A Reading Program is NOT Enough: A Deep Dive into the Dyslexia Diagnosis

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Overview

This presentation discusses the importance appropriate language and literacy testing plays in the remediation of reading based disabilities.

It reviews current controversies with respect to the dyslexia diagnosis, as well as describes the role of language as a contributing factor to reading and writing deficits.

The limitations of popularly recommended reading approaches/programs for struggling readers (e.g., Orton Gillingham, Wilson, Lindamood Bell, Barton, etc.) are discussed with respect to exclusivity of use.

Finally, the process leading up to the appropriate treatment goal recommendations is outlined.

Learning Objectives:

- At the end of this presentation learners will be able to

1. Discuss the connection between language and literacy
2. Summarize current debates as pertaining to the dyslexia diagnosis
3. Discuss strengths and limitations of popular reading programs and approaches
4. Describe appropriate goal target selection with respect to the remediation of reading deficits

Hierarchy of Oral Language Development

- **Listening**
  - Comprehension of words, phrases, sentences, stories
- **Speaking**
  - Speaking single words, phrases, sentences, engaging in conversations, producing stories
  - **Reading**
    - Words, sentences, short stories, chapter books, etc.
    - General topics
    - Domain specific topics (science, social studies, etc.)
  - **Spelling**
  - **Writing**
    - Words, sentences, short stories, essays
- Oral language develops along a continuum with listening comprehension and verbal expression being the foundational framework for development of later more complex abilities such as reading, spelling, and writing
- Learners struggling in the areas of literacy (e.g., reading, spelling and writing) **may have unrecognized and undetected oral expression and social communication deficits which are adversely impacting their literacy acquisition abilities**

It Begins with Language Deficits

Many children who demonstrate oral language difficulties in early childhood **are at risk for reading and writing difficulties when they enter school.**
http://www.asha.org/public/speech/disorders/LBLD.htm

Identification needs to begin as early as possible in order to optimize intervention gains

As in medicine, preventive measures are often more effective than actual intervention if performed early and correctly

Reading, spelling, and writing depend on a strong oral language foundation, especially in the area of narrative abilities

What Happens When Language Learning is Impaired?

- There will be notable differences in how the child is communicating, expressing self, reading, writing, etc., as compared to other children
- Deficits may be very obvious or quite covert
  - Difficulty formulating sentences vs. comprehending and using subtle ambiguous language structures
- Child may have an impressive lexicon and robust vocabulary knowledge but use it incorrectly
  - Formulates sentences which do not make sense semantically
  - Odd vocabulary usage, etc.
  - Difficulty summarizing stories
  - Getting to the gist of the message

Types of Oral Language Deficits

- Phonology (understanding and use of speech sounds -phonemes)
- Morphology (understanding and use of word parts including morphemes, affixes, etc.)
- Vocabulary and Semantics (understanding how to define and manipulate words)
- Syntax (understanding and use of complex sentence structures)
- Pragmatics (understanding and use of language in social contexts)
- Children with reading deficits can have difficulties in some or all of the above areas
- Research indicates that oral language deficits place children at a higher risk for dyslexia (Catts et al, 2005; Adlof et al, 2017). Research also shows that having a Developmental Language Disorder (DLD) places children at a high risk of developing reading deficits (Adlof, 2017).
- This is why a comprehensive language assessment should be a necessary component of all literacy evaluations

Social Language	Academic Language
In everyday interactions in spoken/written form	In textbooks, research papers, conferences in spoken/written form
For everyday conversation	Used in school/work conversations
Used to write to friends, family, or for other social purposes	Appropriate for written papers, classwork, homework
Informal, such as words like "cool," "guy," "kidding")	Very formal and more sophisticated in its expressions, such as words like "appropriate," "studies," "implementation"
Can use slang expressions	Don't use slang
Can be repetitive	Uses a variety of terms
Can use phrases	Uses sentences
Sentences don't follow grammar conventions necessarily,	Sentences begin with appropriate transitions, like, "moreover" or "in

Social vs Academic Language Acquisition

Academic Language Areas

- **Literate Vocabulary Knowledge** (Nippold, 2018)
  - Difficult words that occur in academic contexts
- **Semantic Awareness** (Taylor, Duff, Woollams, Monaghan, & Ricketts, 2015)
  - Semantic processes are associated with word reading skills, namely children read words better when they know their meanings
- **Morphological Awareness** (James, Currie, Xiuli Tong, & Cain, 2020)
  - Plays a crucial role in supporting higher-level text processing
  - It is partly mediated by vocabulary knowledge
  - Becomes an increasingly important predictor of reading comprehension between 6 and 11 years
  - Makes a unique contribution to reading comprehension ability beyond oral vocabulary and word reading skill

Dyslexia as a Language Based Disorder

- International Dyslexia Association: "Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by… [list of symptoms] These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to … Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge." [language-based areas]
- A number of researchers have confirmed that dyslexia is a language-based disorder (Elbro, Borstrøm, & Petersen, 1998; Shaywitz, 1998; Snowling, 1998)
- American Academy of Pediatrics, 2009 explicitly labeled dyslexia as a language-based disorder to counteract the misperception that it is a visually based disorder (Adlof & Hogan, 2017)
- Since dyslexia has been defined as a language-based disability it is very important to assess foundational areas of language to determine whether the child presents with covert oral language deficits affecting his/her ability to read and write.

