Riverside Insights

Assessment Plan

A Comprehensive Guide to Evaluating Dyslexia in Spanish Speaking and Bilingual Populations

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According to the International Dyslexia Association (IDA, 2002)[1],

> *"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."*

General Assessment Guidelines

Identification of dyslexia in languages other than English requires an understanding of the orthographic complexity of the language. Where a language falls on the opacity continuum can influence how difficulties in reading and spelling manifest.

Furthermore, examiners must be knowledgeable about issues related to second language acquisition, the cross-linguistic assessment process, and the interpretation of test results for the population they are assessing (Wendling et al., 2019)[2]. Additionally, examiners should have expertise in native language attrition, language dominance, cross-linguistic transfer, and the impact of special language programming and sociocultural factors on language acquisition and learning. Wendling et al. (2019) note that the examiner must also be capable of interpreting data in the context of the amount and quality of the exposure an individual received in the assessed language(s). Other common factors (e.g., age, affect, language used at home, school and within the community, educational history, socioeconomic status) should also be investigated, as they might impact language ability and learning.

According to Rhodes et al. (2005)[3], when assessing a second-language learner, it

[1] About Dyslexia, International Dyslexia Association, https://www.idaontario.com/about-dyslexia/

[2] Wendling, B.J., Mather, N., & Schrank, F.A. (2019). Examiner's Manual. Batería IV Woodcock-Munoz: Pruebas de habilidades cognitivas. Iasca, IL: Riverside Assessments, LLC.

[3] Rhodes, R. L., Ochoa, S. H., & Ortiz, S. O. (2005). Assessing culturally and linguistically diverse students A practical guide. The Guilford Press

is the examiner's responsibility to ascertain to what extent the learner's academic difficulty or failure is informed by a disability rather than pedagogy. Furthermore, according to Wolfram et al. (1999)[4] "the key consideration in distinguishing between a difference and a disorder is whether the ***child's performance differs significantly from peers with similar experiences."***

When interpreting test results, it is important to analyze within-language differences across different skill areas (e.g., comparing oral language comprehension and expressive language in the same language). Doing so helps to create a functional profile within the target languages. Examiners should also compare functioning in both languages within a target domain (e.g., Listening C omprehension in English and Spanish). This allows for cross-language comparative analysis. The examiner must then consider any differences between the individual's preferred language (or dominant language), and the language in which the individual receives reading and writing instruction. Lastly, the examiner must determine if the characteristics of dyslexia are present across the languages being assessed (Alvarado, 2009).

Riverside Insights offers powerful tools in the assessment of Dyslexia in Spanish-speaking and bilingual populations, allowing examiners to assess various latent and applied abilities pertinent to reading achievement throughout the lifespan. Information regarding the individual tests and clusters was sourced from each instrument's respective Examiner's Manual. Note that results from formal tests should always be verified by other sources of data to ensure ecological validity.

Spanish Assessment Bundle	
Comprehensive Measures	**Selective Measures**
Batería IV COG	PTONI
Batería ACH	TONI
WMLS-III	-
TPAS	-
TAPS-3 SBE	-
Letter-Sound Assessment	-

[4] Wolfram, W., Adger, C. T., & Christian, D. (1999). Dialects in schools and communities. Mahwah, NJ: Lawrence Erlbaum Associates

Comprehensive Measures

The **Batería IV Woodcock-Muñoz (Batería IV)** is the parallel Spanish version of the **Woodcock-Johnson IV (WJ IV™)**. It offers an efficient, effective assessment of cognitive abilities and academic skills for Spanish speakers across the lifespan (age 2-90+).

Pruebas de habilidades cognitivas (Batería IV COG)

The **Batería IV COG** allows for an assessment of underlying cognitive abilities of interest when evaluating for dyslexia, including phonological/phonemic awareness, phonological memory, verbal short-term working memory, rapid naming, orthographic processing, and processing speed. Given the breadth of tests within the Batería IV COG, examiners can also assess the ability to learn independent of reading and spelling capabilities. Descriptions of the Batería IV COG tests were culled from its Examiner's Manual (Wendling et al., 2019).

- Spanish-speaking and bilingual children with phonological processing complications may demonstrate delays in the mastery of the alphabetic principle. Note that phonological processing is crucial when learning how to read in an alphabetic system and appears to be the primary and most common deficit in individuals with dyslexia regardless of orthographic system (Alvarado, 2009). Within the Batería IV COG battery, two tests assess auditory processing, a CHC ability which concerns the ability to encode, synthesize, and distinguish between auditory stimuli. Furthermore, it encompasses other skills critical to literacy success (e.g., phonological awareness, phonological processing, phonological sensitivity, and phonetic coding).
  - Procesamiento fonético (Phonological Processing) is a complex measure of auditory processing. It taps word activation, fluency of word access, and word restructuring via phonological codes. It is a three-part task:
    - ***Acceso de palabras*** (Word Access) requires the examinee to provide a word that has a specific phonemic element in a given location.
    - ***Fluidez de palabras*** (Word Fluency) taps speed of lexical access, as the examinee is provided one minute to name as many words as they can that begin with a target sound.
    - ***Sustitucion*** (Substitution) tasks the examinee with substituting part of a word to create a new word.
  - Repetición de palabras sin sentido (Nonword Repetition) tests phonological (short-term) memory, a closely associated aspect of the reading/spelling characteristics of dyslexia. It requires the examinee to listen to a nonreal word and repeat the word exactly as it was presented.

