Reading Disabilities (Dyslexia)

Stephen E. Brock, PhD, NCSP, LEP
California State University, Sacramento

1

Seminar Outline

1. Dyslexia Lecture
2. GORT
3. Break
4. Dyslexia Lecture
5. TOWRE

2

Lecture Objectives

From this session it is hoped that you will increase your ability to …

1. recognize the defining features of reading disabilities (or dyslexia).
2. articulate the causes, prevalence, and associated features of dyslexia.
3. conduct screenings for, and identify the presence of, dyslexia.

3

Lecture Outline

1. Preface
2. Causes
3. Prevalence and Associated Conditions
4. Case Finding and Screening
5. Assessment

4

Preface

- The core symptoms of dyslexia are
  - "… frequently overlooked and put down to mere stupidity, or some error of refraction, very much to the disadvantage of the individual, because the individual was often blamed, bullied, laughed at, for a defect which was not his fault but his misfortune."

E. Treacher Collins

5

Shaywitz (2003)

Preface

1. Learning to reading is
   - Associated with positive adult outcomes
2. Reading disabilities are
   - Associated with juvenile delinquency
   - The most common SLD referral
3. Early identification and treatment of reading disabilities is essential.
   - "Matthew effect"
   - Reduces at-risk readers from approximately 25 to 6%

6

Foorman (2003); Frieden (2004); Mellard & Woods (2007); O'Brien et al. (2007)

Preface

- Defining dyslexia
  - Types of dyslexia
    - Acquired
      - Most often surface or visual dyslexia
      - Typically seen in adults following TBI/stroke
    - Developmental
      - Most often phonological dyslexia
      - Some rare cases of surface dyslexia observed

7

Beaton (2004)

Preface

- Defining dyslexia
  - Historical origins
    1. 1676, Johann Schmidt, *acquired alexia*
    2. 1877, Adolf Kassmaul, *wortblindheit* (word blindness),
    3. 1887, Rudolf Berlin, *dyslexia*
    4. 1896, W. Pringle Morgan, developmental word blindness
  - Why was it around the turn of the last century that dyslexia was recognized as a developmental concern?
    - It was also about this same time that ADHD was recognized as a developmental concern.

8

Shaywitz (2003)

Preface

A socially constructed "disorder"

Common Schools

Medical Model

Special Ed

Dyslexia

Difficulty with whole word recognition and converting new words into 'sight words'

9

Preface

- Defining dyslexia
  - Current conceptualizations
    - *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 impact growth of vocabulary and background knowledge.* [emphasis added]

10

Lyon et al. (2003, p. 2)

Preface

- Defining dyslexia
  - Current conceptualizations
    1. Underlying cause is (typically) a neurobiological phonological processing deficit
    2. Behavioral marker is difficulties with single word decoding
    3. Unexpected given other learning/cognitive skills and abilities, and the presence of quality instruction
    4. Result in difficulty in constructing meaning from text and associated academic skill development

11

Christo, Davis, & Brock (2009)

Preface

- Defining dyslexia
  - More than just a lack of skill development
    1. Early differences in phonological processing
    2. Phonological processing predicts reading skill development
    3. Interventions that target phonological processing improve reading skill
    4. Neuroimaging suggests functional brain differences
    5. 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

12

Christo, Davis, & Brock (2009)

Preface

- Defining dyslexia
  - Phonological Processing
    - Manipulating the sounds of language
  - Rapid Naming
    - Fast, automatic retrieval processes
  - Orthographic Processing
    - Memory for the letters in words
    - An **orthography** is a set of conventions for writing a language. It includes rules for spelling, hyphenation, capitalization, word breaks, emphasis, and punctuation.

13

Preface

1. Special education involves categorical decisions
2. Reading skill is not categorical

Severe Dyslexia	**Fluent Automatic Reading**
2-3% SpEd 20-25% Dyslexic	75-80 % Normal Readers

3. Thus, not all students with "dyslexia" will be eligible for/require special education assistance
4. Special education is not THE answer to the challenge of dyslexia
   - It is AN answer for a select group of students with more severe manifestations of dyslexia

14

Shaywitz (2003)

Preface

- Reading integrates multiple systems
  - Visual system
  - Phonology
  - Working memory
  - Language
  - Executive functioning (ADHD)
- Dyslexia is but one of several "internal" reasons for why a student is not learning how to read.
  - Not all students with reading difficulties (and identified as SLD) will be considered dyslexic

15

Preface

- Basic assumptions
  - Reading process has two major components
    - **Decoding (word reading)** + comprehension (constructing meaning from text) = Reading
  - Dyslexia
    - Interferes with decoding

16

Christo (2015)

Preface

- Basic assumptions
  - Dyslexia does not reflect an *overall* defect in language
    - Although it can co-exist with such
  - It is a localized weakness with a specific part of the language system: the phonological module

Language System	Reading
1. Discourse	Comprehension
2. Syntax	
3. Semantics	
4. Phonology →	Decoding

Shaywitz (2003)

Preface

- Basic assumptions
  - What is a phoneme?
    1. "The root of that word is Greek"
    2. The smallest unit of speech that distinguishes one word from another
    3. The fundamental element of the language system
    4. The essential building block of all spoken and written words
  - Dyslexic children have difficulty developing awareness that words are a collection of phonemes
    - "children who are dyslexic perceive a word as an amorphous blur, without an appreciation of its underlying segmental nature." (p. 44)

