Crushing your Dyslexia Evaluation Using the WJ IV & WMLS III Battery of Tests

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Agenda

Introduce Resources Available to Dyslexia Evaluators
Highlight Other Tests to be Used for a Comprehensive Evaluation
Introduce the WMLS III Tests and Their Use Within a Dyslexia Evaluation
Highlight the WJ IV Tests Used Within a Dyslexia Evaluation
Discuss the Importance of Integrating Multiple Sources of Data
Define & Discuss Dyslexia Criteria

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-Disclosures
- Clinical Assessment Consultant, Riverside Insights
- Author of C-SEP
- University Assistant Professor
- Educational Diagnostician
- Special Education Teacher
Dyslexia Defined

A neurologically-based specific learning disability (SLD) that is characterized by difficulties with accurate and/or fluent word recognition, poor reading decoding, and poor spelling abilities (Proctor, Mather, & Stephens, 2015).

Dyslexia Defined-IDA (2002)

The International Dyslexia Association defines “dyslexia” in the following way:

Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.

Adopted by the International Dyslexia Association Board of Directors, November 12, 2002.

Dyslexia Defined- Texas

Texas Education Code (TEC) §38.003 defines dyslexia and related disorders in the following way:

1. "Dyslexia" means a disorder of constitutional origin manifested by a difficulty in learning to read, write, or spell, despite conventional instruction, adequate intelligence, and sociocultural opportunity.

2. "Related disorders" include disorders similar to or related to dyslexia, such as developmental auditory imperception, dysgraphia, specific developmental dyslexia, developmental dysgraphia, and developmental spelling disability. TEC §38.003(d)(1)-(2) (1995).

http://apps.legis.state.tx.us/LegInfo/Docs/CED-Stat/TEC/HTML/38.003.htm
Manifestations of Dyslexia

Students identified as having dyslexia typically experience primary difficulties in the following areas:
- phonological awareness, including phonemic awareness and manipulation,
- single-word reading,
- reading fluency, and
- spelling.
Consequences may include difficulties in reading comprehension and/or written expression. These difficulties in phonological awareness are unexpected for the student’s age and educational level and are not primarily the result of language difference factors. Additionally, there is often a family history of similar difficulties.

(Texas Dyslexia Handbook, 2018)

Primary Characteristics of Dyslexia

The following are the primary reading/spelling characteristics of dyslexia:
- Difficulty reading words in isolation
- Difficulty accurately decoding unfamiliar words
- Difficulty with oral reading (slow, inaccurate, or labored without prosody)
- Difficulty spelling

It is important to note that individuals demonstrate differences in degree of impairment and may not exhibit all the characteristics listed above.

(Texas Dyslexia Handbook, 2018)

Characteristics and Consequences

The reading/spelling characteristics are most often associated with the following:
- Segmenting, blending, and manipulating sounds in words (phonemic awareness)
- Learning the names of letters and their associated sounds
- Holding information about sounds and words in memory (phonological memory)
- Rapidly recalling the names of familiar objects, colors, or letters of the alphabet (rapid naming)

Consequences of dyslexia may include the following:
- Variable difficulty with aspects of reading comprehension
- Variable difficulty with aspects of written language
- Limited vocabulary growth due to reduced reading experiences

(Texas Dyslexia Handbook, 2018)
Dyslexia Testing - Texas

THE DYSLEXIA HANDBOOK

Academic Skills
- Letter knowledge
- Reading words in isolation
- Decoding unfamiliar words
- Reading fluency (rate/accuracy)
- Reading comprehension
- Spelling

Cognitive Processes
- Phonological/phonemic awareness
- Rapid naming

Additional Areas
- Vocabulary
- Listening Comprehension
- Written expression
- Handwriting
- Memory for letter sequences
- Phonological memory
- Verbal working memory
- Processing speed

Conducting a Comprehensive Assessment of Dyslexia

- Multifaceted
- Multiple Sources of Data collected as part of the assessment process.
- Balanced integration of informal & formal data sources are necessary to fully understand the learner and his/her struggles.
- Targeted/purposeful assessment of reading & writing.

Comprehensive Evaluation of Dyslexia
Components of a Dyslexia Assessment

- Screener Information
- Qualitative Data
- Informal Testing
- Formal Testing

Importance of Dyslexia Screeners

- Early identification of students with dyslexia and the implementation of early intervention programs for these students have a significant impact on their future academic success.
- According to Hall and Moats (1999):
  - Early identification is critical because the earlier the intervention, the easier it is to remediate.
  - Inexpensive screening measures identify at-risk students in mid-kindergarten with 85% accuracy.
  - If intervention is not provided before the age of 8, the probability of reading difficulties continues into high school is 75% (pp. 279-280).

Research Supporting Dyslexia Screeners

- The rapid growth of the brain and its responsiveness to instruction in the primary years make the time from birth to 8 a critical period for literacy development (Nevills & Wolfe, 2009).
- Characteristics associated with reading difficulties are connected to spoken language.
- Difficulties in young children can be assessed through screenings of phonemic awareness and other phonological skills (Sousa, 2005).
- Eden (2015) points out “when appropriate intervention is applied early, it is not only more effective in younger children, but also increases the chances of sparing a child from the negative secondary consequences associated with reading failure, such as decline in self-confidence and depression.”
Texas Requirements for Dyslexia Screeners

◦ 2017: The 85th Texas Legislature passed House Bill (HB) 1886, to require that all kindergarten and first-grade public school students be screened for dyslexia and related disorders; the laws also requires that all students beyond first grade be screened or tested as appropriate.

