Dyslexia:
Evaluation & Intervention

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Fact
vs.
Myth

Myth #1- Dyslexic children see letters and words backward, which causes reversals (ex: reading "saw" instead of "was")

Fact #1- Dyslexic children have trouble NAMING but not copying letters. Backward writing and reversals of letters and numbers are COMMON in the early stages of writing development among all children (Shaywitz, 100). However, they should not commonly persist after preschool or K.

Strephosymbolia

Fact vs. Myth

Myth #2- True dyslexia is uncommon, affecting fewer than 5% of the population.

Fact #2- According to the Connecticut Longitudinal Study, "reading disability affects approximately one child in five" (Shaywitz, 30)- up to 20% of the population. And, Dyslexia is the most common type of learning disability

Fact vs. Myth

Myth #3- Dyslexia is more prevalent among boys than girls.

Fact #3- Boys are more commonly DIAGNOSED with dyslexia than are girls (as much as 5:1), but when tested in a research-based manner, a comparable number of boys and girls are identified as reading disabled (Shaywitz, 32).

Fact
vs.
Myth

Myth #4- Dyslexia is simply a developmental lag and kids will grow out of it over time.

Fact #4- Based on the Connecticut Longitudinal Study, dyslexia is a "chronic condition that does not represent a temporary lag in reading development" (Shaywitz, 33).

Fact vs. Myth

Myth #5- There is no way to truly diagnose or predict dyslexia.

Fact #5- Dyslexia is a congenital condition that no only runs in families but appears to be carried as a genetic trait (Shaywitz, 99). Brain imaging maps have shown that people with dyslexia actually process words in a different part of the brain than non-dyslexics. (Shaywitz, 87).
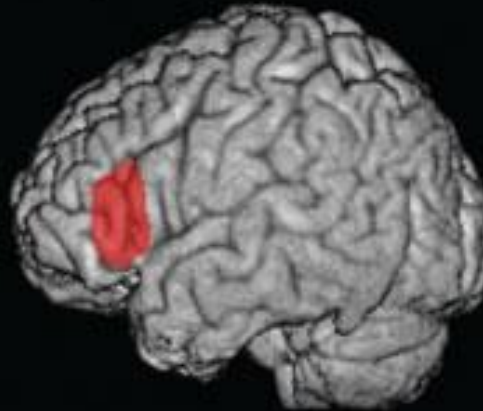
International Dyslexia Association's Definition of Dyslexia