18

Shaywitz (2003)

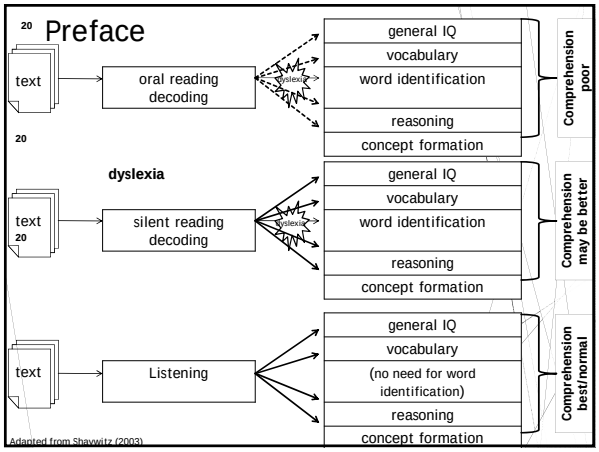
Preface

- Basic assumptions
  - Development of the *Alphabetic Principle*
    1. General awareness that words have parts
    2. Specific awareness that these parts are sounds
    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 an 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)

19

Shaywitz (2003)

Preface



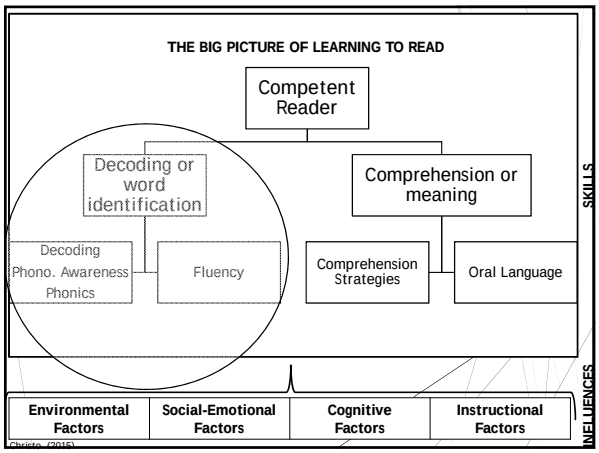
Adapted from Shaywitz (2003)

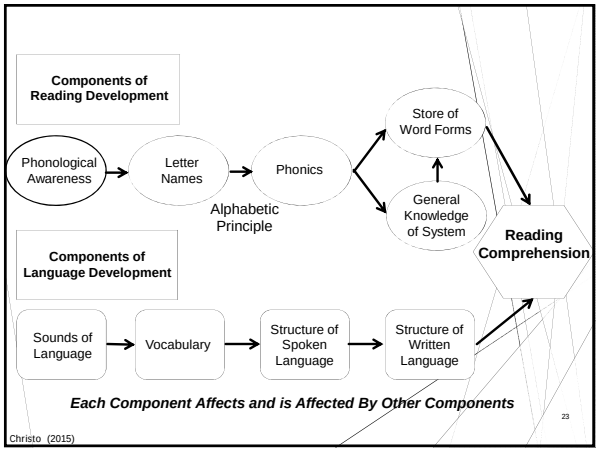
Preface

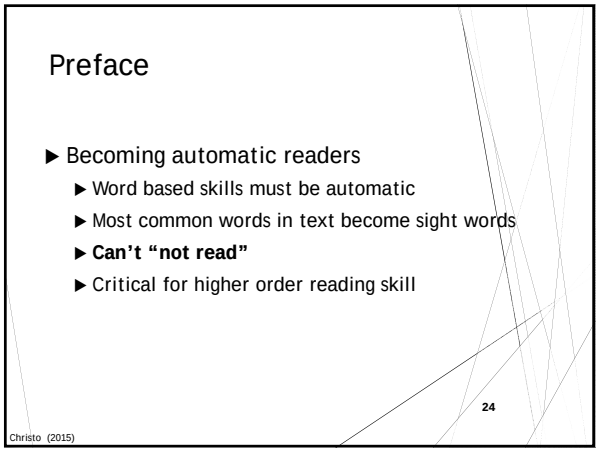
- Basic assumptions
  - Multiple components of reading must be taught in a systematic, explicit manner that also immerses children in language and text

21

Christo (2015)


THE BIG PICTURE OF LEARNING TO READ
Competent Reader
Decoding or word identification
Comprehension or meaning
Decoding
Phono. Awareness
Phonics
Fluency
Comprehension Strategies
Oral Language
SKILLS
Environmental Factors
Social-Emotional Factors
Cognitive Factors
Instructional Factors
INFLUENCES
Christo (2015)


Components of Reading Development
Phonological Awareness
Letter Names
Phonics
Alphabetic Principle
Store of Word Forms
General Knowledge of System
Reading Comprehension
Components of Language Development
Sounds of Language
Vocabulary
Structure of Spoken Language
Structure of Written Language
Each Component Affects and is Affected By Other Components
23
Christo (2015)


Preface
Becoming automatic readers
Word based skills must be automatic
Most common words in text become sight words
Can't "not read"
Critical for higher order reading skill
24
Christo (2015)