◦ Texas Education Code §74.28, Reading Diagnosis, requires each school district to administer to students in Kindergarten, 1st grade, and 2nd grade a reading instrument to diagnose student reading development & comprehension.

◦ This law also requires school districts to administer a reading instrument at the beginning of 3rd grade to students who did not demonstrate reading proficiency on the 2nd grade year reading assessment.

◦ This law also requires the commissioner of education to select appropriate reading instruments for inclusion on the commissioner’s list.

Criteria for English & Spanish Screening Instruments

<table>
<thead>
<tr>
<th>Kindergarten</th>
<th>First Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phonological Awareness</td>
<td>Phonological Awareness</td>
</tr>
<tr>
<td>Phonemic Awareness</td>
<td>Phonemic Awareness</td>
</tr>
<tr>
<td>Sound-Symbol Recognition</td>
<td>Sound-Symbol Recognition</td>
</tr>
<tr>
<td>Letter Knowledge</td>
<td>Letter Knowledge</td>
</tr>
<tr>
<td>Decoding Skills</td>
<td>Decoding Skills</td>
</tr>
<tr>
<td>Spelling</td>
<td>Spelling</td>
</tr>
<tr>
<td>Listening Comprehension</td>
<td>Reading Rate</td>
</tr>
<tr>
<td></td>
<td>Reading Accuracy</td>
</tr>
<tr>
<td></td>
<td>Listening Comprehension</td>
</tr>
</tbody>
</table>

Sources & Examples of Screening Data

<table>
<thead>
<tr>
<th>Quantitative Information</th>
<th>Qualitative Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results of ---</td>
<td>Observations of student during screening</td>
</tr>
<tr>
<td>Current screening instruments</td>
<td>Other observations of student progress</td>
</tr>
<tr>
<td>Previous screening instruments</td>
<td>Teacher observations</td>
</tr>
<tr>
<td>Formal &amp; Informal classroom reading assessment</td>
<td>Parent/guardian input (e.g., family history, early language skills)</td>
</tr>
<tr>
<td>Additional brief and targeted skill assessment</td>
<td>Current student work samples</td>
</tr>
<tr>
<td></td>
<td>Work samples from earlier grade(s)</td>
</tr>
<tr>
<td></td>
<td>Intervention history</td>
</tr>
</tbody>
</table>
Examples of Formal Dyslexia Screeners

- Dynamic Indicators of Basic Early Literacy Skills (DIBELS)
- EasyCBM measure
- Istation's Indicators of Progress, Early Reading (ISIP-ER)
- Texas Primary Reading Inventory (TPRI)
- Woodcock-Johnson Diagnostic Reading Battery
- Tejas LEE
- STAR Reading

Student Behaviors Observed During Screening

- Lack of automaticity
- Difficulty sounding out words left to right
- Guessing
- Self-correcting
- Inability to focus on reading
- Avoidance behavior

Progress Monitoring – Dyslexia

- Best practice.
- Evaluate student's response to intervention.
- Diagnostic decision making.
Multiple Sources of Data

The Texas Dyslexia Handbook (2018) requires that the evaluation team gather and consider information about the student's instructional history in the essential areas of reading:

- Phonological awareness
- Phonetic coding
- Vocabulary
- Language structure
- Reading Fluency
- Reading Comprehension

Cumulative data must be collected and considered to provide information about factors that may be contributing to, or primary to the student's struggles in reading and spelling.

### Multiple Sources of Data Collection

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family History</td>
<td>Student background information; Parent information about the student; Parent information about parents' learning experience; Student's emotional and social status; Economic status; Language acquisition information</td>
</tr>
<tr>
<td>School History</td>
<td>Grades; Work Samples; Information assessment results; Information about current classroom performance; Attendance; Test Scores</td>
</tr>
<tr>
<td>Response-to-Intervention</td>
<td>Scores obtained on screeners; Benchmarks; Progress monitoring charts; Student's performance in relation to peers; Types of interventions implemented</td>
</tr>
<tr>
<td>Teacher Reports</td>
<td>Information regarding student's performance in the classroom (academically and behaviorally); Accommodations and modifications</td>
</tr>
</tbody>
</table>
Testing Hypothesis Worksheet - Basic Reading

- Allows the teacher or diagnostician to focus on specific areas of suspected disabilities.
- Helps target assessment.
- Links reading performance relative to intellectual development with psychological processing area.
- Worksheets available for:
  - Basic Reading
  - Reading Comprehension
  - Reading Fluency
  - Written Expression

Considerations During Classroom Observation

- Is the child engaged during instruction?
- Is the child slow to follow instruction?
- Can the child remember what was said?
- Does he/she wait to see what his/her peers do before taking action?
- Does he/she require or request repetition or clarification?

Auditory Processing

Understanding & Investigating
Understanding the Student’s Auditory History

- Understanding the student’s history of hearing and ear health is vital to the assessment of Auditory Processing.
- Untreated ear infections are a serious and underestimated cause of multiple learning problems in schools. Middle ear infections result in buildup of fluid which results in difficulties with listening tasks (Willis, 2016).
- Untreated, unpredictable hearing loss can:
  - interfere with the acquisition of basic oral language skills, both vocabulary and grammar.
  - contribute to deficiencies in auditory perception and development of phonemic awareness or the ability to recognize the separate sounds that make up words. These skills are essential for the development of reading and spelling skills (Roble, 1984).
  - impair the ability to hear environmental noise and the capacity to sustain listening attention.
  - interfere with the development of attention span and organizational skills.

