BATERÍA III™

Batería III Woodcock-Muñoz™

Assessment Service Bulletin Number 1

Overview and Technical Supplement

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The Batería III Woodcock-Muñoz *(Batería III) (Muñoz-Sandoval, Woodcock, McGrew, & Mather, 2005a) is the Spanish version of the* Woodcock-Johnson® III *(WJ III®) (Woodcock, McGrew, & Mather, 2001). All of the Batería III test materials are in Spanish, including the Examiner's Manuals and the Technical Manual. This Overview and Technical Supplement is written in English. It includes an overview of the Batería III tests and clusters. Examiner qualification guidelines are outlined and some unique interpretation features are discussed. Information about the development of the Batería III, including supplementary reliability and validity information based on the Spanish calibration data, is provided.*

Printed in the United States of America.

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■ To cite this document, use:
  Schrank, F. A., McGrew, K. S., Ruef, M. L., Alvarado, C. G., Muñoz-Sandoval, A. F., & Woodcock, R. W. (2005). Overview and technical supplement (*Batería III Woodcock-Muñoz* Assessment Service Bulletin No. 1). Rolling Meadows, IL: Riverside Publishing.

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Overview and Technical Supplement

The *Batería III Woodcock-Muñoz*™ (Batería III) (Muñoz-Sandoval, Woodcock, McGrew, & Mather, 2005a) is the parallel Spanish version of the *Woodcock-Johnson*® *III* (WJ III®) (Woodcock, McGrew, & Mather, 2001). Spanish versions of all of the WJ III tests are available in the Batería III. The Batería III consists of two assessment instruments: the *Batería III Woodcock-Muñoz: Pruebas de habilidades cognitivas* (Batería III COG) (Muñoz-Sandoval, Woodcock, McGrew, & Mather, 2005c) and the *Batería III Woodcock-Muñoz: Pruebas de aprovechamiento* (Batería III APROV) (Muñoz-Sandoval, Woodcock, McGrew, & Mather, 2005b). A diagnostic supplement to the Batería III COG (*Batería III Woodcock-Muñoz: Suplemento diagnóstico para las pruebas de habilidades cognitivas* [Batería III SD] [Muñoz-Sandoval, Woodcock, McGrew, Mather, & Schrank, 2005]) is also available.

Each of the tests in the Batería III has been translated or adapted from the English-language WJ III. In addition, the *WJ III Tests of Cognitive Abilities Examiner's Manual* (Mather & Woodcock, 2001b), the *WJ III Diagnostic Supplement Manual* (Schrank, Mather, McGrew, & Woodcock, 2003), the *WJ III Tests of Achievement Examiner's Manual* (Mather & Woodcock, 2001a), and the *WJ III Technical Manual* (McGrew & Woodcock, 2001) have been translated, with minor adaptations, into Spanish for use with the Batería III.

This bulletin provides a comprehensive overview of the Batería III. It begins with a description of the theoretical foundations of the Batería III and then describes the organization of the tests and clusters in each of the batteries. A brief discussion of qualifications for test administration and interpretation is presented, followed by a description of some unique interpretation features. The development and calibration procedures are described, including information on translation and adaptation. It provides additional technical information not included in the manuals.

CHC Theory

Like the WJ III, the Batería III is based on current theory and research on the structure of human cognitive abilities. The theoretical foundation of the Batería III is the Cattell-Horn-Carroll theory of cognitive abilities (CHC theory). CHC theory is derived from two major sources of research on the structure of human cognitive abilities.

The first major source stems primarily from the psychometric factor-analytic studies of Raymond Cattell and John Horn. Their work is often referred to as *Gf-Gc* theory (Horn, 1988, 1991; Woodcock, 1990, 1994). *Gf* and *Gc* are acronyms for fluid (*Gf*) and crystallized (*Gc*) intellectual abilities. Although the distinction between these two types of intellectual abilities can be traced to Cattell (1941, 1943, 1950), Horn (1965) provided evidence that other distinct, broad cognitive abilities could be identified, including the abilities we now identify as short-term memory (*Gsm*), long-term retrieval (*Glr*), processing speed (*Gs*), and visual-spatial thinking (*Gv*). Later, Horn and Stankov (1982) identified and added auditory processing (*Ga*) to the nomenclature. These seven

broad cognitive abilities were included as factors in the *Batería Woodcock-Muñoz: Pruebas de habilidad cognitiva–Revisada* (Woodcock & Muñoz-Sandoval, 1996b). Horn (1988, 1989) identified quantitative ability (*Gq*) and Woodcock (1998) identified reading-writing ability (*Grw*) as broad factors in the *Gf-Gc* model. Quantitative ability (*Gq)* and reading-writing ability (*Grw)* are primarily measured by the Batería III APROV.

The second major source of research on CHC theory is the factor-analytic research by John Carroll that resulted in his three-stratum theory (Carroll, 1993, 1997, 1998, 2003). His analyses spanned a wide spectrum of independent-source structural research on human cognitive abilities. Carroll retrieved and then reanalyzed the data from 461 of the major post-1925 psychometric data sets. Using exploratory factor analysis, Carroll developed the thesis that human cognitive abilities could be conceptualized hierarchically. He identified 69 specific, or narrow, abilities and called them Stratum I abilities. These narrow abilities are grouped into broad categories of cognitive ability (Stratum II). At the apex of his model (Stratum III), Carroll identified a general factor that he referred to as *g,* or general ability.