Preface

- To summarize
  - TED Ed: What is Dyslexia

25

Lecture Outline

1. Preface
2. Causes
3. Prevalence and Associated Conditions
4. Case Finding and Screening
5. Assessment

26

Causes

- Genetics
  - Heritability
    - .55 ± .22
  - Chromosomes 6 and 15 strongest links to reading
    - 1, 2, and 18 also implicated
  - Chromosome 6
    - Increased risk for both dyslexia and ADHD

27

Pennington & Olson (2005); Christo, Davis, & Brock (2009); Willcutt et al. (2002)

Causes

- Environment
  1. Not completely heritable
  2. Supports the notion of gene x environment interactions
  3. A genetic predisposition to dyslexia can be exacerbated or mitigated by the environment
  4. While up to 20% of children are "at risk" for dyslexia, the "environment" (i.e., appropriate early intervention) reduces prevalence of dyslexia to 2-6%

28

Christo, Davis, & Brock (2009)

Causes

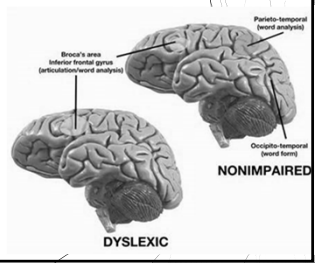
- Neurobiological Structures
  - Good readers use different parts of the brain than do dyslexic readers
    - The reading system relies on 3 inter-related brain structures
      1. Parieto-temporal (slow word analysis and important to the novice reader)
      2. Occipito-temporal (automatic recognition of word form, the express pathway to reading)
      3. Broca's area/Interior frontal gyrus (articulation/word analysis, poor reader's sub-vocalization may reflect use of this area)
    - Good readers activate the back of the brain
      - Highly skilled readers make use of the occipito-temporal region
    - Dyslexic readers overutilize the left frontal (Broca's area) and right frontal regions

29

Christo, Davis, & Brock (2009); Shaywitz (2003)

Causes

- Neurobiological Structures
  - Good readers use different parts of the brain than do dyslexic readers
    - Under activation of the back for the brain is a neural signature of dyslexia
    - Brain activation profile can normalize after intervention



Christo, Davis, & Brock (2009); Shaywitz (2003)

Causes

- Psychological processes
  - Visual processing ?
  - Temporal processing
  - **Phonological core deficits**
  - Rapid naming deficit
  - Double deficit

31

Christo, Davis, & Brock (2009)

Causes

- Visual Processing?
  - Visual discrimination
  - Fixation Stability
  - Magnocellular System Efficiency
  - Visual Integration
  - Spatial Relations

32

Christo, Davis, & Brock (2009)

Causes

- Visual Processing?
  - American Academy of Pediatrics, American Academy of Ophthalmology, and American Association for Pediatric Ophthalmology and Strabismus (1998) stated that *eye defects, subtle or severe, do not cause reversal of letters, words, or numbers. Claims of improved reading and learning after visual training, neurologic organization training, or use of colored lenses are almost always based on poorly controlled studies that typically rely on anecdotal information.*
  - An AAP technical report reinforces a 2009 policy statement that said there is *no scientific evidence to indicate dyslexia or other learning disabilities are caused by vision problems. In addition, there is no benefit to using vision training or other related techniques to help children with these disabilities.*

33

Christo, Davis, & Brock (2009)

Causes

- Temporal Processing
  - That means a difficulty tracking acoustic frequency changes occurring over time.
  - Can be identified early in life
    - Infants 4-6 months of age who were unable to hear sound differences when tones were too close together (temporally speaking) turned out to be language impaired, those infants who could hear the differences at high speeds developed language quicker and had normal language development
  - Suggests a casual link between the ability to process auditory input quickly/effectively and the ability to perceive phonemes

34

Christo, Davis, & Brock (2009)

Causes

- Phonological Core Deficit
  - Most researchers and practitioners consider a phonological deficit the core deficit of dyslexia
  - Perception, interpretation, recall and production of language at the level of the speech sound system
  - Includes:
    - pronouncing words
    - remembering names and lists
    - identifying words and syllables
    - giving rhymes
    - detecting syllable stress
    - segmenting and blending phonemes

35

Christo, Davis, & Brock (2009)

Causes

- Rapid Naming Deficit
  - Children who fail to name things they saw at the same speed as other children (letters or objects)
  - 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**
    - The speed with which you name and the speed that you read is really important not just for the speed, **but for the brain's ability to do these processes fast enough to allocate time to construct meaning from text** (i.e., reading comprehension)

36

Christo, Davis, & Brock (2009)

Causes

- Double Deficit
  - These children have different reasons for reading failure than the kids who have only phoneme awareness issues (deficits in phonological processing AND rapid naming)
    - Most impaired population
    - Most at risk
    - Differential effects on remediation and intervention
    - Highlights need to link intervention to assessment and to differentiate interventions
  - Both reading fluency and comprehension deficits

37

Christo, Davis, & Brock (2009)

Lecture Outline

1. Preface
2. Causes
3. Prevalence and Associated Conditions
4. Case Finding and Screening
5. Assessment

38

Prevalence & Associated Conditions

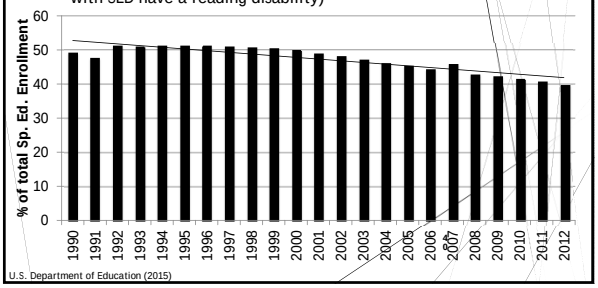
- Reading difficulties vs true dyslexia
  1. Early reading interventions from K through 2nd grade reduced prevalence of reading disabilities about **2%** of the population.
  2. Percentage of children with reading disabilities in special education estimated to be about **2.7%** of total school population.
     - 1.8 of the 66.8 million school children ages 6 to 21 years.