Understanding the Student’s Auditory History: Qualitative Data to Consider

- Data to collect and consider when assessing the student’s auditory history skills:
  - Complete medical history from parent/guardian should include information regarding the student’s developmental history around hearing.
  - Did the student have a history of hearing infections during childhood?
  - Did the student have tubes inserted in ears?
  - Were there issues with hearing during early development?
  - Has the child had an assessment from an audiologist prior to referral?
  - Nurse’s hearing screening results
  - Parent & teacher information regarding listening and attention at home and school.
  - Student information regarding his/her ability to hear what others are saying.
  - Classroom and testing observation (e.g., does he/she ask for things to be repeated often?)

Attentional Issues vs Deficits in Auditory Processing

- An important part of the evaluation process is to tease out and differentiate whether the student is truly struggling with an auditory processing deficiency or an attentional difficulty – this can be a very tricky but important component.
- “Chicken or the egg” scenario
- Comorbidity
- Diagnosed with ADHD/ADD?
- Family history of ADHD/ADD?
- Developmental history of ear infections?
According to Brown (2004), we can assess listening comprehension in a communicative context if we think beyond formal assessment and consider the different types of listening tasks that are required in the classroom.

- Note-taking tasks that can be scored for content, visual representation (neatness and organization), accuracy, and efficiency (e.g., use of symbols to save time);
- Editing tasks that require the examinee to discern discrepancies between what they hear and printed text;
- Briefly, passages heard orally and asking specific questions around main ideas, supporting details, key phrases, etc.;
- Interpretive tasks, in which listeners attend to a unit of discourse and respond to questions, thereby forcing listeners to provide evidence of their inferential thinking skills.
- Error analysis should be conducted when using these methods to tease out the breakdown in Listening comprehension.

Informal Listening Tasks

Formal Assessment Data

Formal Assessment Data for a Comprehensive Dyslexia Evaluation

- WJ IV Cognitive (Optional)
- WJ IV Achievement or WMLS III
- WJ IV Oral Language or WMLS III
- C-TOPP
- TAPS-4 English/TAPS-3 Bilingual
WJ IV Achievement Tests that Assess the Primary Characteristics of Dyslexia

<table>
<thead>
<tr>
<th>WJ IV Test</th>
<th>What the Test Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACH Test 1: Letter-Word Identification</td>
<td>Recognition and naming of letters and words</td>
</tr>
<tr>
<td>ACH Test 2: Spelling</td>
<td>Production (spelling) of words</td>
</tr>
<tr>
<td>ACH Test 7: Word Attack</td>
<td>Application of phonics to word-reading</td>
</tr>
<tr>
<td>ACH Test 8: Oral Reading</td>
<td>Reading sentences aloud accurately and easily</td>
</tr>
<tr>
<td>ACH Test 9: Sentence Reading Fluency</td>
<td>Reading and comprehending sentences aloud</td>
</tr>
<tr>
<td>ACH Test 10: Word Reading Fluency</td>
<td>Reading and comprehending words clearly</td>
</tr>
<tr>
<td>ACH Test 16: Spelling of Sounds</td>
<td>Application of phonics to spelling</td>
</tr>
</tbody>
</table>
### WJ IV Achievement Tests that Assess the Secondary Characteristics of Dyslexia

<table>
<thead>
<tr>
<th>WJ IV Tests</th>
<th>What the Test Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACH Test 4: Passage Comprehension</td>
<td>Understanding of passages read silently</td>
</tr>
<tr>
<td>ACH Test 6: Writing Samples</td>
<td>Ability to convey meaning in writing</td>
</tr>
<tr>
<td>ACH Test 11: Sentence Writing Fluency</td>
<td>Ability to construct short sentences quickly</td>
</tr>
<tr>
<td>ACH Test 12: Reading Recall</td>
<td>Understanding of short stories read silently</td>
</tr>
<tr>
<td>ACH Test 17: Reading Vocabulary</td>
<td>Understanding of words read silently</td>
</tr>
</tbody>
</table>

### WJ IV Tests that Assess Cognitive Abilities

<table>
<thead>
<tr>
<th>WJ IV Cognitive Tests</th>
<th>What the Test Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>COG Test 3: Verbal Attention</td>
<td>Temporary store of verbal information and cue-dependent search functions in primary memory</td>
</tr>
<tr>
<td>COG Test 6: Letter-Pattern Matching</td>
<td>Orthographic visual perceptual discrimination ability under timed conditions</td>
</tr>
<tr>
<td>COG Test 8: Phonological Processing</td>
<td>Word recognition, fluency of word access, and word reorganizing via phonological codes</td>
</tr>
<tr>
<td>COG Test 10: Numbers Reversed</td>
<td>Temporary storage and recording of numeric information in primary memory</td>
</tr>
<tr>
<td>COG Test 11: Nonword Repetition</td>
<td>Phonological short-term working memory sensitivity, and capacity</td>
</tr>
<tr>
<td>COG Test 15: Object-Number Sequencing</td>
<td>Assembly of non-numeric sequences out of information maintained in working memory</td>
</tr>
<tr>
<td>COG Test 17: Pair Cancellation</td>
<td>Symbolic visual perceptual discrimination ability requiring cognitive control under timed conditions</td>
</tr>
<tr>
<td>COG Test 19: Memory of Words</td>
<td>Storage capacity for unrelated words in primary memory</td>
</tr>
</tbody>
</table>