Dyslexia Controversy

- Defined differently in various studies (Elliot & Grigorenko, 2014)
  - Struggle with phonemic awareness
  - Struggle with fluent single word decoding
  - Decoding difficulties cannot be explained in an alternative fashion (not due to something else)
  - Significant reading performance between reading and IQ
  - Phonological, RAN/RAS deficits
  - Failure to make meaningful progress in reading even after EBP reading instruction
- Belief in unsubstantiated "dyslexia subtypes" (e.g., phonological, surface, double deficit, etc.) (Manis, Seidenberg, Doi, McBride-Chang, & Petersen, 1996; Manis et al., 1999; Stanovich, Siegel, & Gottardo, 1997; Rack, Snowling, & Olson, 1992; Van den Broeck & Geudens, 2012, Tamboer et al, 2014; Zoubrinetzky et al, 2014)
- Artificial divide of poor readers into dyslexic and non-dyslexic groups lacks scientific rationale (Elliot & Grigorenko, 2014) and is not substantiated by brain imaging
- Various evaluators assess 'dyslexia' differently (Ryder & Norwich 2018) which results in:
  - Questionable interpretation of literacy difficulties
  - Commitment to outdated discrepancy concepts (IQ/reading scores)
  - Lack of appropriated standardized testing practices
  - Lack of appropriate clinical testing properties
  - Overreliance on professional observation and experience above test results
- The term does not contribute to understanding of what deficits the student is experiencing in the areas of literacy (Elliot & Grigorenko, 2014)

Language Deficits Affect Academic Achievement

- If the child experiences any deficits in the foundational language areas such as listening and speaking, s/he will most certainly experience difficulties in the more complex areas of language such as reading and writing
- Many children with language disorders are later classified with a learning disability because their "later learning difficulties [took on] the form of problems acquiring higher levels of spoken language comprehension and expression as well as reading and writing"
- "**Illusory recovery**" - "a time period when the students with early language disorders seem to catch up with their typically developing peers" by undergoing a "spurt" in language learning, which is followed by a "post-spurt plateau" because due to their ongoing deficits and an increase in academic demands "many children with early language disorders fail to "outgrow" these difficulties or catch up with their typically developing peers" (Sun & Wallach, 2014)

Language Disorder or Learning Disability?

"**The use of different labels by different professionals in different contexts should not obscure the commonalities among children with language disorders, no matter what they are called**" (Sun & Wallach, 2014, p. 26)

Longitudinal research shows numerous difficulties experienced by children with "early language disorders" during school years and in adulthood "in all domains of academic achievement (spelling, reading comprehension, word identification, word attack, calculation)… (Sun & Wallach, 2014, p. 29)".

Children with language disorders are later classified with a learning disability because their "later learning difficulties [took on] the form of problems acquiring higher levels of spoken language comprehension and expression as well as **reading and writing**" (Sun & Wallach, 2014, p. 29).

Implications for Assessment

- Because many children with language and literacy deficits "may not show academic or language-related learning difficulties until linguistic and cognitive demands of the task increase and exceed their limited abilities", SLPs must consider the "underlying deficits that may be masked by early oral language development" and "**evaluate a child's language abilities in all modalities, including pre-literacy, literacy, and metalinguistic skills**" (Sun & Wallach 2014).

Reading Program Recommendations Without Targeted Assessments

- Oftentimes when students present with reading related deficits (poor decoding, impaired fluency, etc.), even before a comprehensive language and literacy assessment takes place, professionals will immediately make recommendations for one of several well known reading approaches/programs:
  - Orton-Gillingham
    - Wilson
    - Lindamood Bell
    - Barton
- The problem is that without assessing the student's abilities in the affected areas of difficulty (as per checklists/referral forms), how do we know that the recommended program is appropriate for the student in question?