Similarities between these independent knowledge sources provide support for the combined CHC theory that is the theoretical basis of the Batería III (McGrew, in press). The narrow abilities Carroll identified at Stratum I are similar to the Well Replicated Common Factor (WERCOF) primary abilities discussed by Horn (1991). The Stratum II abilities identified by Carroll are very similar to the expanded set of *Gf-Gc* abilities identified in the Cattell and Horn model. The design criteria of the Batería III place emphasis on providing the greatest practical breadth in the Stratum II, or broad, factors. The breadth of measurement in each factor is intended to provide greater validity when generalizing the broad CHC factor score to other situations. For most factors, each broad ability cluster is comprised of two qualitatively different narrow, or Stratum I, abilities. For example, in the Batería III COG, the *Glr* cluster includes a measure of associative memory (*Prueba 2: Aprendizaje visual-auditivo*) and a measure of ideational fluency (*Prueba 12: Fluidez de recuperación*); the *Gv* cluster includes a measure of visualization (*Prueba 3: Relaciones espaciales*) and a measure of visual memory (*Prueba 13: Reconocimiento de dibujos*). The Batería III APROV also includes a greater breadth of coverage of the narrow abilities. For example, the Batería III APROV includes new measures of reading speed (*Prueba 2: Fluidez en la lectura*) and numerical facility (*Prueba 6: Fluidez en matemáticas*). The Batería III APROV incorporates new measures of other narrow abilities, including listening ability (*Prueba 3: Rememoración de cuentos* and *Prueba 4: Comprensión de indicaciones*) and phonetic coding (*Prueba 20: Análisis de sonidos* and *Prueba 21: Discernimiento de sonidos*).

Organization of the Batería III

This section includes information on the *Pruebas de habilidades cognitivas* (Tests of Cognitive Abilities) and the *Pruebas de aprovechamiento* (Tests of Achievement).

Pruebas de habilidades cognitivas

The cognitive portion of the Batería III includes 31 tests for measuring (in various combinations) general intellectual ability, broad and narrow cognitive abilities, and aspects of executive functioning. The Batería III COG includes 20 tests. Two easels house the Standard Battery (COG Tests 1–10) and the Extended Battery (COG Tests 11–20). The *Batería III Suplemento diagnóstico* (Batería III SD) (Diagnostic Supplement) includes an additional 11 tests (SD Tests 21–31). Some of the tests are appropriate for individuals as young as 24 months; all of the tests can be used with individuals from 5 to 95 years of age.

The Batería III COG and Batería III SD provide measures of multiple intelligences. Each of the 31 tests measures one or more narrow, or specific, cognitive abilities as informed by the independent research efforts of Horn (1965, 1988, 1989, 1991), Horn and Stankov (1982), Cattell (1941, 1943, 1950), and Carroll (1987, 1990, 1993, 1997, 2003). Each of the tests is also a single measure of a broad cognitive ability, or domain of intellectual functioning. Table 1 identifies the broad and narrow cognitive abilities measured by each Batería III COG and Batería III SD test; it also includes brief test descriptions. The tests are organized into clusters for interpretive purposes. These clusters are outlined in Table 2.

Table 1.

Batería III COG and SD Tests, Broad and Narrow Abilities Measured, and Brief Test Descriptions

Test Name	Broad/Narrow Abilities Measured	Brief Test Description
Prueba 1: Comprensión verbal	Comprehension-Knowledge (*Gc*) *Lexical knowledge* *Language development*	Measures aspects of language development in Spanish, such as knowledge of vocabulary or the ability to reason using lexical (word) knowledge
Prueba 2: Aprendizaje visual-auditivo	Long-Term Retrieval (*Glr*) *Associative memory*	Measures the ability to learn, store, and retrieve a series of rebuses (pictographic representations of words)
Prueba 3: Relaciones espaciales	Visual-Spatial Thinking (*Gv*) *Visualization* *Spatial relations*	Measures the ability to identify the two or three pieces that form a complete target shape
Prueba 4: Integración de sonidos	Auditory Processing (*Ga*) *Phonetic coding*	Measures skill in synthesizing language sounds (phonemes) through the process of listening to a series of syllables or phonemes and then blending the sounds into a word
Prueba 5: Formación de conceptos	Fluid Reasoning (*Gf*) *Induction*	Measures categorical reasoning ability and flexibility in thinking
Prueba 6: Pareo visual	Processing Speed (*Gs*) *Perceptual speed*	Measures speed in making visual symbol discriminations
Prueba 7: Inversión de números	Short-Term Memory (*Gsm*) *Working memory*	Measures the ability to hold a span of numbers in immediate awareness (memory) while performing a mental operation on it (reversing the sequence)
Prueba 8: Palabras incompletas	Auditory Processing (*Ga*) *Phonetic coding*	Measures auditory analysis and closure, aspects of phonemic awareness, and phonetic coding
Prueba 9: Memoria de trabajo auditiva	Short-Term Memory (*Gsm*) *Working memory*	Measures the ability to hold information in immediate awareness, divide the information into two groups, and provide two new ordered sequences
Prueba 10: Memoria diferida – Aprendizaje visual-auditivo	Long-Term Retrieval (*Glr*) *Associative memory*	Measures ease of relearning a previously learned task
Prueba 11: Información general	Comprehension-Knowledge (*Gc*) *Verbal information*	Measures general verbal knowledge
Prueba 12: Fluidez de recuperación	Long-Term Retrieval (*Glr*) *Ideational fluency*	Measures fluency of retrieval from stored knowledge
Prueba 13: Reconocimiento de dibujos	Visual-Spatial Thinking (*Gv*) *Visual memory*	Measures visual memory of objects or pictures
Prueba 14: Atención auditiva	Auditory Processing (*Ga*) *Speech-sound discrimination* *Resistance to auditory stimulus distortion*	Measures the ability to overcome the effects of auditory distortion in discrimination of speech sounds
Prueba 15: Análisis-Síntesis	Fluid Reasoning (*Gf*) *General sequential reasoning*	Measures the ability to reason and draw conclusions from given conditions
Prueba 16: Rapidez en la decisión	Processing Speed (*Gs*) *Semantic processing speed*	Measures the ability to make correct conceptual decisions quickly