### WJ IV Tests that Assess Oral Language Abilities

<table>
<thead>
<tr>
<th>WJ IV Oral Language Tests</th>
<th>What the Test Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>OL Test 5: Segmentation</td>
<td>Ability to break apart words, progressing from compound words, to syllables, to individual phonemes</td>
</tr>
<tr>
<td>OL Test 6: Rapid Picture Naming</td>
<td>Fluency of recognition, retrieval, and oral production of names of common pictured objects</td>
</tr>
<tr>
<td>OL Test 8: Sentence Repetition</td>
<td>Auditory memory span for connected discourse</td>
</tr>
<tr>
<td>OL Test 7: Sound Blending</td>
<td>Ability to blend sounds into words</td>
</tr>
<tr>
<td>OL Test 9: Retrieval Fluency</td>
<td>Fluency of word access</td>
</tr>
<tr>
<td>OL Test 14: Sound Awareness</td>
<td>Ability to analyze and manipulate phonemes through rhyming and deletion tasks</td>
</tr>
</tbody>
</table>
## WJ IV Constructs to Assess Student's Ability to Learn Independent of Reading

<table>
<thead>
<tr>
<th>WJ IV Constructs</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
</tr>
<tr>
<td>Intellectual</td>
<td></td>
</tr>
<tr>
<td>Ability</td>
<td></td>
</tr>
<tr>
<td>Gf</td>
<td>Reasoning &amp; Knowledge</td>
</tr>
<tr>
<td>Gc</td>
<td>Understanding Oral and Receptive language</td>
</tr>
<tr>
<td>Oral Language</td>
<td>Expresses single-word vocabulary and ability to listen to and then repeat</td>
</tr>
<tr>
<td>Oral Expression</td>
<td>simple to complex sentences</td>
</tr>
<tr>
<td>Listening</td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td>Use of syntactic and semantic cues when listening, and ability to follow</td>
</tr>
<tr>
<td></td>
<td>simple to complex oral directions</td>
</tr>
<tr>
<td>Vocabulary</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expresses single-word vocabulary and knowledge of word meanings, synonyms,</td>
</tr>
<tr>
<td></td>
<td>and antonyms</td>
</tr>
<tr>
<td>Math</td>
<td></td>
</tr>
<tr>
<td>Calculation</td>
<td></td>
</tr>
<tr>
<td>Problem Solving</td>
<td>Ability to compute math problems</td>
</tr>
<tr>
<td></td>
<td>Problem solving and logical reasoning with numbers</td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
</tr>
<tr>
<td>Academic Knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Knowledge of science, social studies, and humanities</td>
</tr>
<tr>
<td>General Information</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Knowledge of one's environment and the world</td>
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</tbody>
</table>

## Characteristics of Dyslexia in English & Spanish

<table>
<thead>
<tr>
<th>Characteristics of Dyslexia in English and Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
</tr>
<tr>
<td>Physiological awareness</td>
</tr>
<tr>
<td>Rapid naming</td>
</tr>
<tr>
<td>Regular/irregular decoding</td>
</tr>
<tr>
<td>Fluency</td>
</tr>
<tr>
<td>Spelling</td>
</tr>
<tr>
<td>Reading comprehension may be a weakness in both English and Spanish</td>
</tr>
</tbody>
</table>
Tests of Oral Language and Listening Comp.

<table>
<thead>
<tr>
<th>WJ IV Tests of Oral Language (English and Spanish)</th>
<th>WJLLS-III (English and Spanish)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH:</td>
<td>ENGLISH:</td>
</tr>
<tr>
<td>Listening Comprehension</td>
<td>Listening Comprehension</td>
</tr>
<tr>
<td>Test 5: Oral Comprehension</td>
<td>Test 4: Analogies</td>
</tr>
<tr>
<td>Test 6: Understanding Directions</td>
<td>Test 6: Oral Comprehension</td>
</tr>
<tr>
<td>Oral Expression</td>
<td>Oral Expression</td>
</tr>
<tr>
<td>Test 1: Picture Vocabulary</td>
<td>Test 2: Picture Vocabulary</td>
</tr>
<tr>
<td>Test 2: Oral Comprehension</td>
<td>Test 3: Oral Language Expression</td>
</tr>
<tr>
<td>SPANISH:</td>
<td>SPANISH:</td>
</tr>
<tr>
<td>Listening Comprehension</td>
<td>Listening Comprehension</td>
</tr>
<tr>
<td>Test 10: Vocabulario sobre dibujos</td>
<td>Test 1: Analogies</td>
</tr>
<tr>
<td>Test 11: Comprehension oral</td>
<td>Test 2: Comprehension oral</td>
</tr>
<tr>
<td>Oral Expression</td>
<td>Oral Expression</td>
</tr>
<tr>
<td>Test 11: Comprehension oral</td>
<td>Test 3: Vocabulario sobre dibujos</td>
</tr>
<tr>
<td>Test 12: Comprehension de indicaciones</td>
<td>Test 6: Expresion de lenguaje oral</td>
</tr>
</tbody>
</table>

Tests of Auditory Processing

<table>
<thead>
<tr>
<th>WJ IV &amp; Bateria IV Cognitive</th>
<th>WJ IV Oral Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>English:</td>
<td>English:</td>
</tr>
<tr>
<td>Test 5: Phonological Processing</td>
<td>G2: Phonetic Coding</td>
</tr>
<tr>
<td>Test 12: Nonword Repetition</td>
<td>WJ IV OL 3: Segmentacion</td>
</tr>
<tr>
<td>Bateria IV</td>
<td>WJ IV OL 7: Sound Blending</td>
</tr>
<tr>
<td>Test 5: Procesamiento fonetico</td>
<td>WJ IV OL 9: Sound Awareness</td>
</tr>
<tr>
<td>Test 12: Repeticion de palabras sin sentido</td>
<td></td>
</tr>
</tbody>
</table>