Research Based vs. Evidence Based

Research based refers to the fact that parts/components of the program/method are based on practices demonstrated effective through research

- Use of already existing research and combined with program/method to best fit the students being served
- Studies pertaining to this particular program/method have not been performed/ or were weak

Evidence-based refers to the fact that the entire program/method has been proven to be effective via studies pertaining to this particular program/method

- The research design allows one to infer that the practice led to improvement
- Multiple high-quality studies have been conducted
- Reviewed by a reputable organization (e.g., What Works Clearinghouse)

Orton Gillingham

- "Direct, explicit, multisensory, structured, sequential, diagnostic, and prescriptive way to teach reading and spelling" (OG Academy, 2020 October 14)
  - Direct and explicit -"employing lesson formats which ensure that students understand what is to be learned, why it is to be learned, and how it is to be learned"
  - Structured and sequential -"presenting information in a logical order which facilitates student learning and progress, moving from simple, well learned material to that which is more and more complex as mastery is achieved"
  - Diagnostic in that "the instructor continuously monitors the verbal, nonverbal, and written responses of the student to identify and analyze both the student's problems and progress"
  - Prescriptive [lessons] "contain instructional elements that focus on a student's difficulties and build upon a student's progress from the previous lessons";
  - Multisensory by "using all learning pathways: seeing, hearing, feeling, and awareness of motion"
    - "Multisensory instruction involves simultaneous use of "sight, hearing, touch, and movement to help students connect and learn the concepts" and identifies this as the "most effective strategy for children with difficulties in learning to read" (Institute for Multi-Sensory Education, 2020b October 12, "Components of Multi-Sensory Instruction" section)

Orton Gillingham Unbranded Approaches

- Unbranded Interventions
  - Based on general OG principles
  - Interventions that combine multiple branded products based on Orton-Gillingham principles
  - What Works Clearinghouse (WWC) identified 31 studies of unbranded Orton-Gillingham–based strategies for students with learning disabilities that were published or released between 1989 and 2009
  - None the 31 studies met WWC evidence standards due to the **following limitations**
    - Analytic intervention and comparison groups were not equivalent
    - Measures of effectiveness could not be attributed solely to the provided interventions
    - Studies did not analyze effectiveness of intervention
    - Studies did not have comparison groups
    - Studies showed samples not aligned with study protocols

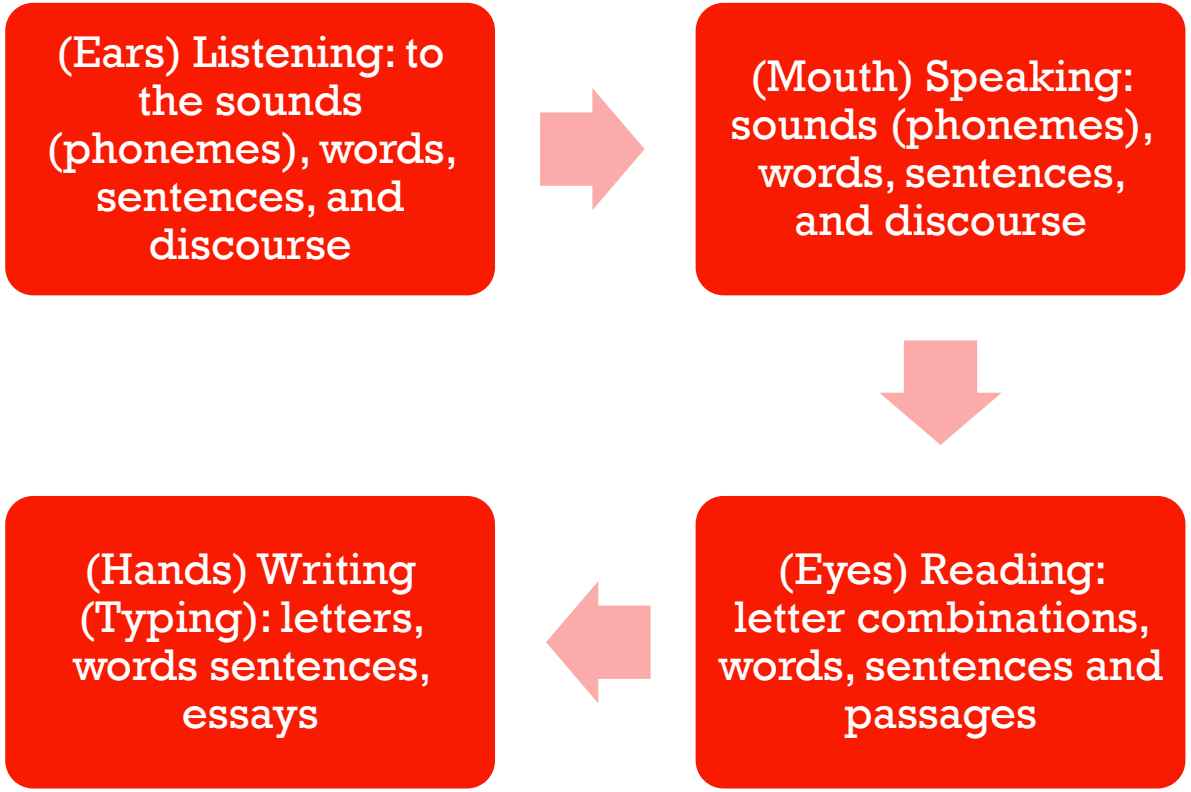
Orton Gillingham Unbranded Approaches (cont.)

