CASP 2016: Dyslexia

USING THE “D” WORD: IDENTIFYING AND ADDRESSING THE NEEDS OF STUDENTS WITH DYSLEXIA

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The Plan

• What is dyslexia?
• How does dyslexia affect kids?
• How DO Kids Learn To Read?
• What Are the Causes of Dyslexia?
• How do we identify kids with dyslexia?
• How do we know which interventions to use?

The Quiet Signal

Current Events

• AB 1383
  • Add phonological processing to basic psychological processes
  • “shall develop program guidelines for dyslexia to be used to assist regular education teachers, special education teachers, and parents to identify and assess pupils with dyslexia, and to plan, provide, evaluate, and improve educational services to pupils with dyslexia”

• Cassidy-Mikulski Senate Resolution 275
  • Designated October 2015 as National Dyslexia Awareness Month
  • defined as an unexpected difficulty in reading for an individual who has the intelligence to be a much better reader
  • Early diagnosis is critical
  • Department of Education Guidance Letter October 2015
  • IEP teams can use terms dyslexia, dysgraphia and dyscalculia
  • May be useful in planning interventions

WHAT IS DYSLEXIA?

• 1896, W. Pringle Morgan, developmental word blindness
• 1937 Hinshelwood congenital word blindness
• Orton – early 1900’s – first in U.S.
• Strephosymbolia
• Mixed cerebral dominance
• Pioneer in remedial techniques
• Anna Gillingham – developed intervention program based on Orton principles
• Orton – Gillingham methods still supported today
• VAKT
• Geschwind
• Localization of brain function
• Galaburda
• Neurological abnormalities

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What is Dyslexia?

International Dyslexia Association, National Institute of Child Health and Human Development

One of most commonly accepted definitions:

"Dyslexia is a specific learning disability that is neurobiological 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."

What Is Dyslexia?

DSM-5:
Specific learning disorder is a neurodevelopmental disorder with a biological origin that is the basis for abnormalities at a cognitive level that are associated with the behavioral signs of the disorder. The biological origin includes an interaction of genetic, epigenetic, and environmental factors, which affect the brain's ability to perceive or process verbal or nonverbal information efficiently and accurately.

- With impairment in reading 315.00 (F81.0):
  - Word reading accuracy
  - Reading rate or fluency
  - With impairment in written expression 315.2 (F81.81):
    - Spelling accuracy

What Is Dyslexia?

- Defining dyslexia
  - National Institutes of Neurological Disorders and Stroke
  - Dyslexia is a brain based type of learning disability that specifically impairs a person’s ability to read. These individuals typically read at levels significantly lower than expected despite having normal intelligence. Although the disorder varies from person to person, common characteristics among people with dyslexia are difficulty with spelling, phonological processing (the manipulation of sounds), and/or rapid visual-verbal responding. In adults, dyslexia usually occurs after a brain injury or in the context of dementia. It can also be inherited in some families, and recent studies have identified a number of genes that may predispose an individual to developing dyslexia.

What Is Dyslexia?

- Defining dyslexia
  - Commonalities across definitions
    1. Commonalities across definitions
    2. Etiology is neurobiological
    3. Behavioral marker is difficulties with single word reading/decoding
    4. Unexpected given other learning/cognitive skills and abilities, and the presences of quality instruction
    5. Can result in difficulty in constructing meaning from text and associated academic skill development

What Is Dyslexia?

- Defining dyslexia
  - More than just a lack of skill development
    - Early differences in phonological processing and associated processes
    - Phonological processing predicts reading skill development
    - Interventions that target phonological processing improve reading skill
    - Neuroimaging suggests functional brain differences
    - A heritable disorder connected to specific genetic differences
    - Affected by language skills (other than sound processing) and instruction, but such is not the primary cause of the disability
    - The environment affects the expression of EVERYTHING
Are There Subtypes of Dyslexia?

- Two types
  - Acquired
  - Developmental
- Colehaan
- Dual route model
- Phonological Dyslexia
- Surface Dyslexia
- Feifer
- Dysphonetic Dyslexia
- Surface Dyslexia
- Mixed Dyslexia
- Reading Comprehension Deficits

How does dyslexia affect kids?

- Learning to read is associated with positive adult outcomes
- Around 40% of adjudicated youth are reading more than two years below grade level
- 63% of students with LD have been retained at least one year (ld.org)
- Approximately 75% of students identified with reading problems in the third grade are still reading disabled in the 9th grade. (Shaywitz, 2002)
- Students in the bottom 25% of the reading continuum have a trajectory of progress that diverges early from their peers who have learned to read successfully
- Early identification and treatment of reading disabilities is essential.
  - "Matthew effect"
  - Upside to dyslexia?

What it feels like...

HOW DO KIDS LEARN TO READ?
Learning To Read

Part of learning to read:
• Oral Language
• Phonological skill
• Word recognition
• Spelling
• Reading Fluency
• Reading Comprehension
• Written Expression

Language Processing Requirements
• Phonological Processing
• Orthographic Processing
• Semantic Processing
• Syntactic Processing
• Discourse Processing

The sound

The look

The meaning

The sentence

The text

What is Reading?

• Reading – an extraordinary ability, peculiarly human and yet distinctly unnatural...acquired in childhood, forms an intrinsic part of our existence as human beings, and is taken for granted by most of us. (p.3)


The most fundamental responsibility of schools is teaching students to read.
Teaching reading is rocket science (Kuhn, 1993)

Teaching Reading is Urgent

720 Days

Assuming that during reading instruction there are:
• 0 Absences
• 0 field trips
• 0 interruptions
• 0 school assemblies
• Attendance every day from Grade K through Grade 3

To Learn What It Took Humans 2000 Years to Develop
(Wolf, 2007)

Chall’s Stages of Reading Development

• Pre-reading or emergent literacy
• Beginning of formal instruction
• Confirmation and fluency
• Reading to learn
• Multiple viewpoints
• Construction and reconstruction

Basic Assumptions

• Simple model of reading (Tumner and Gough)

Decoding Language comprehension Reading

Basic Assumptions

• Our brains are wired for speech – it is a biological specialization
• Direct instruction is not needed
• Reading requires explicit instruction – no brain specialization
• Reading integrates multiple systems
• Visual system
• Phonology
• Working memory
• Language
It's All About The Word