Dyslexia is a specific learning disability that is neurological in origin. It is **characterized by difficulties with accurate and/or fluent word recognition, 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.
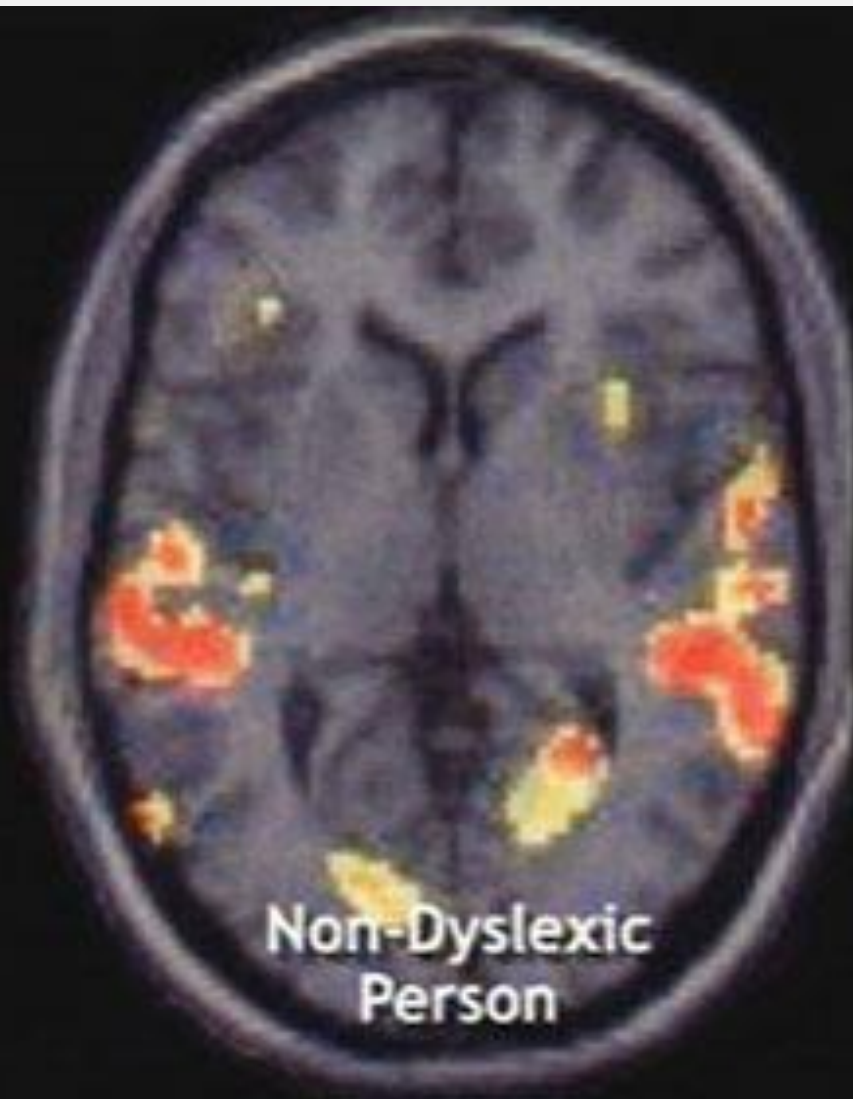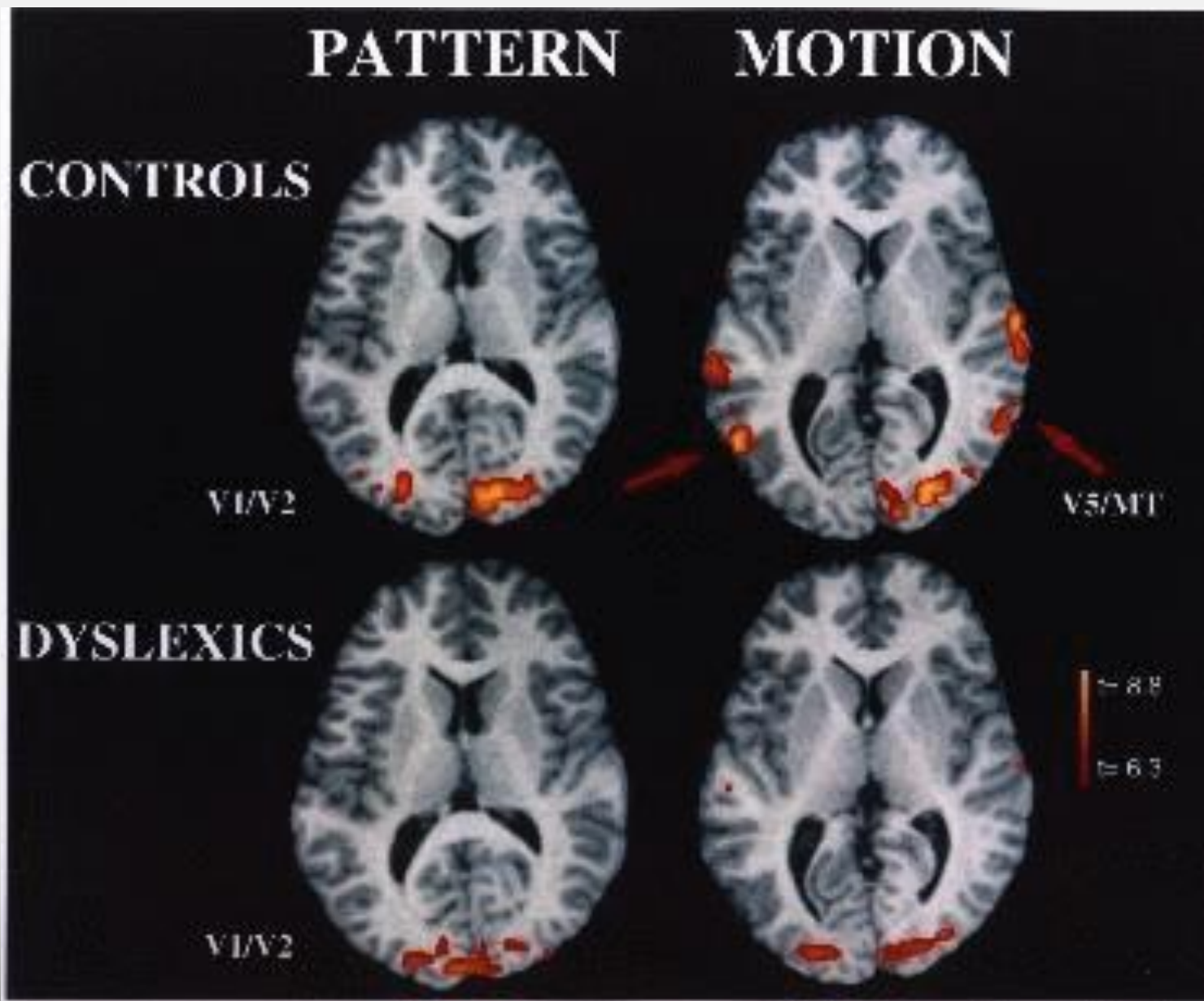
Brain-imaging studies show that, while reading, most people activate areas in the left temporal cortex and other regions of the left hemisphere. Dyslexic readers, on the other hand, underactivate these regions. (Each image shows the left side of the brain.) Twomey/Eden, Georgetown University