- Ritchey & Goeke, 2006 reviewed 12 studies with quasi experimental and experimental design, out of which, 5 reported that the OG instruction was more effective than were comparison or control interventions for all measured outcomes; 4 reported that the OG instruction was more effective for at least 1 (but not all) outcomes in comparison to other intervention(s); 2 reported that the alternate instruction was more effective than the OG instruction; and 1 reported no significant differences once covariates were included
  - Largest effects were reported for word attack and nonword reading outcomes, with mean effect size of .82,
  - "Research is currently inadequate, both in number of studies and in the quality of the research methodology, to support that OG interventions are scientifically based. Given the inconclusive and mixed nature of the extant research findings, it may be premature to reconsider the implementation and use of OG reading instruction programs for children with reading disabilities "(Ritchey & Goeke, 20006, p. 182)
- Stevens et al, 2021 conducted a meta-analysis to examine the effects of Orton-Gillingham reading interventions on the reading outcomes of students with or at risk for word-level reading disabilities (WLRD)
  - 24 studies (out of 466) met inclusion criteria
  - OG reading interventions do not statistically significantly improve foundational skill outcomes (i.e., phonological awareness, phonics, fluency, spelling (effect size = 0.32
  - There were no significant differences for vocabulary and comprehension outcomes (effect size 0.14) for students with or at risk for WLRD
  - The findings from this meta-analysis do not definitively prove that OG interventions are not impactful for students with dyslexia (p. 411)
  - "The findings from this meta-analysis raise concerns about legislation mandating OG. The findings from this synthesis suggest "promise" but not confidence or evidence based effects given the research findings currently available." (p. 410)

Is Multisensory Reading Instruction EBP?

- Multisensory reading instruction is not clearly defined and operationalized beyond the emphasis on the simultaneous use of visual, auditory, and kinesthetic or tactile learning experiences during reading and spelling instruction
- It is unclear what multisensory instruction constitutes across a variety of OG programs
- It is unclear how multisensory instruction is applied
- It is unclear what proportion of overall instruction multisensory instruction occupies
- Not all components of multisensory instruction are evidenced based
  - Research does not support the kinesthetic component of OG (Moats & Farrell, 1999)
- Schlesinger and Gray (2017) directly compared the efficacy of structured language and multisensory approaches.
  - Both approaches showed positive treatment effects over baseline BUT
  - There were no significant effects favoring multisensory over a structured literacy approach on letter naming, letter sound production, word reading, or word spelling
  - "Multisensory intervention did not provide an advantage over the structured intervention for participants with typical development or dyslexia"

Evidence Based Multisensory Instruction



programs in this review, authors utilized each of the branded programs identified by WWC (i.e., Alphabetic Phonics, Barton Reading and Spelling System, Fundations, Herman Method, Wilson Reading System, Project Read, and Dyslexia Training Program; WWC, 2010a, 2010b, 2010c, 2010d, 2010e, 2010h, 2010i). We also included additional branded programs identified in Ritchey and Goeke's (2006) initial review (i.e., Project ASSIST, the Slingerland Approach, the Spalding Method, Starting Over) or identified in Sayeski (2019; i.e., Language!, Lindamood Bell, Recipe for Reading, S.P.I.R.E., Take Flight, and the Writ-

Orton Gillingham Select Branded Approaches

- Approximately 17 branded programs
  - (Image from Stevens et al, 2021)
- Below branded programs were selected based on the frequency of their recommendations on social media
  - Barton Reading & Spelling System®
  - Fundations®
  - Wilson Reading System®
  - Lindamood Bell®

Fundations®

- Prevention and early-intervention, multisensory and systematic phonics, spelling, and handwriting program for K-3 students designed to help reduce reading and spelling failure.
- Designed for whole general education classes (Tier 1) but can also be taught in small groups or 1:1 setting for intervention to low-achieving or learning-disabled students for 40–60 minutes each day (Tiers 2 & 3)
- Daily 30-minute lessons which focus on carefully-sequenced skills that include print knowledge, alphabet awareness, phonological awareness, phonemic awareness, decoding, spelling, and vocabulary development.
- Students rotate through different targeted interactive activities.
- The program is based on the principles of the Wilson Reading System®.

