oral language problems in phonological, morphological, and syntactic awareness and often word retrieval.
- Struggle in learning oral language and then in using oral language to (a) learn from teacher talk and (b) learn written language.

ALWAYS LEARNING

PEARSON

### Phonological vs Orthographic Processing

- *Phonological processing* disorder and *orthographic processing* disorders refer to the particular brain processes at work in people who experience difficulty when they read. **An individual who has a phonological processing disorder will have difficulty perceiving and manipulating the phonemes that would enable them to "hear" the sounds of the words they read.\***

- \* Shaywitz, S. (2003) *Overcoming Dyslexia: A new and complete science-based program for reading problems at any level.* New York: Knopf
- [http://www.cullinaneducation.com/learningdifferences\\_Dyslexia.html](http://www.cullinaneducation.com/learningdifferences_Dyslexia.html)

ALWAYS LEARNING

PEARSON

### Phonological vs Orthographic Processing

- *Orthographic processing* involves recognizing and remembering the **spatial orientation and sequence of language symbols.** When individuals with orthographic processing disorders attempt to read, their brains have trouble perceiving and/or processing the direction and sequence of written language.

- \* Shaywitz, S. (2003) *Overcoming Dyslexia: A new and complete science-based program for reading problems at any level.* New York: Knopf
- [http://www.cullinaneducation.com/learningdifferences\\_Dyslexia.html](http://www.cullinaneducation.com/learningdifferences_Dyslexia.html)

ALWAYS LEARNING

PEARSON

### Phonological Processing and Working Memory

- Phonological processing is important to reading by supporting the role of working memory in reading comprehension (Rayner, Pollatsek, Ashby, & Clifton, 2011).

ALWAYS LEARNING

PEARSON

### Importance of Research Supported Diagnosis

Research supported diagnosis is important because there are instructional implications.

- Students with dyslexia need more systematic and explicit instruction in word decoding than their grade level peers.
- Once they learn to decode, their reading comprehension typically develops normally.

ALWAYS LEARNING PEARSON

### Importance of Research Supported Diagnosis

- Students with a language learning disability need systematic and explicit instruction in oral language (morphological and syntactic awareness) *and* in reading comprehension and decoding.
- Students with dysgraphia need systematic, explicit (not incidental) handwriting and spelling instruction.

ALWAYS LEARNING PEARSON

### Another View of Reading Disability Subtypes (Feifer)

- Dysphonetic Dyslexia – difficulty sounding out words in a phonological manner (BRS)
- Surface Dyslexia – difficulty with the rapid and automatic recognition of words in print (RF)
- Mixed Dyslexia – multiple reading deficits characterized by impaired phonological and orthographic processing skills. It is probably the most severe form of dyslexia. (BRS/ RF)
- Comprehension Deficits – the mechanical side of reading is fine but difficulty persists deriving meaning from print

Feifer, S. (2011). How SLD Manifests in Reading Achievement. In Flanagan & Alfonso (Eds), Essentials of Specific Learning Disability Identification. Hoboken, NJ: Wiley.

ALWAYS LEARNING PEARSON

### Learning Disorders Reading: Subtypes

1. Phonological
2. Orthographic
3. Mixed Phonological-Orthographic
4. Language
5. Comprehension deficit
6. Fluency subtype
7. *Global*

Dysgraphia (often a co-occurring condition with one of the other listed subtypes)

PEARSON Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

### 1. LD Reading Subtype: Phonological

- Phonological is the core deficit
- Have difficulty mentally representing the sound patterns of the words in their language
  - Causes great difficulty in using the phonological route to reading and spelling
- Over-rely on visual and orthographic cues while reading
- May memorize whole words as a strategy for word recognition
- Sometimes referred to as dysphonetic or phonological dyslexia.

ALWAYS LEARNING PEARSON

### LD Reading Subtype: Phonological

These students

- rarely use letter-to-sound conversion
- have marked difficulty reading nonsense words
- typically show a relative strength in reading exception (irregular) words, which they have memorized

A phonological core deficit may be accompanied by deficits in cognitive processing and may impact functioning in other academic skills such as writing and spelling.

ALWAYS LEARNING PEARSON



## 2. LD Reading Subtype: Orthographic

- Strong phonemic processing skills
- Strong listening comprehension skills
  - They know the answer to teachers' questions.
  - They glean a lot of information from the classroom experience.
- Weak word recognition skills
- Weak orthographic coding
  - ability to hold word in memory and access the whole word pattern

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

## LD Reading Subtype: Orthographic

- Have difficulty in using the visual-lexical route to reading and writing words.
- Instead, the phonological route to lexicon is used
- Tend to sound words out letter by letter, over relying on sound-symbol relationships.
- Pseudoword reading is typically better than real word or exception word reading because non-words are usually phonetically decodable

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

## LD Reading Subtype: Orthographic

- Depend on sounding out words, but rarely hold the words in their sight word list (lexicon).
- Struggle with spelling new words.
- Generally writing is also a deficit for these children.
- Sometimes referred to as *surface dyslexia*, *visual form dyslexia* or *dyseidetic dyslexia*.
- Impacts learning to read and decode words, thus, impacting overall reading fluency

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

## 3. LD Reading Subtype: Mixed Phonological and Orthographic

- Strong in Listening Comprehension
  - Learn better with direct instruction and experiential learning
- Mixed LD reading is manifested in weaknesses in:
  - Phonological Processing
  - Decoding
  - Word Reading
  - Reading Fluency, and
  - Spelling

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

## LD Reading Subtype: Mixed Phonological and Orthographic

- More frequently occurring than either Phonological or Orthographic
- Causes great difficulty in using the phonological route to reading and spelling, as well as difficulty in using the visual-lexical route to reading and writing words
- Causes severe impairment in learning to read
  - They have no usable key to the reading and spelling code, and seemingly arbitrary error patterns are often observed.
- Difficulty mentally representing sound patterns of words in language

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

## 4. LD Reading Subtype: Language

- Students with a language impairment, sometimes referred to as Oral and Written Language Learning Disability (OWL-LD), (Grammatical) Specific Language Impairment (SLI or G-SLI), or Language Learning Disability (LLD), have problems in both oral and written language
- Students with OWL-LD show particular difficulty processing grammar and syntax.
- Adequate *nonverbal* cognitive ability is observed.

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

**LD Reading Subtype: Language**

- Weaknesses
  - Reading comprehension
  - Listening comprehension
  - Orthographic coding, and
  - Oral grammar
- Strengths
  - Word recognition
  - Decoding/ nonsense word reading

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

**LD Reading Subtype: Language**

- Some children respond well to a multisensory or VAKT (verbal-auditory-kinesthetic-tactile) approach
  - Need input from more than one modality to help them perceive or retain information.
- Other children are overloaded by multisensory inputs and become confused by having to assimilate information through multiple systems at the same time

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

**5. LD Reading Subtype: Comprehension**

- A specific comprehension deficit is sometimes referred to as hyperlexia.
- Hyperlexia can refer to
  - Students who exhibit poor language comprehension skills and exceptional word recognition and decoding skills OR
  - Students with poor language comprehension and relatively good basic reading skills
- Have difficulty with listening comprehension and reading comprehension
  - Read accurately and fluently, but fail to grasp the meaning of what they have read

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

**LD Reading Subtype: Comprehension**

- Specific comprehension difficulties include
  - making inferences
  - monitoring understanding
  - using strategies to resolve ambiguity
  - inhibiting irrelevant information
- Relative strengths
  - phonological processing
  - naming speed

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

**6. LD Reading Subtype: Reading Fluency**

- Students with poor reading fluency due to a *naming speed deficit* typically have *adequate phonological processing skills*
- Able to read and decode words accurately, but they read connected text very slowly
- Reading fluency deficits cannot be identified until word-reading skills are acquired; however, naming speed deficits may be identified earlier.
- Specific deficits in naming speed have been shown to impede reading fluency.

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

**A Note About Rapid Naming**

- RAN is a type of phonological processing.
- RAN of digits, letters, objects, or colors require efficient retrieval of phonological information from memory
- Unlike PA and Phonological Memory (both auditory-oral) rapid naming has visual components.
- Therefore, RAN is best thought of as being a HYBRID ability, in that successful performance depends on how fast an examinee can scan the visual stimuli and encode a phonological response.
- This is the same type of mixed modality ability that underlies decoding when reading aloud.

ALWAYS LEARNING

Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved.

PEARSON

**LD Reading Subtype:  
Reading Fluency**

- According to the Double-Deficit Hypothesis, most students with reading disorders can be classified as one of two single-deficit subtypes that are relatively independent of each other (phonological or rate deficit) or as one combined double-deficit subtype.
- Weaknesses in reading fluency due to a **naming speed deficit** is sometimes referred to as a *rate deficit* or *specific reading fluency deficit*.
- Reading fluency is considered the bridge to comprehension; hence, slow reading fluency typically impedes comprehension.

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved. **PEARSON**

**7. LD Reading Subtype: Global**

- A global reading impairment is sometimes associated with the term nonspecific language impairment or, as a group, “garden variety poor readers”
- Students with global reading impairment are remarkably similar to younger children reading at the same grade level.
- Probably the most common profile of reading difficulty but not SLD (they don’t qualify).

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved. **PEARSON**

**LD Reading Subtype: Global**

- Difficulty with all reading-related skills, including: word recognition, decoding, reading fluency, reading comprehension, and listening comprehension.
- A subset of students with a global reading impairment also show phonological processing deficits due to difficulty mentally representing the sound patterns of the words in their language.
- These students have low average verbal and nonverbal cognitive processing abilities (IQ standard scores between 70 and 90), but they do not exhibit deficits in adaptive functioning.

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved. **PEARSON**

**LD Reading Subtype: Global**

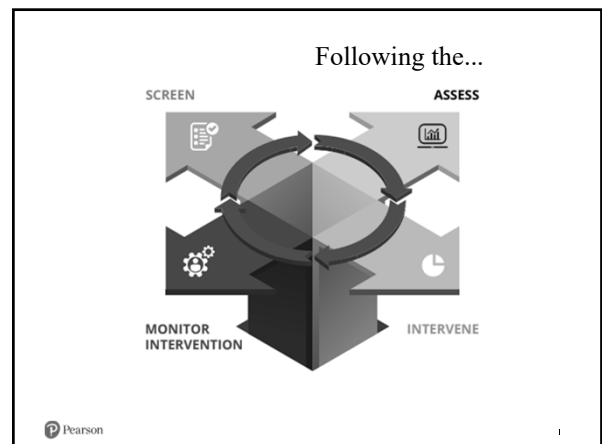
- Given that these students have learning problems that are consistent with estimates of their cognitive ability (in other words, their learning difficulties are not unexpected), this subtype does not meet contemporary operational definitions of a specific learning disability.
- Research suggests that students with global reading impairment can benefit from intervention in a comparable manner to students with higher IQs and more specific areas of weakness

ALWAYS LEARNING Copyright © 2014 Pearson Education, Inc. or its affiliates. All rights reserved. **PEARSON**

***Dyslexia Assessment  
Workflow:***

***A Best Practice Model for Addressing  
Dyslexia and Screening Mandates***

Pearson



# DYSLEXIA

## SYMPTOMS

Lack of response to treatment

**Pre-reader difficulties**

- Alphabet writing
- Phonics/Letter knowledge

**Reader difficulties**

- Word reading/Decoding
- Reading fluency
- Spelling
- Written expression
- Reading comprehension < Listening comprehension

## CAUSES/CORRELATES

- Phonological processing
- Rapid automatic naming
- Auditory working memory
- Processing speed
- Long-term storage and retrieval
- Associative memory
- Orthographic processing

## RISK FACTORS

- Family history
- Language impairment/ Poor receptive vocabulary

\*Low scores on a dyslexia screening test

Breaux, K. & Ehrhardt, T. (2017). Pearson Clinical Assessment Solutions: A Dyslexia Toolkit. NCS Pearson, Inc. San Antonio, TX. #15