Test Name	Broad/Narrow Abilities Measured	Brief Test Description
Prueba 17: Memoria para palabras	Short-Term Memory (*Gsm*) *Memory span*	Measures short-term auditory memory span
Prueba 18: Rapidez en la identificación de dibujos	Processing Speed (*Gs*) *Naming facility*	Measures speed of direct recall of names from acquired knowledge
Prueba 19: Planeamiento	Visual-Spatial Thinking (*Gv*) *Spatial scanning* Fluid Reasoning (*Gf*) *General sequential reasoning*	Measures use of forethought to determine, select, or apply solutions to a series of problems presented as visual puzzles
Prueba 20: Cancelación de pares	Processing Speed (*Gs*) *Attention and concentration*	Measures the ability to control interferences, sustain attention, and stay on task in a vigilant manner by locating and marking a repeated pattern as quickly as possible
Prueba 21: Memoria para nombres	Long-Term Retrieval (*Glr*) *Associative memory*	Measures the ability to learn associations between unfamiliar auditory and visual stimuli
Prueba 22: Integración visual	Visual-Spatial Thinking (*Gv*) *Closure speed*	Measures the ability to identify a picture of an object from a partial drawing or representation
Prueba 23: Configuración de sonidos — Vocalizada	Auditory Processing (*Ga*) *Sound discrimination*	Measures speech sound discrimination (whether pairs of complex voicelike sound patterns—differing in pitch, rhythm, or sound content—are the same or different)
Prueba 24: Series numéricas	Fluid Reasoning (*Gf*) *Quantitative reasoning*	Measures the ability to reason with concepts that depend upon mathematical relationships by completing sequences of numbers
Prueba 25: Números matrices	Fluid Reasoning (*Gf*) *Quantitative reasoning*	Measures quantitative reasoning ability by completing two-dimensional displays of numbers
Prueba 26: Tachar	Processing Speed (*Gs*) *Perceptual speed*	Measures the ability to scan and compare visual information quickly
Prueba 27: Memoria para frases	Short-Term Memory (*Gsm*) *Auditory memory span* *Listening ability*	Measures the ability to remember and repeat single words, phrases, and sentences
Prueba 28: Rotación de bloques	Visual-Spatial Thinking (*Gv*) *Visualization* *Spatial relations*	Measures the ability to view a three-dimensional pattern of blocks and then identify the two sets of blocks that match the pattern, even though their spatial orientation is rotated
Prueba 29: Configuración de sonidos — Musical	Auditory Processing (*Ga*) *Sound discrimination*	Measures the ability to indicate whether pairs of musical patterns are the same or different
Prueba 30: Memoria diferida — Memoria para nombes	Long-Term Retrieval (*Glr*) *Associative memory*	Measures the ability to recall associations that were learned earlier
Prueba 31: Comprensión verbal bilingüe — español/inglés	Comprehension-Knowledge (*Gc*) *Lexical knowledge* *Language development*	Measures aspects of language development in English, such as knowledge of vocabulary or the ability to reason using lexical (word) knowledge

Table 2.