Fundations® Efficacy

- The **IES** found no studies (paucity) that fell within their standards, and determined that they were "*unable to draw any conclusions based on research about the effectiveness or ineffectiveness of **Fundations**…"*
- Pang, R. V. (2007). The effects of the Wilson Reading System and Fundations on the decoding skills of elementary students with reading disabilities. Unpublished master's thesis, California State University–San Marcos.
  - Used a quasi-experimental design in which the analytic intervention and comparison groups were not shown to be equivalent
- Robinson, C., & Wahl, M. (2004). Fundations. Tallahassee, FL: Florida Center for Reading Research.
  - Was not a primary analysis of the effectiveness of an intervention
- Farino, C (2020) "A Program Evaluation of the Effectiveness of Fundations and Reading Strategies Professional Development" Dissertations. 538.
  - "…a reading intervention program cannot identify student deficiencies, and educators lack the knowledge of basic reading foundational skills to help identify students' deficiencies" (iv)

Wilson Reading System®

- A structured reading and writing 12 step intervention program for struggling readers 2nd – 12th grade which teaches decoding and encoding (spelling)
- Steps 1-6 are foundational phonics and spelling
- Steps 7 through 12 have a focus on advanced word analysis, vocabulary development, comprehension, and metacognition
- Program components:
  - Learning to hear sounds
  - Manipulating color-coded sound, syllable, and word cards
  - Performing finger-tapping exercises to assist in phonemic awareness
  - Writing dictated words and sentences
  - Reading aloud and paraphrasing read selections/ or read to them
  - Direct reinforcement and instructional feedback based on individual performance
  - Can't proceed to the next step until each step's criteria is met since each step builds upon an earlier one
- Phonics instruction starts with controlled sounds and syllables beginning with initial phonemes, short vowels, and double consonants.
- From 3 sounds students move up to progressively harder words with 4-5 sounds etc.
- Polysyllabic words are introduced in the 3rd step when students are taught to segment words into syllables.
- Teaches sight words which students write in their "rules notebook" for later review later
- Reread the wordlists, sentences and decodable stories

Wilson Reading System® Efficacy

- The Institute of Education Sciences (IES) summary page concluded that, "*Wilson Reading System was found to have potentially positive effects on alphabetics (*phonemic awareness and phonics skills*) and no discernible effects on fluency and comprehension.*"
- Torgesen et al. (2006) examined the effects of Wilson Reading System® on 71 third-grade students vs. students in the comparison group in regular reading program. A 50-minute lesson was delivered five days a week to groups of three students with various basic reading levels.
- Results:
  - Alphabetics: Statistically significant effect on four phonics outcomes on two tests:
    - Phonemic decoding efficiency and sight word efficiency subtests of the Test of Word Reading Efficiency (TOWRE)
    - Word identification and word attack subtests of the Woodcock Reading Mastery Tests–Revised (WRMT–R)
  - Fluency: No statistically significant differences between groups for the outcome on the Oral Fluency Test
  - Comprehension: No statistically significant effects on two outcomes in this domain
    - Woodcock Reading Mastery Tests–Revised (WRMT–R) passage comprehension subtest
    - Group Reading Assessment and Diagnostic Evaluation (GRADE) passage comprehension subtest

Lindamood Phoneme Sequencing® (LiPS®)

- Designed to teach emergent readers K-3 as well as struggling, dyslexic readers the skills they need to decode words and to identify individual sounds and blends in words.
- Initial activities engage students in discovering the lip, tongue, and mouth actions needed to produce specific sounds.
- After students are able to produce, label, and organize the sounds with their mouths, subsequent activities in sequencing, reading, and spelling use the oral aspects of sounds to identify and order them within words.
- Offers direct instruction in letter patterns, sight words, and context clues in reading.
- Instruction is recommended 4–6 months for 1 hour a day, or 4–6 weeks for 4 hours a day (can be done on PC).
- Scope and sequence
  - 1) Setting the Climate for Learning
  - 2) Identifying and Classifying Speech Sounds
  - 3) Tracking Speech Sounds,
  - 4) Associating Sounds and Symbols
  - 5) Spelling and Reading

Lindamood Phoneme Sequencing® (LiPS®) Efficacy

- LiPS® was found to have potentially positive effects on comprehension and mixed effects on alphabetics for beginning readers (WWC, 2015)
- Summary of 2 studies meeting WWC group design standards without reservations
- Gunn (1996) conducted a cluster RCT that examined the effects of LiPS® on first-grade students attending two elementary schools in one Pacific Northwest school district during the 1995–96 school year.
  - Found negative effects of LiPS® on word accuracy/fluency and phonemic decoding relative to a basal reading comparison condition as measured by the WRMT-R Word Identification and Word Attack subtests
- Torgesen et al. (2010) conducted an RCT examined the effects of LiPS® on first-grade students attending three elementary schools in 2 consecutive school years.
  - Found a statistically significant and substantively important positive effect of LiPS® on the Woodcock Reading Mastery Test–Revised (WRMT-R) Passage Comprehension subtest when compared to the standard reading instruction alone

Barton Reading & Spelling System®

1:1 tutoring method designed to improve reading, spelling, and writing of dyslexic readers 5+ years of age with IQ of >71 struggling with reading accuracy, fluency, spelling, or writing.	Based on the OG approach composed of 10 levels each with 10 to 15 lessons	Can be implemented by individuals without relevant educational experience (e.g., parents, paraprofessionals, tutors, etc.
	• Not for students with comprehension deficits who accurately and rapidly, and spell well • Students need to pass a basic screening which tests for significant deficits in auditory discrimination and/or auditory memory	• Tutors must be able to pass a five-minute sound (phoneme) discrimination test