Academic Tests for WJ IV

<table>
<thead>
<tr>
<th>Basic Reading:</th>
<th>Reading Comprehension:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text 1: Letter-word Identification</td>
<td>Test 4: Passage Comprehension</td>
</tr>
<tr>
<td>Text 7: Word Attack</td>
<td>Test 12: Reading Recall</td>
</tr>
<tr>
<td>Reading Fluency:</td>
<td>Reading Comprehension:</td>
</tr>
<tr>
<td>Test 8: Oral Reading</td>
<td>Test 4: Passage Comprehension</td>
</tr>
<tr>
<td>Test 9: Sentence Reading Fluency</td>
<td>Test 12: Reading Recall</td>
</tr>
<tr>
<td>Written Language:</td>
<td>Written Language:</td>
</tr>
<tr>
<td>Test 3: Spelling</td>
<td>Test 3: Spelling</td>
</tr>
<tr>
<td>Test 6: Writing Samples</td>
<td>Test 6: Writing Samples</td>
</tr>
<tr>
<td>Mathematics:</td>
<td>Mathematics:</td>
</tr>
<tr>
<td>Test 5: Calculation</td>
<td>Test 5: Calculation</td>
</tr>
</tbody>
</table>
### Academic Tests for Bateria IV

<table>
<thead>
<tr>
<th>Destrezas básicas en lectura:</th>
<th>Comprensión de lectura:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 3: Identificación de letras y palabras</td>
<td>Test 6: Comprensión de textos</td>
</tr>
<tr>
<td>Test 7: Análisis de palabras</td>
<td>Test 12: Rememoración de lectura</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fluidez en la lectura</th>
<th>Lenguaje escrito</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 8: Lectura oral</td>
<td>Test 5: Ortografía</td>
</tr>
<tr>
<td>Test 9: Fluidez en lectura de frases</td>
<td>Test 6: Expresión de lenguaje escrito</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Matemáticas</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 2: Problemas aplicados</td>
<td></td>
</tr>
<tr>
<td>Test 5: Cálculo</td>
<td></td>
</tr>
</tbody>
</table>

### Academic Tests for WMLS III

<table>
<thead>
<tr>
<th>English</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 5: Letter-word Identification</td>
<td>Test 5: Letter-word Identification</td>
</tr>
<tr>
<td>Test 6: Passage Comprehension</td>
<td>Test 6: Passage Comprehension</td>
</tr>
<tr>
<td>Test 7: Dictation</td>
<td>Test 7: Dictation</td>
</tr>
<tr>
<td>Test 8: Written Language Expression</td>
<td>Test 8: Written Language Expression</td>
</tr>
</tbody>
</table>

### Formal Assessment of Auditory Processing
What is Auditory Processing?

- **What do we do when we hear?**
- Ability to analyze, synthesize, and discriminate auditory stimuli
- Involves the receipt of an auditory signal and the performing of some cognitive operation related to the signal.
- The ability to detect and process meaningful nonverbal information in sound.
- Does not require the comprehension of language but it does contribute to the language and reading comprehension.
- Involves speech, sounds or music.

---

Developmental Patterns for Cognitive Processes

Plot of seven WJ IV COG CHC factors, Gf-Gc composite, and GIA W score differences across by age.

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Assessing Auditory Processing Using the WJ IV
Assessing Auditory Processing Using the Woodcock Johnson IV

- Woodcock Johnson IV Cognitive
  - Test 5: Phonological Processing
  - Test 12: Nonword Repetition

- Woodcock Johnson IV Oral Language
  - Phonetic Coding
    - Test 3: Segmentation
    - Test 7: Sound Blending

WJ IV COG: Phonological Processing
TEST 5

Woodcock Johnson IV Cognitive: Test 5: Phonological Processing

- WJ IV COG Test 5: Phonological Processing: a cognitively complex auditory processing task that includes speed or lexical access, a narrow ability of long-term retrieval (Gd).
- Comprised of 5 subtests (all 5 must be given to obtain a score):
  - Word Access
    - Word Fluency
    - Substitution
- A median reliability of .80 in the 5-19 year old range and a .90 in the adult age range.
Woodcock Johnson IV COG Test 12: Phonological Processing Task Analysis

<table>
<thead>
<tr>
<th>Cognitve Test</th>
<th>Primary Broad CHC Ability</th>
<th>Narrow Ability</th>
<th>Stimuli</th>
<th>Task Requirements</th>
<th>Cognitive Processes</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phonological Processing</td>
<td>Auditory Processing</td>
<td>Auditory Working Memory</td>
<td>Word Fluency</td>
<td>Word Fluency ( G_{fw} )</td>
<td>Phonological processing, naming, or sound matching with a specific sound, substituting part of a word to make a new word</td>
<td>Oral Memory</td>
</tr>
</tbody>
</table>

Woodcock Johnson IV Cognitive: Test 12: Nonword Repetition

- Nonword Repetition is a complex measure of phonological processing, measuring aspects of auditory processing (Ga) and short-term working memory (Gwm).
- Includes similar tasks that are sometimes described as measuring phonological short-term memory or phonological loop.
- Item difficulty increases as the number of syllables in the nonsense word increases.
- Used with Test 5: Phonological Processing for form Ga.
- Median reliability for ages 6-19 is .90 and .90 for adult age range.
Woodcock Johnson IV COG Test 12: Nonword Repetition Task Analysis