*Batería III COG Clusters and
Brief Cluster Descriptions*

Cluster	Brief Cluster Description
Habilidad intelectual	A measure of psychometric g; selected and different mixes of narrow cognitive abilities comprise the GIA-Standard, GIA-Extended, GIA-Early Development, and GIA-Bilingual scales
Habilidad cognitiva amplia – Verbal reducida	A special purpose, broad measure of cognitive ability that has relatively low overall receptive and expressive verbal requirements
Habilidad intelectual breve	A brief measure of intelligence consisting of three tests measuring acquired knowledge, reasoning, and cognitive efficiency
Habilidad verbal	Higher-order, language-based acquired knowledge and the ability to communicate that knowledge
Habilidad para pensar	A sampling of the different thinking processes (long-term retrieval, visual-spatial thinking, auditory processing, and fluid reasoning)
Eficiencia cognitiva	A sampling of two different automatic cognitive processes—processing speed and short-term memory
Comprensión-conocimiento (Gc)	The breadth and depth of a person's acquired knowledge, the ability to communicate one's knowledge (especially verbally), and the ability to reason using previously learned experiences or procedures
Recuperación a largo plazo (Glr)	The ability to store information and fluently retrieve it later
Percepción visual-espacial (Gv)	The ability to perceive, analyze, synthesize, and think with visual patterns, including the ability to store and recall visual representations
Procesamiento auditivo (Ga)	The ability to analyze, synthesize, and discriminate auditory stimuli, including the ability to process and discriminate speech sounds that may be presented under distorted conditions
Razonamiento fluido (Gf)	The ability to reason, form concepts, and solve problems using unfamiliar information or novel procedures
Rapidez en el procesamiento (Gs)	The ability to perform automatic cognitive tasks, an aspect of cognitive efficiency
Memoria a corto plazo (Gsm)	The ability to apprehend and hold information in immediate awareness and then use it within a few seconds
Percepción fonémica	The ability to attend to the sound structure of language through analyzing and synthesizing speech sounds (phonetic coding)
Memoria de trabajo	The ability to hold information in immediate awareness while performing a mental operation on the information
Razonamiento numérico	The ability to reason with mathematical concepts involving the relationships and properties of numbers
Memoria asociativa	The ability to store and retrieve associations
Visualización	The ability to envision objects or patterns in space by perceiving how they would appear if presented in an altered form
Descriminación de sonidos	The ability to distinguish between pairs of voicelike or musical patterns
Alcance de la memoria auditiva	The ability to listen to a presentation of sequentially ordered information and then recall the sequence immediately
Rapidez perceptual	The ability to rapidly scan and compare visual symbols
Amplia atención	A global measure of the cognitive components of attention
Fluidez cognitiva	A measure of cognitive automaticity, or the speed with which an individual performs simple to complex cognitive tasks
Procesos de ejecución	Measures selected aspects of executive functioning, such as the response inhibition, cognitive flexibility, and planning functions
Memoria diferida	Measures the ability to recall and relearn previously presented information
Conocimientos	Measures general information and curricular knowledge

Pruebas de aprovechamiento

The Batería III APROV includes 22 tests for measuring oral language ability; reading, mathematics, and writing achievement; phonological awareness; and academic knowledge. Two easels house the Standard Battery (APROV Tests 1–12) and the Extended Battery (APROV Tests 13–22). As with the Batería III COG, some of the tests can be used with individuals as young as 24 months; all of the tests can be used with individuals from 5 to 95 years of age.

The broad and narrow abilities measured by each of the Batería III APROV tests also can be interpreted via CHC theory. Table 3 identifies the broad and narrow CHC abilities measured by each Batería III APROV test; brief test descriptions are included. The interpretive clusters of the Batería III APROV are outlined in Table 4.

Table 3.

Batería III APROV Tests, Broad and Narrow Abilities Measured, and Brief Test Descriptions

Test Name	Broad/Narrow Abilities Measured	Brief Test Description
Prueba 1: Identificación de letras y palabras	Reading-Writing (*Grw*) *Reading decoding*	Measures the ability to identify letters and words
Prueba 2: Fluidez en la lectura	Reading-Writing (*Grw*) *Reading speed*	Measures the ability to read simple sentences quickly
Prueba 3: Rememoración de cuentos	Comprehension-Knowledge (*Gc*) *Language development* *Listening ability*	Measures aspects of oral language ability, including language development and meaningful memory
Prueba 4: Comprensión de indicaciones	Comprehension-Knowledge (*Gc*) *Listening ability* *Language development*	Measures the ability to listen to a sequence of instructions and then follow the directions
Prueba 5: Cálculo	Mathematics (*Gq*) *Math achievement*	Measures the ability to perform mathematical computations
Prueba 6: Fluidez en matemáticas	Mathematics (*Gq*) *Math achievement* *Numerical facility*	Measures the ability to solve simple addition, subtraction, and multiplication facts quickly
Prueba 7: Ortografía	Reading-Writing (*Grw*) *Spelling ability*	Measures the ability to write orally presented words correctly
Prueba 8: Fluidez en la escritura	Reading-Writing (*Grw*) *Writing speed*	Measures skill in formulating and writing simple sentences quickly
Prueba 9: Comprensión de textos	Reading-Writing (*Grw*) *Reading comprehension* *Verbal (printed) language comprehension*	Measures the ability to understand what is being read during the process of reading
Prueba 10: Problemas aplicados	Mathematics (*Gq*) *Quantitative reasoning* *Math achievement* *Math knowledge*	Measures the ability to analyze and solve math problems
Prueba 11: Muestras de redacción	Reading-Writing (*Grw*) *Writing ability*	Measures skill in writing responses to a variety of demands
Prueba 12: Memoria diferida – Rememoración de cuentos	Long-Term Retrieval (*Glr*) *Meaningful memory*	Measures aspects of language development and meaningful memory using previously presented stories
Prueba 13: Análisis de palabras	Reading-Writing (*Grw*) Auditory Processing (*Ga*) *Reading decoding* *Phonetic coding*	Measures skill in applying phonic and structural analysis