- The Batería IV COG further allows an assessment of verbal short-term working memory. Working memory involves the ability to hold information in immediate awareness while manipulating or transforming the information in some fashion. Intact working memory is needed for proper reading and spelling development and later literacy success.
  - Atención verbal (Verbal Attention) is a measure of short-term working memory, demanding attentional control. The examinee is asked to listen to a mixed series of animals and digits, and then answer a specific question regarding the presented sequence. For example, "Tell me the number between moose and horse."
  - Inversión de números (Numbers Reversed) also assesses short-term working memory, as the examinee is asked to hold a sequence of numbers in their immediate awareness, before reversing the sequence.
- Another key predictor of dyslexia for Spanish speakers is rapid naming (e.g., Youman & Mather, 2020[5]; López-Esbribano et al., 2018)[6]. Rapid Naming is tapped by the Batería IV COG via ***Rapidez en la identificación de dibujos*** (Rapid Picture Naming).
  - Rapidez en la identificacion de dibujos (Rapid Picture Naming) is a measure of cognitive and linguistic fluency. It provides examiners with information regarding an examinee's speed of lexical access and processing speed. It specifically demands the examinee to recall and name simple pictures under timed conditions.
- According to Suarez-Coalla et al. (2014)[7], "dyslexic children of transparent orthographic systems have problems in developing ***orthographic representations*** of words." Orthographic processing, or one's memory for letter and/or symbol sequences, lends itself to direct, accurate, and fluent reading. Suarez-Coalla et al. (2014) conclude that poor orthographic processing results in difficulty developing orthographic representations of text, which in turn, impacts reading fluency. On the Batería IV COG, orthographic processing is tapped by Pareo de letras idénticas (Lettern-Pattern Matching) and Pareo de números idénticos (Number-Pattern Matching).

[5] Youman, M., & Mather, N. (2020). Cognitive correlates of basic reading skills in spanish-speaking english language learners: Implications for dyslexia assessment. Contemporary School Psychology, 24(4), 406-418.

[6] López-Escribano, C., Ivanova, A., & Shtereva, K. (2018). Rapid Automatized Naming (RAN) and Vocabulary are significant predictors of reading in consisting orthographies: A comparison of reading acquisition procedures in Bulgarian and Spanish.

[7] Suárez-Coalla P, Ramos S, Alvarez-Cañizo M, Cuetos F. Orthographic learning in dyslexic Spanish children. Ann Dyslexia. 2014 Jul;64(2):166-81. doi: 10.1007/s11881-014-0092-5. Epub 2014 Jul 24. PMID: 25056668

- **Pareo de letras idénticas** (Letter-Pattern Matching) is a perceptual speed task, which assesses orthographic (letter) visual perceptual discrimination ability under timed conditions. The letter patterns that match always are possible patterns within the Spanish language.
- **Pareo de números idénticos** (Number-Pattern Matching) is another measure of perceptual speed, which taps an examinee's ability to discriminate among visual perceptual stimuli.

- **Cognitive processing** speed can be understood as the ability to perform cognitive tasks quickly and accurately. Perceptual speed is a narrow ability within the processing speed domain, which is the ability to quickly perform simple clerical tasks that use symbols, such as matching letters or numbers. Tasks within this domain on the Batería IV COG often require sustain controlled attention and concentration and place the examinee under timed pressure. Weaknesses in these areas can inform weaknesses in reading accuracy, reading rate, and higher-order functions (e.g., reading comprehension). Batería IV COG taps this domain of function via the following tests:
  - **Pareo de letras idénticas** (Letter-Pattern Matching) which is described above under Orthographic Processing.
  - **Cancelación de pares** (Pair Cancellation) is a measure of cognitive processing speed, which also offers information regarding executive processing (inhibition control and interference), attention, and concentration.

The Batería IV COG further allows examiners to assess abilities related to learning when reading and spelling are not required. This affords the examiner the option to review whether performances in those areas are significantly higher than the individual's reading and spelling skills.

Regarding **General Intelligence**, examiners can derive the Habilidad Intelectual General composite (General Intellectual Ability; GIA). This composite is differentially weighted to offer the best overall estimate of global intelligence. The seven tests that comprise this composite span a breadth of cognitive functions including **comprensión-conocimiento** (comprehension-knowledge), **razonamiento fluido** (fluid reasoning), **memoria de trabajo a corto plazo** (short-term working memory), **velocidad de procesamiento cognitivo** (cognitive processing speed), **procesamiento auditivo** (auditory processing), **recuperación a largo plazo** (long-term retrieval), and **percepción visual-espacial** (visual processing).