## Pearson Dyslexia Toolkit

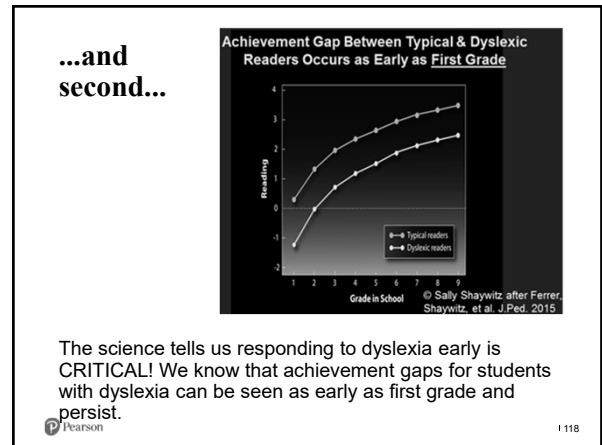
SCREEN	ASSESS	INTERVENE	MONITOR
Shaywitz DyslexiaScreen™	Kaufman Test of Educational Achievement™, Third Edition (KTEA™-3) Comprehensive Form	Intervention Guide for LD (Learning Disability) Subtypes	Review360® for SLPs
aimswebPlus*	Process Assessment of the Learner, Second Edition™, Diagnostics for Reading and Writing (PAL™-d) Reading and Writing	Process Assessment of the Learner (PAL™) reading and writing lessons	aimswebPlus
Kaufman Test of Educational Achievement™, Third Edition (KTEA™-3) Brief Form	Wechsler Individual Achievement Test™, Third Edition (WIAT™-III)	KTEA-3 teaching objectives and intervention statements WIAT-III intervention goal statements	Growth Scale Value (GSV) Scores
Dyslexia index scores from the KTEA-3 and WIAT-III	Woodcock Reading Mastery Tests™, Third Edition (WRMT™-III)	SPELL-Links™ to Reading & Writing SPELL-Links Class links for Classrooms™	

#16

## First...

The path to address Dyslexia in schools should begin in **general education with universal screening.**

#117

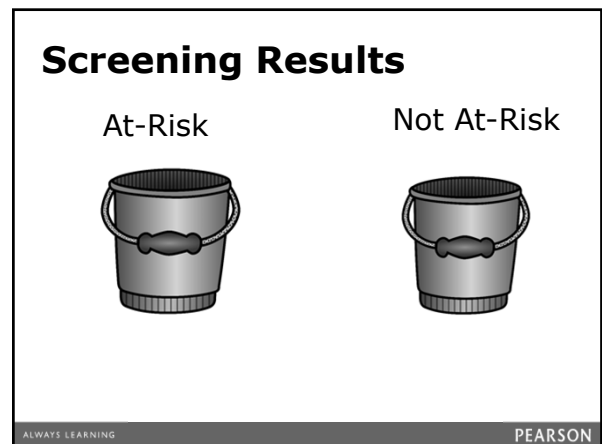


## Screening Versus Assessment


- “Screening” instrument--by definition--should quickly “sort” students into two groups: “at risk” vs. “not at risk.”
- Data representing performance from those with and without the condition in order to validate the instrument for this purpose
- Minimal investment of resources (cost, time-on-task for student/teacher, etc.)

*In contrast, diagnostic/assessment instruments are intentionally designed to probe more broadly and deeply.*

ALWAYS LEARNING PEARSON



### Limitations of a Screener



- **A screener by definition is NOT COMPREHENSIVE**
  - Does not provide a diagnosis
  - Should not be used to identify the degree of impairment
  - Should not be used to identify pattern of strengths and weaknesses
- Error rates: Minimize False positive and False negatives

P Pearson 1

### Screeners can be either...

**Performance-based**  
*(assessing skills)*

or

**Rating-based**  
*(rating related characteristics/behaviors)*

*(most are performance-based)*

P Pearson 1

### Examples of Screeners for Reading or Dyslexia

- Pearson
  - **Shaywitz DyslexiaScreen**
    - Dyslexia Specific
    - Rating scale
  - **aimsweb Plus**
- KTEA-3 and WIAT-III Dyslexia Index Scores
- Others
  - DIBELS Next
  - Istations (ISIP-ER)
  - TPRI
  - Measure of Academic Progress (MAP)

P Pearson 1 123

### SCREENING

**Figure 2.2. Criteria for English and Spanish Screening Instruments**

Kindergarten	First Grade
<ul style="list-style-type: none"> <li>• Phonological Awareness</li> <li>• Phonemic Awareness</li> <li>• Sound-Symbol Recognition</li> <li>• Letter Knowledge</li> <li>• Decoding Skills</li> <li>• Spelling</li> <li>• Listening Comprehension</li> </ul>	<ul style="list-style-type: none"> <li>• Phonological Awareness</li> <li>• Phonemic Awareness</li> <li>• Sound-Symbol Recognition</li> <li>• Letter Knowledge</li> <li>• Decoding Skills</li> <li>• Spelling</li> <li>• Reading Rate</li> <li>• Reading Accuracy</li> <li>• Listening Comprehension</li> </ul>
End of year	No later than Jan 31st

P Pearson 124

### Why are we screening so many areas?

**TEC §28.006, Reading Diagnosis**  
This state statute requires schools to administer early reading instruments to all students in kindergarten and grades 1 and 2 to assess their reading development and comprehension.

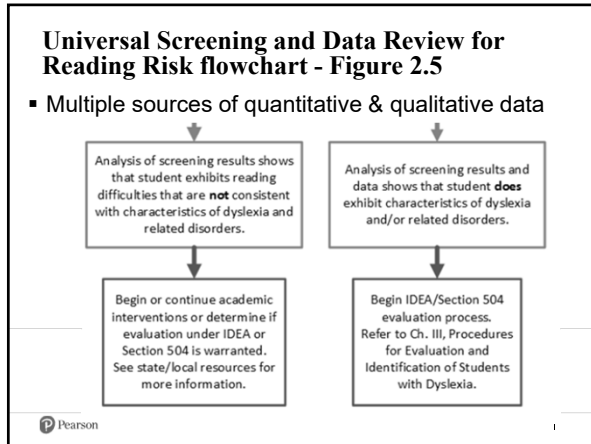
Additionally, the law requires a reading instrument from the Commissioner's approved list be administered at the beginning of grade 7 to any student who did not demonstrate proficiency on the reading assessment administered under TEC §39.023(a).

P Pearson 125

### After Screening: Interpretation

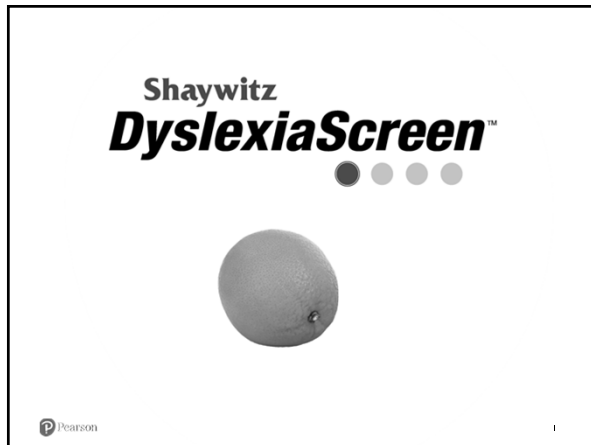
- *Parents/guardians have the right to request a referral for a dyslexia evaluation under IDEA or Section 504 at any time.*
- *Districts must ensure that evaluations of children suspected of having a disability are not delayed or denied because of implementation of tiered interventions or RTI.*

P Pearson 1 126



### Combining Two Methods to Make Screening Process More Precise

- Screener identifies approximately 20% of a typical classroom as "at-risk", more if it's a Title 1 classroom
- **A Hybrid Screening Method: 2-Stage Performance and Rating**
  1. Use Reading measure (such as aimswebPlus) to determine performance
    - Shows us who is having difficulty reading
    - Validates question of "poor reading performance"
  2. After 6-8 weeks with student in classroom, teacher completes the Shaywitz DyslexiaScreen
    - Shows us who is "at-risk" specifically for Dyslexia
    - Gives us better idea for "next steps"



### Shaywitz DyslexiaScreen

- Brief teacher survey for identifying students at-risk for dyslexia.
- Intended for use with students experiencing academic difficulties, but can also be used to screen all students.
- Therefore...universal or Tier 2 capable
- 5 minutes (or less) using an online form
- Digital administration and scoring
- The classification accuracy data indicate moderately high sensitivity and specificity

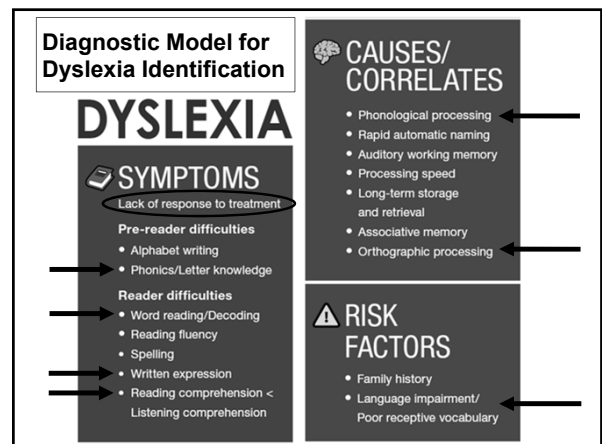
### What does the SDS measure?

Observational Ratings Analyze:

1. Phonological,
2. Linguistic, and
3. Academic performance

Ratings based on classroom teacher observations

- Subjectivity limited because teacher answers questions after having worked with student daily for 6-8 weeks.



**Shaywitz  
DyslexiaScreen**

## Forms

- The Shaywitz DyslexiaScreen offers four forms:
  - Form 0:** Grade K (Ages 5-6) consists of 10 items.
  - Form 1:** Grade 1 (Ages 6-7) consists of 12 items.
  - Form 2:** Grade 2 (Ages 7-8) consists of 10 items.
  - Form 3:** Grade 3 (Ages 8-9) consists of 10 items.

Pearson 1133

**Shaywitz  
DyslexiaScreen** Form 0: Kindergarten (Ages 5-6)

How often does the student...	Never	Rarely	Sometimes	Often	Almost Always	Always
<b>Language</b>						
1. Tell a story in a logical sequence?						
2. Express ideas in jumbled or incomplete sentences?						
3. Have trouble expressing his/her thoughts in words?						
4. Have trouble identifying letters or numbers?						
5. Speak in a way that is difficult to understand?						
6. Require extra help—gestures, repetition—to follow verbal directions?						
<b>Academics</b>						
7. Show interest in books and reading?						
8. Associate sound with letter correctly?						
<b>How likely do you think it is that the student...</b>						
	Definitely Likely	Very Likely	Moderately Likely	Moderately Unlikely	Very Unlikely	Not at All Likely
9. Has a problem learning?						
10. Will be ready (i.e., academically prepared) to go to the next grade?						