Test Name	Broad/Narrow Abilities Measured	Brief Test Description
Prueba 14: Vocabulario sobre dibujos	Comprehension-Knowledge (*Gc*) *Language development* *Lexical knowledge*	Measures oral language development and word knowledge
Prueba 15: Comprensión oral	Comprehension-Knowledge (*Gc*) *Listening ability*	Measures listening, reasoning, and vocabulary abilities
Prueba 16: Corrección de textos	Reading-Writing (*Grw*) *Language development* *Spanish usage*	Measures skill in identifying and correcting errors in written passages, such as incorrect punctuation or capitalization, inappropriate word usage, or misspellings
Prueba 17: Vocabulario de lectura	Reading-Writing (*Grw*) *Verbal (printed) language comprehension* *Lexical knowledge*	Measures skill in reading words and supplying appropriate meanings
Prueba 18: Conceptos cuantitativos	Mathematics (*Gq*) *Math knowledge* *Quantitative reasoning*	Measures knowledge of mathematical concepts, symbols, and vocabulary
Prueba 19: Conocimientos académicos	Comprehension-Knowledge (*Gc*) *General information* *Science information* *Cultural information* *Geography achievement*	Measures knowledge in the sciences, history, geography, government, economics, art, music, and literature
Prueba 20: Análisis de sonidos	Auditory Processing (*Ga*) *Spelling ability* *Phonetic coding*	Measures spelling ability, particularly phonological and orthographical coding skills
Prueba 21: Discernimiento de sonidos	Auditory Processing (*Ga*) *Phonetic coding*	Measures awareness of phonology
Prueba 22: Puntuación y mayúsculas	Reading-Writing (*Grw*) *Spanish usage*	Measures the ability to punctuate and capitalize correctly

Qualifications for Administration and Interpretation

Administration and scoring of the Batería III requires proficiency in Spanish, knowledge of each test's exact administration and scoring procedures, and an understanding of the importance of adhering to the procedures that have been standardized for examiner use. Examiners who are not proficient in Spanish should not attempt to administer the Batería III. Interpretation of Batería III results requires a higher level of knowledge and experience than is required for test administration.

Examiners will need to learn the exact procedures for administering each test, including establishing a basal and a ceiling, scoring the items, and calculating raw scores. The Examiner's Manual for each battery provides guidelines for administration and scoring. The Test Books contain instructions for administering and scoring items on each test. These instructions are found on the introductory page of each test (the first printed page after the tab page). Additional instructions appear on the examiner's side of the test pages, including any special instructions. Examiners also will need to learn how to use the audio recording and the Subject Response Booklet. The audio recording is used to ensure standardized presentation of certain auditory, short-term memory, and

Table 4.

Batería III APROV Clusters and
Brief Cluster Descriptions

Cluster	Brief Cluster Description
Amplia lectura	A broad composite of reading decoding, reading speed, and the ability to comprehend connected discourse while reading
Destrezas básicas en lectura	Measures sight vocabulary, phonics, and structural analysis skills
Comprensión de lectura	A composite of reading vocabulary and ability to comprehend connected discourse while reading
Lenguaje oral-Estándar	Measures linguistic competency, listening ability, and oral comprehension
Lenguaje oral-Extendida	Measures expressive vocabulary, reasoning, listening comprehension, and memory
Comprensión auditiva	Measures listening ability and verbal comprehension
Expresión oral	Measures linguistic competency in spoken Spanish language
Amplias matemáticas	A broad composite of mathematics reasoning and problem solving, number facility, and automaticity
Destrezas en cálculos matemáticos	Measures computational skills and automaticity with basic math facts
Razonamiento en matemáticas	Measures math knowledge and reasoning
Amplio lenguaje escrito	Production of written text, including spelling ability, writing fluency, and quality of written expression
Destrezas básicas en escritura	Measures spelling skills and knowledge of Spanish language usage
Expresión escrita	Measures fluency of production and quality of expression in writing
Conocimientos académicos	Provides a broad sample of scientific, social studies, and cultural knowledge
Conocimiento de fonemas y grafemas	Measures proficiency with both phonic (sound) generalizations, as well as common orthographic patterns (frequently occuring letter clusters) in both decoding (reading) and encoding (spelling)
Destrezas académicas	Provides an overall score of basic achievement skills in reading decoding, math calculation, and spelling
Fluidez académica	Provides an overall index of reading, math, and writing fluency
Aplicaciones académicas	Measures the application of academic skills to problems in reading, math, and writing
Aprovechamiento total	Measures overall performance across reading, math, and written language domains

oral language tasks. Directions for using the Subject Response Booklet are provided in the Test Book. Additional training materials are available from the publisher.

Competent interpretation of the Batería III requires graduate-level training in cognitive ability, language, and academic achievement assessment; knowledge of Spanish-language development (and, if appropriate to the subject, knowledge of the impact of second-language acquisition), and a background in diagnostic decision-making. Only trained and knowledgeable professionals who are sensitive to the conditions that may compromise, or even invalidate, standardized test results should make interpretations and decisions. The level of formal education recommended to interpret the Batería III is typically documented by successful completion of an applicable graduate-level program of study that includes, or is supplemented with, training in Spanish-language assessment.