Barton Reading & Spelling System® Efficacy

- No studies of the Barton Reading & Spelling System® that fall within the scope of the Students with Learning Disabilities review protocol meet What Works Clearinghouse (WWC) evidence standards (WWC, 2010)
- The WWC identified 13 studies of the Barton Reading & Spelling System® for students with learning disabilities that were published or released between 1989 and 2009 none of which met WWC evidence standards.
  - 1 study used a quasi-experimental design in which the analytic intervention and comparison groups were not equivalent
  - 12 studies were ineligible for review because:
    - 6 studies did not use a comparison group
    - 4 studies did not include an analysis of the effectiveness of an intervention
    - 2 studies had samples that were not aligned with the WWC review protocol because they included less than 50% students with learning disabilities.

Skills Important to Reading Success

Link

- **Phonological and Phonemic Awareness Skills**
  - Phonological awareness assessment/intervention has predictive power until 2nd grade. After that it does not add information to the prediction of 4th-grade reading abilities (Hogan, Catts, & Little, 2005) unless the student continues to present with significant reading challenges as evident via sound blending deficits (Kilpatrick, 2012)
- **Orthographic Mapping Abilities**
  - Formation of letter-sound connections to bond the spellings, pronunciations, and meanings of specific words in memory
  - Explains how children learn to read words by sight, to spell words from memory, and to acquire vocabulary words from print
    - Enabled by phonemic awareness and grapheme-phoneme knowledge (Ehri, 2014)
- **Semantic Knowledge**
  - Vocabulary manipulation
- **Morphological Knowledge**
  - Knowledge and manipulation of affixes
- **Rapid Naming Abilities**
  - Rapid automatized naming (RAN) and not phonological awareness has been found to be a consistent predictor of reading fluency in all orthographies (Landerl, et al, 2019).
    - Poor rapid automatized naming abilities (on alphanumeric and nonalphanumeric tasks) have been found to be a long-term and universal symptom of reading deficits (Araújo & Faísca, 2019)
- **Reading Fluency**
  - Rate
  - Accuracy
  - Prosody
- **Reading Comprehension**
  - Gestalt processing
  - Background knowledge
  - Inference making
  - Grasp of text structure
  - Grasp of literary devices

Assessments are Mandatory

Given the multitude of skills involved in learning to read in the areas of both language and literacy it is imperative that no literacy interventions are provided until a targeted assessment takes place

Evidenced based assessments focus on targeted reported deficit areas. Administration of general language or academic tests will not uncover relevant deficits.

Thoughtful referral checklists must be created in order to see where the deficits lie, so appropriate testing instruments and procedures are used for targeted goal formulation

Assessment is a mandatory prerequisite to effective and evidenced based goal formulation for treatment purposes

Limitations of Comprehensive Educational Assessments

- Developed to rank children within the range of the general population
- No mention of sensitivity and specificity in their technical manuals
- Discriminant accuracy for the purpose of disorder identification is unknown
- Students can do quite well on these tests and be reading, writing and/or oral language impaired
  - **Woodcock-Johnson IV Tests of Achievement (WJ IV-ACH)**
  - **Woodcock-Johnson IV Tests of Oral Language (WJ IV-OL)**
  - **Wechsler Individual Achievement Test Fourth Edition (WIAT-4)**
  - **Kaufman Test of Educational Achievement Third Edition (KTEA-3)**
  - **Feifer Assessment of Reading (FAR)**

Common Assessment Pitfalls

- **Psychometrically weak tests were used that didn't uncover deficits**
  - Presence of children with language and learning disorders in the normative sample which makes it difficult to determine typically developing from language impaired children
    - E.g., CELF-5 normative sample of 3000 children contained 23% of children with children with language and learning needs (Leader's Project, 2014)
- **Inappropriate tests were used**
  - One-word vocabulary tests, which possess limited to no value for school aged verbal children as compared to semantic flexibility testing (vocabulary manipulation tasks)
    - Research has found that single word vocabulary tests have poor psychometric properties and are not representative of linguistic competence embedded in life-activities (conversations academics, etc.) (Gray et al., 1999; Ukrainetz & Blomquist, 2002; Bogue, DeThorne, Schaefer, 2014)
- **Not all the deficit areas were assessed**
  - Testing did not delve into all areas of concern as indicated by parental/teacher reports
    - E.g., parents identified narrative deficits, but a narrative assessment was not performed
- **Assessment results were misinterpreted**
  - There's a presence of significant language and learning needs but the examiner did not interpret the results correctly
    - Cognitive referencing was used to deny services because there was no discrepancy between IQ and language abilities
- **Erroneous goals were formulated**
  - E.g., Following directions
    - "Following directions" is a complex process which involves activation of available semantic and syntactic knowledge, comprehension of sentences with a variety of clauses, as well as numerous other linguistic factors. The goal 'targeting decontextualized directions' will not meaningfully assist the students with comprehension of school work and navigation of the classroom environment (Wallach, 2014)

Where do we begin?