Pearson 1134

**Shaywitz  
DyslexiaScreen**

## Reports

- Results include a simple classification:
  - At Risk for Dyslexia or
  - Not At Risk for Dyslexia
- Two report options: Individual or Group

Pearson 1135

## Shaywitz DyslexiaScreen Evidence Base

- Developed from a sample of students followed prospectively and longitudinally from school entry into early adulthood to study the development of reading, learning, and attention
- Followed by National Clinical Study at each level
  - Excellent reliability & validity data

Pearson 1136

## Classification Accuracy

- Sensitivity (True Positives)
  - Proportion of students identified with dyslexia who are classified as At Risk for Dyslexia by the teacher ratings
- Specificity (True Negatives)
  - Proportion of students identified as typical readers and classified as Not At Risk for Dyslexia by the teacher ratings

Pearson 1137

## Classification Accuracy (Based on National Clinical Study)

**Table 3.6 Classification Accuracy and ROC Area, by Form**

Shaywitz DyslexiaScreen™	Sensitivity	Specificity	ROC Area
Form 0 (Kindergarten)	.73	.71	.81
Form 1 (Grade 1)	.70	.88	.89
Form 2 (Grade 2)	1.00	.75	.92
Form 3 (Grade 3)	.94	.82	.94

Pearson 1138

### How do we evaluate screener effectiveness?

- 4 points of data
  1. Reliability
    - Reflection of error
  2. Sensitivity and Specificity?
    - True + and False +
    - True – and False –
  3. Area Under the ROC (receiver operating characteristic) Curve (AUC)
  4. Clinical Studies
    - How does it perform?
    - Effect size (differentiates between 2 groups)

### What is Area Under ROC Curve (AUC)?

- History: Developed during World War II to analyze radar and help operators decide whether a blip on the screen represented an enemy target, a friendly ship, or just noise.
- Plot true positive rate against the false positive rate across various thresholds.
- Tests Discrimination: Gives an indication of binomial group distribution (with and without)
- .5 AUC is chance accuracy (worthless, flip a coin)
- 1.0 AUC indicates perfect test
- .80 - .90 + range indicates good to excellent

### Examples of Screener Effectiveness

Test or index score	Grade/ Age	Subtests/Items	Mean reliability	Effect size	AUC	Administration time (min.)
Shaywitz DyslexiaScreen™: Form 0	Kindergarten	10 Items	.87	1.48	.81	< 5
Shaywitz DyslexiaScreen™: Form 1	1	12 Items	.90	0.96	.89	< 5
Shaywitz DyslexiaScreen™: Form 2	2	10 Items	.92	1.47	.92	< 5
WRATS: Reading Composite	1–12+ Ages 6–89+	Word Reading + Sentence Comprehension	.96	1.70	.89	10–20
KTEA™-3 Brief: BA-3 composite	K–12+ Ages 5–25	Letter & Word Recognition + Spelling + Matrix Computation	.98	2.11	.93	20

Note. AUC = Area Under the Curve estimate. Data for KTEA-3, WRAT-III, and WRATS were derived from age-based standard scores. Alpha reliability is reported for the Shaywitz DyslexiaScreen forms; split half reliability is reported for all other tests. All scores from the dyslexia groups were significantly ( $p < .01$ ) lower than those of the nonclinical matched control groups. Clinical  $n$ -counts for the KTEA-3 and WRAT-III Dyslexia Index scores at grades K-1 were insufficient ( $< 20$ ) for group comparisons; for this reason, group means, effect sizes, and AUC estimates for the Dyslexia Index 1 scores were based on a sample of students in grades 1–4, ages 6–10.

### How should I interpret screener results?

- **At Risk for Dyslexia** considerations include:
  - Increasing the frequency and duration of interventions
  - Selecting a more intensive intervention program
  - Closely monitoring the student's academic performance
  - Referring the student for a more comprehensive diagnostic evaluation.
- A student classified as **Not At Risk for Dyslexia**
  - Language and academic skills may be monitored and supported within the general academic setting.
- **Remember, screeners do not provide a diagnosis.**

### Dyslexia Index Scores -Purposes

- Screening
  - Results differentiate between individuals with and without dyslexia.
- Brief administration time & clinical sensitivity
- Identify which students require more frequent progress monitoring, more intensive instruction or intervention, or a comprehensive psychoeducational evaluation.



### KTEA3 Dyslexia Index scores

- Identify risk for dyslexia in Kdg – 12<sup>th</sup> grade or ages 5 through 25
- Obtain Dyslexia Index score in 20 minutes or less
- *A single score such as the Dyslexia Index is not sufficient to diagnose dyslexia. Rather, a diagnosis of dyslexia is based on a convergence of evidence gathered from multiple sources.*



**ABC-II<sup>TM</sup> Dyslexia Index Scores -Purposes**

- Evaluation
  - The KTEA-3 Dyslexia Index scores can serve as a starting point for a more comprehensive psychoeducational test battery.
  - If the Dyslexia Index results suggest that further testing is necessary, administer the KTEA-3 Comprehensive Form
  - All standard scores from the Dyslexia Index subtests can validly be applied to a more extensive assessment using the KTEA-3 Comprehensive

Pearson 1

**ABC-II<sup>TM</sup> KTEA3 Dyslexia Index scores**

- Two Dyslexia Index scores are provided for the KTEA-3: one for grades K-1, and another for grades 2-12
- Each of these Dyslexia Index scores are obtained by administering three subtests from either Form A or Form B of the KTEA-3
- The materials needed to administer and score the Dyslexia Index subtests are available as part of the KTEA-3 Comprehensive Form

Pearson 148

**Predictors of Dyslexia: Early Grades**  
 Breaux, K. C., & Lichtenberger, E. O. (2016). Essentials of KTEA-3 and WIAT-III assessment. Hoboken, NJ: Wiley.

- **Best Diagnostic Predictors:**
  - Letter knowledge (name/sound)
  - Rapid automatic naming
  - Phonological awareness

(Kirby, Parrila, & Pfeiffer, 2003; Schatschneider & Torgesen, 2004)

Pearson 1

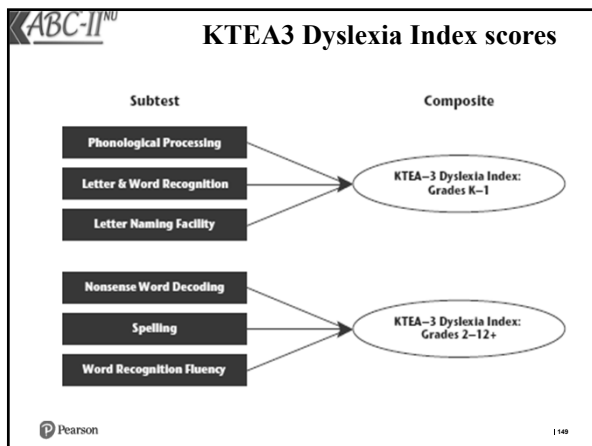
**Predictors: Later Grades**  
 Breaux & Lichtenberger (2016)

- **Best Diagnostic Predictors:**
  - Decoding fluency
  - Text reading fluency

*Not measures of phonological awareness and rapid automatic naming*

(Schatschneider & Torgesen, 2004).

Pearson 148



**KTEA-3 Dyslexia Index Score Computation Form**

Examinee's Name \_\_\_\_\_  
 Grade \_\_\_\_\_ Age \_\_\_\_\_ Test Date \_\_\_\_\_ Form  A  B

Subtest	Composite	Confidence Interval			Percentile Rank	Dyslexia Index Standard Score	Risk for Dyslexia
		85%	90%	95% (circle one)			
Dyslexia Index: Grades K-1							
Phonological Processing						<input type="checkbox"/> >98	Very Low
Letter & Word Recognition						<input type="checkbox"/> 90-97	Low
Letter Naming Facility						<input type="checkbox"/> 85-89	Elevated
						<input type="checkbox"/> 77-84	Moderate
						<input type="checkbox"/> 70-76	High
						<input type="checkbox"/> <70	Very High
Sum: _____							
Dyslexia Index: Grades 2-12+							
Nonsense Word Decoding							
Spelling							
Word Recognition Fluency							
Sum: _____							

Suggested interpretive statement:  
 The examinee's Dyslexia Index score indicates his/her risk for dyslexia is in the \_\_\_\_\_ range.  
 These results on their own are not sufficient to identify or diagnose dyslexia. A comprehensive evaluation (  Yes  No ) is recommended.

Pearson 1

## Dyslexia Index Score Interpretation

Dyslexia Index Standard Score	Risk for Dyslexia
<input type="checkbox"/> ≥98	Very Low
<input type="checkbox"/> 90–97	Low
<input type="checkbox"/> 85–89	Elevated
<input type="checkbox"/> 77–84	Moderate
<input type="checkbox"/> 70–76	High
<input type="checkbox"/> <70	Very High

**Suggested interpretive statement:**  
 The examinee's Dyslexia Index score indicates his/her risk for dyslexia is in the \_\_\_\_\_ range.

These results on their own are not sufficient to identify or diagnose dyslexia. A comprehensive evaluation (  is  is not ) recommended.

| 1

### History and Background Considerations

The following information may be considered as part of the initial screening process or part of a more in-depth evaluation.

Risk Factors for Dyslexia			Exclusionary Factors				
Y	N	DK	Family history of dyslexia	Y	N	DK	Attention disorder (may be comorbid)
Y	N	DK	Difficulty acquiring early reading skills: Letter names, letter-sound correspondence, etc.	Y	N	DK	Cultural/linguistic factors
Y	N	DK	History of language delay or disorder	Y	N	DK	Environmental/economic hardship: Impoverished home environment, caregivers unable to provide instructional support, space/noise concerns, stressful life events, etc.
NOTES:			Instructional factors:				
			Y	N	DK	Mismatch in type/level of instruction, changes in teachers/schools, school attendance, etc.	
			Y	N	DK	Intellectual disability	
			Y	N	DK	Language disorder (may be comorbid)	
			Y	N	DK	Neurogenetic disorder or pervasive developmental disability: Autism, epilepsy, etc.	
			Y	N	DK	Physical health factors: Illness, injury, disease, substance abuse, medications, etc.	
			Y	N	DK	Social and emotional factors	
			Y	N	DK	Vision/hearing difficulties	

| 1

## WIAT3 Dyslexia Index scores

**Subtest** → **Composite**

- Early Reading Skills, Spelling → WIAT-III Dyslexia Index: Grades K-1
- Pseudoword Decoding, Oral Reading Fluency, Spelling → WIAT-III Dyslexia Index: Grades 2-12+

| 153

## KTEA3 Dyslexia Index scores Classification Accuracy

**At-Risk**

**Table 3.6 Classification Accuracy and ROC Area**

Score	Sensitivity	Specificity	ROC Area
KTEA-3 Dyslexia Index: Grades K-1	.95	.85	.90
KTEA-3 Dyslexia Index: Grades 2-12+	.94	.74	.89

## WIATIII Dyslexia Index scores Classification Accuracy

**Table 3.10 Classification Accuracy and ROC Area**

Score	Sensitivity	Specificity	ROC Area
WIAT-III Dyslexia Index: Grades K-1	.83	.81	.88
WIAT-III Dyslexia Index: Grades 2-12+	.90	.78	.90

Note: Results for the Dyslexia Index: Grades K-1 are reported using a 90% confidence interval around the score before applying the cut score of below 90. Results for the Dyslexia Index: Grades 2-12+ are reported using a simple cut score of below 90.

| 153

## Dyslexia Index Scores: Features and Benefits

- Excellent reliabilities (.90s) at every age/grade
- Strong clinical sensitivity
- Administration times range from 12-20 minutes for each score
- Composite structures are based on clinical data as well as a strong empirical foundation
- Results are easy to interpret: 6 categories of Risk for Dyslexia (ranging from very low to very high)
- Manual provides recommendations for next steps
- Response Booklet pages for Spelling subtest (applies to Grades 2-12+ scores) are included as reproducible forms

| 153

## Dyslexia Index Scores: Features and Benefits

- Useful as a quick dyslexia screener that can also contribute to a more in-depth subsequent evaluation using the KTEA-3 or WIAT-III (without re-administering those subtests)
- Included in each of the Dyslexia Index Manuals:
  - Dyslexia Index composite norms tables, reliability, and validity data
  - Score Computation Form and Graphical Profile (reproducible forms for hand scoring)
  - Interpretation guidance and recommendations for next steps
- *Manual can be found in Q-interactive or Digital Assessment Library*

| 153

**How do I select tests for Diagnostic Assessment?**

- Test selection for Diagnostic Assessment should evaluate key components of Dyslexia
  - Strengths
  - Response to treatment (effective instruction)
  - Potential areas of weakness
    - Symptoms
    - Cognitive Correlates
    - Risk Factors
- Psychometric support vs theoretical support
  - Test for reading vs. for dyslexia

Pearson 1157

**2014 TX Dyslexia Handbook: Special Ed?**

*Special education and the assessment through IDEA 2004 may occur when dyslexia is associated with factors complicating dyslexia, thus requiring more support than what is available through the general education dyslexia program.*

Pearson 1158

**TX Dyslexia Handbook 2018**

**Suspicion of Dyslexia or a Related Disorder**  
What type of instruction is needed?

- ✓ Standard protocol dyslexia instruction
- OR
- ✓ Specially designed instruction under IDEA
  - ✓ defined under IDEA as “adapting . . . the content, methodology, or delivery of instruction”
  - ✓ Must address the unique needs of the child that result from the child’s disability and must ensure access to the general curriculum so that the child can meet the state’s educational standards (34 C.F.R §300.39(b)(3)).