Unique Interpretation Features

Raw scores obtained from administration of the Batería III are transformed into derived scores by using the *Batería III Compuscore® and Profiles Program* (Schrank & Woodcock, 2005), a computer software program that is included with each Batería III test kit. The raw score to ability level (*W* score) relationships in this program are based on the Batería III calibration sample. The subsequent derived score equations are the same as

those used for the WJ III. This is possible because the tasks underlying each test in the Batería III are scaled, or equated, to their empirical difficulty in the WJ III.

Because the Batería III is equated to the WJ III, an individual's Batería III scores can be directly compared to his or her WJ III scores, if both instruments were administered. This is especially useful for the tests and clusters with high language requirements. For example, if a subject's grade equivalent score on Picture Vocabulary/*Vocabulario sobre dibujos* is 1.5 when administered in English on the WJ III and 6.5 when administered in Spanish on the Batería III, the subject would be expected to perform at the language level of a typical first grader in the United States when tasks are presented in English and at the language level of a typical sixth grader in the United States when similar tasks are presented in Spanish. As a further example, if a 19-year-old subject received a Lenguaje oral-Extendida percentile rank of 87 on the Batería III APROV, his or her oral language proficiency in Spanish is equivalent to the oral language proficiency in English of 19-year-olds in the United States who fall at the 87th percentile.

Each Batería III examiner's manual provides basic interpretive information. However, additional interpretive procedures incorporated in the Batería III, such as the Language Exposure and Use Questionnaire and the Comparative Language Index (CLI), are not described in the examiners manuals.

Language Exposure and Use Questionnaire

The Language Exposure and Use Questionnaire includes a number of questions about the subject's language exposure and language use history. It consists of a series of questions about the primary language and other languages spoken by the referred individual and the approximate percentage of time that he or she speaks the languages in different settings. The Language Exposure and Use Questionnaire is located on the front page of each test record. Figure 1 is a translation of this questionnaire into English.

Figure 1.
The Language Exposure and Use Questionnaire (English translation).

Comparative Language Index

The Comparative Language Index (CLI) is a combination of information from the WJ III and Batería III oral language, broad reading, and broad written language clusters. This index is a comparison of each cluster's Relative Proficiency Index (RPI) score. The CLI utilizes the numerators from the Batería III and WJ III RPIs. For consistency, the numerator of the Batería III (Spanish) RPI always becomes the CLI numerator, and the numerator of the WJ III (English) RPI always becomes the CLI denominator. The notation "S/E" (Spanish/English) can be included with the CLI as a mnemonic (e.g., S/E 66/15).

Figure 2 illustrates the procedure for determining the S/E CLI. Juan, a beginning second-grader whose family had recently immigrated to the United States, was administered the oral language tests from the Batería III and WJ III. His RPI for the WJ III (English) Oral Language–Extended cluster was 15/90, signifying that if Juan is given oral language tasks performed with 90% proficiency by average beginning second-graders in the United States, he is predicted to perform those tasks with 15% proficiency in English. His RPI for the Batería III (Spanish) Lenguaje oral-Extendida cluster was 66/90, signifying that Juan is predicted to perform parallel oral language tasks with 66% proficiency when those tasks are presented in Spanish. This results in a CLI of S/E 66/15. Juan's CLI indicates that he performs with 66% proficiency those tasks in Spanish that he performs with only 15% proficiency in English. His S/E CLI, therefore, communicates two kinds of information:

1. Comparative information revealing which of the two languages is stronger. (Spanish is Juan's stronger language for oral instruction.)

2. Information regarding proficiency in each language compared to other subjects at the same age or grade level. (Juan's oral language abilities in Spanish are limited compared to the oral language abilities of average second-graders in the United States. His oral language abilities in English are very limited compared to average second-graders.)

Some users may wish to modify the expression of the CLI by using CALP level values (1 to 6) or by using the CALP level abbreviations "N" (Negligible), "VL" (Very Limited), "L" (Limited), "F" (Fluent), "A" (Advanced), or "VA" (Very Advanced). Table 5 illustrates the three alternative methods for reporting a comparative language index.

Development and Calibration

This section describes the procedures followed to translate or adapt the WJ III for use with primarily monolingual Spanish-speaking individuals, gather the calibration data, and develop the equated U.S. norms for the Batería III. It begins with a brief description of the history of the Batería.
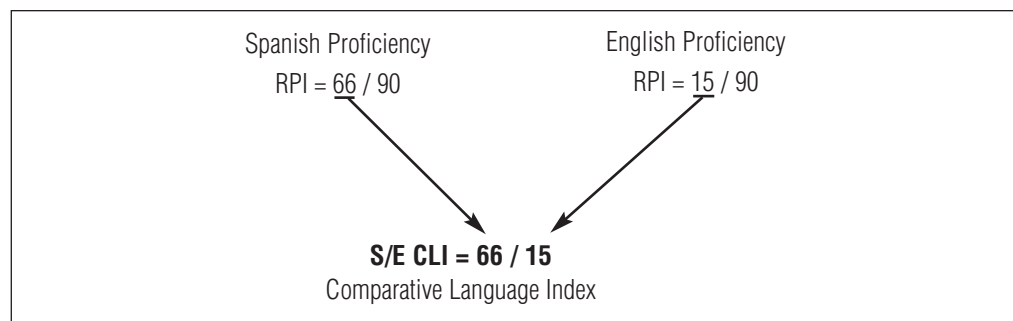

Figure 2.
Determining the S/E CLI (Spanish/English Comparative Language Index) for Juan, a second-grade boy.