- Children must learn how visual information is linked to speech – the words and sounds they know
- “The first steps in becoming literate, therefore, require acquisition of the system for mapping between print and sound” – (Ziegler and Goswami, 2006)
- Especially for students with dyslexia

Acquiring The Alphabetic Principle

- Basic assumptions
- Development of the Alphabetic Principle
  1. General awareness that words have parts (phonological awareness)
  2. Specific awareness that these parts are sounds (phoneme awareness)
  3. Linkage of these sound parts to the printed word
  4. “Finally, he comes to understand that the printed word and the spoken word are related. He knows that the printed word has an underlying structure and that it is the same structure he hears in the spoken work. He understands that both spoken and written words can be pulled apart based on the same sounds, but in print the letters represent these sounds.” (p. 44)

The Phoneme

- Basic assumptions
- What is a phoneme?
  • The fundamental element of the language system
  • The essential building block of all spoken and written words
  • The smallest unit of speech that distinguishes one word from another

Information About Words Is Stored in Memory

These Systems Must all Connect
Word Reading Must Become:

- Accurate
- Fast
- Effortless

AUTOMATIC

All words become sight words
Can’t “not read”
Critical for higher order reading skill

Development of “Sight” Words (automatic word recognition) (EHRI)

- Pre-alphabetic
- Partial alphabetic
- Full alphabetic
- Consolidated
- Practice is essential

Automatic Readers:

- Develop generalized knowledge of the orthographic system
- Develop word knowledge in tandem with spelling knowledge
- Are aware of multi-letter units
- Are aware of syllables and orthographic conventions
- Have reduced memory load while reading-critical to comprehension
- Requires
  - Development of internal, mental representations of words
  - Representations have meaning, sound and letter information (semantic, phonological, orthographic)

https://www.youtube.com/watch?v=oDsaMr8WyFk

Learning Is Training the Brain

- Recognizing printed words
- Keep brain-based principles of learning in mind when designing interventions
- “Signature” neural characteristics of dyslexia
- Successful interventions lead to brain changes over all age spans
- Develop competence, then apply, automate and transfer

Is It All About the Word?

-----Well – Maybe Not All

- Story structure
- Language
- Background knowledge
- Comprehension
- From the Beginning
  - Hear the language
  - Understand the concept of symbol
- Beginning phonological awareness
- Print exposure
- Story structure

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Differences in Early Experiences

- In some homes children will have had about 25 hours of storybook experience by 1st grade (Teale, 2015) – in others thousands of hours
- From 0 to 200+ books in the home
- 32 million less words heard by age 5
- Producing half as many words at age 3
- Vocabulary deficits at school entry predict later reading

Bilingual Environments

- Concepts learned well in one language can be transferred to another
- Knowledge of phonemes may be absent for English Learners
- Training helps
- Children with no phonological problems catch up with their peers in 1 to 2 years
- National Literacy Panel on Language Minority Children
- Profiles of both groups with reading problems are very similar

Terms to Know (IDA Standards)

- phonological skill,
- phonetic decoding,
- spelling,
- accurate and automatic word recognition,
- text reading fluency,
- background knowledge,
- verbal reasoning skill,
- vocabulary,
- reading comprehension, and
- writing.

Why Do Some Kids Have Trouble Learning to Read?

Causes of dyslexia

Characteristics of Students With Reading Problems

- Most reading problems have to do with decoding and spelling
- Some readers may understand the system (phonics-decoding) but lack fluency
- Some readers don’t know the system
- Some readers have trouble with comprehension

- Discrepancy within reading skills
- Nonsense word reading
- Real word reading
  - Text comprehension
  - Listening comprehension

Competent Reader

Decoding or word identification

Decoding
Phono. Awareness
Phonics

Fluency

Comprehension
Strategies

Oral Language

Environmental Factors

Social-Emotional Factors

Cognitive Factors

Instructional Factors
Causes: Phonological Processing

- Definitions
  - **Phonological awareness** is the meta linguistic awareness of all levels of speech sound system, including word boundaries, stress patterns, syllables, onset-rime units, and phonemes.
  - **Phonemic awareness** is the conscious awareness that words are made up of segments of our own speech that are represented with letters in an alphabetic orthography.
  - **Phonological loop** or phonological scratch pad is the area in memory where phonological information is stored for short periods of time.

Causes: Rapid Naming

- **Fast, Automatic Retrieval Processes**
  - Differentiate dyslexic readers from average and other poor readers
  - Are present in poor readers across languages
  - Because readers do not generally name the letters of a word in the process of reading, it is unlikely that the correlation of reading skill and naming speed reflects a simple association
    - Rather, naming speed is thought to provide a marker for underlying processes sensitive to precise and rapid timing requirements
  - Phonological process or different cognitive process
  - May be more related to fluency

Causes: Orthographic Processing

- Creation of word forms requires the linking of print to sounds and of “chunking” letters into units
- Adds unique variance to some basic reading skills
- Children with orthographic processing problems have difficulties with:
  - Writing
  - Remembering common letter patterns
  - Recognizing correctly spelled words
  - Reading phonetically irregular words
  - Reading speed

Causes: Phonological Processing

- **Phonological Core Deficit**
  - Perception, interpretation, recall and production of language at the level of the speech sound system
  - Necessary but not sufficient for learning to read
  - Strongly linked to decoding problems
  - Linked to reading problems in multiple languages
  - Phonological processing is an unnatural act.
  - Hard wired for understanding and production of speech
  - In some ways this makes reading more difficult

Causes: Retrieval of Visual – Phonological Links

- May also impact math – calculation
- Not just visual memory but the linking of visual-verbal
- Associative memory?