Pearson 1159

**Referrals**

```

    graph TD
      A["Suspicion of Dyslexia or a Related Disorder AND the Need for Special Education Services ="] --> B["Evaluate under IDEA"]
      C["Suspicion of Dyslexia or a Related Disorder ="] --> D["Evaluate under 504"]
    
```

Pearson 1160

**TX Dyslexia Handbook (unchanged)**

**Areas for Assessment**

Academic Skills

- ✓ Letter knowledge (name and associated sound)
- ✓ Reading words in isolation
- ✓ Decoding unfamiliar words accurately
- ✓ Reading fluency (both rate and accuracy are assessed)
- ✓ Reading comprehension
- ✓ Spelling

Cognitive Processes

- ✓ Phonological/phonemic awareness
- ✓ Rapid naming of symbols or objects

Pearson 1161

**TX Dyslexia Handbook (unchanged)**

**Areas for Assessment**

Possible Additional Areas

- ✓ Vocabulary
- ✓ Listening comprehension
- ✓ Verbal expression
- ✓ Written expression
- ✓ Handwriting
- ✓ Memory for letter or symbol sequences (orthographic processing)
- ✓ Mathematical calculation/reasoning
- ✓ Phonological memory
- ✓ Verbal working memory
- ✓ Processing speed

Pearson 1162

**Two Types of Assessment**

*from Sattler*

- ❖ Focused = “detailed evaluation of a specific area of functioning”
- ❖ **504 Evaluation (Dyslexia)**
- ❖ Diagnostic = “detailed evaluation of a child’s strengths and weaknesses in several areas such as cognitive, academic, language, behavioral, emotional and social functioning”
- ❖ **Full Individual and Initial Evaluation (FIIE)**

**Comprehensive Instruments for Reading**

	WRMT-III	KTEA-3	WIAT-III
Publication date	2011	2014	2009
User Qualifications	B	B	B
Age	4:6 – 79:11	4:0 – 25:11	4:0 – 50:11
Grade	K-12	PreK – 12	PreK - 12
Alternate forms	A & B	A & B	No
Error analysis	Percent incorrect	Normative	Percent correct
Q-interactive	No	Yes	Yes

**Dyslexia Assessment**

	WRMT-III	KTEA-3	WIAT-III
Phonological Awareness	Y	Y	Y (within Early Reading Skills)
Rapid Naming	Y	Y	NO
Letter Knowledge	Yes	Y (within Letter & Word ID and qualitatively)	Y (within Early Reading Skills)
Decoding	Y	Y	Y
Word Recognition	Y	Y	Y
Fluency	Y (passages)	Y (sight words, nonsense words, silent)	Y (passages)
Spelling	NO	Y	Y
Reading Comprehension	Y (sentences)	Y	Y

**Dyslexia Assessment**

	PAL-II	Other
Phonological Awareness	Y	CTOPP2
Rapid Naming	Y	CTOPP2
Letter Knowledge	Y	
Decoding	Y	
Word Recognition	NO	
Fluency	Y	GORT-5 TOWRE-2
Spelling	Y	
Reading Comprehension	Y	GORT-5

**Letter Knowledge**

**WRMT-III**

Letter Identification

**PAL-II**

Letters

**WIAT-III \***

Early Reading Skills

**KTEA-3\***

**Letter Checklist**

Letter and Word Identification

**WRAT-5** Word Reading

**WORD RECOGNITION**

**KTEA-3**

Letter & Word Recognition

**WIAT-III**

Word Reading

**WRMT-III**

Word Identification

**WRAT-5**

Word Reading


**DECODING**

**KTEA-3**  
Nonsense Word Decoding

**WIAT-III**  
Pseudoword Decoding

**WRMT-III**  
Word Attack

**PAL-II**  
Pseudoword Decoding

 1189

**FLUENCY**

**KTEA-3**  
Word Recognition Fluency  
Decoding Fluency\*  
Silent Reading Fluency  
Fluency Composite\*


**WIAT-III**  
Oral Reading Fluency

**WRMT-III**  
Oral Reading Fluency

**PAL-II**  
RAN-Words, Morphological Decoding Fluency, Sentence Sense

**GORT-5** (Gray Oral Reading Test, 5th edition)

**TOWRE - 2** (Test of Word Reading Efficiency, 2<sup>nd</sup> edition)

 1190

**READING COMPREHENSION**

**KTEA-3** Reading Comprehension


**WIAT-III** Reading Comprehension

**WRMT-III** Passage Comprehension

**PAL-II** Does It Fit?, Sentence Sense (Accuracy),  
Sentence Structure

**WRAT-5** Sentence Comprehension

**GORT-5** Comprehension

 1191


**SPELLING**

**KTEA-3**  
Spelling

**WIAT-III**  
Spelling

**PAL-II**  
Word Choice

**WRAT-5**  
Spelling

 1192

**UNDERLYING CAUSE:  
PHONOLOGICAL AWARENESS**


**CTOPP-2** (Comprehensive Test of Phonological Processing)  
Phonological Awareness Composite - Elision, Blending Words  
and either Phoneme Isolation or Sound Matching subtests

**KTEA-3** Phonological Processing

**WRMT-III** Phonological Awareness

**PAL-II** Rhyming, Syllables, Phonemes, Rimes

**WIAT-III** (Wechsler Individual Achievement Test)\*  
Early Reading Skills (mixed skills)

 1193


**UNDERLYING CAUSE:  
RAPID NAMING**

**CTOPP-2**  
Rapid Naming Composite

**KTEA-3**  
Object Naming Facility  
Letter Naming Facility

**WRMT-III**  
Rapid Automatic Naming


**PAL-II**  
RAN-Letters, RAN-Letter Groups

 1194

**TX Dyslexia Handbook:  
Interpretation of Results**

**Factors to Consider**

- ✓ Educational history
- ✓ Linguistic background
- ✓ Environmental or socioeconomic factors
- ✓ Other pertinent factors that affect learning


 1175

**TX Dyslexia Handbook:  
Interpretation of Results**

**Pattern of Evidence**

Unexpectedly low performance in some or all of the following areas


- ✓ Reading words in isolation
- ✓ Decoding unfamiliar words accurately and automatically
- ✓ Reading fluency for connected text (rate and/or accuracy and/or prosody)
- ✓ Spelling (*an isolated difficulty in spelling would not be sufficient to identify dyslexia*)

 1176

**TX Dyslexia Handbook:  
Interpretation of Results**

**Unexpected**

- ✓ **Unexpected** in relation to the student's other abilities, sociocultural factors, language difference, irregular attendance, or lack of appropriate and effective instruction.
- ✓ **Therefore, it is not one single indicator but a preponderance of data (both informal and formal) that provide the committee with evidence for whether these difficulties are unexpected.**


 1177

**2018 Dyslexia Handbook  
504 and IDEA overlap**

---

2. Is every student identified with dyslexia or a related disorder a person with a disability within the meaning of Section 504?

To be a person with a disability within the meaning of Section 504, the student must have an impairment that substantially limits a major life activity such as caring for one's self, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working (34 C.F.R. §104.3(j)). Learning, reading, and writing are all major life activities. Therefore, a student with dyslexia or a related disorder may be considered to have a disability within the scope of Section 504 if the condition substantially limits the student's academic functioning or other major life activity. All students who qualify for IDEA would also be considered students who meet the criteria for Section 504 and would be protected under both statutes. If the dyslexia or related disorder impairs a student's ability to learn, the student has a disability and is protected by and must be served in accord with the requirements of Section 504. If the student also needs special education services as a result of this disability, the student is served under IDEA but continues to receive the protection from discrimination afforded by Section 504.

 1178

**Case Study: Meghan**

- Grade: 1 (September)
- Age: 6-years 2-months at time of testing

**Background Information:**

- Meghan was assessed at the request of her kindergarten teacher and her parents, who were concerned about her progress in learning to read.
- The teacher reported that she appeared engaged during lessons that involved phonological analysis and when being read to.
- Her parents reported reading to her nightly, an activity that she loved.
- The assessment was conducted to obtain a more complete picture of Meghan's development in learning to read.

**Meghan's WRMT-III Score Summary**

	Standard Score	Percentile Rank	Category
Letter Identification	71	3	Low
Phonological Awareness	90	25	Average
Rapid Automatic Naming	---		
<b>Readiness Composite</b>	---		
Word Identification	86	18	Below Average
Word Attack	88	21	Below Average
<b>Basic Skills Composite</b>	<b>86</b>	<b>18</b>	<b>Below Average</b>
Word Comprehension	93	32	Average
Passage Comprehension	90	25	Average
<b>Reading Comprehension</b>	<b>91</b>	<b>27</b>	<b>Average</b>
Listening Comprehension	97	42	Average

### Meghan: Description of Performance

#### **Rapid Automatic Naming**

- Meghan did not receive a score for this test because she was unable to name three of the letters during the Number and Letter Naming trial.

181 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

### Meghan: Interpretation

#### **Letter Identification:**

- Meghan correctly recognized 13 letters, so her percentile rank was only 3 (a performance well below average for a student beginning first grade).
- Suggests she will find grade-level letter identification tasks extremely difficult.
- Her RPI was 44/90, indicating she is performing with only 44% success those letter identification tasks performed with 90% success by average beginning first graders.

182 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

### Meghan: Interpretation

#### **Phonological Awareness:**

- Meghan's percentile rank was 25, which is in the average range.
- She correctly answered all of the items on First-Sound Matching and Last-Sound Matching.
- In Rhyme Production, she was able to produce words that rhymed with the key word in 4 out of 6 instances, involving *-ay*, *-at*, *-ail*, and *-ot*.
- However she was able to correctly answer only three Blending items and two Deletion items.

183 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

### Meghan: Interpretation

#### **Word Identification and Word Attack**

- Meghan answered only one Word Identification item correctly, earning a 14/90 RPI, indicating that she is expected to find nearly impossible those tasks that average beginning first graders are expected to perform with 90% success.
- She also answered only one Word Attack item correctly, resulting in a percentile rank of 21.
  - Although this score is considered average with respect to other first graders, her RPI of 47/90 suggests that decoding tasks will be perceived as very difficult for her.

184 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

### Meghan: Interpretation

#### **Passage Comprehension**

- Meghan was able to answer only one Passage Comprehension item correctly, resulting in a percentile rank of 25 and an RPI of 36/90.

#### **Oral Reading Fluency**

- Because Meghan was unable to read, she could not complete Oral Reading Fluency.

185 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

### Meghan's KTEA-3 Score Summary

	Standard Score	Percentile Rank	Category
Object Naming Facility	94	34	Average
Word Recognition Fluency	74	4	Low
Spelling	70	2	Low
Written Expression	68	2	Very Low
Written Language Composite	67	1	Very Low

186 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

Meghan: Description of Performance

**Object Naming Facility**

- Meghan was administered this subtest from the KTEA3 since she was unable to complete number and letter naming on the WMRT-III.
- Her score of 94 was in the Average range.

187 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

Meghan: Description of Performance

**Word Recognition Fluency**

- Meghan was administered this subtest from the KTEA3 since she was unable to read passages on the WMRT-III.
- Her score of 74 was in the Low range. Meghan was only able to read 3 words correctly.

188 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

Meghan: Description of Performance

**Written Language**

- Meghan obtained a score of 70 (Low) on the KTEA-3 Spelling subtest due to her limited ability to write letters or words.
- She was administered the Level 1 items for the KTEA-3 Written Expression subtest . Meghan had difficulty with writing some letters, as well as words. Her score of 68 is in the Very Low range.