Table 5.

Three Alternative Methods for Reporting a Comparative Language Index

RPI		Example CLIs by Source		
Spanish	**English**	**RPI**	**CALP Level**	**CALP Abbreviation**[a]
90/90	90/90	90/90	4/4	F/F
66/90	15/90	66/15	3/2	L/VL
25/90	97/90	25/97	2–3/4–5 or 2.5/4.5	VL–L/F–A

[a] N = Negligible, VL = Very Limited, L = Limited, F = Fluent, A = Advanced

History

The Batería III represents the third generation of Spanish tests originally published as the *Batería Woodcock psico-educativa en español* (Batería) (Woodcock, 1982) and subsequently revised as the *Batería Woodcock-Muñoz: Pruebas de habilidad cognitiva–Revisada* (Batería-R COG) (Woodcock & Muñoz-Sandoval, 1996b) and the *Batería Woodcock-Muñoz: Pruebas de aprovechamiento–Revisada* (Batería-R APROV) (Woodcock & Muñoz-Sandoval, 1996a). Some of the tests included in the Batería III were translated or adapted during the development of the earlier editions.

A major portion of the original Batería item banks was developed following a carefully designed plan described by Woodcock and Muñoz-Sandoval (1993). From the original Batería to the Batería III, special attention always was focused on designing items and test instructions that would be deemed appropriate across the Spanish-speaking world. Over the course of the three editions, numerous professionals from several regions of the Spanish-speaking world were involved in developing or reviewing the item banks and test instructions.

For the first edition (the original Batería), a board of consulting editors was established to review and advise on all aspects of the project, including the item content and Spanish-language usage. During the norming, approximately 30 examiners from five Spanish-speaking countries were trained to gather data. Each of the examiners was responsible for critically reviewing the text for the test and answer keys for possible Spanish language problems based on their regional perspective. Finally, the item data were Rasch-calibrated (Wright & Stone, 1979) separately for each of the five regions. Then the item difficulties for each region were plotted against the item difficulties obtained for the total sample. If the regional sample difficulty differed significantly from the total sample difficulty for an item, this was interpreted as evidence of a regional item bias and the item was dropped from the pool.

The first revision of the Batería (Batería-R) required extensive additional test and item development and evaluation. Assuming many of these responsibilities, Dr. Ana Muñoz-Sandoval became an author of the Batería-R. She enlisted the counsel of Dr. Francisco Ocampo and Alicia Ocampo, Spanish linguists at the University of Minnesota, and Alicia Marshall, a Spanish translation/editorial consultant in Chicago, to help identify and resolve many technical translation issues. Some of the development procedures followed were similar to those described for the initial effort, but the Batería-R introduced the equated U.S. norms procedure. Two new interpretation features were included, as well. The first was a rating of the subject's oral language proficiency level based on predicted performance in instructional situations requiring cognitive-academic language proficiency (CALP) (Cummins, 1984; Woodcock & Muñoz-Sandoval, 1993). The advice of Dr. Jim Cummins of the Ontario Institute for Studies in Education was very helpful in the development of this interpretive system. The second new interpretive feature was the Comparative Language Index (CLI) that allows direct comparison of Spanish and English language proficiencies in a single index (Woodcock & Muñoz-Sandoval, 1993).

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The Batería III COG includes twelve new tests and the Batería III APROV includes seven new tests that broaden the range of abilities that can be assessed in Spanish. The translation/adaptation process is described in the next section.

Translation/Adaptation Process

All of the Batería III tests are either translations or adaptations of the parallel tests in the WJ III. Tests were translated directly (and not adapted) when all WJ III items remained exactly the same and only the directions were accurately worded in Spanish. Batería III COG *Prueba 3: Relaciones espaciales* is an example of a translated test. In this test, the stimulus material is exactly the same on the WJ III and the Batería III; the directions are precisely parallel but are in different languages. In contrast, some tests could not be translated directly and needed to be adapted for use with Spanish-speaking individuals. Tests were adapted when the essential measurement concept was the same but the items were changed in some way. For example, in Batería III COG *Prueba 14: Atención auditiva,* every Batería III item and stimulus picture is different from the WJ III, but the test measures the same broad and narrow abilities using the same procedure. Table 6 is a list of the Batería III tests that were translated and those that were adapted. In general, most of the comprehension-knowledge, auditory, long-term retrieval, short-term

Table 6.