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Causes: Other Cognitive Processes

- Verbal ability
  - "The ultimate goal of reading instruction is to help children acquire the knowledge and skills necessary to comprehend printed material at a level that is consistent with their general verbal ability or language comprehension skills." (Torgesen, 2002)
  - Conversely lack of reading may impact development of verbal ability
- Verbal working memory
  - Affects ability to quickly "sound out" words and develop sight word store
  - Affects reading comprehension
  - Processing speed
  - May affect ability to develop store of sight words
  - May affect reading fluency
  - Likely to see in other academic areas as well
- Morphological awareness
- Awareness of structure of words and ability to use that knowledge

Causes: Neurobiological Structures

- Brains of poor readers show different activation pattern
- Intervention leads to changes in brain function
- Those who don’t respond to interventions show different brain activation pattern than those who do (Shaywitz)
- Good readers use different parts of the brain than do dyslexic readers
  - The reading system relies on 3 inter-related brain structures
    1. Parieto-temporal (slow word analysis)
    2. Occipito-temporal (automatic recognition of word form)
    3. Broca’s area (frontal gyrus articulation/word analysis)
- Good readers activate the back of the brain
- Highly skilled readers make use of the occipito-temporal region
- Dyslexic readers over-utilize the left frontal (Broca’s area) and right frontal regions


- Numerous studies have shown that children with dyslexia or related learning disabilities have the same visual function and ocular health as children without such conditions. Specifically, subtle eye or visual problems, including visual perceptual disorders, refractive error, abnormal focusing, jerky eye movements, binocular dysfunction, and misaligned or crossed eyes, do not cause dyslexia. In summary, research has shown that most reading disabilities are not caused by altered visual function. Many children with reading disabilities enjoy playing video games, including handheld games, for prolonged periods. Playing video games requires concentration, visual perception, visual processing, eye movements, and eye-hand coordination. Convergence and accommodation are also required for handheld games. Thus, if visual deficits were a major cause of reading disabilities, children with such disabilities would reject this vision-intensive activity.

American Association for Pediatric Ophthalmology and Strabismus

- Do "training glasses" work?
  - The scientific literature shows no experimental evidence of any benefits from a low-plus training glasses.
  - Does vision therapy improve learning disabilities and dyslexia?
  - Many scientific studies have demonstrated that ocular coordination, motility, and visual processing are normal in children with dyslexia. The scientific evidence does not support the use of eye exercises or behavioral/perceptual vision therapy in improving the long-term educational performance in children with learning disabilities.
  - Why might a teacher recommend vision therapy?
  - When a teacher notices that a student has problems with writing or fluent oral reading he/she may believe that the child has a vision problem. A common misconception is that dyslexia is a problem of letter or word reversals. Reversals of letters or words, and mirror writing occur in normal early readers and writers. Children with dyslexia are not composed of those with normal early readers who experience reversals. Research shows that reversals are the result of attentional lapses and are not caused by visual disorders. When a student has difficulty with reversal of letters and words, and mirror writing, referral for a vision evaluation may be indicated. If the causes of reversals are found to be visual, they may be referred for vision therapy. However, if reversals are caused by attentional lapses they do not benefit from vision therapy.

Causes:

- Genetics
  - Heritability
    - About 40% of children who have parent or older sibling with dyslexia will have difficulty in learning to read. (Scarborough, 1999)
- Environment
  - Not completely heritable
  - Supports the notion of gene x environment interactions
  - A genetic predisposition to dyslexia can be exacerbated or mitigated by the environment
  - While up to 20% of children are "at risk" for dyslexia, the "environment" (i.e., appropriate early intervention) reduces prevalence of dyslexia to 2-4%
Causes - Conclusions

• Causes likely to be additive/interactive
• Use a hypothesis testing approach (Pearson, 2016)
• Consider compensatory factors

Dysgraphia
• Dysgraphia is the term associated with specific learning disabilities in writing. It is used to capture both the physical act of writing and the quality of written expression. Features of learning disabilities in writing are often seen in individuals who struggle with dyslexia and dyscalculia, and will vary from person to person and at different ages and stages of development. Common characteristics include:
  • tight awkward pencil grip and body position
  • tiring quickly while writing, and avoiding writing or drawing tasks
  • trouble forming letter shapes as well as inconsistent spacing between letters or words
  • difficulty writing or drawing on a line or within margins
  • trouble organizing thoughts on page
  • trouble keeping track of thoughts already written down
  • difficulty with syntax structure and grammar
  • large gap between written ideas and understanding demonstrated through speech
  (NICHD)

Fluency Problems
• More clearly linked to deficits in rapid naming than word reading problems
• Orthographic processing may be a factor
• Wolf and Katzir-Cohen (2001)
  • Reading fluency is both developmental in learning to read and an outcome of learning to read.
  • Developmental
    • Automaticity of sublexical processes, lexical processes and their integration perceptual, phonological, orthographic and morphological
  • Outcome
    • effortless decoding
    • smooth and accurate oral reading
    • Correct prosody
    • Attention allocated to comprehension

Reading Comprehension
• Problems generally linked to:
  • higher order processes
  • language
  • Readers who are able to decode but not comprehend may have problems in
    • Working memory
    • Language (both oral and written)
    • Fluid reasoning

IQ and Reading
• Little support for IQ as predictor of progress in attainment of many basic early literacy skills such as phonemic awareness
• IQ does predict response to interventions when looking at development of other reading skills (Fuchs and Young, 2007)
• IDA definition and Clayton-Mukluski mention unexpected in relation to ability/intelligence

GRAY ORAL READING TEST 5

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<th>Composite Scaled Score</th>
<th>Percentile</th>
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<tr>
<td>Accuracy</td>
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<td>64%</td>
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<tr>
<td>Fluency</td>
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<tr>
<td>Comprehension</td>
<td>9</td>
<td>33%</td>
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</table>

GREY ORAL READING TEST 5

<table>
<thead>
<tr>
<th></th>
<th>Scaled Score</th>
<th>Percentile</th>
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<tbody>
<tr>
<td>Oral Language</td>
<td>105/63</td>
<td>10%</td>
</tr>
<tr>
<td>Basic Reading</td>
<td>90/25</td>
<td>4%</td>
</tr>
<tr>
<td>Word Reading Speed</td>
<td>85/13</td>
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<tr>
<td>Oral Reading Fluency</td>
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<td>8%</td>
</tr>
<tr>
<td>Oral Reading Accuracy</td>
<td>95/43</td>
<td>8%</td>
</tr>
<tr>
<td>Word Reading</td>
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- background knowledge
- verbal reasoning skill
- vocabulary
- reading comprehension, and
- writing.

