A Hybrid Model for the Assessment of Dyslexia in California

Pearson Clinical Assessment

Dr. Adam Scheller
Pearson Clinical Assessment

Learner Outcomes

• At the end of this webinar you will be able to:
  1. Identify the components of a hybrid model for dyslexia screening and identification
  2. List two examples of screening and assessment measure types
  3. Describe a process for the interpretation of dyslexia screening and assessment findings

Typical Development of Reading Skills

Pre-K
- "Pre-reading": Letter ID, Rhyming, ID Letters/phonemes in spoken words
- Letter/sound correspondence
- Sight word development
- Decode new words accurately...fluently.
- Transfer oral language vocab to written language vocab
- Integrate word decoding and sentence comprehension.
- Read for comprehension

Kindergarten

Grade 1

Grade 2/3

Grade 3/4

Defining Dyslexia
(IDA, 2002; Cassidy-Mikulski Senate Resolution 275, 2015)

1. ...a specific learning disability that is neurobiological in origin.
2. ...an unexpected difficulty in reading for an individual who has the intelligence to be a much better reader...
3. ...language based...
4. ...characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities...
5. ...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...
6. ...secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge...
7. ...often (not always) present with an uneven cognitive profile...

What is Dyslexia?

Agenda

• What is Dyslexia?
  • Understanding:
    1. Symptoms
    2. Causes/Correlates
    3. Risk Factors
  • A Model for Dyslexia Assessment
    • Screening
    • Diagnostic Identification
    • Thoughts on Progress Monitoring

Refer to:
San Antonio, TX.

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The Neurobiology of Reading

- Neural Signature for Dyslexia: Inefficient Posterior Reading Systems
- Inferior Frontal Gyrus (Broca's Area): Vocalization, Articulation
- Parieto-Temporal: Word Analysis
- Occipito-Temporal (Wernicke's Area): Word Recognition, Automaticity

California: Title 5, California Code of Regulations, Section 3030(b)(10)(A)

- Specific learning disability means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may have manifested itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The basic psychological processes include attention, visual processing, auditory processing, phonological processing, sensory-motor skills, cognitive abilities including association, conceptualization and expression . . .
- Also, Dyslexia (as a medically diagnosed condition) can qualify a student for 504 plan.

Best Practice Assessment Model

- Primary component: have more than one data point
  - Identifications using a single criterion are prone to measurement error and show poor stability over time.
  - At minimum use more than one measure for the same construct…rinse and repeat.
  - However, don’t over collect/analyze/interpret

- A hybrid model of dyslexia identification considers:
  1. Multiple sources of information
  2. The degree to which a student responds to effective instruction and/or intervention


- Poor response to instruction is considered an important symptom!
  - But it’s not enough

Pre-reader Symptoms
- alphabet writing, letter identification, and/or phonics (letter-sound correspondence).

Reader Symptoms
- decoding pseudowords, word reading, reading fluency (oral reading fluency, in particular), spelling, and written expression.
- In addition, reading comprehension is poor relative to listening comprehension

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• Cognitive processing weaknesses
  • Not as easily observed.
  • Symptoms either attributed to or related to one/several of these processes
  • Phonological processing, RAN, Auditory WM considered key for dyslexia evaluation (IDA, 2016)

Consider Possible Strengths

• Possible strengths in:
  • Fluid reasoning and problem solving
  • Oral language (including listening, speaking, vocabulary, and grammar)
  • Math
  • The development of interventions/strategies should consider an individual’s cognitive processing strengths.

Following the...

Screen
Assess
Intervene
Monitor
Framework

Why Use A Screener?

• Large numbers of children must be evaluated, to meet district/state criteria
• Referral process is not clearly established
  • Referral process has a poor “hit rate”
• Intervening early on Dyslexia has benefits for prognosis
  • Achievement gap is evident early and this persists through high school.
  • Strong support for early identification and intervention in order to close the achievement gap and prevent persistent academic failure.