39

Torgesen et al. (2001); Torgesen et al. (1997); U.S. Department of Education (2015)

Prevalence & Associated Conditions

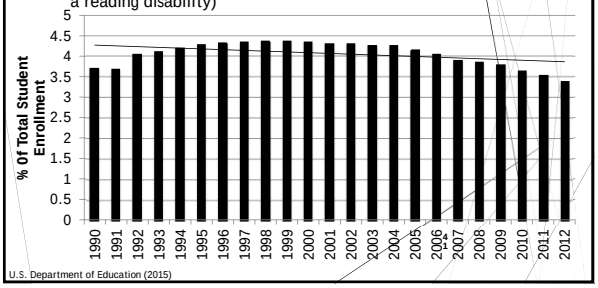
- SLD as a % of all students eligible for special education (80-90% of students with SLD have a reading disability)



U.S. Department of Education (2015)

Prevalence & Associated Conditions

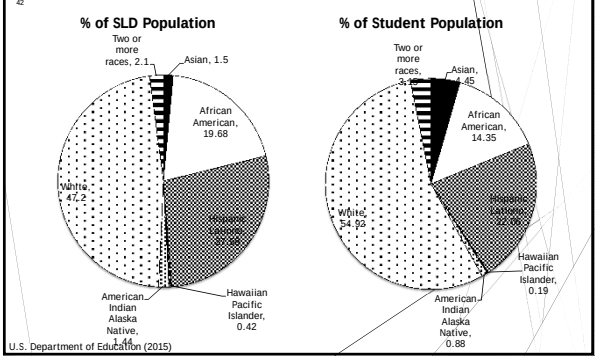
- SLD as a % of total student population (80-90% of students with SLD have a reading disability)



U.S. Department of Education (2015)

Prevalence & Associated Conditions

42



U.S. Department of Education (2015)

Prevalence & Associated Conditions

- Gender differences
  - Using school identification procedures
    - 1:4 (one girl for every four boys)
  - Using clinical identification procedures
    - Differences (more boys) are not significant
  - 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?

43

Shaywitz (2003)

Prevalence & Associated Conditions

- 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 ADHD (inattentive) have difficulty with rapid number naming and reading comprehension
- Communication Disorders
- Developmental Coordination disorders
- Autism
- Other mental disorders

44

American Psychiatric Association (2013); Brock & Krener (1996); Brock & Christo (2003); Christo, Davis, & Brock (2009)

Lecture Outline

1. Preface
2. Causes
3. Prevalence and Associated Conditions
4. Case Finding and Screening
5. Assessment

45

Case Finding and Screening

- Family history
  - Having a parent with dyslexia is a significant risk factor
  - Over 50% of achievement test score variance due to heritable factors
  - 66% 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

46

Christo, Davis, & Brock (2009).

Case Finding and Screening

- 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

47

Christo, Davis, & Brock (2009).

Case Finding and Screening

- Language and speech skill development
  - Oral language
    - Related to later reading problems if speech difficulties are not resolved during early reading instruction
    - Greater risk when speech difficulties are comorbid with more global language delays

48

Christo, Davis, & Brock (2009).

Case Finding and Screening

- Language and speech skill development
  - Vocabulary prior to 1st grade predicts reading development
    - Spoken vocabulary facilitates reading word recognition
    - May also create richer phonological representations
    - May be simply related to underlying language facility important to development of reading skills (e.g., phonological processing)

49

Christo, Davis, & Brock (2009).

Case Finding and Screening

- Language and speech skill development
  - Phonological processing (rhyming detection/production, segmenting, phoneme recognition sound categorization)
    - Early development predicts reading achievement
    - Poor early development, by themselves, is not as powerfully predictive of later reading achievement
      - Preschoolers who later were identified as dyslexic also had family histories of dyslexia and tended to have more global language delays.
      - Preschoolers who went on to become average readers had a more mixed language profile (while low in phonological processing, had average or above performance on measures of syntax and semantics).

50

Christo, Davis, & Brock (2009).

Case Finding and Screening

- Language and speech skill development
  - Letter knowledge
    - One of the best preschool predictors of reading success.
    - May be facilitative of learning to read.
    - May also be a task represents the outward manifestation of variables important to reading
      - cognitive processes (verbal memory)
      - predispositions (interest in books)
      - environmental factors (access to print)

51

Christo, Davis, & Brock (2009).

Case Finding and Screening

- Otitis media (OM)
  - Conflicting results in studies of relationship between OM and academic outcomes
    - Roberts et al. (2002) didn't find long term detrimental effects of OM on word recognition.
    - Winskel (2006) reports children in grades 1 and 2 w/ Hx of OM were deficient on phonological, semantic, and reading abilities.
      - The impact 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.