Prevalence

- Reading difficulties vs true dyslexia
  - Early reading interventions from kindergarten through second grade can significantly reduce the prevalence of reading disabilities
- Gender differences
  - Early reading interventions from kindergarten through second grade can significantly reduce the prevalence of reading disabilities
- Using school identification procedures
  - 1:4 (one girl for every four boys)
- Using clinical identification procedures
  - More boys than girls 1:1.4 or 1:1.7
- Discussion
  - Why, when schools identify reading disabilities, are more boys identified than girls?
  - Is there a problem with special education eligibility criteria, general education practices, or both?

ASSOCIATED CONDITIONS

- Comorbidity
  - With math — about 30-40% of children with reading disability will have math disorders
  - With ADHD
    - 36% of children with ADHD also have dyslexia
    - 18% of children with Dyslexia also have ADHD
    - Even in the absence of a reading skill deficit, children with AD/HD (predominantly inattentive type) have difficulty with rapid number naming and reading comprehension
  - Communication Disorders

HOW DO WE KNOW WHO IS AT RISK FOR DYSLEXIA?

Case Finding and Screening

- Family history
  - Family history of dyslexia is a strong risk factor that should be considered in any screening of children for dyslexia risk
  - Having a parent with dyslexia is a significant risk factor
  - 56% of 4 year olds identified as at risk for reading failure due to having a parent with dyslexia were significantly delayed in reading at 8 years of age

Case Finding and Screening – reading problems

- Language skill development
  - Important to understanding the meaning of language (i.e., semantics and syntax)
- Speech skills development
  - Important to phonological processing and development of the alphabetic principle
Case Finding and Screening – Reading Problems

- Language development
  - Oral language
  - May have some relationship to later reading problems if the speech difficulties are not resolved during early reading instruction.
- Vocabulary
  - Spoken vocabulary facilitates reading word recognition
  - May also create richer phonological representations
  - May be simply related to underlying (more fundamental) language facility important to development of reading skills (e.g., phonological processing).

Case Finding and Screening

- Speech skill development
  - Phonological processing (rhyming detection/production, segmenting, phoneme recognition sound categorization)
  - Good early development of these skills positively predicts reading achievement
  - Poor early development of these skills, by themselves, is not as powerfully predictive of later reading achievement
- Family history and language delays below average reading
- No family history and mixed language profile better reading outcomes

Case Finding and Screening

- Letter knowledge
  - One of the best preschool predictors of reading success.
  - May be facilitative of learning to read.
  - May also be a task that serves to represent the outward manifestation of
    - Cognitive processes (verbal memory)
    - Predispositions (interest in books)
    - Environmental factors (access to print) important to reading.

Case Finding and Screening

- Otitis media (OM)
  - Conflicting results in studies examining the relationship between OM and later academic outcomes.
  - The impact of OM most pronounced when occurring between 6- and 18-months.
  - The fluctuating hearing loss associated OM (and not OM per se) interferes with development of speech sound representations, making mapping of print to speech more challenging.

Case Finding and Screening

- Preschool screening
  - Family history
  - Speech and language development
  - Letter naming
  - Sentence memory
- Specific measures
  - Phonological Abilities Test (Muter, Huime, & Snowling, 1997)
  - Get Ready to Read (Reading Rockets)
  - http://www.readingrockets.org/article/get-ready

Case Finding and Screening

- Kindergarten screening
  - Visual processing
  - Phonological awareness
  - Vocabulary
  - Naming speed tasks

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Case Finding and Screening

- Kindergarten screening
  - Letter knowledge measured at the beginning of K, the best predictor of mastering basic reading skills.
  - Screening in the middle of K will reduce false positives.
  - “Children who enter school with good language skills (i.e., phonologic, semantic, and syntactic skills), knowledge about the alphabet, and no family history of dyslexia are likely going to be successful readers.”

Screening within a Three Tiered Model

- Assessment by response to intervention
  - Tier 1: Primary Intervention
  - Tier 2: Secondary Intervention
  - Tier 3: Tertiary Intervention

High Quality Classroom Instruction

- National Reading Panel Identified Five Component Skills
  - Three are critical to the development of automatic word identification
    - Phonemic Awareness
    - Phonics
    - Fluency
  - Two are critical to reading comprehension
    - Vocabulary
    - Comprehension strategies
  - There is interaction/additive effects among these five skills

Criteria to Determine Need for Intervention

- Family history
- Delayed language development
- Poor performance on screening tests
- Lack of progress in phonological awareness
- Mid K screening
- Advancing toward benchmarks
- Monitoring progress
- Screening of foundational skills
- Phonological processing
- Letter name
- Phonics

Continuum of Skills (Good, Simmons, Kame’enui)

- Kindergarten
  - Phonological awareness (onset rhyme fluency, phonemic segmentation fluency)
  - Letter name fluency
  - Phonemic segmentation
- First Grade
  - Letter Name and Phonemic segment. continue
  - Alphabet principle (nonsense word fluency)
  - Accuracy and fluency with connected text (oral reading fluency)
- Second Grade
  - Accuracy and fluency with connected text (oral reading fluency)
Tier II: Supplemental Reading Instruction

- Provided in small group or one to one
- Systematic, integrated program provided by trained persons
- Frequent, intense
- Target areas of need (five components of skilled reading)
- Opportunities for guided practice of new skills in context
- Scaffold instruction to needs of child

RTI Outcomes

- Research studies often show very positive outcomes to early intervention
- Less positive in real world
- IES study showed that for children who were just below cut-off in 1st grade involvement in intervention resulted in negative outcomes
- Thoughts? Why?
- RTI does not change differences that are present between readers at entry into intervention
- Response to intervention does not better predict gain than pre-intervention measures (Tran, Sanchez, Arrellano, Swanson 2011)

How do we identify students with dyslexia?