- **Vocabulario oral** (Oral Vocabulary) is a two-part measure of comprehension-knowledge, which requires the examinee to listen to a word and provide an appropriate word with the same or similar meaning (Sinónimos/Synonyms), or an opposite meaning (Antónimos/Antonyms). It allows for a review of an examinee's knowledge of words and word meanings. Performance on this test further provides examiners with an understanding of their examinee's vocabulary growth.
- **Series numéricas** (Number Series) is a fluid reasoning measure that taps the narrow abilities of quantitative reasoning and inductive reasoning. The examinee is presented with a series of numbers with one number missing in the series. The examinee must determine the missing number that completes the series based on the information provided.
- **Rememoración de cuentos** (Story Recall) is a measure of long-term retrieval that taps meaningful memory. Examinees are asked to recall elements from increasingly complex stories that are presented auditorily.
- **Visualización** (Visualization) is a two-part measure tapping different aspects of visualization, a narrow ability of visual processing.
  - **Relaciones espaciales** (Spatial Relations) requires the examinee to identify two or three pieces that form a target shape.
  - **Rotacion de blóques** (Block Rotation) requires the examinee to review block patterns and determine which two choices match the target pattern.
- The **GIA cognitive composite** also requires administration of the following tests to be derived. These tests are described above:
  - **Atención verbal** (Verbal Attention) which is described in Short-Term Working Memory
  - **Pareo de letras idénticas** (Letter-Pattern Matching) which is described in Cognitive Processing Speed
  - **Procesamiento fonético** (Phonological Processing) which is described in Auditory Processing

The Batería IV also allows examiners to derive a ***Gf-Gc*** Combinado (***Gf-Gc*** composite) when evaluating for dyslexia. Unlike the GIA, which includes lower-level and less complex ability areas, the ***Gf-Gc*** Combinado allows for an isolated account of the most complex abilities in terms of their relationship to general intellectual ability, fluid reasoning, and comprehension-knowledge. When the lower-level abilities are removed, an examiner gains a better estimate of academic potential. Generally, in those with learning disabilities, inhibiting influences (e.g., slow processing speed, poor short-term working memory) may attenuate the overall GIA cognitive composite. The ***Gf-Gc*** Combinado is comprised of the following tests:

- Información general (General Information) is a two-part measure of comprehension-knowledge, tapping the depth of an individual's general information stores and knowledge. One component of this test assesses where objects typically can be found in one's environment. Another component questions what objects are typically used for. As the test progresses, target objects become less frequent in the environment.
- Formación de conceptos (Concept Formation) is a controlled-learning task assessing fluid reasoning. It taps inductive reasoning, categorical reasoning, and mental flexibility. The examinee is presented with complete stimulus sets and must determine the rule that governs each set.
- The ***Gf-Gc*** Combinado also requires the following tests to be derived. Note that these tests are described above in the section outlining the Habilidad Intelectual General:
  - Vocabulario oral (Oral Vocabulary)
  - Series numéricas (Number Series)

For a brief account of cognitive functioning, examiners can also derive a ***Habilidad intelectual*** breve (Brief Intellectual Ability) cognitive composite, which serves as an ideal measure for screening assessments and/or re-evaluations. It is comprised of the first three tests of the Batería IV COG: Vocabulario oral (Oral Vocabulary), Series numéricas (Number Series), and Atención verbal (Verbal Attention).

Administration of the Batería IV COG further allows examiners to assess vocabulary, an area of functioning that may be impacted due to the reading and spelling complications characteristic of dyslexia. Vocabulary is tested via the Vocabulario oral (Oral Vocabulary) test that is needed to derive all three of the Batería IV COG's cognitive composites.

Examiners assessing for dyslexia should also consider administering the tests falling within the ***Aptitudes académicas*** (Scholastic Aptitude) clusters. ***Aptitudes académicas*** clusters are based on four tests that produce the best empirical and research-based cognitive predictor for a given achievement domain. The clusters differ for each academic area to provide examiners with the most optimal predictor of a given skill. In terms of reading, all but the Destrezas basicas en lectura (basic reading skills) scholastic cluster require the following tests: **Vocabulario oral** (Oral Vocabulary), **Procesamiento fonético** (Phonological Processing), **Formación de conceptos** (Concept Formation), and **Pareo de números idénticos** (Number-Pattern Matching). The Destrezas basicas en lectura (Basic Reading Skills) ***Aptitudes académicas*** cluster requires **Vocabulario oral** (Oral Vocabulary), **Atención verbal** (Verbal Attention), **Procesamiento fonético** (Phonological Processing), and **Pareo de números idénticos** (Number Pattern Matching). Examiners can also derive additional Scholastic Aptitude clusters if desired. The full range of Scholastic Aptitude clusters that can be derived can be reviewed in the ***Descriptions of the Batería IV COG Tests and Clusters*** chapter of the Examiner's Manual.

Once an examiner has administered all tests of interest from the Batería IV COG, they can conduct procedures to determine the presence and significance of strengths and weaknesses in an examinee's cognitive abilities. Specifically, ***Intra-Cognitive Variations*** can be conducted to identify specific cognitive strengths and weaknesses in an examinee's profile. These variations require the administration of the core Batería IV COG tests (Tests 1-7). Examiners can review the profile of strengths and weaknesses to better determine if an examinee's performances align with the characteristics of Dyslexia. Reviewing the emergent pattern of strengths and weaknesses also can support an examiner's decision in what additional testing may be required.

Ability/Achievement Comparison procedures can also be conducted if the examiner has administered the core tests of the Batería IV COG, in addition to tests of interest from the WJ IV OL and/or Batería IV ACH batteries. For example, examiners can conduct a ***GIA-to-Achievement Comparison*** to determine the presence and severity of a discrepancy between the GIA and any area of achievement. Note that comparison procedures can also be conducted with the ***Gf-Gc*** Combinado (***Gf-Gc*** Composite). Additionally, examiners can conduct comparisons between ***Aptitudes académicas*** (scholastic aptitude) and achievement clusters.