52

Christo, Davis, & Brock (2009); Roberts et al. (2002); Winskel (2006)

Case Finding and Screening

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

Christo et al. (2009)

Case Finding and Screening

- Kindergarten screening
  - ~~Visual-processing~~
    - Little evidence to support visual perceptual processing or visual memory problems as a marker for dyslexia
  - Phonological awareness
    - Strong predictor of reading performance

54

Christo, Davis, & Brock (2009)

Case Finding and Screening

- Kindergarten screening
  - Vocabulary
    - Powerful predictor of which children receiving interventions would respond to reading intervention
  - Naming speed tasks
    - Correlate with reading difficulties (especially naming of letters and numbers).
    - Because knowing letter names is facilitative of reading development, letter naming speed may be more a marker of how well a child is acquiring foundational reading skills than of an underlying cognitive process.

55

Christo, Davis, & Brock (2009)

Case Finding and Screening

- Kindergarten screening
  - Screening measures
    - *Ready to Learn* (Fawcett, Nicolson, & Lee, 2004)
    - *Test of Phonological Awareness* **(2nd ed.; PLUS; Torgesen & Bryant, 2004)**
    - *Test of Auditory Analysis Skills* (Rosner, 1979)
    - *Yoppp-Singer Test of Phoneme Segmentation* (Yopp-Singer; Yopp, 1995)
    - *Test of Early Reading Ability (3rd ed.; Rieid, Hresko, & Hammill, 2004)*
    - *Dynamic Indicators of Basic Early Literacy Skills (Good et al., 2003)*

56

Christo, Davis, & Brock (2009)

Case Finding and Screening

- Kindergarten screening
  - Screening measures

Test	Age Range	Phonological Processing	Naming Speed	Knowledge of letters/print	Vocabulary	Other
Ready to Learn	4.5-6.5	YES	YES	YES	YES	Memory, Motor skills
TOPA-2+	5.0-8.0	YES				
Rosner TAAS	K to 3rd	YES				
Yopp-Singer	K to 2nd	YES				Comprehension
TERA-3	3.5-8.5	YES		YES		
DIBELS	K-3rd	YES	YES	YES		

Christo, Davis, & Brock (2009)

Case Finding and Screening

- Kindergarten screening
  - Screening measures
    - Letter knowledge measured at the beginning of K the best predictor of mastering basic reading skills.
      - However… such screening will yield false positives at the beginning of K.
      - 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."
    - "…the child with global language deficits, lack of alphabetic knowledge, and a family history of dyslexia is at high risk for reading disabilities."

58

Christo, Davis, & Brock (2009, p. 57)

Lecture Outline

1. Preface
2. Causes
3. Prevalence and Associated Conditions
4. Case Finding and Screening
5. Assessment

59

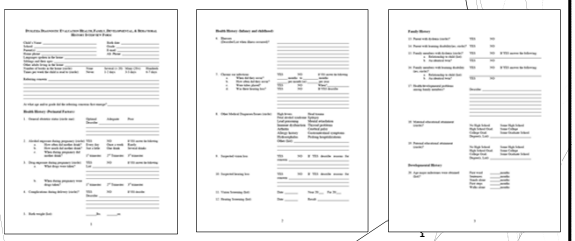
Assessment

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

60

Assessment

- Non-categorical identification of dyslexia
  - Developmental, family, and health history form



Christo, Davis, & Brock (2009)

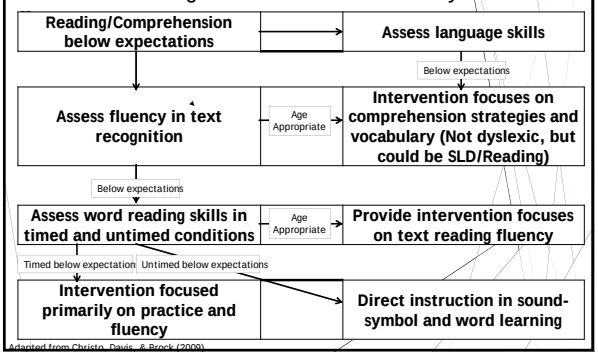
Assessment

- Non-categorical identification of dyslexia
  - Weakness in reading skills
    - Reading fluency
      - GORT, GSRT
    - Oral language
      - KTEA, WJ
    - Word reading
      - TOWRE, KTEA, WJ
    - Spelling
      - KTEA, WJ

Christo, Davis, & Brock (2009)

Assessment

Non-categorical identification of dyslexia



Adapted from Christo, Davis, & Brock (2009)

Assessment

- Non-categorical identification of dyslexia
  - Weakness in reading related cognitive processes
    - Most commonly phonological processing
    - May also be
      - Naming speed,
      - Orthographic processing
      - Working memory

64

Christo (2015)