Ferrer et al. (2015)
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Limitations of a Screener

- Does not provide a diagnosis
- Should not be used to identify the degree of impairment
- Should not be used to identify pattern of strengths or weaknesses

Screeners are either...
Performance-based or Rating-based

Examples of Screeners for Reading (Including both Universal and Tier 2 capable measures)

- Pearson
  - Shaywitz DyslexiaScreen (SDS)
  - KTEA-3 Brief
  - WRAT5 Reading Composite
  - KITEA-3 and WIAT Dyslexia Index Scores
- Aimsweb+
- Others
  - DIBELS (Dynamic Measurement Group)
  - easyCBM Reading (University of Oregon)
  - MindPlay Universal Screener (MindPlay)
  - Feifer Assessment of Reading Screening Form (PAR)
  - Predictive Assessment of Reading

A Hybrid Screening Method: 2-Stage

1. Use targeted probe data to determine performance
   - Shows us who is having difficulty reading
   - Validates question of “poor reading performance”
2. Use Shaywitz DyslexiaScreen after 6-8 weeks of school to allow teacher time to get to know student
   - Shows us who is “at-risk” specifically for Dyslexia
   - Gives us better idea for “next steps”

- Use probe tool help with progress monitoring
  - Re-assess progress regularly to determine those who:
    - Need further diagnostic assessment
    - Need more intervention
    - Are making progress toward goals using current level of interventions

Diagnostic Assessment: Academic Achievement
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Dyslexia Index Score

- KTEA-3 Dyslexia Index for Grades K-1 includes three subtests:
  - Phonological Processing
  - Letter Naming Facility
  - Letter & Word Recognition

<table>
<thead>
<tr>
<th>Test or Index Score</th>
<th>Subtests/Items</th>
<th>Mean (SD)</th>
<th>Internal consistency reliability</th>
<th>Standard error of mean (SEM)</th>
<th>Effect size</th>
<th>Estimated administration time</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTEA-3 Dyslexia Index 1</td>
<td>Phonological Processing, a Letter Naming Facility, a Letter &amp; Word Recognition</td>
<td>40</td>
<td>0.54 (0.08)</td>
<td>9.2 (12.8)</td>
<td>1.74</td>
<td>20 minutes</td>
</tr>
</tbody>
</table>

Diagnostic Assessment: Cognitive Processes

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

<table>
<thead>
<tr>
<th>Cognitive processing area</th>
<th>WISC-V Index score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory working memory (phonological memory)</td>
<td>Auditory Working Memory Index (AWMI)</td>
</tr>
<tr>
<td>Rapid automatized naming</td>
<td>Naming Speed Index (NSI)</td>
</tr>
<tr>
<td>Verbal comprehension and reasoning</td>
<td>Verbal Comprehension Index (VCI)</td>
</tr>
<tr>
<td>Processing speed</td>
<td>Processing Speed Index (PSI)</td>
</tr>
<tr>
<td>Comprehensive and verbal</td>
<td>Storage and Retrieval Index (SRI)</td>
</tr>
<tr>
<td>Association memory (planning efficiency)</td>
<td>Symbolic Functions Index (SFI)</td>
</tr>
</tbody>
</table>

Diagnostic Assessment: Oral Language
Key Language Areas for a Dyslexia Evaluation (CELF-5)

<table>
<thead>
<tr>
<th>Language Area</th>
<th>CELF-5 Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory Working Memory</td>
<td>Receptive Sentences</td>
</tr>
<tr>
<td>Receptive Vocabulary</td>
<td>Linguistic Concepts</td>
</tr>
<tr>
<td>Written Expression</td>
<td>Structured Writing</td>
</tr>
<tr>
<td>Secondary Areas</td>
<td></td>
</tr>
<tr>
<td>Listening Comprehension</td>
<td>Noticing Directions</td>
</tr>
<tr>
<td>Sentence Comprehension</td>
<td>Understanding Spoken Paragraphs</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>Reading Comprehension</td>
</tr>
<tr>
<td>Grammatical Ability</td>
<td>Formulated Sentences</td>
</tr>
<tr>
<td></td>
<td>Receptive Sentences</td>
</tr>
<tr>
<td></td>
<td>Sentence Assembly</td>
</tr>
<tr>
<td></td>
<td>Word Structure</td>
</tr>
</tbody>
</table>

Examples of Interventions (Pearson)

- SPELL-Links™ to Reading & Writing
- SPELL-Links™ Class Links for Classrooms™ (SPELL-Links™)
- Intervention Guide for Learning Disability (LD) Subtypes
- Process Assessment of the Learner (PAL™)
- Research-based Reading and Writing Lessons
- KTEA-3 Teaching Objectives and Intervention Statements
- WIAT-III Intervention Goal Statements

How do I effectively monitor progress?