Full information regarding the possible variations and comparisons that can be conducted is provided in the ***Scores and Interpretation*** *chapter of the Examiner's Manual.*

Pruebas de aprovechamiento (Batería IV ACH)

The Batería IV ACH can be used to assess primary and secondary reading and writing difficulties most associated with dyslexia in Spanish. Primary characteristics include difficulties: reading words in isolation, accurately decoding unfamiliar words, engaging in oral reading, and spelling. Descriptions of the tests within the Bacteria IV ACH battery were culled from the Examiner's Manual .

Basic Reading Skills concern the identification of words that appear frequently in a text (sight words), in addition to the application of phonics (the application of knowledge related to sound-symbol correspondences to pronounce novel words). Note that Spanish is a transparent language, in which many of the words adhere to simple grapheme-phoneme conversion principles (de León Rodriguez et al., 2016[9]). As phonological decoding is easier to master in transparent languages, differences between good readers and disabled readers can be identified based on an individual's ability to decode pseudowords and low-frequency words. This latter ability is tapped by the Análisis de palabras test listed below.

- Identificación de letras y palabras (Letter-Word Identification) assesses an examinee's word identification skills. Performance on this task can provide the examiner with evidence regarding an examinee's challenges in reading words in isolation. Initial items require the examinee to identify individual letters, while latter items demand the examinee to read aloud individual words. The words become less frequent in Spanish text as the examinee progresses through the test.
- Análisis de palabras (Word Attack) assesses an examinee's ability to apply phonic and structural analysis to pronounce unfamiliar words that are either low frequency in Spanish text or pseudowords. Performance on this task can indicate difficulty accurately decoding unfamiliar words.

Reading Fluency involves reading words accurately with little effort while maintaining an appropriate rate and prosody (pattern of stress and intonation in spoken language). Each component of reading fluency (at the word, syntactic, and passage levels) plays a role in higher-order reading skills (e.g., reading comprehension; Klauda & Guthrie, 2008[10]).

- Lectura oral (Oral Reading) is a measure of story reading accuracy and prosody, which requires the examinee to read text aloud that increases in difficulty. The examinee's performance is based on their accuracy and the

[9] de León Rodríguez D, Buetler KA, Eggenberger N, et al. The Impact of Language Opacity and Proficiency on Reading Strategies in Bilinguals: An Eye Movement Study. Front Psychol. 2016;7:649. Published 2016 May 6. doi:10.3389/fpsyg.2016.00649

[10] Klauda, S. L., & Guthrie, J. T. (2008). Relationships of three components of reading fluency to reading comprehension. Journal of Educational psychology, 100(2), 310-321.

fluency of their expression. Item scoring is based on the errors committed throughout the test, and examiners can document errors in the following categories: mispronunciations, omissions, insertions, substitutions, hesitations, repetitions, transpositions, and ignoring punctuation.

- Fluidez en lectura de frases (Sentence Reading Fluency) assesses reading fluency (rate and accuracy) in addition to reading comprehension under timed conditions. Due to the time constraints, this test also tests processing speed. Examinees are required to read simple statements and decide whether each statement is true or false. Upon determining the validity of each statement, the examinee must mark/circle ***Yes*** or ***No***.

Reading Rate, a component of reading fluency, is also measurable via the Batería IV ACH. Challenges faced by readers of transparent languages are most noticeable when reading speed is measured (e.g., Serrano & Defior, 2008[11]; Davies et al., 2007[12]). In other words, the main reading problem is slow, laborious decoding of words, particularly when task demands increase (Serrano & Defior, 2008)[13].

- As noted above Fluidez en lectura de frases (Sentence Reading Fluency) assesses reading rate.

In terms of spelling characteristics, children with dyslexia being taught under transparent languages may require additional time to memorize phoneme-grapheme correspondences. Afonso et al. (2020)[14] found evidence supporting a "delay in orthographic knowledge development" that influences the relative contribution made by lexical and sub-lexical information during spelling tasks. Additional deficits present in dyslexic individuals learning in transparent orthographies can be observed in the initial spelling stages (i.e., initial letter-sound correspondence), spelling pseudowords when compared to real words (i.e., reliance on phone-grapheme conversion), and during tasks involving more complex writing conventions.

[11] Serrano, F., & Defior, S. (2008). Dyslexia speed problems in a transparent orthography. Annals of dyslexia, 58(1), 81-95.

[12] Davies, R., Cuetos, F., & Glez-Seijas, R. M. (2007). Reading development and dyslexia in a transparent orthography: A survey of Spanish children. Annals of dyslexia, 57(2), 179-198.

[13] Serrano, F. & Defior, S. (2008). Dyslexia speed problems in a transparent orthography. Annals of Dyslexia, Vol. 58, pg. 90.

[14] Afonso, O., Suárez-Coalla, P., & Cuetos, F. (2020). Writing impairments in Spanish children with developmental dyslexia. Journal of Learning Disabilities, 53(2), 109-119.

Serrano et al. (2014)[15] further note that the spelling deficit is phonological and may be observed in a "phonological-processing demanding structure" (e.g., consonant clusters and digraphs). Although the spelling of demanding structures typically is mastered by second grade (i.e., 2 years of formal spelling instruction being enough for typical learners), dyslexic individuals have persistent deficits past this point of development. Furthermore, these deficits persist despite the transparent nature of the Spanish language. Serrano et al. (2014) note that due to these challenges "children with dyslexia might remain blocked in spelling development that indirectly affects the development of orthographic word-specific knowledge." Overall, dyslexic Spanish individuals are expected to face fewer challenges when compared to dyslexic peers being taught in opaque languages (e.g., English), but are still expected to demonstrate more challenges when compared to typical peers.