Assessment

- Non-categorical identification of dyslexia
  - Measures of Phonological Processing
  - CTOPP
    - Elision (7-24)
    - Blending Words (5-24)
    - Sound Matching (5-6)
    - Phoneme Isolation (7-24)
    - Blending Non-words (7-24)
    - Segmenting Non-words (7-24)
    - Segmenting Words (7-24
  - NEPSY
    - Phonological Awareness
    - Nonword Repetition
  - W-J
    - Sound Blending (cog.)
    - Incomplete Words (cog.)
    - Sound Awareness (ach.)
  - PAL
    - Rhyming
    - Syllables
    - Phonemes
    - Rimes
  - KTEA
    - Phonological awareness: Rhyming, Sound Matching, Blending, Segmenting, Deleting Sounds

65

Christo (2015)

Assessment

- Non-categorical identification of dyslexia
  - Measures of Orthographic Awareness
    - PAL
      - Alphabet Writing
      - Receptive Coding
      - Expressive Coding

66

Christo (2015)

Assessment

Non-categorical identification of dyslexia

- Measures of Rapid Naming
  - CTOPP
    - Rapid Digit Naming
    - Rapid Letter Naming
    - Rapid Color Naming
    - Rapid Object Naming
  - NEPSY
    - Speeded Naming
  - WJ
    - Rapid Picture Naming
  - PAL
    - RAN Words
    - RAN Digits
    - RAN Words and Digits
  - KTEA
    - Naming Facility: Objects, Colors, Letters

67

Christo (2015)

Assessment

- Non-categorical identification of dyslexia
  - Measures of Working Memory
    - WJ Working Memory Composite
    - PAL – Verbal Working Memory
    - WRAML – Working Memory Cluster

68

Christo (2015)

Assessment

Non-categorical identification of dyslexia

- Measures of Long Term Storage and Retrieval
  - Association
    - WRAML – Sound Symbol
    - WJ – Visual Auditory Learning
    - KABC – Atlantis
  - Rapid Retrieval
    - WJ
      - Retrieval Fluency
      - Rapid Naming
  - PAL
    - Naming Speed tests
  - CTOPP
    - Rapid Naming tests

69

Christo (2015)

Assessment

- Non-categorical identification of dyslexia
  - Oral Language Skills
    - "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

70

Christo (2015)

Assessment

Non-categorical identification of dyslexia

- Oral Language Skills
  - Oral language clusters
    - WJ
    - KABC
  - Language specific tests
    - CELF
    - Test of Early Language Development
    - Oral and Written Language Scales
- Vocabulary tests
  - PPVT
  - WISC: Vocabulary
  - DAS: Word Definition
  - KABC: Verbal Knowledge
  - WJ: Comprehension Knowledge

71

Christo (2015)

Assessment

- Non-categorical identification of dyslexia
  - Listening comprehension significantly higher than reading comprehension
    - Important criteria for dyslexia

72

Christo (2015)

Assessment

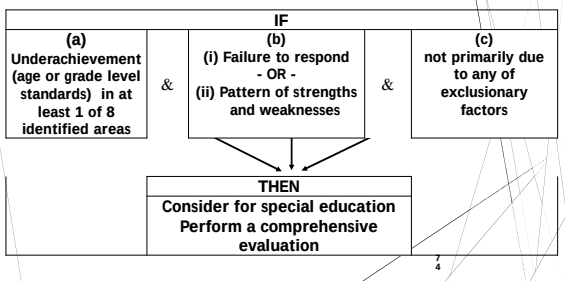
- Berninger's Non-categorical Differential Diagnosis
  1. Rule out exclusionary factors such as language, other developmental disorders
  2. Administer test of verbal comprehension, reading , spelling, decoding and fluency
     - Is verbal comprehension at least 90?
     - Is reading/spelling measure 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

3

Christo (2015)

Assessment

- Categorical special education eligibility decision



7
4

Christo, Davis, & Brock (2009); U.S. Department of Education [2006, CFR § 300.309(a)(b)(c)]

Assessment

- Categorical special education eligibility decision
  - Three SLD Criteria
    1. Documented Low Achievement
       - The child does not achieve adequately for the child's age or to meet State-approved grade-level standards in one or more of the following areas, when provided with learning experiences and instruction appropriate for the child's age or State-approved grade-level standards:
         - (i) Oral expression
         - (ii) Listening comprehension
         - (iii) Written expression
         - (iv) **Basic reading skill**
         - (v) **Reading fluency skills**
         - (vi) Reading comprehension
         - (vii) Mathematics calculation
         - (viii) Mathematics problem solving

7
5

U.S. Department of Education [2006, CFR § 300.309(a)(1), p. 46786]

Assessment

- Categorical special education eligibility decision
  - Three SLD Criteria
    1. Documented Low Reading Achievement
       - In relation to peers
         - Set criteria
         - Determine which measures to use
       - In relation to self
         - Set criteria
         - May be part of otherwise normal pattern of achievement

76

Christo (2015)

Assessment

- Categorical special education eligibility decision
  - Three SLD Criteria
    2. Documented Lack of Progress – **OR** – Pattern of Strengths and Weaknesses
       i. The child does not make sufficient progress to meet age or State approved grade-level standards in one or more of the areas identified in paragraph (a)(1) of this section when using a **process** based on the child's response to scientific, research-based intervention.
       ii. The child exhibits a pattern of strengths and weaknesses in performance, achievement, or both, relative to age, State-approved grade level standards, or intellectual development, that is determined by the group to be relevant to the identification of a specific learning disability, using appropriate assessments …

77

U.S. Department of Education [2006, § 300.309(a)(2), p. 46786]

Assessment

- Categorical special education eligibility decision
  - Three SLD Criteria
    3. Consideration of Exclusionary Factors
       - The group determines that its findings under paragraphs (a)(1) and (2) of this section are not primarily the result of—
         (i) A visual, hearing, or motor disability;
         (ii) Mental retardation;
         (iii) Emotional disturbance;
         (iv) Cultural factors;
         (v) Environmental or economic disadvantage; or
         (vi) Limited English proficiency.