Assessment

- Purposes of Assessment
  1. Non-categorical identification of dyslexia
  2. Special education eligibility decision
  3. Inform interventions

Diagnosis

- DSM-5 – possible 504 plan if not special education
- Specific Learning Disorder
  A. Difficulties learning and using academic skills, as indicted by the presence of at least one of the following [6] symptoms that have persisted for at least 6 months, despite the provision of interventions that target those difficulties:
    1. Inaccurate or slow and effortful word reading (e.g., reads single words aloud incorrectly or slowly and hesitantly, frequently guesses words, has difficulty sounding out word.
    2. “understanding
    3. “spelling”
    4. “written expression”
    5. “number sense
    6. “mathematical reasoning”
Diagnosis

• DSM-5
  • Specific Learning Disorder
    B. The affected academic skills are substantially and quantifiably below chronological age, cause significant interference with academic performance, as confirmed by individually administered standardized achievement measures and comprehensive clinical assessment.
    C. The learning difficulties begin during school-age years...
    D. ...not better accounted for by intellectual disabilities, uncorrected vision or auditory acuity, other mental or neurological disorders, psychosocial adversity, lack of proficiency in the language of academic instruction, or in adequate educational instruction.
    NOTE: The four diagnostic criteria are to be met based on a clinical synthesis of the individual's history/developmental, medical, family, educational, school reports, and psychoeducational assessment.

Assessment

• Berninger's Differential Diagnosis
  1. Rule out exclusionary factors such as language, other developmental disorders
  2. Administer test of verbal comprehension, reading, spelling, decoding and fluency
  Is verbal comprehension at least 90?
  Is reading/spelling measure below average and 1 SD below verbal comprehension?
  3. Is student impaired (below 25th percentile) on phonological coding, orthographic coding, rapid naming? Having reading related difficulties in classroom
  If exclusionary factors are ruled out and the answer to questions asked in 2 & 3 is "yes," consider diagnosis of dyslexia

CA Code of Regulations

Eligibility Criteria: 3030 (b) 10

• Dyslexia included as example of condition
• Underachievement in one of 8 identified areas
• Issue of reading fluency
• Not due to lack of appropriate instruction
• Not due to exclusionary factors
• Evaluation demonstrates
  • Discrepancy allowed but not required or
  • Lack of response to scientific, research based intervention or
• Pattern of strengths and weaknesses that is relevant to identification of a specific learning disability

CASP 2016: Dyslexia


CASP POSITION PAPER AB1369

Critical to any assessment of dyslexia is a professional with specialized knowledge of brain functions, learning, and learning disorders, such as a school psychologist, as a member of the team. School psychologists have advanced training in individual administration of standardized tests of learning and cognitive functions. They understand test construction and measurement, validity, and reliability; knowledge that helps them to interpret an individual student’s performance across various domains of functioning. In assessing for dyslexia, the school psychologist and other team members will use a variety of observations and tools to measure the abilities that underlie reading. The psychologist will also examine and identify or rule out other possible contributors to reading disorders such as problems with visual discrimination, memory, or attention. Further, school psychologists will consider such factors as language status and educational background in their assessments. School psychologists have the education and training to consider all aspects of the child’s functioning and the multiple factors that can impact reading.

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Assessment

- Special education involves categorical decisions

<table>
<thead>
<tr>
<th>Style</th>
<th>Not eligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluent Reading &amp; Fluency in Language</td>
<td>Not eligible</td>
</tr>
</tbody>
</table>

- Reading skill is not categorical

- Thus, not all students with dyslexia will be eligible for required special education assistance

- Special education is not THE answer to the challenge of dyslexia

- It is an answer for a select group of students with more severe reading difficulties

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Students who have been identified with dyslexia may be offered a continuum of services based on their identified needs: special education, a 504 Plan, or general education. The level of service is based on the intensity of need. Assessment teams will define student needs, which in turn will determine the appropriate program. A student with severe dyslexia who needs specialized instruction in order to access the general education curriculum will likely require special education services. A student with dyslexia who is able to participate adequately within the general education curriculum when provided with appropriate accommodations (e.g., more time on tests, books on tape) would likely be served by a 504 Plan. Other students who have dyslexia may function adequately without specialized instruction or accommodations. Interventions provided within special education differ from those provided in general education as part of a multi-tiered system of supports (or RTI²). Intensity is increased through frequency of instruction, increased time on specific skills, lower student to teacher ratio and specialized instruction. It is important to balance the need and value of these intensive services with the academic benefits of participating in the general education classroom.

Text Comprehension

- Classroom sources
- Curriculum
- Lexiles
- BI
- Running records
- Tests:
  - Most achievement batteries
  - Gray Oral Reading Test
  - Gray Silent Reading Test
  - Maze reading tests (CBM)
- Problems in assessing comprehension
- Students with good background knowledge and language skills may do well on comprehension tests but not in school related reading
- Fletcher et al., 2007
- Refer back to passages
- Differences in performance
- E.g. WIAT vs. GORT

Maze Passage

Bobby was preparing to go to bed late one evening when he heard a shrill screech coming from the barn outside. Bobby was unsure what was making such noise. That evening after (forget, understand, dinner) the sun was setting, Bobby (grabbed, smooth, frighten) a flashlight and set out for (guide, the, winter) barn. "Where are you heading?" Bobby's (courtesy, fought, father) asked.

"I am going to go (frighten, learn, find) the monster that was making such noise. That evening (sharply, cool, befuddled) when Bobby awakened the following morning, (he, always, science) hurrying out to the barn to (it, discover, selfishly) what was causing such a peculiar noise (umm, wear, noise) the night prior. He gathered his (afford, dad, harass) and entered the barn but left (a, prickly, commotion) last night," Bobby replied. "If (shyly, tremble, you) are going to look for a (go, monster, slimy), you might need some assistance," Bobby's (afford, dad, harass) responded.