Non-Dyslexic Person

Dyslexic Person

The Pattern and Motion Image from http://www.lems-brown.edu/~msj/summary/summary.html by Marc Johannes in Medical Imaging February 1, 2001.

Characteristics - Preschool

- Trouble learning common nursery rhymes, such as "Jack and Jill"

- Difficulty learning (and remembering) the names of letters in the alphabet

- Seems to be unable to recognize letters in his/her own name

- Mispronounces familiar words; persistent "baby talk"

- Doesn't recognize rhyming patterns like cat, bat, rat

Behavioral concerns and Emotional Distress start to develop

Characteristics K-1st

- Reading errors that show no connection to the sounds of the letters on the page—will say "puppy" instead of the written word "dog" in an illustrated page with a dog shown

- Does not understand that words come apart

- Complains about how hard reading is, or "disappearing" when it is time to read

- A history of reading problems in parents or siblings.

- Cannot sound out even simple words like cat, map, nap

- Does not associate letters with sounds, such as the letter b with the "b" sound

Behavioral concerns and Emotional Distress Escalating

Characteristics 2nd - Elementary

- Very slow in acquiring reading skills. Reading is slow and awkward

- Trouble reading unfamiliar words, often making wild guesses because he cannot sound out the word.

- Doesn't seem to have a strategy for reading new words

- Avoids reading out loud

- Difficulty spelling phonetically

- Reads dysfluently

- **Relies on context to recognize a word**

ADHD & Behaviors/Teachers Sounding the Alarm

Several concepts above adapted from Overcoming Dyslexia ©Sally Shaywitz, M.D.

Characteristics Middle -

- Dysgraphia (slow, non automatic handwriting that is difficult to read).

- Limited vocabulary

- Slow, choppy, inaccurate reading

- Terrible spelling & Poor written expression

- Large discrepancy between verbal and written

- Difficulty reading printed music

- Poor grades in many classes

Too Late

(interventions still available, but fighting emotions, effort, interest, etc)

Characteristics are the result of difficulty with the following:

- The development of phonological awareness (including segmenting, blending, and manipulating sounds)

- Learning the names of letters and their sounds

- Phonological memory

- Rapid naming of familiar objects, colors, or letters of the alphabet

Secondary Consequences

- Variable difficulty with word recognition in isolation or in context

- Variable difficulty with aspects of reading comprehension

- Variable difficulty with aspects of written composition

- A limited amount of time spent in reading activities

- "The rich get richer and the poor get poorer." The Matthew Effect (Stannovich, K. 1986) We can't afford "not to" do early intervention.

- "75 % of children who were poor readers in the 3rd grade remained poor readers in the 9th grade and could not read well when they became adults."

- "The best solution to the problem of reading failure is to allocate resources for early identification and prevention."

- Joseph Torgesen in Catch Them Before They Fall. http://www.aft.org/sites/default/files/periodicals/torgesen.pdf

Evaluation

- What is the purpose of the evaluation?