- Data Collection
- Utilize Targeted Referral Forms
- Can't Assess Everything
- Don't waste TIME!
- Assess deficit areas ONLY!

PURPOSE: To determine primary areas of literacy-based weaknesses to be targeted for assessment

I. STUDENT INFORMATION:

Date: Student's Name: Sex: Student's Age: DOB
Referred by: _____ Educational Classification: _____
Language(s) spoken/understood by student (please list): _____
Current Language Diagnoses: _____
Current Medical/Neuropsychological Diagnoses:
Previous Therapies/Tutoring: ____No ___Yes If Yes, what type (e.g., SLP, OT, reading, etc.), when, & how for long?
_____

II. AT RISK FAMILY HISTORY (place √ next to applicable areas)
If answered 'Yes' to any of the below, please specify details (family member/s and diagnoses)

___ Family history of speech-language delay
___ Family history of learning deficits (e.g., reading problems, dyslexia, etc.)
___ Family history of special education placements
___ Family history of psychiatric impairments (e.g., ASD, ADHD, anxiety, depression, etc.)
___ Family history of drug and/or alcohol abuse
___ Family history of intellectual disability
___ Other noteworthy family history
___ Unknown family history

III. AT RISK DEVELOPMENTAL HISTORY (place √ next to applicable areas as pertaining to child)

___ Child is internationally adopted
___ Child is domestically adopted
___ Intellectual disability
___ Early Intervention (EI) service provision
___ Preschool Disabled Program services provision
___ **Late language development**[2]
___ **Language delay/disorder** (child may or may not be classified in school setting)
___ **Language comprehension and expression difficulties**

C. Narrative Production[4] **(Storytelling)**

___ Produces simplistic stories (for his/her age) using short sentences (vs. using compound/complex sentences)
___ Produces difficult to follow, rambling stories, composed of many run-on sentences
___ Storytelling lacks insight into characters feelings, beliefs, thoughts, etc
___ Expository story telling (explanatory/descriptive) is vague and lacks details
___ Persuasive narratives are immature; marked by poor justifications, limited ability to convince/persuade
___ Fictional narratives lack critical information such as references to characters, events, etc.
___ Fictional narratives lack many story grammar elements such as setting, action, problem, resolution, etc
___ Word-retrieval difficulties characterized by false starts, word fillers (e.g., u*m*, *ah),* word and phrase revisions, and repetitions, word substitutions, and word distortions

D. Phonological Awareness

___ Difficulty recognizing whether two presented words sound same or different
___ Difficulty recognizing which words rhyme and which do not
___ Difficulty naming rhyming words
___ Difficulty counting words in a sentence
___ Difficulty counting syllables in a word
___ Difficulty breaking words into syllables
___ Difficulty isolating beginning sounds in words
___ Difficulty isolating final sounds in words
___ Difficulty isolating medial sounds in words
___ Difficulty manipulating sounds in words (substituting first, middle, or last sounds in word & naming new word)
___ Difficulty blending sounds to make a word (h/a/t says /hat/)
___ Difficulty segmenting nonsense words
___ Difficulty blending nonsense words (e.g., t/e/p says /tep/)
___ Difficulty recognizing and remembering high frequency ("sight") words
___ Difficulty with timed (1 minute period) word generation
    ___ Difficulty rapidly naming colors
    ___ Difficulty rapidly naming words in categories (e.g., animals, vegetables, etc.)
    ___ Difficulty rapidly generating words beginning with a particular letter (e.g., /a/, /f/, /t/, etc.)

Literacy Checklist Sample

Sample Literacy Assessment Tasks and What They Measure

- Following directions tasks correlate with working memory functioning and are sensitive to reading deficits (Lahey & Bloom, 1994; Cowan, 1996; Baddeley, 2003)
- Sentence recall and nonword repetition tasks are sensitive to both language and literacy deficits (Dollaghan & Campbell, 1998, Alloway & Gathercole,2005)
  - Sentence recall has been increasingly recognized as a useful indicator of learning difficulties including specific language impairment or SLI (relabeled Developmental Language Disorder, DLD), dyslexia, phonological short-term memory deficits, as well as reading comprehension deficits (Alloway & Gathercole,2005)
- Nonword repetition is commensurate with both spoken and written deficits as well as reflects deficits in phonology and verbal short-term memory (Ramus et al, 2013; Gathercole and Baddeley, 1990; van der Lely and Howard, 1993; Montgomery, 1995; Gallon et al., 2007).

Assessment Tasks (cont.)