The Batería IV ACH assesses the spelling of real words:

- **Ortografía** (Spelling) initially assesses prewriting skills (e.g., drawing lines, tracing letters), and the ability to form upper- and lowercase letters. As the tasks increases in difficulty, the examinee is then asked to spell more complex words.

Secondary academic challenges can arise because of weaknesses in the primary areas of reading and spelling.

Weaknesses in reading fluency and reading decoding can negatively impact reading comprehension performance. On the Batería IV ACH, the following comprehension tests are offered:

- **Comprensión de textos** (Passage Comprehension) assesses how well an examinee uses syntactic and semantic cues to identify a missing word in a text. Initial items require the examinee to match a representation of a word with a picture of the actual object. The next set of items requires the examinee to read a phrase and point to the picture which depicts the phrase. The remaining items require the examinee to identify a keyword that fits within the context of a given passage.
- **Rememoración de lectura** (Reading Recall) assesses both reading comprehension and meaningful memory, as the examinee is tasked with silently reading a short story and retelling as much of the story they can recall.

[15] Serrano, F., Defior, S., Arfé, B., Dockrell, J., & Berninger, V. (2014). Written spelling in Spanish-speaking children with dyslexia. Writing Development in Children with Hearing Loss, Dyslexia, Or Oral Language Problems: Implications for Assessment and Instruction.

Written Expression demands intact phoneme-grapheme knowledge and spelling skills. Observed written expression deficits may result from the weaknesses in these primary areas. Deficits in phoneme-grapheme knowledge and spelling can impact an examinee's automaticity and clarity when writing longer prose. Written expression is tapped by the following tests:

- **Expresión de lenguaje escrito** (Written Language Expression) assesses the ability to write text in response to a variety of prompts. An examinee's generated text is reviewed based on the quality of their expression. The difficulty of this task increases as a function of passage length, vocabulary level, and complexity of the content. There is no penalization for errors in spelling, punctuation, or other basic writing skills.
- **Fluidez en escritura de frases** (Sentence Writing Fluency) measures an examinee's ability to formulate and write simple sentences quickly and accurately.

The Batería IV ACH further allows for an assessment of abilities to learn independent of reading. On the Batería IV ACH, mathematical achievement falls under this independent category. Within the domain of Math, examiners can review ***Math Calculation Skills*** and ***Math Problem Solving***. Math Calculation Skills tests include:

- **Cálculo** (Calculation) tests an examinee's ability to perform a range of mathematical computations ranging from basic operations to more advanced operations (e.g., geometry, trigonometry, calculus). The calculations also test knowledge of specific concepts (e.g., negative numbers, percentages, fractions, whole numbers).
- **Fluidez en datos matemáticos** (Math Facts Fluency) is a speeded measure requiring the examinee to solve basic addition, subtraction, and multiplication facts.

Math Problem Solving is measured by administering the following tests:

- **Problemas aplicados** (Applied Problems) tasks the examinee with analyzing and solving math problems. The examinee is required to listen to a problem, determine the appropriate procedure to solve the problem, and then execute that procedure. Items on this test can include extraneous information that requires the examinee to determine the appropriate information needed to solve each question.

- **Números matrices (**Number Matrices) taps quantitative knowledge and fluid reasoning. The examinee is shown matrices and must identify the missing number.

Once an examiner has administered all tests of interest from the Batería IV ACH, they can conduct Intra-Achievement Variations procedures to determine the presence and significance of strengths and weaknesses across the domains of reading, writing, and mathematical achievement. These variations require the administration of the core Batería IV tests (Tests 1-6). Variations allow examiners to better determine if an examinee's profile of strengths and weaknesses aligns with the characteristics of dyslexia.

Examiners can also conduct ***Academic Skills/Academic Fluency/Academic Application Variations***, which allow the comparison of an examinee's performance in skills, fluency, and applications across the areas of reading, writing, and math. Note that to review Academic Fluency in a variation, Tests 9-11 must be administered. These variations can be useful in determining a need for accommodations or modifications to instruction. Examiners can also conduct Comparison procedures, which use one score to predict an examinee's performance in another domain.

Full information regarding the possible range of variations and comparisons that can be conducted is provided in the ***Scores and Interpretation*** *chapter of the Examiner's Manual.*

TEST OF PHONOLOGICAL AWARENESS IN SPANISH (TPAS)

The **TPAS** tests phonological awareness, a specific aspect of phonological processing, in Spanish-speaking children aged 4 through 10 years. Phonological awareness can be defined as the awareness of and ability to work with sounds in spoken language. As noted, it is an area of functioning most associated with the reading/spelling characteristics of dyslexia. Phonological awareness is a foundational skill needed for development in the areas of sound blending, decoding, and later word reading. The TPAS can be administered to identify Spanish-speaking children who may benefit from interventions to improve these phonological skills as well as to guide reading instruction. TPAS subtests consist of initial sounds, final sounds, rhyming words, and deletion. Examiners can derive individual subtest scaled scores, in addition to an overall composite score.

- **Initial Sounds** tests the examinee's ability to determine if a second word begins with the same sound as a target word.
- **Final Sounds** assesses the examinee's ability to determine if a second word ends with the same sound as a target word.
- **Rhyming Words** taps the examinee's ability to identify words that rhyme with a target word.
- **Deletion** demands the examinee to leave out a beginning, middle, or ending syllable or phoneme of a target word, before repeating that target.