<table>
<thead>
<tr>
<th>Cognitive Test</th>
<th>Primary Broad CHC Ability</th>
<th>Cognitive Processes</th>
<th>Task Requirements</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonword Repetition Auditory Processing (Ga)</td>
<td>Memory for Sound Patterns (WM)</td>
<td>Auditory (nonsense words)</td>
<td>Listening to a nonsense word and repeating it exactly.</td>
<td>Oral sound</td>
</tr>
<tr>
<td>Nonword Repetition Auditory Processing (Ga)</td>
<td>Memory for Sound Patterns (WM)</td>
<td>Auditory (nonsense words)</td>
<td>Analysis of a sequence of acoustic phonological elements in immediate awareness; efficiency of the phonological loop.</td>
<td>Oral sound</td>
</tr>
</tbody>
</table>

Assessing Auditory Processing Using the WJ IV Oral Language Tests

- Assessing Auditory Processing Using the WJ IV Oral Language
  - Woodcock-Johnson IV Oral Language
    - Phonetic Coding
    - Test 3: Segmentation
    - Test 7: Sound Blending
The Woodcock Johnson IV OL Test 3: Segmentation is a measure of auditory processing (Ga). It is a phonetic coding task that measures skill in breaking apart the speech sounds in words.

The examinee listens to words and must identify the word parts ranging from compound words to syllables to individual speech sounds (phonemes).

This test has a median reliability of .93 in the 5 to 19 age range and .94 in the adult range.
WJ IV Oral Language, Test 3: Segmentation

Progresses from:

• Compound words
• Syllables
• Phonemes

WJ IV OL, Test 3: Segmentation Task Analysis

<table>
<thead>
<tr>
<th>Oral Language Test</th>
<th>Primary Broad CHC ABHY Narrow Ability</th>
<th>Stimuli</th>
<th>Task Requirements</th>
<th>Cognitive Processes</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segmentation</td>
<td>Auditory Processing (Ga)</td>
<td>Auditory</td>
<td>Listening to a word and breaking it into syllables or phonemes</td>
<td>Analysis of accurate phonological elements in immediate intervals</td>
<td>Oral broad parts and phonemes</td>
</tr>
</tbody>
</table>

WJ IV OL: Sound Blending

TEST 7
WJ IV Oral Language, Test 7: Sound Blending

- WJ IV Oral Language Test 7, Sound Blending, is an auditory processing test.
- It is a phonetic coding task that measures skill in synthesizing speech sounds (phonemes).
- The examinee listens to a series of syllables or phonemes and then is asked to blend the sounds into a word.

Sound Blending has a median reliability of .88 in the 5 to 19 age range and .94 in the adult age range.

WJ IV OL Test 7: Sound Blending Task Analysis

<table>
<thead>
<tr>
<th>Oral Language Test</th>
<th>Primary Broad CHC Ability</th>
<th>Narrow Ability</th>
<th>Task Requirements</th>
<th>Cognitive Processes</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound Blending</td>
<td>Auditory Processing (Phonetic Coding (PC))</td>
<td>Synthesizing language sounds (phonemes) to say a word</td>
<td>Synthesis of acoustic, phonological elements in immediate awareness, matching the sequence of elements to stored lexical entries; lexical activation; and access</td>
<td>Oral (auditory)</td>
<td></td>
</tr>
</tbody>
</table>
Comprehensive Evaluation of Auditory Processing

- Test of Auditory Processing Skills, 4th Edition (TAPS-4) - English
- Comprehensive Test of Phonological Processing (C-TOPP)

Test of Auditory Processing (TAPS)

- Ages 5-21 years; individually administered
- The TAPS-4 provides information about language processing and comprehension skills across three intersecting areas: phonological processing, auditory memory, and listening comprehension
- TAPS-4 Indices:
  - Phonological Processing Index
  - Auditory Memory Index
  - Listening Comprehension Index
Test of Auditory Processing Skills (TAPS)

<table>
<thead>
<tr>
<th>Phonological Processing Index</th>
<th>Auditory Memory Index</th>
<th>Listening Comprehension Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Pair Discrimination</td>
<td>Number Memory-Behind</td>
<td>Processing Oral Directions</td>
</tr>
<tr>
<td>Phonological Decision</td>
<td>Word Memory-Behind</td>
<td>Auditory Comprehension</td>
</tr>
<tr>
<td>Phonological Blending</td>
<td>Nonverbal Memory</td>
<td>Auditory Figure-Ground</td>
</tr>
<tr>
<td>Syllabic Blending</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TAPS Narrow Abilities

<table>
<thead>
<tr>
<th>Memory Span (MS)</th>
<th>Working Memory Capacity (WMC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory Span (MS)</td>
<td>Working Memory Capacity (WMC)</td>
</tr>
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</tr>
<tr>
<td>Memory Span (MS)</td>
<td>Working Memory Capacity (WMC)</td>
</tr>
</tbody>
</table>

Comprehensive Test of Phonological Processing, 2nd Edition (C-TOPP-2)

- Ages 4 to 24; English only
- The Comprehensive Test of Phonological Processing (CTOPP) was published in 1999 to meet the need for an assessment of reading-related phonological processing skills
- C-TOPP-2 Composite:
  - Phonological Awareness (4-6 years & 7-24 years)
  - Phonological Memory (4-6 years & 7-24 years)
  - Rapid Symbolic Naming (4-6 years & 7-24 years)
  - Alternate Phonological Awareness (7-24 years)
Comprehensive Test of Phonological Processing, 2nd Edition (C-TOPP-2)

C-TOPP-2 Composite & Subtest (Ages 4-6)

Assessment Areas | Short-Term Memory | Phonological Memory | Rapid Symbolic Naming | Aberrant Phonological Awareness
--- | --- | --- | --- | ---
Elision | Memory for Digits | Rapid Digit Naming | Rapid Letter Naming
Blending Words | Nonword Repetition | Nonword Repetition
Segmenting Words