- Phonemic awareness and alphabetic knowledge have been identified in a number of studies as key indicators of emergent reading mastery during the early elementary school years (Anderson, Hiebert, Scott, & Wilkerson, 1985; Adams, 1990; Snow, Burns, & Griffin, 1998; Wood & Mclemore, 2001)
- Nonword reading tasks are sensitive to phonologically based reading deficits (Herrmann, Matyas, & Pratt, 2006; Rack et al, 1992)
- Nonword Spelling tasks are more sensitive to the determination of spelling abilities in non-transparent languages because they allow acceptance of alternative plausible spelling patterns, as opposed to real word spelling assessments, which allow only one correct spelling (Lovett & Steinbach, 1997)

Assessing Subtle Deficits

- Evidence informed SLPs will review the child's background history, available medical and educational records and distribute comprehensive checklists to parents and teachers so they could identify the students' specific deficit areas for identification of best testing batteries to administer
  - Assess areas of parental/teacher concern coupled with areas known to be sensitive to language and literacy deficits
    - Narratives/Discourse
    - Pragmatics
    - Reading
      - Phonemic awareness
      - Orthographic knowledge
      - Semantic knowledge
      - Morphological knowledge
      - Reading fluency
      - Reading comprehension
    - Writing
      - Spelling
      - Composition
      - Mechanics

Goal Target Selection

- Never random
- A **result** of a targeted and comprehensive assessment
- Prioritized based on student needs
- Not covered by one or even several programs
- Depends on the knowledge and skills of the treating provider who can expertly integrate various programs, approaches, tasks, etc., in order to address student's literacy goals in the most effective and targeted way
  - Can adjust and modify materials/lessons to target student needs
  - Doesn't have to use a particular program to target appropriate goals
- It's not the program that creates improvement, it's the knowledge and skills of the treating specialist that make a difference!

Targeted Goal Formulation: Phonics

- **Long Term Goals**: Student will improve her **phonics abilities** for reading purposes
- **Short Term Goals**:

1. **Student will map vowel combinations to represent a single vowel sounds (e.g., ee, ea, ie can represent /ē/)**
2. **Student will map consonant trigraphs (e.g., tch for /ch/, dge for /j/, etc.)**
3. **Student will map consonant clusters/blends with 2 sounds in beginnings of words (e.g., /st/, /qu/, /sc/, etc.)**
4. **Student will map consonant clusters/blends with 3 sounds in beginnings of words (e.g., /str/, /spl/, etc.)**
5. **Student will map consonant clusters/blends with 2 sounds at the end of words (e.g., /mp/, /nd/, /ft/, etc.)**
6. **Student will map silent letter patterns (e.g., kn for /k/, mb for /m/, etc.)**
7. **Student will decode disyllabic and multisyllabic words with a variety of syllable types (open/closed/mixed) (e.g., fragment, contract, etc.)**
8. **Student will decode multisyllabic words with a variety of prefixes and suffixes (e.g., pre-, -ous, -tion, etc.)**
9. **Student will decode multisyllabic words with a variety of digraphs and trigraphs (e.g., pamphlet, etc.)**
10. **Student will decode multisyllabic words with a variety of vowel digraphs and diphthongs (e.g., revenue, display, drowsy, etc.)**
11. **Student will decode multisyllabic words containing r-controlled syllables (e.g., surgery, barren, etc.)**
12. **Student will decode multisyllabic words with a variety of split vowels (e.g., violin)**
13. **Student will decode multisyllabic words with silent consonants (e.g., rh, gh, mb, mn, etc.)**

Targeted Goal Formulation: Reading Comprehension

- **Long Term Goals:** Student will improve his **reading comprehension** abilities for academic and social purposes.
- **Short Term Goals**

1. Student will improve his reading accuracy for academic purposes (self-monitor for errors)
2. Student will effectively define literate, text-embedded vocabulary (abstract nouns and metacognitive verbs) using text context
3. Student will identify main ideas in read text.
4. Student will effectively summarize read paragraphs.
5. Student will effectively utilize background information to interpret text.
6. Student will improve his morphological awareness abilities via effective recognition of stems and affixes (prefixes and suffixes) of presented words
7. Student will answer abstract reading comprehension questions pertaining to the presented text (make text based and knowledge-based inferences)

Conclusion

- "Dyslexia" remains a very misunderstood and misinterpreted label which does not inform intervention
- Effective interventions are not based on labels but on the results of psychometrically sound assessments which have uncovered specific literacy-related deficit areas
- Specialized programs are not necessary for successful intervention purposes
- Specialized programs should never be used without assessment findings
- EBP intervention should be focus on specific student related treatment goals and objectives instead of selected from a pre-packaged step by step program/approach
- Treatment of reading and writing often involves concomitant treatment of oral language as well as pragmatic deficits
- Comprehensive language and literacy assessments should be a mandatory prerequisite to any literacy related intervention services

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