    - Educational

    - Clinical

Evaluation

- There are several options to consider in the evaluative process:
  - School Criteria – these models are not diagnostic
    - Patterns of Strength and Weakness
    - Discrepancy model
    - 2-yrs behind in academic skills
    - RTI
  - DSM/ICD Criteria
    - Focuses on a check off list of symptoms
  - Neuropsychological Approach
    - Focuses on the neurocognitive attributes of how the individual functions on not only achievement test but other functional skills implicated in reading – but you do not need to assess all areas for every evaluation – **Think beyond a score, look at the process, qualitative attributes and what has been needed for learning**

Early Evaluation

- Event-related potentials (ERPs) to synthetic consonant-vowel syllables (/ba/, /da/, /ga/) from 26 newborns with familial risk for dyslexia and 23 control infants participating in the Jyväskylä Longitudinal Study of Dyslexia. At the latencies of 50-170 ms and 540-630 ms, the responses to /ga/ were larger and more positive than those to /ba/ and /da/ in the right hemisphere in the at-risk group. Between 740 and 940 ms, the responses to /ba/ and /da/ differed between anterior and posterior electrode sites in the control group. These results indicate that the cortical electric activation evoked by speech elements differs between children with and without risk for dyslexia even immediately after birth.

J Learn Disabil. 2001 Nov-Dec;34(6):534-44. **Event-related potentials and consonant differentiation in newborns with familial risk for dyslexia.** Guttorm TK, Leppänen PH, Richardson U, Lyytinen H.

Cognitive Ability

- The student must demonstrate cognitive ability to support age-level academic learning.

- Academic strengths in the absence of print are evident.

- Other coexisting deficits may complicate identification and may deserve further assessment and intervention. ie: Speech and Language issues or ADHD

Phonological Processing

- Phonemic Awareness- appreciation of the explicit sounds in spoken words (phonemes).

- Phonological memory- effective recall of words from short-term memory. Predictive of successful decoding.

- Rapid Naming- effective recall of names from long term memory. Predictive of reading fluency and rate.

- Alphabetic Principle- understanding that the sequence of letters in written words represents the sequence of sounds in spoken words.

Visual Perception

- Acuity

- Focus on Motor Reduced Visual Perceptual areas for Reading
  - Sequencing pattern
  - Visual discrimination
  - Figure ground
  - Visual closure

- Visual Motor Skills
  - Visual organization
  - Mechanical skills

Language

- Speech delays
  - Receptive
  - Expressive

- Early hearing complications from ear infections, tubes, etc

- Family environment and exposure

Auditory Skills

- Acuity

- Auditory Processing –
  - Sound discrimination
  - Auditory figure ground
  - Dichotic listening
  - Tinnitus
  - Hyperacusis
    - Although argued by many - misophonia

Achievement

- The key to achievement testing
  - A competent evaluator must look at the global data scores
    - After the cursory review, the qualitative analysis is imperative
    - Thereafter, go back to the content to determine if is are weaknesses in a specific content areas
  - What has been done in the months/years prior to the assessment – years of tutoring

Memory

- This is often overlooked, even in an outpatient clinic, due to:
  - Cost/funding limitations
  - Lack of evidence to support need
  - Duration of time

If The Student Is Diagnosed with Dyslexia What Happens Next?

Depends

- Outpatient Diagnosis is nearly always rejected by school
  - Specialized tutoring
  - Parent based ideas for home intervention
  - Computer assisted programming
  - Specific intervention to address functional weakness

- School Evaluation – No formal diagnosis – Eligibliity determination
  - 504 accommodations
  - IEP
  - Title services
  - RTI
  - Kids Hope Mentor
  - In school support by external agency
  - Services denied
    - Monitoring or
    - "Case Closed"