189 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

Meghan: Conclusions

- **Meghan appears to have characteristics of Dyslexia.**
- She can match initial & final sounds & produce rhymes; but she needs to identify more letters, especially consonants
- Megan also needs practice in writing her letters and basic sight words.
- Meghan could benefit from increased practice on the phonological skills of phoneme deletion and blending.
- She may benefit from learning sight words through repeated exposure
- Meghan may also benefit from instruction regarding applying her phonological skills to sounding out unfamiliar words.

190 | Copyright 2011. Pearson Education and its Affiliates. All rights reserved

**Do you screen cognitive ability for 504 evaluations?**

What tests do you use?

Pearson Level B assessments:

KBIT-2

Ravens-2

PEARSON

**US DOE Oct 2015**

- <https://www2.ed.gov/policy/speced/guid/idea/memosdcitrs/guidance-on-dyslexia-10-2015.pdf>
- The purpose of this letter is to clarify that there is ***nothing in the IDEA that would prohibit the use of the terms dyslexia, dyscalculia, and dysgraphia*** in IDEA evaluation, eligibility determinations, or IEP documents.

ALWAYS LEARNING PEARSON



### US DOE Oct 2015

- Under the IDEA and its implementing regulations "specific learning disability" is defined, in part, as "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.***" See 20 U.S.C. § 1401(30) and 34 CFR § 300.8(c)(10) (emphasis added).

PEARSON

### 8 Areas of Specific Learning Disability (SLD) in IDEIA:

- Basic Reading Skills (BRS)
- Reading Comprehension (RC)
- Reading Fluency (RF)
- Math Calculation (MC)
- Math Problem Solving (MPS)
- Written Expression (WE)
- Oral Expression (OE)
- Listening Comprehension (LC)

PEARSON

### Specific Learning Disorder (with specifiers; DSM-5)

1. Specific learning disorder *with impairment in reading* includes possible deficits in:

- Word reading accuracy (BRS)
- Reading rate or fluency (RF)
- Reading comprehension (RC)
- DSM-5 diagnostic code 315.00.

**Note:** *Dyslexia* is an alternative term used to refer to a pattern of learning difficulties characterized by problems with accurate or fluent word recognition, poor decoding and poor spelling abilities.

PEARSON

### Specific Learning Disorder (with specifiers; DSM-5)

2. Specific learning disorder *with impairment in written expression* includes possible deficits in:

- Spelling accuracy (WE)
- Grammar and punctuation accuracy (WE)
- Clarity or organization of written expression (WE)
- DSM-5 diagnostic code 315.2.

PEARSON

### What must be considered for SLD?

**"Basic psychological processes"** must be considered

-memory	-sensori-motor
-processing	-mental control
-attention	-problem-solving
-visual	-language use
-auditory	

PEARSON

### Approaches to Pattern of Strengths and Weaknesses Analysis

(Hale, Flanagan, & Naglieri, 2008)

- Most prominent research-based:
  - Concordance-discordance method (C-DM; Hale & Fiorello, 2004)
  - Discrepancy/consistency method (Naglieri & Das, 1997),
  - Cross battery assessment approach (Flanagan, Ortiz, & Alfonso, 2013)

PEARSON

### PSW Approaches

- Commonalities:
  - Rule out exclusionary factors as part of the definition of a learning disability
  - Identify a cognitive processing weakness that is related to the achievement weakness
  - Identify one or more areas of strength that are unrelated to the achievement weakness
- However, they also do differ in several key areas, including the criteria for defining strength and weakness.

### What is PSW

- Requires the identification of a processing weakness,
  - Differentiates between SLD and underachievement (for other reasons).
  - SLD requires individualized instruction responsive to processing strengths and weaknesses
- Is important given current thinking that only using RTI is not sufficient for diagnosing SLD (Flanagan, Fiorello, & Ortiz, 2010; Hale et al., 2010; Hale, Kaufman, Naglieri, & Kavale, 2006).

### Methodological and Statistical Requirements for PSW

- The scores comparisons must be significantly different (discrepant) meet criteria for SLD identification:
  - processing strength vs achievement weakness
  - processing strength vs processing weakness
- Is there a consistency between the achievement weakness and the processing weakness
  - Rationale for SLD

Diagnostic Achievement Tests: Primary Areas	Key areas for dyslexia assessment	KTEA-3 grades PK-12 ages 4-25	PAL-II grades K-6	WIAT-III grades PK-12 ages 4-50	WRMT-III grades K-12 ages 4-79
	Phonics skills/ Letter knowledge	Letter & Word Recognition Letter Naming Facility Letter Checklist	Letters	Early Reading Skills: Analysis (SA); Naming Letters; Letter-Sound Correspondence	Letter Identification
	Decoding pseudowords	Nonsense Word Decoding	Pseudoword Decoding	Pseudoword Decoding	Word Attack
	Word reading	Letter & Word Recognition		Word Reading	Word Identification
	Reading fluency	Word Recognition Fluency Decoding Fluency Silent Reading Fluency	RAN-Words Morphological Decoding Fluency Sentence Sense	Oral Reading Fluency Pseudoword Decoding Speed Word Reading Speed	Oral Reading Fluency
	Spelling	Spelling	Word Choice	Spelling	
	Written expression: sentence level; paragraph level	Written Expression Writing Fluency	Sentences: Writing Compositional Fluency Expository Note Taking and Report Writing	Sentence Composition Essay Composition	
	Receptive vocabulary	Reading Vocabulary	Are They Related?	Listening Comprehension: Receptive Vocabulary	Word Comprehension
	Rapid naming	Object Naming Facility Letter Naming Facility	RAN-Letters RAN-Letter Groups		Rapid Automatic Naming
	Phonological awareness	Phonological Processing	Rhyming Syllables Phonemes Rimes	Early Reading Skills: SA: Phonological Awareness	Phonological Awareness
Auditory working memory (phonological memory)	Phonological Processing Error Analysis: Blending	Sentences: Listening Letters Words	Oral Expression: Sentence Repetition Early Reading Skills SA: Blending Sounds		

### Diagnostic Achievement Tests: Secondary Areas

Key areas for dyslexia assessment	KTEA-3 grades PK-12 ages 4-25	PAL-II grades K-6	WIAT-III grades PK-12 ages 4-50	WRMT-III grades K-12 ages 4-79
Secondary areas				
Reading comprehension	Reading Comprehension	Does it Fit? Sentence Sense Accuracy score Sentence Structure	Reading Comprehension	Passage Comprehension
Listening comprehension	Listening Comprehension	Sentences: Listening	Listening Comprehension: Oral Discourse Comprehension	Listening Comprehension
Orthographic processing	Orthographic Processing composite	Receptive Coding Expressive Coding Word Choice		

### Key Cognitive Processing Areas for a Dyslexia Evaluation (WISC-V)

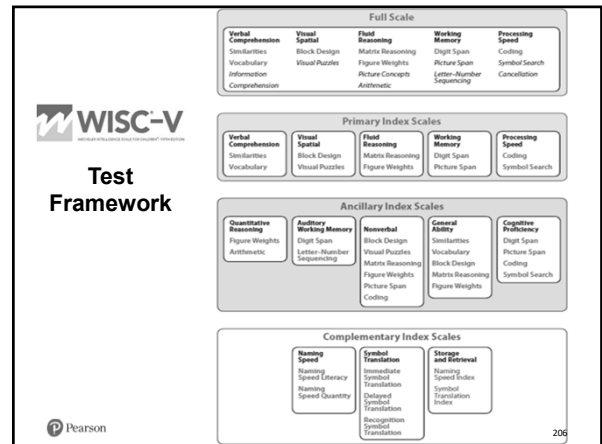
Cognitive processing area	WISC-V index score
Auditory working memory (phonological memory)	Auditory Working Memory Index (AWMI)
Rapid automatic naming	Naming Speed Index (NSI)
Verbal comprehension and reasoning	Verbal Comprehension Index (VCI)
Processing speed	Processing Speed Index (PSI)
Long-term storage and retrieval	Storage and Retrieval Index (SRI)
Associative memory (learning efficiency)	Symbol Translation Index (STI)

### The WISC-V is linked with the WIAT-III and the KTEA-3

- **Dyslexia Group: difficulty with immediate paired associate learning, naming speed, verbal comprehension, and working memory.**
  - The mean scores for the dyslexia group were significantly ( $p < .01$ ) lower than those of the matched control group for **all primary index scores** except the Processing Speed Index ( $p < .05$ ), with largest effect sizes observed for the Working Memory Index (WMI) and the Verbal Comprehension Index (VCI).
- Mean standard scores for the dyslexia group ranged from 89 to 93 on the primary index scores. All global composites had large effects as well. (Breux & Lichtenberger, 2016)

Pearson

1205



### WISC-V Test Framework

Pearson

206

### WISC-V and SLD Evaluation

- 5 Factor model to help identify processes related to Reading, Math, and Writing
- Quantitative Reasoning highly predictive of academic success
- Visual and Auditory presentation of stimuli for working memory
- Complimentary measures specifically developed for SLD assessment
  - Rapid naming
  - Visual-Verbal Associative Memory
- Process scores to identify specific cognitive issues

ALWAYS LEARNING

PEARSON

### Subtests/Composites Recommended for Dyslexia Testing

- WISC-V:
- Verbal Comprehension Index
  - Auditory Working Memory (AWMI) and Working Memory (WM)
  - Processing Speed Index (PSI)
  - Naming Speed Index (NSI)
  - Symbol Translation Index (STI)

What about letter or number reversals?  
Analyze rotation error scores on Block Design, Coding, and Symbol Search

ALWAYS LEARNING

PEARSON

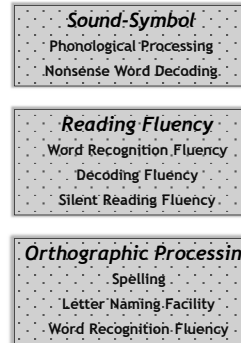
### KTEA3 and Measuring Orthographic Processing

- The KTEA-3 Orthographic Processing Composite (SP + LNF + WRF) subtests involve processing orthographic representations by retrieving them from LTM (Spelling) or recognizing/naming them with automaticity (WRF+LNF).
- In this way, it involves both the receptive (reading) and expressive (spelling) components of orthographic processing.
- The Orthographic Processing Composite score produced large effect sizes for the SLD and language disorder clinical groups.

ALWAYS LEARNING

PEARSON

### Reading-Related Subtests and Composites



KTEA-3

ALWAYS LEARNING

PEARSON

### Oral Language Subtests and Composites

**Oral Fluency**  
 Associational Fluency  
 Object Naming Facility

**Oral Language**  
 Associational Fluency  
 Listening Comprehension  
 Oral Expression

ALWAYS LEARNING PEARSON

### Subtests/Composites Recommended for Dyslexia Testing

KTEA-3:  
 Orthographic Processing Composite – Spelling, Word Recognition Fluency, and Letter Naming Facility

Associational Fluency subtest

Sound-Symbol Composite – Phonological Processing and Nonsense Word Decoding

ALWAYS LEARNING PEARSON

### Letter Checklist Directions KTEA-3

The Letter Checklist includes uppercase and lowercase letters of the English alphabet. The purpose of this checklist is to evaluate an examinee's ability to name all the letters of the alphabet and/or give their sounds. Certain letters, such as J and a, are shown more than once in different font styles (an asterisk appears next to each of these letters in the Checklist). There are no normative scores associated with this Checklist, so following standard administration procedures is not required.

The Letter Checklist materials are reproducible. If you choose to print the lowercase and uppercase letters as a double-sided letter card, use paper with sufficient thickness to prevent letters on the other side from showing through (which could make letter recognition more difficult for the child).

**Directions:** Tell the examinee that you will show him or her some letters that are all lowercase or all uppercase, as appropriate. You may ask the examinee to provide the letter names, letter sounds, or both. Consider recording one dot in the response box for each second while waiting for the response, which would give a rough indication of the speed of response.