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**Oral Language**

- Oral language clusters
  - WJIII
  - KABC II
- Language specific tests
  - CELF
  - Test of Early Language Development
  - Oral and Written Language Scales
- Vocabulary tests
  - PPVT
  - WJIII: Vocabulary
  - KABC: Verbal Knowledge
  - WISC: Vocabulary
  - DAS: Word Definition
  - KABC: Verbal Knowledge
- **The ultimate goal of reading instruction is to help children acquire the knowledge and skills necessary to comprehend printed material at a level that is consistent with their general verbal ability or language comprehension skills.** (Torgesen, 2002)
- Conversely lack of reading may impact development of verbal ability
- Listening Comprehension
  - Most achievement tests

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**KAUFMAN ASSESSMENT BATTERY FOR CHILDREN- II**

<table>
<thead>
<tr>
<th>Composite/Subtest</th>
<th>Composite Score (90% Confidence Interval)</th>
<th>Subject Score</th>
<th>Percentile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLUID-CRYSTALLIZED INDEX</td>
<td>N/A</td>
<td>2nd</td>
<td></td>
</tr>
<tr>
<td>Short-Term Memory</td>
<td>80 (62-98)</td>
<td>4th</td>
<td></td>
</tr>
<tr>
<td>Number Recall</td>
<td>5</td>
<td>15th</td>
<td></td>
</tr>
<tr>
<td>Word Order</td>
<td>4</td>
<td>2nd</td>
<td></td>
</tr>
<tr>
<td>Visual Processing</td>
<td>86 (62-92)</td>
<td>72rd</td>
<td></td>
</tr>
<tr>
<td>Rover</td>
<td>8</td>
<td>25th</td>
<td></td>
</tr>
<tr>
<td>Visual Span</td>
<td>8</td>
<td>25th</td>
<td></td>
</tr>
<tr>
<td>Long-Term Retrieval</td>
<td>86 (74-96)</td>
<td>72rd</td>
<td></td>
</tr>
<tr>
<td>Atlantis</td>
<td>7</td>
<td>15th</td>
<td></td>
</tr>
<tr>
<td>Raven</td>
<td>8</td>
<td>25th</td>
<td></td>
</tr>
<tr>
<td>Oral Readiing</td>
<td>91 (87-95)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Story Comprehension</td>
<td>13</td>
<td>61%</td>
<td></td>
</tr>
<tr>
<td>Pattern Reasoning</td>
<td>8</td>
<td>25th</td>
<td></td>
</tr>
<tr>
<td>Conceptual Ability</td>
<td>90</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Verbal Knowledge</td>
<td>7</td>
<td>12th</td>
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<tr>
<td>Matrix</td>
<td>5</td>
<td>54%</td>
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</tbody>
</table>

**PALS II**
Moraholical Coding low for all subtests

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**GRAY ORAL READING TEST 5**

<table>
<thead>
<tr>
<th>Composite</th>
<th>Scaled Score</th>
<th>Percentile</th>
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<tbody>
<tr>
<td>Rate</td>
<td>4</td>
<td>12th</td>
</tr>
<tr>
<td>Accuracy</td>
<td>5</td>
<td>39th</td>
</tr>
<tr>
<td>Fluency</td>
<td>7</td>
<td>56th</td>
</tr>
<tr>
<td>Comprehension</td>
<td>5</td>
<td>55th</td>
</tr>
</tbody>
</table>

---

Need to look at performance on different types of reading comprehension subtests.

**WECHSLER INDIVIDUAL ACHIEVEMENT TEST III**

<table>
<thead>
<tr>
<th>Subtest</th>
<th>S.Score</th>
<th>S.Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listening Comprehension</td>
<td>116/86</td>
<td>Oral Expression</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>92/30</td>
<td>Spelling</td>
</tr>
<tr>
<td>Essay Composition</td>
<td>85/36</td>
<td>Accuracy</td>
</tr>
<tr>
<td>Word Reading</td>
<td>76/39</td>
<td>Oral Reading Fluency</td>
</tr>
<tr>
<td>Pseudo Decoding</td>
<td>76/4</td>
<td></td>
</tr>
</tbody>
</table>

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**LINKING ASSESSMENT TO INTERVENTION**

- Assess Language Skills
- Comprehension Strategies & Vocabulary
- Direct Instruction in Sound Symbol & Word Reading
- Practice & Fluency

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TEXT LEVEL ASSESSMENTS/Fluency

- Classroom sources
- Embedded in curriculum
- Levels (lexile)
- District fluency tests
- Informal reading inventory
- Running records
- Tests
- Gray Oral Reading Test 5 (GORT-5)
- Reading achievement tests
- Oral reading fluency measures
  - DIBELS
  - AIMSweb
  - EASY CBM
  - Intervention Central

Assess Word Level Knowledge and Abilities

- Has student acquired alphabetic principle/sound-symbol correspondence?
- Is child developing automatic word recognition
- Components
  - Accuracy
  - Rate
  - Reading
  - Spelling
- Both decoding and encoding
  - Timed and untimed

Word Level Skills to Be Assessed

Word Level Assessments

<table>
<thead>
<tr>
<th>Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embedded in curriculum</td>
</tr>
<tr>
<td>Spelling tests</td>
</tr>
<tr>
<td>Invented spelling</td>
</tr>
<tr>
<td>Writing</td>
</tr>
<tr>
<td>Tests</td>
</tr>
<tr>
<td>Decoding tests</td>
</tr>
<tr>
<td>Measure knowledge of phonics</td>
</tr>
<tr>
<td>Use nonsense words</td>
</tr>
<tr>
<td>Achievement Tests</td>
</tr>
<tr>
<td>Real word reading accuracy</td>
</tr>
<tr>
<td>Isolated word reading</td>
</tr>
<tr>
<td>Achievement tests</td>
</tr>
<tr>
<td>Fluency</td>
</tr>
<tr>
<td>Test of Word Reading Efficiency (TOWRE 2)</td>
</tr>
<tr>
<td>Test of Silent Word Reading Efficiency</td>
</tr>
<tr>
<td>Achievement Tests</td>
</tr>
<tr>
<td>Encoding</td>
</tr>
<tr>
<td>Going from sounds to letters that represent them</td>
</tr>
<tr>
<td>KUILL Spelling of sounds</td>
</tr>
<tr>
<td>Spelling subtests</td>
</tr>
<tr>
<td>Look at spellings for both knowledge of phonics and orthographic knowledge (legal letter combinations)</td>
</tr>
</tbody>
</table>
**Word Level Assessments**

<table>
<thead>
<tr>
<th></th>
<th>Real</th>
<th>Nonsense</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decoding</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOWRE ±</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAL II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achievement Tests (e.g. WIAT III)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Untimed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most achievement batteries</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Encoding</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timed</td>
<td></td>
<td></td>
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<tr>
<td>CBM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Untimed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spelling of Sounds</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Component Reading Skills: Sub-word level**

- Is child developing phonological awareness?
- Does the child have any naming speed deficits?
- Does the child have deficits in orthographic processing?
- Verbal working memory?