Using aimswebPlus & SS/GSV scores

Progress Monitoring via aimsweb+
What is a Growth Scale Value (GSV)?

- Equal interval scale
- Measure ability on a developmental continuum
- Not dependent on norm sample
- Compare performance over time
  - Same skill...same measure
- Measure growth and track individual progress
- Evaluate interventions

GSV Sensitive to Developmental Change

<table>
<thead>
<tr>
<th>Scale</th>
<th>Standard Score Time 1</th>
<th>GSV Time 1</th>
<th>Standard Score Time 2</th>
<th>GSV Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter/Word Recognition</td>
<td>79</td>
<td>492</td>
<td>85</td>
<td>520</td>
</tr>
<tr>
<td>Letter Naming Facility</td>
<td>75</td>
<td>482</td>
<td>75</td>
<td>515</td>
</tr>
</tbody>
</table>

GSV/SS Interpretation Scenarios 1 & 2

<table>
<thead>
<tr>
<th>Scale</th>
<th>Standard Score Time 1</th>
<th>GSV Time 1</th>
<th>Standard Score Time 2</th>
<th>GSV Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Comprehension</td>
<td>85</td>
<td>427</td>
<td>79</td>
<td>460</td>
</tr>
</tbody>
</table>

GSV/SS Interpretation Scenario 3

GSV/SS Interpretation Scenarios 4 & 5

<table>
<thead>
<tr>
<th>Scale</th>
<th>Standard Score Time 1</th>
<th>GSV Time 1</th>
<th>Standard Score Time 2</th>
<th>GSV Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Reading</td>
<td>90</td>
<td>492</td>
<td>75</td>
<td>492</td>
</tr>
<tr>
<td>Pseudo-word Decoding</td>
<td>85</td>
<td>482</td>
<td>72</td>
<td>475</td>
</tr>
</tbody>
</table>
Screening Assessment Scenario: School A

1. Aimsweb™ Plus administered to all students as a benchmark screener.
   - Low performance on the reading benchmark are further screened with the Shaywitz DyslexiaScreen.
2. Students identified as “at risk” based on these measures are administered three subtests from the KTEA-3 Brief to obtain the BA-3 composite score.
3. Based on these results, the child study team meets to determine next steps and the most appropriate intervention approach.

Screening Assessment Scenario: School A (cont.)

3. Aimsweb™ Plus is used to monitor progress and the team continually evaluates the progress monitoring data to determine if instructional adjustments are needed.
4. The child study team refers students for a special education evaluation based on insufficient response to instruction.
5. The special education assessment process includes assessments from multiple disciplines, including language, achievement, ability, and cognitive areas. The child study team considers these test results and other sources of information to determine what services a student is qualified to receive and how best to improve the student’s performance.

Screening Assessment Scenario: School B

1. Implements a universal screening process
   - Starting with Kindergarten, screen for dyslexia using the Shaywitz DyslexiaScreen.
   - Those students who are identified as “at risk” are given a follow-up behavioral screener, using the KTEA-3 Dyslexia Index score.
2. Following this two-step screening process, the student support team meets to determine next steps.
   - Students at risk are given supplemental instruction, using a multi-linguistic word study program for 9–12 weeks.

Screening Assessment Scenario: School B (cont.)

3. Curriculum-based measures are administered weekly to track progress, and the KTEA-3 subtests from the Dyslexia Index score are re-administered using the alternate form every 3–4 months.
4. Underperforming students are referred for a comprehensive evaluation that includes cognitive, language, and achievement measures.

Thanks for participating!!

Dr. Adam Scheller
adam.scheller@pearson.com

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