213 | Copyright © 2014 Pearson. All rights reserved. PEARSON

### KTEA-3 Letter Checklist—Lowercase

Name: \_\_\_\_\_ Grade: \_\_\_\_\_ Date: \_\_\_\_\_

Item	Letter	Response		Score
		Letter Name	Letter Sound	
1.	k			0 1
2.	o*			0 1
3.	z			0 1
4.	g*			0 1
5.	w*			0 1
6.	h			0 1
7.	q*			0 1
8.	i			0 1
9.	d			0 1
10.	s			0 1
11.	t			0 1
12.	y*			0 1
13.	u*			0 1

### Letter Checklist

214 | Copyright © 2013. All rights reserved. PEARSON

21.	V			0 1
22.	B			0 1
23.	I			0 1
24.	F			0 1
25.	O			0 1
26.	Z			0 1
27.	D			0 1
28.	N			0 1
Total Correct				<input type="text"/>

**Behavioral Observations**

Check if observed hesitated on names <input type="checkbox"/> hesitated on sounds <input type="checkbox"/> added "uh" to sounds (e.g., "tuh" for clipped /b/ sound) <input type="checkbox"/> guessed more than once on some letters <input type="checkbox"/>	Check if observed confused letters by rotation (e.g., M/W) <input type="checkbox"/> confused letters by similar names (e.g., B/E) <input type="checkbox"/>
--	--

### Letter Checklist

215 | Copyright © 2013. All rights reserved. PEARSON

KTEA-3 Letter Checklist

G	M	Q	E
I	U	J	R
Y	L	C	K

### Letter Checklist

216 | Copyright © 2013. All rights reserved. PEARSON

# PAL-II

## Process Assessment of the Learner

**Virginia Beringer, Ph.D.**

### An integrated assessment and intervention package

217

Reading Subtests	
Domain	Subtest
<b>Phonological Decoding</b>	Pseudoword Decoding
<i>Accuracy &amp; Fluency</i>	
<b>Morphological Decoding</b>	Find the True Fixes Morphological Decoding Fluency
<i>Accuracy and Fluency (anchored to accuracy levels)</i>	
<b>Silent Reading Fluency</b>	Sentence Sense
<i>Accuracy and Fluency (anchored to accuracy levels)</i>	

PEARSON

Writing Subtests	
Domain	Subtest
<b>Handwriting</b>	Alphabet Writing Copying Task A Copying Task B
<b>Orthographic Spelling</b>	Word Choice
<b>Narrative Compositional Fluency</b>	Compositional Fluency
<b>Expository Note Taking and Report Writing</b>	Expository Note Taking and Report Writing  Cross-Genre Compositional and Expository Writing

PEARSON

Reading-Related Subtests	
Domain	Subtest
<b>Orthographic Coding</b>	Receptive Coding Expressive Coding
<b>Phonological Coding</b>	Rhyming Syllables Phonemes Rimes
<b>Morphological/Syntactic Coding</b>	Are They Related? Does It Fit? Sentence Structure
<b>Verbal Working Memory</b>	Letters Words Sentences: Listening

PEARSON

Reading-Related Subtests (cont.)	
Domain	Subtest
<b>RAN/RAS</b>	RAN–Letters RAN–Letter Groups RAN–Words RAS–Words and Digits Oral Motor Planning
	Finger Sense Finger Localization Finger Recognition

PEARSON

### Orthographic Coding- Receptive & Expressive

Learning to read & write requires children to code into memory written words, and then relate units of these written words to corresponding units of spoken words.

The relationship between a sound and a written symbol.

PEARSON

**Orthographic Coding-Receptive Coding**

- Ability to code whole written words into memory and then to segment each word into units of different size.
- Child reads a written word from a stimulus book then
  - without looking at the word, decides whether:
    - whole words,
    - single letters,
    - or letter groups,
 correspond to the letters in words coded in memory

RF pg 11

PEARSON

**What is Dysgraphia?**  
*2018 Texas Dyslexia Handbook*

- Best defined as a neurodevelopmental disorder manifested by illegible and/or inefficient handwriting due to difficulty with letter formation.
- Result of deficits in graphomotor function (hand movements used for writing) and/or storing and retrieving orthographic codes (letter forms) (Berninger, 2015).
- Secondary consequences may include problems with spelling and written expression.
- The difficulty is not solely due to lack of instruction and is not associated with other developmental or neurological conditions that involve motor impairment.

PEARSON

**What is Dysgraphia?**  
*2018 Texas Dyslexia Handbook*

- Dysgraphia is related to dyslexia as both are language-based disorders.
- Dyslexia = impairment is with word-level skills (decoding, word identification, spelling).
- Dysgraphia = written language disorder in serial production of strokes to form a handwritten letter.
- Involves both motor skills and language skills—finding, retrieving and producing letters, which is a subword-level language skill.
- The impaired handwriting may interfere with spelling and/or composing, but individuals with only dysgraphia do not have difficulty with reading (Berninger, Richards, & Abbott, 2015).

PEARSON

**TX Dyslexia Handbook (unchanged)**


**Areas for Assessment**

Academic Skills

- ✓ Letter formation
- ✓ Handwriting
- ✓ Word/sentence dictation (timed and untimed)
- ✓ Copying of text
- ✓ Written expression
- ✓ Writing fluency (both accuracy and fluency)

Cognitive Processes

- ✓ Memory for letter or symbol sequences (orthographic processing)



PEARSON

**TX Dyslexia Handbook (unchanged)**

**Areas for Assessment**

Possible Additional Areas

- ✓ Phonological awareness
- ✓ Phonological memory
- ✓ Working memory
- ✓ Letter retrieval
- ✓ Letter matching

*Handbook Reference: Berninger, V. W., & Wolf, B. (2009). Teaching students with dyslexia and dysgraphia lessons from teaching and science. Baltimore, MD: Paul H. Brookes Publishing.*

PEARSON

**Efficacy of Intervention**

*It has been shown in multiple empirical studies that a large proportion of students at risk for reading difficulties, as well as students with severe reading disabilities, can develop and maintain normalized reading skills when provided with the right kind of intervention*

-- Kilpatrick, 2015

PEARSON

### Linking Assessment to Intervention

- Requires good instruments
- Well trained clinicians
- Well trained teachers and special educators

*A mechanism in place for bringing data together to problem-solve in an attempt to offer the most effective instruction and interventions to children*

Mascolo and Flanagan (2008, 2011)

ALWAYS LEARNING PEARSON

### Cognitive Skills related to Reading Abilities

- Phonemic Awareness
- Verbal Reasoning/Vocabulary (Comprehension)
- Rapid Automatic Naming (Fluency)
- Working Memory (Decoding)
- Processing Speed (Fluency, Comprehension)
- Associative Memory (Decoding)

- All inform content and delivery of instruction

ALWAYS LEARNING PEARSON

### Reading Intervention/Instructional Practices

- MOST IMPORTANT IDEA:
  - Know what you are dealing with
    - Review all data on child (parent and teacher reports, writing samples, state test results, observations, comprehensive assessment results, behavior ratings, etc.) to determine what type of **READING DISORDER**
    - Enlist assistance from Student Support Teams (SST's) for expertise (reading coaches, reading specialists, reading experts, etc.) to align intervention plan with the child's specific needs and strengths

ALWAYS LEARNING PEARSON

### Intervention Types

- **Differentiate between Direct Interventions (remediation) and Accommodations**
- **Intervention:** any technique, product, or approach that intends to address *directly* an identified area of weakness through *remediation*
- **Accommodations:** any technique or support that intends to alleviate the symptomatology associated with an identified area of weakness (e.g., circumventing the impact of a processing speed weakness via extended time - - the symptom is not "Gs deficit" - that's the problem; the symptom is "unfinished assignments" - - when you extend time you alleviate the symptom and assignments are completed.

Mascolo and Flanagan (2008; 2011)

ALWAYS LEARNING PEARSON

### Examples of Links to Intervention Tools (Pearson or distributed partner)

1. Intervention Guide for Learning Disability (LD) Subtypes
2. Process Assessment of the Learner (PAL) Research-Based Reading and Writing Lessons
3. KTEA-3 teaching objectives and intervention statements (complete error analyses)
4. WIAT-III intervention goal statements (complete error analyses)
5. SPELL-Links/Class-Links

Pearson 1233

### Intervention Guide for LD Subtypes

- Evaluates patterns of performance that are consistent with research-supported LD subtypes
- Summarizes how a child fits each subtype
- Provides a description of intervention characteristics & recommendations of research-supported instructional programs

ALWAYS LEARNING PEARSON

### How does it work?

- Organizes data by hypothesized LD subtypes
- Determines if data is sufficient and consistent with one of the hypothesized subtypes

ALWAYS LEARNING PEARSON

### Intervention Guide for LD Subtypes

**Purpose: What it *is* and *isn't***

- Provides targeted intervention suggestions based on research-supported LD subtypes.
- Does not identify or diagnose SLD
- Does not address difficulties attributed to SLD exclusionary criteria (e.g., sensory impairment, intellect. disability, ELL, emotional/behavioral issues)

ALWAYS LEARNING PEARSON

### Intervention Guide for LD Subtypes

**7 reading-related subtypes**

- Phonological
- Orthographic
- Mixed Phonological-Orthographic
- Language (OWL-LD, SLI, LLD)
- Comprehension
- Fluency/Naming speed
- Global

ALWAYS LEARNING PEARSON

### Intervention Guide for LD Subtypes

**10 hallmark indicators: skills/abilities that define or differentiate between subtypes**

Cognitive ability	Phonological processing
RAN	Non-word reading
Orthographic coding	Word recognition
Spelling	Reading comprehension
Listening comprehension	Reading fluency

ALWAYS LEARNING PEARSON

### Intervention Guide for LD Subtypes

**5 ancillary indicators: skills/abilities that are used to tailor recommendations.**

Handwriting legibility & speed {dysgraphia}	Auditory verbal WM Processing speed
Verbal comprehension & reasoning	Perceptual reasoning

ALWAYS LEARNING PEARSON

### Intervention Guide for LD Subtypes

**Step 1**

Select the area(s) of intervention for the student:

- Reading
- Spelling
- Written expression (future)
- Math (future)

ALWAYS LEARNING PEARSON



## Intervention Guide for LD Subtypes

### Step 2

**Determine the relative skills & abilities for each of the hallmark and ancillary indicators**

- Indicate if the skill is a weakness or a strength
- Consider 2 or more sources of information when rating each skill/ability
- Enter additional data in the open fields

PEARSON

## Intervention Guide for LD Subtypes

### Step 3: Generate Report

**Report components:**

- Description of subtype
- Pattern of Strengths and Weaknesses
- Suggestions for Intervention
- General Approach
- Naming Speed (if RAN is a weakness, discuss as double-deficit)
- Language Processing: Phonological Processing, Vocabulary
- Basic Reading
- Reading Comprehension
- Reading Fluency
- Spelling
- Handwriting (if handwriting legibility/speed is a weakness)
- Examples of Evidence-Based Programs

PEARSON

## Intervention Guide for LD Subtypes

### Essentials to remember

- The focus is intervention, not diagnosis
- The skill profile relies on judgment, not calculation
- Interventions are not guaranteed, expect some trial-and-error

PEARSON

## Intervention Guide for LD Subtypes

### Essentials to remember

**Differential diagnosis is critical to developing effective interventions, but every child is ultimately a single case study. Don't attempt to make children fit the category to which they *should* belong. Each one is an individual with unique strengths and needs.**

**Hale & Fiorello (2004, p.184 paraphrased)**  
 Hale, J. B., & Fiorello, C. A. (2004). *School neuropsychology: A practitioner's handbook*. Guilford Press.

PEARSON

## Intervention Guide

Intervention report for Meghan Green.

**What are the areas of Intervention?**

Select Areas of Intervention    Next: Review Skills & Abilities    Generate Report

Select the areas for which you want to evaluate Meghan's assessment data for a specific learning disability subtype. This Intervention Guide will provide a report that describes a subtype that is a likely fit and provides guidance for tailoring interventions, as well as research-supported programs to consider.

Area(s) of Intervention

Reading  
 Spelling

The first release of this Intervention Guide for LD Subtypes includes select subtypes of reading-related learning disabilities. Additional subtypes may be added in the future based on customer feedback regarding the usefulness of this tool.