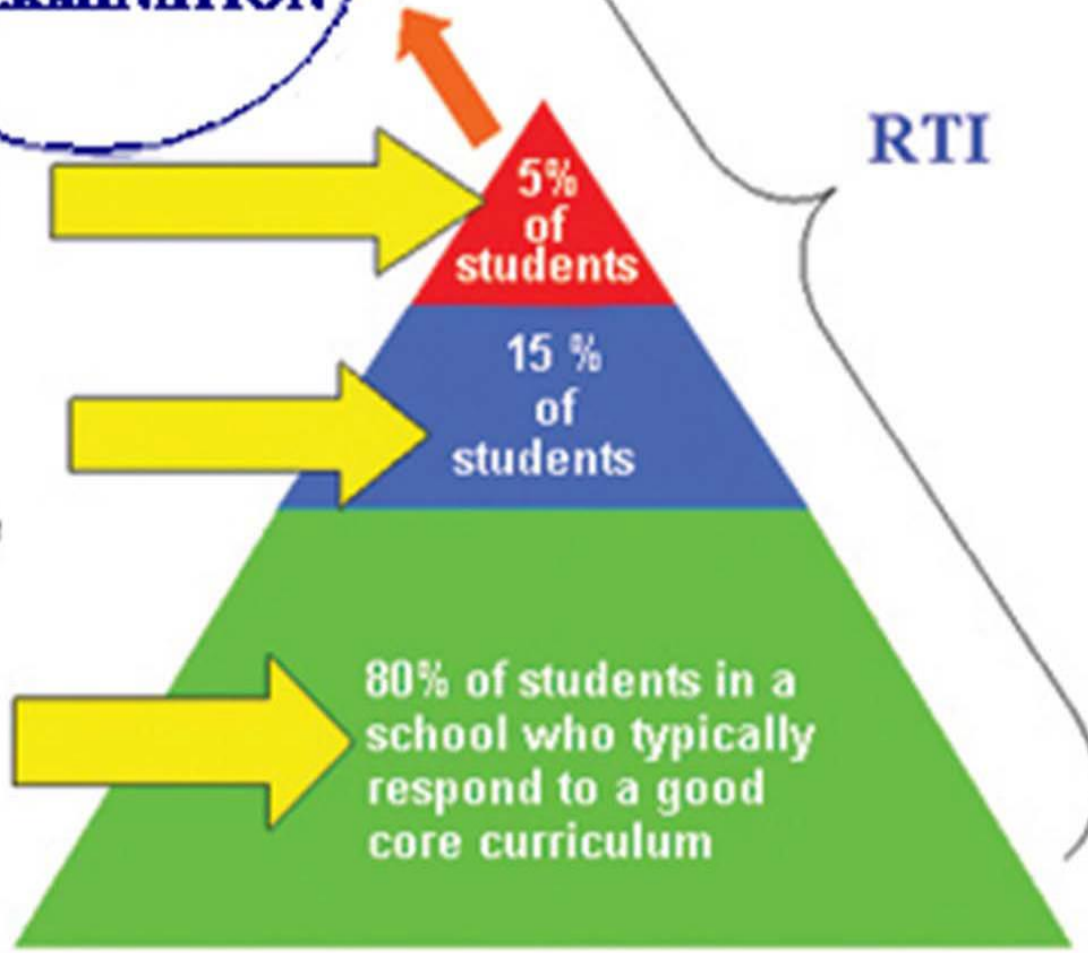**SPECIAL EDUCATION ELIGIBILITY DETERMINATION**

RTI

Tier 3

- Intensive Level
- Students who do not respond to interventions at Tiers 1 or 2 provided with more intensive interventions and progress monitoring

Tier 2

- Strategic Level
- Students who do not respond adequately to core curriculum, considered "at-risk" for academic failure
- Supplemental instruction provided

Tier 1

- Benchmark Level
- All students receive instruction in an effective, scientifically-based core curriculum
- Data on student progress is collected for all students at three "benchmark" periods during the year (Fall, Winter, Spring)

5% of students

15 % of students

80% of students in a school who typically respond to a good core curriculum

Lehigh University: http://coe.lehigh.edu/content/what-rti

Accommodations and Modifications

Accommodations	vs.	Modifications

Accommodations

- **Change HOW you teach**

- **Do NOT fundamentally alter or lower expectations**

- **Provide equal access to learning and opportunity to demonstrate what is known**

Modifications

- **Change WHAT you teach**

- **Only applies to dyslexic students who also qualify for special education services**

- **Provides students with meaningful and productive learning experiences based on individual needs**

Examples of Accommodations for a Dyslexic Student

Handwriting and/or Copying Tasks

- **Accept brief forms of answers** .

- **Provide "Modified Note Taking" i.e. fill in the blank.**

- **Tape recordings**

- **Minimize copying from board, books, or worksheets**

- **Provide photocopies**

- **Allow student to choose writing instrument**

- **Accept Oral work**

- **Accept illustrations**

- **Allow the use of word processing programs**

Examples of Accommodations for a Dyslexic Student

Spelling

- Do not count off for spelling in assignments

- Teach spelling scientifically

- Provide a word bank

- Spelling words should be words the student can already read

- Teach students abbreviations i.e.: states, months, etc.