SPANISH-BILINGUAL VERSION OF THE TEST OF AUDITORY PROCESSING SKILLS, THIRD EDITION (TAPS-3: SBE)

The **TAPS-3: SBE** is a norm-referenced and individually administered measure of auditory skills that are commonly used in daily living and academic contexts, for Spanish speakers aged 5 to 18 years. The TAPS-3: SBE can be administered to provide information regarding key areas often associated with the reading/spelling characteristics of dyslexia, including phonological memory and phonological awareness. This version of the TAPS-3 includes items that are equivalent to its English counterpart, that were developed with the assistance of Spanish-bilingual professionals. Furthermore, the TAPS-3: SBE has specific norms that are not generalizable to its English counterpart.

The TAPS-3: SBE is comprised of nine subtests that are measured in scaled scores: Word Discrimination, Phonological Segmentation, Phonological Blending, Number Memory Forward, Number Memory Revered, Word Memory, Sentence Memory, Auditory Comprehension, and Auditory Reasoning. The TAPS-3: SBE also has an optional Auditory Figure-Ground screener that is presented at the beginning of the test's administration. There are four indices assessed by the TAPS-3: SBE (auditory attention, basic phonological skills, auditory memory, and auditory cohesion) that are reported as standard scores. These indices allow the examiner to review an examinee's functioning across these various auditory processes to guide remediation and intervention. An overall score also can be derived (measured in standard scores), which is based on the totality of all the subtest scaled scores. Additional derived scores (percentile ranks and age equivalents) are also provided.

The grouping of the subtests by index is noted below:

Auditory Attention:

Optional Auditory Figure-Ground screener is presented at the start of the test session.

Basic Phonological Skills:

Subtest 1: Word Discrimination

Subtest 2: Phonological Segmentation

Subtest 3: Phonological Blending

Auditory Memory:

Subtest 4: Number Memory Forward

Subtest 5: Number Memory Reversed

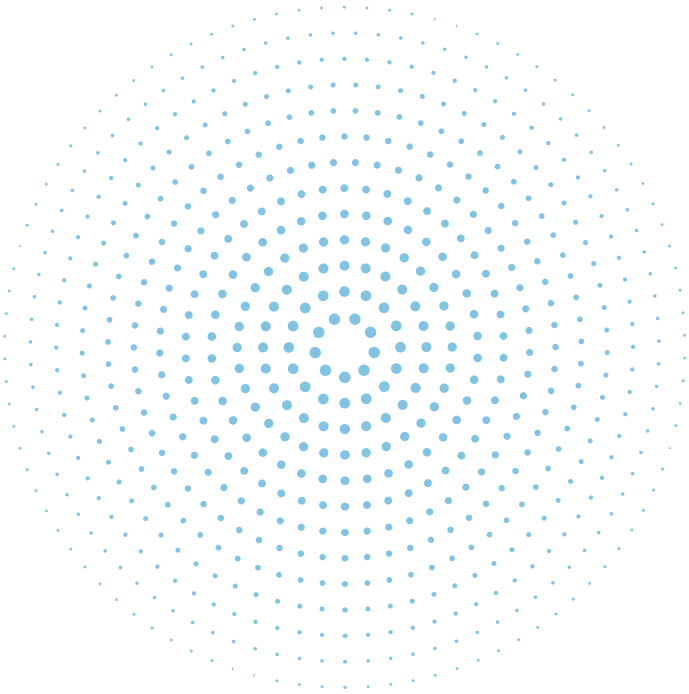
Subtest 6: Word Memory

Subtest 7: Sentence Memory

Auditory Cohesion:

Subtest 8: Auditory Comprehension

Subtest 9: Auditory Reasoning



WMLS III

Designed for use with examinees aged 3 to 22 years, the WMLS-III serves as a quick and reliable assessment in the areas of listening, speaking, reading, and writing to determine language dominance. The WMLS III goes beyond the assessment of one's conversational skills (BICS) by evaluating cognitive academic language proficiency (CALP). CALP is the level of language proficiency that emerges and becomes distinctive with formal schooling (Cummins, 1984)[16] . Academic Language includes the vocabulary, complex syntax, and abstract language not commonly used in everyday conversation. CALP is associated with intermediate-to-advanced fluency in language processing. In terms of cognitive and learning processes, CALP is related to analysis, synthesis, and evaluation, in addition to conceptual development (Brown, 2008)[17]. Assessing CALP is necessary when evaluating Spanish-speaking and bilingual examinees, as it provides examiners with an indication of whether they have the skills needed to perform academic tasks and can be assessed appropriately in another language (e.g., English). The utility of the WMLS III is further highlighted when considering that this determination cannot be made solely based on BICS. The WMLS III also allows for an assessment of discrete language skills, which are acquired through direct instruction in phonemes, literacy, grammar, and the conventions of spelling, punctuation, and capitalization.

As per special education statutes (Individuals with Disabilities Act; IDEA) assessments should be administered in "the child's native language or other mode of communication and in the form most likely to yield accurate information on what the child knows and can do academically, developmentally, and functionally, unless it is clearly not feasible". As such, the language(s) of oral language testing should be driven by the language profile of the student. The WMLS III allows the examiner to review language profiles in English and/or Spanish. Furthermore, as the WMLS III consists of parallel and statistically equated forms, an examiner can gather evidence supporting language dominance. If dominance is unclear after comparing overall language scores, it is suggested that examiners perform a task analysis based on the complexity of the language tasks administered. During this analysis, it is recommended that the examiner compares cross-linguistic performance on tasks tapping more complex skills.