C-TOPP-2 Composite & Subtest (Ages 7-84)

Short-Term Memory | Phonological Memory | Rapid Symbolic Naming | Aberrant Phonological Awareness
--- | --- | --- | ---
Elision | Memory for Digits | Rapid Digit Naming | Rapid Letter Naming
Blending Words | Nonword Repetition | Nonword Repetition
Segmenting Words

Considerations when Analyzing & Interpreting a Student’s Performance on Auditory Processing Tests

- What is the grade/age of the student and is the skill developmentally appropriate?
- What technique was used to teach basic reading skills?
- What type of reading instruction/curriculum was used?
- Whole Language
- Phonics-Based
- What types of interventions has the student received in RTI?
- What is the student’s primary language of instruction? How long?
- What are the reading standards for the grade level of the student for the state(s) they have lived in?
- What do the parents report on the student’s language development during the earlier years?

Interpreting Assessment Results

- It is vital that the evaluator consider all the data collected on the student when interpreting the results on the assessment.
- Evaluators should merge informal and formal data for analysis.
- Cross validate data to determine consistency in findings.
- Tease out causes of struggles on Listening Comprehension; ruling out other causes (e.g., attention)
- Examine the impact of results on reading and language development (oral and receptive)
- Link results to interventions and instructional programming.
**Bilingual Dyslexia Testing**

"Assessment of dyslexia for bilingual students requires knowing the student's ability in his/her two or more languages.

- By comparing the student's abilities, side-by-side, in his/her two or more languages, the examiner gets insight into whether a profile is indicative of developmental dyslexia or from issues associated with second language acquisition."

Dr. Criselda Alvarado, July 2015

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**Assessing Dysgraphia Using the WMLS III**

Gonzalez, V. (2019)
Dysgraphia Evaluation

- The Dyslexia Handbook Revised 2018: Procedures Concerning Dyslexia and Related Disorders
- Provides guidelines for dyslexia evaluations, but does not for related disorders such as dysgraphia
- Guidelines for dysgraphia evaluations are developed by each district following federal and state laws

Dysgraphia Evaluation

- There is no exact definition for dysgraphia.
- Many research-based definitions of dysgraphia exist

Common Difficulties found in the Research

- Handwriting
- Spelling
- Getting Thoughts on Paper
- Legibility
- Accuracy
- Automaticity
- Written expression

- Verbal expression
- Mechanics for written expression
Building an Assessment Battery

Primary Characteristics
- Difficulties with handwriting
- Difficulties with spelling
- Difficulties getting thoughts on paper

Associated Processes
- Graphomotor processing
- Orthographic processing
- Phonological processing

Unexpected in Relation to...
- Other cognitive abilities
- Effective classroom instruction

Dysgraphia Evaluation and the WMLS III

Opportunity for evaluator to collect qualitative data for handwriting difficulties:
- Observe how much time and effort to complete task (automaticity)
- Observe for body posture, handedness, pencil grip, controlled strokes, and erasures
- Review completed tasks for letter formation, size and proportion, spacing, slant, alignment and line quality
Linking Assessment Results to Intervention

WJ IV WIIIP: Comprehensive and Dyslexia Reports

WJ IV Interpretation and Instructional Interventions Program (WIIIP)

- Report writing program delivered through the WJ IV web-based scoring platform
- Facilitates report writing so professional can focus on interpretation and program planning
- Links WJ IV results to interventions
- Makes testing more instructionally relevant by responding to professionals’ needs
- Two Reports:
  - Comprehensive Report
  - Dyslexia Report

www.wjiwiiip.com
Instructional Interventions & Accommodations

Based on student performance and developmental level

Interventions – Cog, Ach, OL

Generated when performance falls within limited or lower range

Accommodations – Cog, OL

Available on both Comprehensive and Dyslexia Reports
Item-Level Analysis

- Suggests formative interventions
- Interventions are intended to identify a specific skill deficit and provide an intervention for teaching the underlying skill or concept

- Test 1: Letter-Word Identification
- Test 2: Applied Problems
- Test 3: Spelling
- Test 5: Calculation
- Test 7: Word Attack

Comprehensive Report

Generates narrative description of WJ and child's performance along with instructional recommendations and interventions

Sections:
- Background Information (gathered from checklists)
- Classroom Behavior Observations (gathered from checklist)
- Test Session Observations (qualitative observations from test record)
- Interpretive Overview of Scores
- Instructional Recommendations and Interventions
- Table of Scores
- Appendix: Detailed Interpretation of Clusters and Tests

INTERPRETIVE OVERVIEW OF SCORES

The scores derived from this administration can be interpreted at different levels. Interpretation of Marisa’s performance can be based upon single tests and/or upon logical-empirical combinations of tests called clusters. Variables within groups of scores are evaluated to determine if any relative strengths and weaknesses exist.

Marisa’s overall academic achievement, as measured by the WJ IV Broad Achievement standard score, is in the low range of children her age.

Among the WJ IV achievement measures, Marisa’s standard scores are within the average range for one cluster (Written Expression) and three tests (Writing Samples, Oral Reading, and Sentence Writing Fluency). Her scores are below average on two clusters (Reading Comprehension and Academic Applications) and four tests (Passage Comprehension, Word Attack, Sentence Reading Fluency, and Math Facts Fluency) within the low range for seven clusters (Reading, Basic Reading Skills, Mathematics, Broad Mathematics, Math Calculation Skills, and Academic Skills) and three tests (Applied Problems, Spelling, and Calculations) within the very low range for one test (Ladder-Word Identification).