**Phonological Processing**

- Phonological processing tasks
  - Blending
  - Segmenting
  - Memory
  - Onset rhyme
- Classroom Information
  - Embedded in curriculum
  - BPST, APST
  - Invented Spelling
- Tests
  - TAPS ±
  - COOP ±
  - PAL II
  - FAR
  - DIBELS
  - NEPSY II
  - Other tests as part of larger batteries
- Informal measures
  - Yopp Phonemic Awareness tasks
  - PAST
  - Lindamood Auditory Conceptualization

**PAL II**

- PAL II
  - Syllables
  - Curiosity
  - Phonemes
  - Pit
  - Must
  - Between
  - Mixed
  - Rime
  - Beem
  - Cawwater

**Elena**

<table>
<thead>
<tr>
<th></th>
<th>Real</th>
<th>Nonsense</th>
<th>Decoding</th>
<th>Encoding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timed</td>
<td>Weak</td>
<td>Weak</td>
<td>Adequate</td>
<td>Adequate</td>
</tr>
<tr>
<td>Untimed</td>
<td>Adequate</td>
<td>Adequate</td>
<td></td>
<td></td>
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</tbody>
</table>

**Benny**

<table>
<thead>
<tr>
<th></th>
<th>Real</th>
<th>Nonsense</th>
<th>Decoding</th>
<th>Encoding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timed</td>
<td>Weak</td>
<td>Weak</td>
<td>Weak</td>
<td></td>
</tr>
<tr>
<td>Untimed</td>
<td>Weak</td>
<td>Weak</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CASP 2016: Dyslexia**

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Rapid Naming

- The ability to quickly access verbal labels for visually presented material
- Pictures, letters, numbers, simple words
- Can also include switching

- CTOPP 2
  - Digit, Letter, Color, Object Naming
- NEPSY II
  - Speeded Naming
- PAL II
  - RAN Words, Digits, Words and Digits
- FAR
  - RAN, Irregular words, PA
- KTEA 3
  - Naming Facility
- DAS II
  - Rapid Naming
- WISC V
  - Naming Facility

Will – 8th grade
Has attended 3 different schools
No socio-emotional, health, environmental concerns
Was placed in special as SLD in 6th grade
Served through push in for 7th and 8th
Only accommodations in 9th grade
At most recent IEP, consider to no longer qualify as SLD

Orthographic Awareness

- A less studied area
- Letter name knowledge
- Letter production
- Expressive coding
- Receptive coding
- Berninger's work in developing Process Assessment of the Learner (PALS-II) and in developing interventions
  - Orthographic choice
  - Alphabet writing
  - Receptive and expressive coding

Orthographic Coding

- PAL-II
  - Alphabet Writing
  - Receptive Coding
  - Expressive Coding

- FAR
  - Orthographical Knowledge
  - Write 5th, 6th, 7th

Spelling Tests: Review for "illegal" letter combinations

Component Skills Continued

- Production processes
- Handwriting
- Keyboarding
- Oral language comprehension
  - Recall
  - Syntax
  - Expression
- PAL II
  - Automaticity
  - Accuracy
Dysgraphia

- Dysgraphia is the term associated with specific learning disabilities in writing. It is used to capture both the physical act of writing and the quality of written expression. Features of learning disabilities in writing are often seen in individuals who struggle with dyslexia and dyscalculia, and will vary from person to person and at different ages and stages of development. Common characteristics include:
  - Tight awkward pencil grip and body position
  - Tiring quickly while writing, and avoiding writing or drawing tasks
  - Trouble forming letter shapes as well as inconsistent spacing between letters or words
  - Difficulty writing or drawing on a line or within margins
  - Trouble keeping track of thoughts already written down
  - Difficulty with syntax structure and grammar
  - Large gap between written ideas and understanding demonstrated through speech

IDA Standards

- Recognize the tenets of the NICHD/IDA definition of dyslexia.
- Dyslexia is a specific learning disability that is neurobiological 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.
- What is meant by the terms in bold?

Now what???

- How do you know if what was tried was evidence based?
- How do you help teams determine an evidence based practice or program?

THE BUCK DOES NOT STOP (OR BEGIN) WITH ELIGIBILITY DECISION!!

Intervention CAN Lead to Observable Change

- A growing number of treatment studies have shown modulation of LH reading circuits with effective treatment:
  - Functional changes (Shaywitz et al., 2004; Simos et al., 2002; Temple et al., 2003; Eden et al., 2004; Meyler et al., 2009)
  - Grey and white matter changes (Keller et al., 2009; Flowers et al., 2011)

Pug, 2016
CASP Position Paper

First, IDEA stresses the importance of research-based interventions and highly qualified teachers.

Second, because children who qualify for special education need to have every educational minute count, it is critical that the intervention used be appropriate for the identified needs of the child.

Third, when choosing an intervention, it is important to consider the student characteristics as well as the setting in which the intervention will be provided.

Fourth, there are certain agreed-upon characteristics that are important to interventions for students with dyslexia. The National Reading Panel (2000) listed five components of reading instruction that are relevant to both general education instruction and intervention: phonemic awareness, phonics, fluency, vocabulary and text comprehension. Interventions for students with dyslexia should be structured, systematic, explicit and involve diagnostic teaching. Students with dyslexia need to be taught using an intervention that has a clear sequence of skills, is explicit (i.e. students are directly taught the skills they need to know) assures mastery of basic skills such as phonemic awareness and monitors progress regularly.

Fifth, these students need to be taught by a teacher trained in the intervention who understands reading development, how to meet the needs of unique learners and can provide for diagnostic teaching.

Interventions

• Most reading problems have to do with decoding and spelling
• Some readers may understand the system but lack fluency
• Some readers have trouble with comprehension

These reading problems require different interventions

Intervention Principles

• Working to change brain function
• Intensive
• Prolonged
• Skill development
• Fluency
• Neural plasticity indicates that it is easier to create new connections than reconfigure old ones
• Learning requires accurate repetition
• Learning requires intensity
• Brain has affinity for novelty

Group Size and Composition

• Same ability grouping
• Small groups within classrooms
• Small groups equal to or better than one on one
• Up to three to four students

What Can Be Expected?