78

U.S. Department of Education [2006, CFR § 300.309(a)(3), pp. 46786-46787]

Assessment

- Categorical special education eligibility decision
  - Not due to exclusionary or other developmental factors
    - Review academic records to determine if reading problem is primarily due to:
      - Cultural-linguistic issues
      - Mental retardation
      - Sensory impairment or health
      - Insufficient instruction
    - What does the progress monitoring information tell us about the student?
    - When considering dyslexia it is important to rule out other developmental issues
      - Language delays
      - Mental retardation

79

Christo (2015)

Assessment

- Categorical special education eligibility decision
  - Appropriate Instruction
    - To ensure that underachievement in a child suspected of having a specific learning disability is not due to lack of appropriate instruction in reading or math, the group must consider, as part of the evaluation described in §§ 300.304 through 300.306—
      - (1) Data that demonstrate that prior to, or as a part of, the referral process, the child was provided appropriate instruction in regular education settings, delivered by qualified personnel; and
      - (2) Data-based documentation of repeated assessments of achievement at reasonable intervals, reflecting formal assessment of student progress during instruction, which was provided to the child's parents. (U.S. Department of Education, 2006, p. 46787)

80

U.S. Department of Education [2006, CFR §300.309(b), p. 46787]

Assessment

- Categorical special education eligibility decision
  - Reading deficit not due to lack of instruction
    - Has child had adequate reading instruction.
      - IDEA 2004 explicit on this
      - *As defined in NCLB*
        - Contain the 5 areas noted in National Reading Panel
        - Be systematic, explicit
    - Has child had high quality, research based interventions?
      - School history
      - Data from an RtI model
        - Types of interventions
        - Progress made
    - Sources of information
      - History
      - Direct observations
      - Interviews with teachers/parents to further clarify problem

81

Christo (2015)

Assessment

- Categorical special education eligibility decision
  - Comprehensive Assessment
    - RTI does *not* replace a comprehensive evaluation and all other requirements required under 34 CFR §§ 300.301-300.306 (Evaluation and Reevaluations) are applicable.
    - A comprehensive evaluation requires the use of a variety of data-gathering tools and strategies even if RTI is used.
    - Results of RTI may be one component of the information reviewed.
    - The evaluation and reevaluation sections referenced in the above (34 CFR §§ 300.301-300.306) address the need to use a variety of assessment tools, assess a child in all areas of suspected disability, use technically sound, non-discriminatory assessment procedures in an appropriate manner, and assure that the assessment is both sufficiently comprehensive to identify all of a child's special education needs and provides information directly related to the student's educational needs.

82

U.S. Department of Education (2007)

Assessment

- Categorical special education eligibility decision
  - Criteria 300.309 (b)
    - For a child suspected of having a specific learning disability, the group must consider, as part of the evaluation described in §§300.304 through 300.306, data that demonstrates that—
      - 1) Prior to, or as a part of the referral process, the child was provided appropriate **high-quality, research-based instruction in regular education settings**, consistent with section 1111(b)(8)(D) and (E) of the ESEA, including that the instruction was delivered by qualified personnel; and

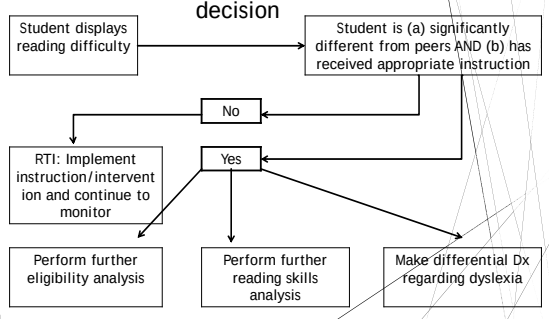
83

Christo (2015)

Assessment

Categorical special education eligibility decision

84



Christo, Davis, & Brock (2009)

Assessment

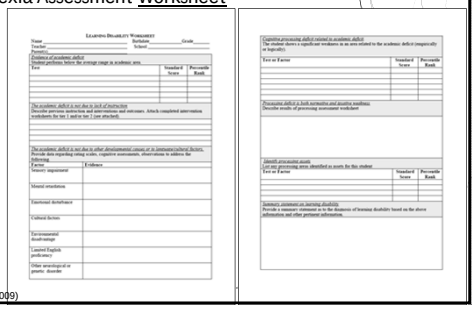
Framework for Eligibility as a Student with a Reading Disability

Step 1	Student is referred for consideration of eligibility because of reading difficulty.
Step 2	Formal assessment of reading skills to determine that student is not achieving adequately for his age or grade level standards.
Step 3	Determine if the reading deficit is due primarily to one of the exclusionary factors.
Step 4	Cognitive assessment to evaluate appropriate areas of development and rule out other disabling conditions.
Step 5	Analysis of cognitive and academic profile.
Step 6	Determination that the reading disability is affecting the student's performance to a significant degree and the student's needs cannot be met without special education.