An analysis of variations among Marisa’s achievement scores in broad curricular areas suggests that Sentence Writing Fluency and Written Expression are relative strengths for her. She demonstrated a relative weakness in Letter-Word Identification.

In a cross-domain analysis of variations among Marisa’s achievement cluster scores, Marisa demonstrated a relative weakness in Academic Skills.
Dyslexia Report

Streamlines analysis of data by providing a conceptual framework for dyslexia identification

Objective and purpose:

- Provides a tool for determining whether a student demonstrates characteristics of dyslexia

Sections:

- Purpose of Report and Dyslexia Definitions
- Dyslexia Evaluation Checklists (Parent and Teacher)
- Dyslexia Score Profile
- Interpretation
- Instructional Recommendations and Interventions
- Appendix – Detailed Interpretation of Clusters and Tests

Purpose of Report and Dyslexia Definitions

PURPOSE OF REPORT

This report organizes and presents Arthur’s assessed results and other relevant information in a manner that may be useful in determining whether he exhibits a profile that is consistent with the characteristics of dyslexia. Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language, which is evidenced by the individual’s poor phonemic awareness, significant problems with decoding familiar words, and often exceptional reading comprehension abilities. Dyslexia is not due primarily to visual, hearing, or motor defects, to mental retardation, to environmental, cultural, or economic disadvantage, or to willful neglect of instruction. Dyslexia can occur at any age level and is often accompanied by difficulties with phonological awareness, spelling, and reading comprehension. It is estimated that 10-15% of school-age children evidence dyslexia. (Adapted by the International Dyslexia Association, Board of Directors, November 12, 2002)

FUNCTIONAL DEFINITION OF DYSLEXIA

Dyslexia affects reading at the single word level, reading fluency, and rate, and spelling. In fact, these weaknesses cause difficulties with reading comprehension and written expression. According to research, the major cognitive components of dyslexia to be emphasized in all of the areas of slant dyslexia development include phonological awareness, reading comprehension, writing, spelling, and social competence. Deficits in other areas include memory for verbal and visual information, visual-motor skills, sustained attention, working memory, and receptive and expressive language skills. These areas are often unrelated to the person’s other abilities.
Dyslexia Score Profiles

Score Profiles available in the following areas:
- Primary Areas of Reading and Spelling
- Secondary Reading and Writing Skills
- Ability Measures
- Cognitive and Linguistic Abilities

Interpretation

Interpretation available in the following areas:
- Primary Reading, Spelling, and Writing Difficulties
- Secondary Reading and Writing Difficulties
- Possible Contributing Factors: Cognitive and Linguistic Abilities

Instructional Recommendations and Interventions

Instructional Recommendations and Interventions
- Accommodations that may help compensate for literacy limitations in a curriculum may include providing systematic feedback, reducing the quality of work required, breaking tasks into smaller components, and using computer-generated feedback as part of the instructional process.
**Detailed Interpretation of Clusters and Tests**

**Appendix A: Detailed Interpretation of Clusters and Tests**

This appendix provides information about each ability area, including a description of the clusters and their development. Each cluster is followed by a description of its performance and a description of the proficiency areas included.

**WJ IV Tests of Cognitive Abilities**

**Cognitive Clusters**

1. Word Reading Fluency
   - Letter Knowledge
   - Numbers Reversed
   - Sound Awareness
   - Rapid Picture Naming
   - Retrieval Fluency
   - Sentence Repetition
   - Memory for Words
   - Picture Vocabulary
   - Oral Comprehension
   - Understanding Directions

2. Oral Language Competence
   - Fluency
   - Sentence Writing Fluency
   - Memory for Words
   - Picture Vocabulary
   - Oral Comprehension
   - Understanding Directions

3. Academic Skills
   - Spelling
   - Word Identification
   - Word Attack
   - Spelling of Sounds
   - Oral Reading (Age 7+, Grade 2+)
   - Sentence Reading Fluency (Age 7+, Grade 2+)

4. General Knowledge
   - Oral Vocabulary
   - Number Series
   - General Information
   - Concept Formation

5. Academic Knowledge (WJ IV Ach)
   - Science
   - Social Studies
   - Humanities

6. Broad Oral Language (WJ IV OL)
   - Picture Vocabulary
   - Oral Comprehension
   - Understanding Directions

**Achievement Measures**

- Spelling
- Letter Knowledge
- Numbers Reversed
- Sound Awareness
- Rapid Picture Naming
- Retrieval Fluency
- Sentence Repetition
- Memory for Words
- Picture Vocabulary
- Oral Comprehension
- Understanding Directions

**WJ IV Cognitive**

- Community Knowledge (WJ IV Cog)
  - Oral Vocabulary
  - Number Series
  - General Information
  - Concept Formation

**Optional Tests and Clusters**

- Word Reading Fluency
- Passage Comprehension
- Reading Recall
- Reading Vocabulary
- Writing Samples
- Sentence Writing Fluency
- Verbal Attention
- Number Sequencing
- Letter Pattern Matching
- Number Pattern Matching
- Phonological Processing
- Nonword Repetition
- Story Recall
- Visual Learning
- Auditory Learning
- Numbers Reversed
- Sound Awareness
- Segmentation
- Sound Blending
- Rapid Picture Naming
- Retrieval Fluency
- Sentence Repetition
- Memory for Words
- Picture Vocabulary
- Oral Comprehension
- Understanding Directions
- Oral Vocabulary
Available from the Resources tab on the WJ IV Online Scoring and Reporting Platform - Report and Score Interpretation Guides

Contact Information

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