Intervention report for Meghan Green.

**Evaluate each skill/ability.**

Select Areas of Intervention    Review Skills & Abilities    Next: Generate Report

Consider two or more sources of information when determining areas of weakness. Enter additional scores or observations in the open fields as needed.

Skill / Ability	Analysis	Supporting Measure(s)	Score	Fit With Subtypes
Is best estimate of cognitive ability in the "below average" range (IQ in 70s-low 80s)? If FSIQ, GAI, or nonverbal ability is average or above, answer No.	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Unclear	Observations: Exhibits a low ability profile (no skill areas are notably high) across most or all cognitive and academic areas? Difficulty with reasoning tasks, such as finding patterns or understanding concepts? Possible Measures: DAS-II GCA, KABC-II EC2 or MPY, WABU-II, WPPSI-IV/IBSBC.		PH CL FL OR CO LA
Is phonological processing a weakness?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unclear	WRMT III Phonological Awareness WRMT III PA 90 Observations: Difficulty repeating nonsense words? Transcribe by mouth.	80	PH CL FL OR CO LA

Intervention report for Meghan Green.

Evaluate each skill/ability. 25%

Select Areas of Intervention | Review Skills & Abilities | Next: Generate Report

Consider two or more sources of information when determining areas of weakness. Enter additional scores or observations in the open fields as needed.

**Is rapid automatic naming a weakness?**

Yes  No  Unclear

**KTEA-3 Object Naming Facility** 88

PH GL FL OR CO LA

Observations: Struggles on timed tasks? Needs extra time to process information?  
Possible Measures: KTEA-3 Letter Naming Facility, NEPSY-II Spoken Naming, WRMT-III Rapid Automatic

Skill / Ability	Analysis	Supporting Measure(s)	Score	Fit With Subtypes
Is decoding/nonsense word reading a weakness?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unclear	WRMT-III Word Attack	73	PH GL FL OR CO LA
		WRMT-III WA 88		
		Observations: Does the child have difficulty sounding out unfamiliar words (or even made-up words) that follow phonetic patterns? Possible Measures: KTEA-3 Reading		

Intervention report for Meghan Green.

Evaluate each skill/ability. 25%

Select Areas of Intervention | Review Skills & Abilities | Next: Generate Report

Consider two or more sources of information when determining areas of weakness. Enter additional scores or observations in the open fields as needed.

**Is word recognition a weakness?**

Yes  No  Unclear

**KTEA-3 Word Recognition Fluency** 64

**WRMT-III Word Identification** 65

PH GL FL OR CO LA

Observations: Difficulty reading a list of grade-appropriate words?  
Possible Measures: KTEA-3 Letter and Word Identification, WAT-III Word Reading, WRMT-III Word Identification

Skill / Ability	Analysis	Supporting Measure(s)	Score	Fit With Subtypes
Is orthographic coding a weakness?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unclear	WRMT-III Word Attack	73	PH GL FL OR CO LA
		Error Analysis: Silent Letters (% error)	0	
		WRMT-III Word Identification	65	
		Error Analysis: Silent Letters (% error)	0	
		Irregular Vowels (% error)	0	

Intervention report for Meghan Green.

Evaluate each skill/ability. 50%

Select Areas of Intervention | Review Skills & Abilities | Next: Generate Report

Consider two or more sources of information when determining areas of weakness. Enter additional scores or observations in the open fields as needed.

Skill / Ability	Analysis	Supporting Measure(s)	Score	Fit With Subtypes
Is listening comprehension a weakness?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unclear	WRMT-III Listening Comprehension	87	PH GL FL OR CO LA
		WRMT-III LC 97		
		Observations: Difficulty following spoken directions or understanding a spoken story? Possible Measures: CELF-5 Understanding Spoken Paragraphs, KTEA-3 Listening Comprehension		
Is reading comprehension a weakness?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Unclear	WRMT-III Passage Comprehension	69	PH GL FL OR CO LA
		WRMT-III PC 90		
		Observations: Difficulty answering literal		

Intervention report for Meghan Green.

Evaluate each skill/ability. 62%

Select Areas of Intervention | Review Skills & Abilities | Next: Generate Report

Consider two or more sources of information when determining areas of weakness. Enter additional scores or observations in the open fields as needed.

**Is oral grammar (morphology and syntax) use and comprehension a weakness?**

Yes  No  Unclear

Observations: Makes grammatical errors when speaking (e.g., omits words or word endings, word order errors)? Difficulty understanding complex syntax (e.g., The dog was chased by the cat)?  
Possible Measures: CELF-5 Expressive Language Index, CFI F-5 Sentence

Skill / Ability	Analysis	Supporting Measure(s)	Score	Fit With Subtypes
Is reading fluency a weakness?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unclear	KTEA-3 Word Recognition Fluency	64	PH GL FL OR CO LA
		KTEA-3 WRF 74		
		Observations: Is passage reading or timed word reading slow, inaccurate, or difficult? Possible Measures: KTEA-3 Word		

Intervention report for Meghan Green.

Evaluate each skill/ability. 75%

Select Areas of Intervention | Review Skills & Abilities | Next: Generate Report

Consider two or more sources of information when determining areas of weakness. Enter additional scores or observations in the open fields as needed.

**Is spelling a weakness?**

Yes  No  Unclear

**KTEA-3 Spelling** 55

PH GL FL OR CO LA

Observations: Difficulty spelling grade-appropriate words?  
Possible Measures: KTEA-3 Spelling, WAT-III Spelling, PAL-III Word Choice

Skill / Ability	Analysis	Supporting Measure(s)	Score	Fit With Subtypes
Is verbal comprehension and reasoning a weakness?	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Unclear			
		Observations: Difficulty understanding/reasoning about concepts discussed or learned about in conversation or on tasks? Possible Measures: DAS-II Verbal Composite, KABC-II Rodles, WISC-V		

Intervention report for Meghan Green.

Evaluate each skill/ability. 88%

Select Areas of Intervention | Review Skills & Abilities | Next: Generate Report

Consider two or more sources of information when determining areas of weakness. Enter additional scores or observations in the open fields as needed.

**Is auditory-verbal working memory a weakness?**

Yes  No  Unclear

Observations: Frequently asks for spoken directions to be restated? Difficulty remembering verbal information from a conversation or spoken story?  
Possible Measures: NEPSY-II Word List Interference, WISC-V Digit Span or ADOS

Skill / Ability	Analysis	Supporting Measure(s)	Score	Fit With Subtypes
Is processing speed a weakness?	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Unclear			
		Observations: Difficulty processing verbal and nonverbal information quickly and efficiently? Possible Measures: DAS-II Speed of Information Processing, WISC-V PSI		

Intervention report for Meghan Green.

Evaluate each skill/ability.

Select Areas of Intervention    Review Skills & Abilities    100%    Next: Generate Report

Consider two or more sources of information when determining areas of weakness. Enter additional scores or observations in the open fields as needed.

is perceptual reasoning a weakness?

Yes  
 No  
 Unclear

Observations: Difficulty reading maps or interpreting figures/charts/geometric shapes?  
 Possible Measures: DAS-II Nonverbal Reasoning Composite, KABC-II Simultaneous Index, NEPSY-II Arrows, WISC-V FSI or VSI

is letter formation slow and is handwriting difficult to read? Answer Yes if both are true.

Yes  
 No  
 Unclear

Observations: Exhibits handwriting fatigue? Is handwriting hard to read due to poor spacing and letter formation?  
 Possible Measures: NEPSY-II Visuospatial Precision, NEPSY-II Design Copying, PAL-II Finger Sense

Skill / Ability	Analysis	Supporting Measure(s)	Score	Fit With Subtypes
is perceptual reasoning a weakness?	<input checked="" type="radio"/> Unclear	Observations: Difficulty reading maps or interpreting figures/charts/geometric shapes? Possible Measures: DAS-II Nonverbal Reasoning Composite, KABC-II Simultaneous Index, NEPSY-II Arrows, WISC-V FSI or VSI		
is letter formation slow and is handwriting difficult to read? Answer Yes if both are true.	<input checked="" type="radio"/> No	Observations: Exhibits handwriting fatigue? Is handwriting hard to read due to poor spacing and letter formation? Possible Measures: NEPSY-II Visuospatial Precision, NEPSY-II Design Copying, PAL-II Finger Sense		

## Example Report: Meghan

**DESCRIPTION OF SUBTYPE: PHONOLOGICAL**

Meghan's pattern of performance across language and academic domains is similar to that of students with a **phonological core deficit**, sometimes referred to as *dysphonetic or phonological dyslexia*. Students with a phonological core deficit have difficulty mentally representing the sound patterns of the words in their language, which causes great difficulty in using the phonological route to reading and spelling.<sup>28</sup> In place of the phonological route, the visual route to word identification is used. These students over-rely on visual and orthographic cues while reading and may memorize whole words as a strategy for word recognition.<sup>29</sup>

Students with phonological dyslexia rarely use letter-to-sound conversion and they have marked difficulty reading nonsense words, but typically show a relative strength in reading exception words.<sup>30</sup> A phonological core deficit may be accompanied by deficits in cognitive processing<sup>29</sup> and may impact functioning in other academic skills such as writing.<sup>24</sup>

This report lists intervention suggestions for Meghan that may be appropriate for this subtype of learning disability. The Intervention Guide is not intended to identify or diagnose a specific learning disability.

### PATTERN OF STRENGTHS AND WEAKNESSES

Meghan's performance suggests the following pattern of strengths and weaknesses.

**Relative Strengths**

- Listening Comprehension
- Naming speed
- Reading comprehension
- Orthographic coding (storing and processing letters and written words in working memory)

**Weaknesses**

- Phonological processing
- Decoding/Nonsense word reading
- Spelling
- Reading fluency
- Word recognition accuracy

### SUGGESTIONS FOR INTERVENTION

**General Approach**

Consider the following recommendations for planning the scope and overall approach to intervention for Meghan.

**Determine the specific subskills that need to be taught**

Gather data from error analysis results, curriculum-based measures, and other sources to help evaluate the specific skills within each content area that need to be taught.

**Use explicit, systematic instruction, and allow discovery**

Explicit teaching does not necessarily mean direct instruction or knowledge telling; rather, it means bringing knowledge into conscious awareness.<sup>31</sup>

Use materials that explicitly highlight the rule or pattern that Meghan needs to learn (e.g., vary words by one feature and hold other things constant, such as changing the initial phoneme or the morpheme being taught). Provide repeated opportunities for Meghan to apply the rule or pattern.

Allow Meghan to discover patterns and rules through word sorting and carefully controlled materials.

## Examples of Evidence-based Programs

**ALPHABETIC PHONICS<sup>31,4</sup>**  
 Author: Cox, A. R.  
 Publisher: Educators Publishing Service  
 Category: Phonological Processing, Oral Expression, Decoding, Comprehension, Spelling, Handwriting  
 Age Range: 4-14  
 Grade Range: PK-8

**ANIMATED LITERACY<sup>32,6,33</sup>**  
 Author: Stone, J.  
 Publisher: J. Stone Creations  
 Category: Phonological Processing, Decoding, Vocabulary, Comprehension, Fluency  
 Age Range: 4-8  
 Grade Range: PK-3

**LINDAMOOD PHONEME SEQUENCING (LIPS®) PROGRAM FOR READING, SPELLING, AND SPEECH<sup>31,32</sup>**  
 Author: Lindamood, P. C., & Lindamood, P. D.  
 Publisher: Pro-Ed  
 Category: Phonological Processing, Decoding, Spelling  
 Age Range: 5-9  
 Grade Range: K-3

## Mixed Phonological-Orthographic subtype

### Intervention Guide for LD Subtypes

**Description of Subtype: Mixed Phonological-Orthographic**

{Student}'s pattern of performance across key cognitive, language, and academic domains is similar to that of students with *mixed phonological/orthographic deficits*...

**Double-Deficit**

{Student}'s areas of weakness indicate a double deficit in phonological processing and naming speed. Students with double deficits in phonological processing and naming speed sometimes experience even greater reading difficulty due to difficulty with both the orthographic and phonological aspects of reading...