- Allow the use of spell checkers or word processing programs

- Give fewer words for spelling tests.

Examples of Accommodations for a Dyslexic Student

Reading

- **Provide taped texts- LearningAlly.com**

- **Allow someone else to read to the student**

- **Permit shared reading**

- **Enlarge the print**

- **Encourage student to use a tracking device**

- **Read orally to the student on his or her intellectual level as frequently as possible.**

- **Pre-teach vocabulary or new concepts prior to introduction to the whole class.**

Examples of Accommodations for a Dyslexic Student

Written Composition

- Accept oral or dictated work when appropriate

- Accept projects (instead of papers) when appropriate

- Shorten written requirements emphasizing the required and essential elements.

- Allow student to dictate into a tape recorder first then listen and write

- Be very specific about expectations

- Allow print or cursive

- Teach keyboarding

Examples of Accommodations for a Dyslexic Student

Testing

- Give test orally and allow more time

- Allow the test to be taken in a different environment

- Give shorter, more frequent tests

- Discuss test format ahead of time

- Place fewer questions or problems on a page

- Give multiple choice questions when possible

- Be aware of overall test readability

- Reduce the number of items in matching tests to groups of 5 and arrange the items so that the longer sentences of the matching are on the left and the shorter items are on the right.

- Practice state testing accommodations prior to TAKS test administration.

Multisensory

- Even if you do not use a formal learning program, if you make the tasks structured, fun, introduce multiple ways to engage the material, provide feedback, and scaffold learning; you will be successful

Orton Gillingham

- Remains a key program for reading intervention, despite development in the 1930's
  - Phonics from basic letter sounds, to blends, etc
  - Rehearsal
  - Tracking methods
  - Structured protocols
  - Most commonly trained method of reading intervention

Wilson Reading Program Areas of Focus

- Phonemic segmentation

- Alphabetic Principle – sound/symbol relationships

- Decoding

- Encoding (spelling)

- Advanced Word Analysis

- Vocabulary Development

- Sight Word Instruction

- Fluency

- Comprehension with Visualization

- Metacognition

Lindemood Bell

- Reading is an integration of processing skills: word attack, sight word recognition, contextual fluency, oral vocabulary, and comprehension. Three sensory-cognitive functions underlie reading and comprehension.

Reading Acceleration Training

- www.ncbi.nlm.nih.gov/pubmed/25365797

Writing: Self-regulated strategy development

- IES Practice Guide: *Teaching Elementary School Students to Be Effective Writers* (June, 2012). The guide may be downloaded here: http://ies.ed.gov/ncee/wwc/pdf/practice_guides/writing_pg_062612.pdf

- SRSD research has received strong, favorable ratings from the National Center on Intensive Interventions (formerly the National Center for Response to Intervention): http://www.intensiveintervention.org/chart/instructional-intervention-tools

Assistive Programs

- This area is exploding with programs and apps. Things to know:
  - An app or software based program at this time is not restorative
  - A software platform is not sufficient to meet academic standards for academic intervention
  - Many like software, but this does not always translate to function

A few to review

- Explodethecode

- Raz-kids

- HeadSprout

- Starfall

- IXL

- PBSkids

- Fast ForWord

- Gary James App Rating Site: http://a4cwsn.com/

Sites

- www.interventioncentral.org/

- www.IES.gov

- www.readingresource.net/websitesforkids.html

- https://dyslexiaida.org/

- http://ldaofmichigan.org/

- www.understood.org/en/learning-attention-issues

- www2.massgeneral.org/schoolpsychiatry/for_educators.asp

- Dr. Rozendal- EnCourage Institute for Teaching and Learning. She is able to provide teaching/educational consultation, can work with the school or family to consult with curricular needs, or her staff or she can provide direct tutoring. http://encourageinstitute.com/ She has two locations, one close to Frederick Meijer Garden's in the Eagle Crest Complex and the other at 2845 Wilson Ave. SW, Ste. D, Grandville, MI 49418 616-530-2224

- The SLD Read Center: www.sldread.org/ Grand Rapids SLD Read Office 616.361.1182 2650 Horizon DR SE Suite 230 Grand Rapids, MI 49546

- Lake Michigan Academy

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