Christo, Davis, & Brock (2009)

Assessment

- Categorical special education eligibility decision
  - Dyslexia Assessment Worksheet



Christo, Davis, & Brock (2009)

Assessment

- Categorical special education eligibility decision
  - Summary
    - Low achievement
    - Lack of progress
    - Role of exclusionary factors
    - Determination of appropriate instruction
    - Need for special education
    - Observation
    - **Specific documentation of disability**
    - Other considerations
      - Variety of assessment tools
      - Refrain from use of one measure as sole criterion
      - Use technically sound instruments assessing relative contribution of behavioral, cognitive, physical and development factors

Christo (2015)

Case Example

Sam Smith

CA: 9-1

Grade: 3

Primary Language: English

88

Sam's Cognitive Scores

- WISC Full Scale IQ, **129** (90% CI = 124-132)
  - Working Memory Index, 97 (DS, 7; L-NS, 12)

89

Sam's Achievement Scores

- WIAT
  - Math Composite, **150**
  - Language Composite, **99** (Spelling, 92)
  - Reading Composite, **96** (Pseudoword Decoding, 95)
- GORT
  - Rate, **8**
  - Accuracy, **10**
  - Comprehension, **10**
- GSRT
  - A.E., 8-6; G.E., 2.8, %ile, 39 Silent Reading Quotient of **96**
- TOWRE
  - Silent Word Efficiency, A.E., 7-9; G.E., 2.4; %ile, 17; S.S., **84**
  - Phonemic Decoding Efficiency, A.E., 6-9; G.E., 1.6; %ile, 9; S.S., **80**

90

Sam's Processing Scores

Subtest	%ile	S.S.	Composite	%ile	S.S
Elision	9	6	Phonological Awareness	8	**79**
Blending Words	16	7	Phonological Memory	12	**82**
Memory for Digits	9	6	Rapid Naming	5	**76**
Rapid Digit Naming	16	7			
Nonword Repetition	25	8			
Rapid Letter naming	9	6			

Sam's Processing Scores

Content Subtest	Raw Score	Decile Score	Classification
Phonological Processing			
Syllables	9	80	**Proficient**
Phonemes	19	40	**At-Risk**
Rimes	4	30	**At-Risk**
Orthographic Processing			
Receptive Coding (short term memory)	33	20	**Deficient**
Word Choice (long term memory)	13	40	**At-Risk**
Rapid Automatic Naming			
Letters	73	30	**At-Risk**
Words	42	30	**At-Risk**
Digits	101	10	**Deficient**
Words & Digits	81	10	**Deficient**
Phonological Decoding			
Pseudoword Decoding	20	40	**At-Risk**

You are Sam's IEP team

- Does Sam have a disability or is he dyslexic?
- Does Sam meet special education criteria?
- What are your intervention recommendations?

Is Sam Dyslexic?

- Demonstrates significant relative academic deficit in reading
- Math performance is superior
- Cognitive weakness (both normative and relative) in phonological processing
- Relative strength in oral language (and within average range)
- Has received appropriate instruction
- Impacts his educational performance

94

Is Sam Eligible for Special Education?

- Demonstrates significant relative academic deficit in reading
- Math performance is superior
- Cognitive weakness (both normative and relative) in phonological processing
- Relative strength in oral language (and within average range)
- Has received appropriate instruction
- Impacts his educational performance

95

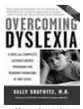
What are your intervention recommendations?

- Regardless of if you think Sam can have his needs met in general education, if you think Sam needs a 504 plan, or if you are going on to develop IEP goals and objectives the well prepared school psychologist should be able to specify specific reading interventions.
- What do you recommend?

96

Resources

- Sally Shaywitz (2003)
  - Overcoming Dyslexia
- Reading Rockets
  - www.nasponline.org/resources/reading/NASPtoolkit.pdf



Math and Writing Disabilities

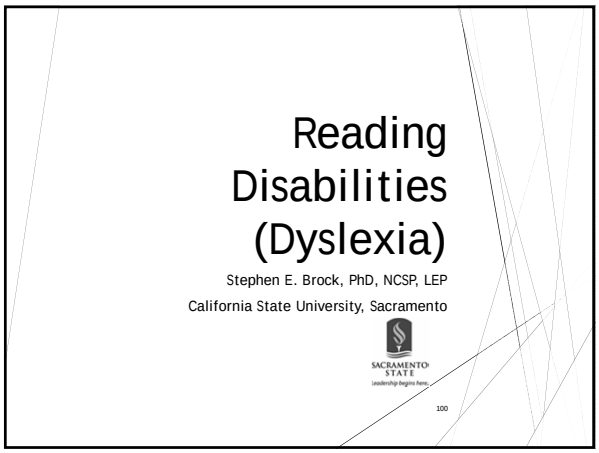
- To be discussed in EDS 246a
- This discussion will focus on CBM
- Today we will review two norm referenced standardized measures of these learning challenges.
  - TOWL
  - K-Math

98

Coming up next …

99

- NEXT WEEK….


Reading Disabilities (Dyslexia)
Stephen E. Brock, PhD, NCSP, LEP
California State University, Sacramento
SACRAMENTO STATE
leadership begins here.
100