**Dysgraphia**

{Student}'s poor handwriting legibility and automaticity suggests that {he} may also benefit from interventions designed for students with *dysgraphia*, which is a disorder that affects handwriting and spelling...

### Intervention Guide for LD Subtypes

**Teach relationships between layers of language** (phonology, orthography, morphology, syntax, semantics)

- Ask {Student} to spell groups of words with suffixes that mark tense or number. For example, include words with plural endings pronounced /ez/ (*horses, pieces*), /s/ (*bats*), or /z/ (*knees*) (Berninger & Fayol, 2008).

**Write for communication**

- After alphabet writing work, incorporate writing tasks that involve composing for an audience, such as writing a letter or sharing a story with peers (Berninger, 2012).
- Emphasize legibility and good form, not necessarily perfect penmanship. Reinforce the goal of writing as effective communication.

### Intervention Guide for LD Subtypes

**Examples of Evidence-Based Intervention Programs**  
If supportive instructional materials are required, examples of products and programs are listed below that are appropriate for {Student}'s grade and learning profile.

Grade 2 – Adult	XXX Reading System	This sequential multisensory program facilitates individual or small group 60-90 minute lessons in decoding and encoding, emphasizing phoneme segmentation, blending, syllabication, and vocabulary building.
Grade K – 5	XXX Reading–Spelling Program	Teaches phonemic awareness, sound/symbol recognition, and syllabication involving kinesthetic/tactile memory among other multisensory strategies. Strands for reading comprehension, written expression, and linguistics are optional.

### Interventions: Phonological Reading Disorder

Under Age 7	Program	Description
K-3	Phono Graphix	Retrieved from <a href="http://www.phonographix.com">http://www.phonographix.com</a> A multi-sensory approach teaching sound to symbol phonics by segmenting, blending and phoneme manipulation of words as well as specific training in alphabetic code.
K-3+	Lindamood Phoneme Sequencing (LIPS)	U.S. Department of Education (2010, March). Targeted improvement in alphabets and decoding skills through individualized or small group sessions focused on auditory/oral skill development with length of program varying (between 4-6wks vs 4-6 months) based on frequency.
K-5	Project Read	U.S. Department of Education (2010, July) Phonics strand teaches phonemic awareness, sound/symbol recognition, syllabication involving kinesthetic/tactile memory among other multisensory activities and direct instruction. (Strands for reading comprehension, written expression and linguistics are optional.)

ALWAYS LEARNING PEARSON

### Interventions: Phonological Reading Disorder

Ages 7-12	Program	Description
K-5	Alphabetic Phonics	U.S. Department of Education (2010, July). Phonetic program based on Orton-Gillingham multisensory and multi-level approach (ala VAKT) within whole classroom or small group settings with daily, one hour sessions alternating focus on alphabets, letter-sound instruction, spelling, listening, and written/verbal expression.
K-5	Project Read	U.S. Department of Education (2010, July) Phonics strand teaches phonemic awareness, sound/symbol recognition, word building, syllabication, morphology, vocabulary building, spelling involving kinesthetic/tactile memory among other multisensory activities and direct instruction. (Strands for reading comprehension, written expression and linguistics are optional.)
K-9	Slingerland Multisensory Structured Language Approach (MSL)	Retrieved from <a href="http://www.intervdx.org/ewebd83pro5/upload/mls2007finalR1.pdf">http://www.intervdx.org/ewebd83pro5/upload/mls2007finalR1.pdf</a> Based on Orton-Gillingham method, a sequential, structured approach working from single letter-sound associations progressing to understanding of whole words, segments, and phrases while developing English language grammar and mechanics.
K-6	Lindamood Phoneme Sequencing (LIPS)	U.S. Department of Education (2010, March). Targeted improvement in alphabets and decoding skills through individualized or small group sessions focused on auditory/oral skill development with length of program varying (between 4-6wks vs 4-6 months) based on frequency.

ALWAYS LEARNING PEARSON

### Interventions: Phonological Reading Disorder

Over age 12	Program	Description
Grade 2-Adult	Wilson Reading System	Retrieved from <a href="http://wilsonlanguage.com">http://wilsonlanguage.com</a> Part of the broader Wilson Language training program, this sequential multi-sensory program based on Orton-Gillingham principles, provides small group daily 60-90 minute lessons in decoding and encoding emphasizing phoneme segmentation, blending, syllabication, vocabulary building among other skills.
Grade 3-Adult	SRA Corrective Reading	Retrieved from <a href="http://mheonline.com/program/view/1/128/0076181804">http://mheonline.com/program/view/1/128/0076181804</a> Provides direct instruction with a decoding strand including phonemic awareness, phonics, fluency, with vocabulary and comprehension more explicitly taught in a separate comprehension strand.
Grade 4-Adult	Project Read	U.S. Department of Education (2010, July) Phonics strand teaches sound/symbol recognition, word building, sentence composition, story reading and skills from earlier grade versions involving kinesthetic/tactile memory among other multisensory activities and direct instruction. (Strands for reading comprehension, written expression and linguistics are optional.)

ALWAYS LEARNING PEARSON

### Interventions: Phonological Reading Disorder

Grade(s)	Add'l Program that can be included	Description
PreK-1 (5-7 y.o.)	Phonological Awareness Training: Examples -Reading Rockets: Teacher Toolbox-Phonological Awareness; The Phive Phones of Reading; -Target the Problem! Phonological and Phonemic Awareness	U.S. Department of Education (June, 2012) Focusing on phonological awareness, typical content includes rhyme detection training; blending training; segmentation training involving individual or small group training with frequency and duration varying by selected program.
PreK-1 (4-6 y.o.)	Phonological awareness with a blending focus	O'Connor et al. (1993) shows improvements using a blending focus intervention for small groups lasting 10 minutes, four times a week, for seven weeks.
PreK-K (3-5 y.o.)	Phonological awareness	Sweat (2003) shows improvements in an individual or group intervention program over a 12 week period.

ALWAYS LEARNING PEARSON

Interventions: Phonological Reading Disorder		
Grades 1-7	Phonological Analysis and Blending/Direct Instruction Program (PHAB/DI); Word Identification Strategy Training Program (WIST)	Lovett, M. W., Steinbach, K. A., & Frijters, J. C. (2000) Considering deficits in phonological processing and naming speed (aka Double-Deficit) small group instruction of a total of 35 hours provided as 60 minute sessions four times a week was implemented with some improvements noted excepting naming speed.
Grades 1-6	Spelling Mastery	U.S. Department of Education (2014, January). Explicit teaching of spelling skills (with some overall writing improvement) to individuals or whole classes in daily 15-20 minute sessions using phonemic (for sound-symbol correspondence), morphemic (for prefixes, suffixes, and word bases and segments), and whole-word strategies.

ALWAYS LEARNING PEARSON

Interventions: Phonological Reading Disorder		
Grades 2-6 (K, 1 and High School versions also available)	Peer-Assisted Learning Strategies (PALS Reading)	U.S. Department of Education (2012, June) Improving reading fluency and comprehension through peer tutor/tutee turn-taking roles involving three activities: Partner Reading/Retelling, Paragraph Shrinking; and Prediction Relay. Sessions are 30-35 minutes long and 3-4 times per week. (PALS Math optional.)
Grades 9-12+ (14-19 y.o.)	Same-Language-Subtitling (SLS)	McCall & Craig (2009) shows improvements in reading comprehension using a 12 week, 15-20 minute per day karaoke-style intervention including repeated viewing, cloze-style worksheets and development of a subtitled multimedia file.

ALWAYS LEARNING PEARSON

Interventions: Phonological Reading Disorder		
Grades 4-6	Read Naturally Masters Edition, Encore, Software Edition, and Live Edition.	U.S. Department of Education (2010, July). Primarily for improving reading fluency and incorporating some aspects of reading comprehension, the series of programs provide texts, audio CD's and/or software for individual student use, and enables progress monitoring.

ALWAYS LEARNING PEARSON

## SPELL-2

Spelling Performance Evaluation for Language and Literacy

## SPELL-Links

to Reading & Writing

### Word Study

- Sounds
- Letters
- Meanings

**Not just a spelling program.**  
 SPELL/SPELL-Links is a comprehensive word study assessment and instruction/intervention program for development of reading, writing, speaking, listening.

## SPELL-2

Spelling Performance Evaluation for Language and Literacy

## SPELL-Links

to Reading & Writing

### Word Study

- Phonological Awareness (PA)
- Orthographic Knowledge (OK)
- Mental Orthographic Images (MOI)
- Semantic & Vocabulary Knowledge (SEM)
- Morphological Awareness & Knowledge (MK)

K – Adult; (2011)  
 T1, T2, T3; especially LLD, SLI, Dyslexia, ELL

## SPELL-Links

to Reading & Writing

### Spelling Word Study

- ✓ Encoding (spelling) and pattern-specific approach; each lesson includes oral language (speaking, listening), encoding, decoding, vocab, reading fluency, connected writing, editing written work
- ✓ Meets CCS for reading, writing, listening, speaking
- ✓ Appropriate for all students: Special Ed, Speech-Language Impaired, ELL, Title I, Dyslexia, Tiers 1, 2, 3 (strong phonological focus is especially critical for Dyslexia, SLI, ELL, LLD)
- ✓ Multi-linguistic (5 blocks)
- ✓ Integrated reading-writing-spelling

### References

- Berninger, V. W. (2007). PAL-II user's guide. San Antonio, TX: Pearson.
- Dehn, M. (2008). Working memory and academic learning: Assessment and intervention. Wiley: NJ.
- Elliott, J.G. & Grigorenko, E.L. (2014) The Dyslexia Debate. New York, NY: Cambridge University Press.
- Flanagan, D. P., Ortiz, S. O., & Alfonso, V. C. (2012). Essentials of cross-battery assessment (3rd ed.). New York: Wiley.
- Hale, J. B., & Fiorello, C. A. (2004). School neuropsychology: A practitioner's handbook. New York: Guilford.
- Hale, J. B., Kaufman, A., Naglieri, J. A., & Kavale, K. A. (2006). Implementation of IDEA: Integrating response to intervention and cognitive assessment methods. *Psychology in the Schools*, 43, 753-770.  
<http://www.psychcorp.com>
- Joseph, L. M. (2006). Assessing, understanding, and intervening on reading problems. Bethesda, MD: National Association of School Psychologists.

### References

- Kilpatrick, D.A. (2015) *Assessing, Preventing, & Overcoming Reading Difficulties*. Wiley: Hoboken, NJ.
- Lovett, M. (1987). A developmental approach to reading disability: Accuracy and speed criteria of normal and deficient reading skill. *Child Development*, 58, 234-260.
- Mather, N., & Goldstein, S. (2008). *Learning disabilities and challenging behaviors*. Baltimore, MD: Brookes.
- Miller, D. C. (2007). *Essentials of school neuropsychological assessment*. Hoboken, NJ: Wiley.
- National Institute of Child Health and Human Development. (2nd ed. June 2003). Report of the National Reading Panel. *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.
- Squire, L. R. (1987). *Memory and brain*. New York: Oxford University Press.
- Wechsler, D. (2003). *Wechsler intelligence scales for children-fourth edition*. Bloomington, MN: Pearson.

### Additional References

Texas Dyslexia Handbook 2018  
<https://tea.texas.gov/academics/dyslexia/>

Melody Musgrove, Director, Office of Special Education Programs (OSEP) Memorandum to State Directors of Special Education: A response to intervention (RTI) process cannot be used to delay an evaluation for eligibility under the Individuals with Disabilities Education Act (IDEA)  
<http://www2.ed.gov/policy/speced/guid/idea/memosdcltrs/osep11-07rtimemo.pdf>

Office of Special Education Programs (OSEP) Dear Colleague Letter: Policy guidance on the use of the terms dyslexia, dyscalculia, and dysgraphia. October 23, 2015  
<https://www2.ed.gov/policy/speced/guid/idea/memosdcltrs/guidance-on-dyslexia-10-2015.pdf>