• Typical students in first grade gain @ 2 words per week in oral reading fluency (ORF)
• Grade two students gain about 1.66 decreasing to about .6 in fifth and sixth grade
• Special education students is about ½ that of regular education students
• High quality interventions was about 1.5
• Benchmark for interventions
• 2 words per week to level of 30 CWM
• Approximately 1 word per week thereafter

Fluency rates

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Intensive Interventions

- Problems in reading rate remain for most children who require this level of intervention
- Brain activity becomes more like normal pattern but also increases in other areas (compensation?)
- Some say compensation is primary factor in improvement

Target Intervention by Assessing All Levels of Reading

- Underlying processes
- Word level processes
- Text processes
- Oral language
- Production

<table>
<thead>
<tr>
<th>Grade</th>
<th>Rauenki</th>
<th>Hadnrock &amp; Tindal</th>
<th>Marco</th>
<th>Harris &amp; Spay</th>
<th>Early Rate</th>
<th>End Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>25-55</td>
<td>(10)</td>
<td>50</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>51-69</td>
<td>(20)</td>
<td>60-104</td>
<td>70</td>
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<td>3</td>
<td>110</td>
<td>71-137</td>
<td>(30)</td>
<td>85-134</td>
<td>100</td>
<td>130</td>
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<tr>
<td>4</td>
<td>140</td>
<td>64-123</td>
<td>(40)</td>
<td>90-190</td>
<td>100</td>
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<tr>
<td>5</td>
<td>150</td>
<td>110-130</td>
<td>(50)</td>
<td>100-140</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>180</td>
<td>127-150</td>
<td>(60)</td>
<td>113-145</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Reading Component

- Phonological Decoding (sounding out)
- Phonological Encoding (spelling words by sounding out)
- Word Identification (reading isolated words)
- Text Reading Fluency
- Text Reading Comprehension
- Orthographic Processing: ability to store letter patterns in words
- Phonological Processing
- Naming Speed
- Phonological Memory: remembering information by “sound”
- Verbal Memory
- Attention Memory
- Verbal Ability
- Visual Spatial Skills
- Working Memory

Age At Intervention

- Some evidence that brain changes that occur for younger children happen with older
- Also increase in compensatory areas
- General cognitive ability affects comprehension
- Typical special education during 4th and 5th grade increases reading by only .04 SD over what would occur in classroom

Upper Grade Interventions

- Often lack intensity
- Little direct instruction or guided practice in phonics
- Lack of comprehension strategy instruction
- Teach phonemic decoding explicitly
- Provide opportunities for supervised practice
- Intensive
- Small group
- Related to entry level skills
- Provide all NRP elements of reading instruction
- Brain studies show intervention effect on brain function
- Teach morphology as need more than phonics at upper grades to read words
Conclusions for Upper Grades

- Older children around 30th percentile can bring phonemic decoding, text reading accuracy and fluency into average range (60 hours)
- Those around 10th percentile can bring phonemic decoding, accuracy and comprehension into average range. Fluency increases but still low (100 hours)
- Those at 2nd percentile can bring phonemic decoding into average and increase accuracy and comprehension but little relative change in fluency

Difficulties For Older Children

- Low entering word reading scores reflect underlying deficits
- Deficit makes it impossible to close the gap
- Those with better word reading at entry may have more words "on the verge"
- May have additional deficit in ability to form orthographic representations

GORT 5 Reading Fluency = 4
TOWRE 2 Phonemic Decoding Efficiency = 74
TOWRE 2 Word Reading Efficiency = 78
WIAT III Word Reading = 92
WIAT III Decoding = 90

Persistent Fluency Deficits

- As children learn to read they increase their store of "sight words"
- Average readers are doing so from 1st grade on and continue to do so
- Delayed readers fall behind early
- Gap continues to widen without intervention
- Effects of early delay are both direct and indirect
  - Text support
  - Vocabulary

Iriss modules on eb interventions

- http://iris.peabody.vanderbilt.edu/module/ebp_03/chall enges/#content
- How do you currently determine whether a student has had an evidence-based practice or program?
- How do you decide if a program is appropriate for a student with a learning disability?
- Parent wants optometric training, Lindamood-Bell, Barton
- Evidence based practice and program
- Websites

Useful Websites

- Best Evidence Encyclopedia (BEE) (Center for Data-Driven Reform in Education at Johns Hopkins University)
- National Center on Intensive Intervention (NCII)
- http://eida.org/
- https://app.box.com/s/ume7t8rrbgpb7h4z2jhq57y4xbyxt8t

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Sample Interventions

- Focus on Phonological Awareness and Phonics
- Phonographix
- Barton Reading and Spelling
- Road to the Code
- Focus on Phonological Awareness, Phonics and Fluency
- Great Leaps
- System 44
- Focus on Phonological Awareness, Phonics, Writing
- Lindamood Phoneme Sequencing Program
- Spell, Read, P.A.T.
- Read Write Type
- Berninger PAL aligned
- REWARDS – also vocabulary

Interventions

- Controversial Treatments
  - Fast ForWord - Language (Miller & Tallal, 1996)
  - Tomatis (1978)
  - Irlen lenses (Irlen, 1983)
  - optometric visual training (Rayner, 1983; Taylor, 1965)
  - Davis Method (Davis & Braun, 1997; 2003)
  - Dore Program (Dore & Rutherford, 2001)

Strengths: Good language skills, visual spatial skills, fluid reasoning

Needs: Maurie’s lack of decoding skills is the primary target for intervention. In addition, it is important to note that he also leaves out phonemes in shorter words (for example reading platic for plastic). His phonological processing is weak and should be addressed in conjunction with developing his word attack skills. Maurie needs direct, explicit decoding instruction. Since his decoding skills are closer to those of a typical 1st grade student he is likely to also need remediation in basic decoding.

What interventions would be implemented at your school for Maurie?
- Is it evidence based, research based?
- How do you know?

Comparison Worksheet

In the Simple View of Reading, dyslexia is a problem on the word side of reading.
- Children can also have problems with comprehension but that is not dyslexia.

Dyslexics fall under category of SLD:
- GDA language
- Can be assessed in schools by trained professionals

There are some good protocols for assessing dyslexics.
- Difference between comprehension of oral language vs. text
- Deficits in identified processing area

Intervention is difficult but most effective if done early.
- Provide intervention with highest chance of success
- Provide targeted intervention (access to intensive)

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