With the WMLS III, examiners can investigate deficits in reading characteristic of dyslexia. Reading achievement is tapped via two tests on the WMLS III, **Letter-Word Identification** and **Passage Comprehension**.

[16] Cummins, J. (1984). Bilingualism and special education: Issues in assessment and pedagogy. Austin, TX: Pro-Ed.

[17] Esparza Brown, J. (June 2008). ELL Students and Dyslexia. Presented at ORBIDA Annual Conference, Corvallis, OR.

- **Letter-Word Identification** taps the ability to read letters and words in isolation, a primary area of deficit in dyslexia. It is one of the two tests needed to derive the Basic Reading and Writing cluster, which is a measure of foundational reading and writing skills. Early items demand the examinee to identify letters of the alphabet. As the task progresses, the examiner is asked to identify isolated words automatically and with fluency. The words become less frequent as the task progresses. Note that this task does not require the examinee to know the meaning of any target word.
- **Passage Comprehension** taps reading comprehension skills, an area of functioning that may be limited because of the primary deficits of dyslexia. It is one of the two tests needed to derive the Applied Reading and Writing cluster, which is a measure of functional reading and writing skills. This test assesses an examinee's ability to read and understand written discourse. Initial items require the examinee to identify community signs as visual clues to reading. The next set of items is presented in multiple-choice format and requires the examinee to point to the picture that is represented by a target word or phrase. As the test continues, visual aids are no longer present, and the passage elements become more challenging by increasing passage length, level of vocabulary, and the complexity of the syntactic and semantic cues.

Administration of these two tests yields a Reading cluster, providing examiners with a measure of foundational and functional aspects of reading achievement.

Examiners can also evaluate an examinee's spelling and written language expression, additional areas of achievement pertinent to a dyslexia evaluation. Writing skills are assessed via **Dictation** and **Written Language Expression**.

- **Dictation** is a foundational measure of written language skills, assessing a range of functions including prewriting skills, letter formation, spelling, punctuation, capitalization, and word usage. It taps the ability to write at the single-word level, which is a pertinent basic skill characteristically deficient in those with dyslexia. Many of the items are administered like an orally dictated spelling test.
- **Written Language Expression** is an applied measure of writing achievement, tapping the ability to communicate through written discourse. Written expression is a domain that may present with lesser development because of the primary deficits of dyslexia. The task presents a variety of demands including completing phrases, writing coherent sentences using visual aids, specifying stimulus words to use to compose a sentence, and writing a contextually appropriate sentence based on provided paragraphs.

Administration of Dictation and Written Language Expression derives the Writing cluster, a measure of foundational and functional written expression skills.

Administration of these four tests yields the ***Broad Reading*** and ***Writing cluster***. This cluster serves as a comprehensive measure of reading and writing ability that includes the ability to read at the single word and passage levels and write at the single word and sentence levels. Examiners can also yield the Basic Reading and Writing cluster (Letter-Word Identification and Dictation) and the Applied Reading and Writing cluster (Passage Comprehension and Written Language Expression). The Reading and Writing cluster provides a measure of foundational reading and writing skills, while the Applied Reading and Writing cluster serves as a composite measure of functional reading and writing skills.

Examiners can further assess domains of functioning independent of the ability to read and spell.

The ***Listening cluster*** of the WMLS III is an aggregate measure of linguistic knowledge and comprehension. It consists of Analogies and Oral Comprehension.

- Analogies tests the ability to listen to and understand the relationship between a pair of words, and then apply that same relationship to provide the missing second word in another word pair. Relationships become increasingly complex as the task progresses. This test is a measure of basic oral language, providing data regarding the foundational listening skills an examinee possesses.
- Oral Comprehension demands the use of listening, reasoning, and vocabulary abilities. The examinee is required to listen to and comprehend an audio-recorded passage, and then provide the missing word that completes the passage. The examinee is not provided visual cues. The task increases in difficulty from short simple sentences to longer passages. This test is considered a measure of applied listening skills.

Oral Expression is a cluster tapping lexical knowledge (vocabulary) and the oral expression of language. This cluster is comprised of Picture Vocabulary and Oral Language Expression.

- Picture Vocabulary tests the fund of lexical knowledge by requiring the examinee to orally identify the names of pictured objects. Note that limited vocabulary growth can be a consequence of the reading and spelling deficits characteristic of dyslexia. As with other vocabulary tasks, this test requires adequate word retrieval skills. Although lower difficulty items demand receptive vocabulary skills, this task is mainly an expressive semantic task. The difficulty of the items increases as the depicted objects are less common in the environment.

- Oral Language Expression is a measure of the ability to orally communicate with connected discourse. Initial items demand the examinee to identify the use of pictured objects. As the task progresses, the examinee is asked to generate coherent sentences using target words, without the aid of visuals.

Administration of these four tests yields the ***Broad Oral Language*** cluster. This cluster serves as a comprehensive measure of oral language development that includes basic and functional listening and speaking skills. Examiners can also yield the Basic English Oral Language (which requires Analogies and Picture Vocabulary) and the Applied ***English Oral Language*** cluster (Oral Comprehension and Oral Language Expression). The Basic English Oral Language cluster provides a measure of foundational listening and speaking skills, while the Applied English Oral Language cluster serves as a composite measure of functional speaking and listening oral language skills.

Additional Features of the WMLS III

TPIS

The WMLS-III can be paired with the Teacher and Parent Intervention System (TPIS) which is a subscription-based enhancement for the WMLS III accessible to examiners through the ***Riverside Score*** system. It offers the following in both English and Spanish outputs:

- Classroom interventions and diagnostic statements based on test results
- Book recommendations based on tested abilities
- EL program recommendations and second-language scaffolding
- Leveled reader recommendations to provide "just right" support with specific references to BOLDPRINT® titles and Rigby® PM Books
- Home-based activities to promote family participation in language instruction

Furthermore, for districts with select Houghton ***Mifflin Harcourt***™ EL materials, the Teacher and Parent Intervention System provides curriculum recommendations that include second language scaffolding.

Digital Test Records

The WMLS III Digital Test Record (DTR) is your key to easy administration, real-time scoring, and immediate reporting. DTRs are available as an alternative purchase to paper test records. The DTR allows for:

- Immediate input of item-level data during administration with automatic score generation
- Guided administration with basal and ceiling rules
- Real-time, in-the-moment score reporting
- The guided administration feature of the DTR ensures the correct establishment of basal and ceiling rules, increases the fidelity of the assessment, and ensures accurate administration across all examiners.

Letter and Sound Assessment

To assess an examinee's letter knowledge of the alphabet, it is recommended that a Letter and Sound Assessment be conducted. A Letter and Sound Assessment is a measure of upper-case letter identification, lower-case letter identification, and letter-sound correspondence of the letters in a target language. In the context of Spanish, this assessment would require a student to name all 27 letters in the Spanish alphabet, in both upper- and lower-case form as well as provide the speech sound for each letter. The purpose of this assessment would be to determine which letters the examinee knows and how they identify them. It is possible to divide the number incorrect by the total numbers to calculate the percentage correct. This percentage can be compared to other sources of data (e.g., curriculum benchmarks, prior letter identification assessment performance, etc.) to determine if performance is atypical compared to established standards. It should be noted, however, that knowing the letter names in Spanish is not necessary for reading. As a result, the names of the letters of the alphabet may not be taught. Examiners should be aware of instructional content when interpreting results.

Selective Measures

Many traditional measures of cognitive functioning are comprised, in part, of verbally mediated and language-loaded tasks. For individuals who have, or are suspected of, language differences or disorders, these cognitive composites may underestimate their reasoning and thinking abilities. **Nonverbal measures of intelligence should be considered when assessing** individuals who are still in the process of acquiring English or whose linguistic profile indicates that neither English-language nor Spanish-language assessment alone will provide an accurate representation of skills. Because nonverbal measures of intelligence are low in language demands, they can be particularly useful when assessing those with limited language ability (e.g., those who are not proficient in English), in addition to those who may be experiencing native language loss, and for whom scores on more comprehensive measures may be an underestimation of true ability. In these cases, a nonverbal intelligence composite may be a more accurate representation of overall intelligence that can be used as a point of comparison for further analysis.

PRIMARY TEST OF NONVERBAL INTELLIGENCE (PTONI)

The **PTONI** is a theoretically and empirically supported measure of nonverbal reasoning skills designed to be used with children three years of age through nine years of age. It is recommended for use when working with early childhood Spanish-speaking populations when the administration of a non-verbal assessment is deemed necessary by the evaluator. An examinee's nonverbal reasoning skills are assessed by a pointing-response format. Mode of administration is simple and low in linguistic demands as there are minimal oral directions, and the child is directed to identify their responses by pointing. Given its low linguistic and motor demands, the PTONI can serve as an effective assessment for children who have language impairments or who have limited verbal ability and for those with motoric deficits. Users working with diverse populations can also utilize the PTONI, as prompts and directives are available in eight alternative languages. Many traditional cognitive composites are derived, in part, from verbally mediated and language-loaded tasks. For individuals who have, or are suspected of, language differences or disorders, these cognitive composites may underestimate their true reasoning and thinking abilities. The PTONI can allow for a more accurate estimation of an individual's functioning in these cases, as it eliminates the traditional language demands placed on an examinee.

TEST OF NONVERBAL INTELLIGENCE FORTH EDITION (TONI-4),

The Test of Nonverbal Intelligence Forth Edition (TONI-4), is a theoretically and empirically supported measure of intelligence, aptitude, abstract reasoning, and problem-solving, designed to be used across the lifespan (ages six through 89). It is recommended for use when assessing individuals seven years of age and above when the administration of a non-verbal assessment is deemed necessary by the evaluator. The TONI-4 is available in two equivalent forms that each contain 60 abstract items. Administration of the TONI-4 yields age-based standard scores, percentile ranks, and stanines for interpretative purposes. Mode of administration is simple and low in linguistic demands as there are minimal oral directions, and the examinee is permitted to respond with gestures (pointing, nodding, or blinking). Given its low linguistic and motor demands, the TONI-4 can serve as an effective assessment for examinees with linguistic, auditory, and motoric deficits. Furthermore, the TONI-4 is not a culturally loaded measure of intelligence, which allows it to serve as an appropriate assessment for examinees with limited experience with mainstream American culture. Users working with linguistically diverse populations can also utilize the TONI-4, as prompts and directives are available in multiple languages.