Translated and Adapted Tests of the Batería III

Test Name	Adapted	Translated
Habilidades cognitivas		
Prueba 1: Comprensión verbal	■	
Prueba 2: Aprendizaje visual-auditivo[a]	■	
Prueba 3: Relaciones espaciales		■
Prueba 4: Integración de sonidos	■	
Prueba 5: Formación de conceptos		■
Prueba 6: Pareo visual		■
Prueba 7: Inversión de números		■
Prueba 8: Palabras incompletes	■	
Prueba 9: Memoria de trabajo auditiva		■
Prueba 10: Memoria diferida – Aprendizaje visual-auditivo	■	
Prueba 11: Información general	■	
Prueba 12: Fluidez de recuperación		■
Prueba 13: Reconocimiento de dibujos		■
Prueba 14: Atención auditiva	■	
Prueba 15: Análisis-Síntesis		■
Prueba 16: Rapidez en la decisión		■
Prueba 17: Memoria para palabras	■	
Prueba 18: Rapidez en la identificación de dibujos		■
Prueba 19: Planeamiento		■
Prueba 20: Cancelación de pares		■
Prueba 21: Memoria para nombres[b]	■	
Prueba 22: Integración visual		■
Prueba 23: Configuración de sonidos – Vocalizada		■
Prueba 24: Series numéricas		■
Prueba 25: Números matrices		■

Table 6. (cont.)

*Translated and Adapted Tests
of the Batería III*

Test Name	Adapted	Translated
Prueba 26: Tachar		■
Prueba 27: Memoria para frases	■	
Prueba 28: Rotación de bloques		■
Prueba 29: Configuración de sonidos – Musical		■
Prueba 30: Memoria diferida – Memoria para nombres	■	
Prueba 31: Comprensión verbal bilingüe – español/inglés		■
Aprovechamiento		
Prueba 1: Identificación de letras y palabras	■	
Prueba 2: Fluidez en la lectura	■	
Prueba 3: Rememoración de cuentos	■	
Prueba 4: Comprensión de indicaciones[c]		■
Prueba 5: Cálculo		■
Prueba 6: Fluidez en matemáticas		■
Prueba 7: Ortografía	■	
Prueba 8: Fluidez en la escritura	■	
Prueba 9: Comprensión de textos	■	
Prueba 10: Problemas aplicados[d]	■	
Prueba 11: Muestras de redacción	■	
Prueba 12: Memoria diferida – Rememoración de cuentos	■	
Escritura a mano		■
Prueba 13: Análisis de palabras	■	
Prueba 14: Vocabulario sobre dibujos	■	
Prueba 15: Comprensión oral	■	
Prueba 16: Corrección de textos	■	
Prueba 17: Vocabulario de lectura	■	
Prueba 18A: Conceptos cuantitativos – Conceptos	■	
Prueba 18B: Conceptos cuantitativos – Series numéricas		■
Prueba 19: Conocimientos académicos	■	
Prueba 20: Análisis de sonidos	■	
Prueba 21: Discernimiento de sonidos	■	
Prueba 22: Puntuación y mayúsculas	■	

[a] Verbs and word order are adapted.

[b] Names are adapted, not translated.

[c] Primarily translated, although item order is changed.

[d] Although some items are direct translations, some are completely new, and item order is changed.

memory, oral language, reading, and writing tests required adaptation. Most of the visual-spatial thinking, quantitative ability, fluid reasoning, and processing speed tests were translated directly.

All Batería III test translation and adaptation were performed by, or under the direction and supervision of, Dr. Ana Muñoz-Sandoval. She worked closely with two professional translators: Rina Bessudo and Luz Maria Rydalch. Alicia Marshall served as a consulting translator. Each of these individuals is a professionally certificated Spanish translator and a native speaker of Spanish. Batería III standardization examiners whose native countries are Mexico, Puerto Rico, Spain, Argentina, Panama, Costa Rica, and Colombia provided

additional valuable information on the suitability of item content, test translation, and adaptation. These examiners gathered Batería III calibration data in several Spanish-speaking countries and in the United States.

Calibration Sample

The sample chosen to calibrate the Spanish-language items was drawn from both inside and outside the United States. Calibration data were obtained from 1,413 native Spanish-speaking subjects representing several regions of the Spanish-speaking world. Table 7 provides details of the Batería III calibration sample by country of residence.

Table 7.

Spanish Calibration Sample: Country of Residence

n	Country
417	Mexico
279	United States
248	Costa Rica
153	Panama
111	Argentina
101	Colombia
94	Puerto Rico
10	Spain
1,413 Total Sample	

The 279 subjects tested in the United States were drawn from nine states: Arizona ($n = 15$), California ($n = 27$), Colorado ($n = 27$), Florida ($n = 7$), Georgia ($n = 7$), New Mexico ($n = 41$), New York ($n = 28$), Oregon ($n = 35$), and Texas ($n = 92$). Many of these subjects were born outside of the United States. Table 8 indicates the country of birth for individuals in the U.S. calibration sample.

Table 8.

U.S. Spanish Calibration Sample: Country of Birth

n	Country of Birth
118	Mexico
89	United States
25	Cuba
14	Colombia
8 or less each	Argentina, Chile, Costa Rica, Dominican Republic, Ecuador, Guatemala, Honduras, Peru, Puerto Rico, Uruguay, Venezuela
1	Not reported
279 Total U.S. Sample	

Strict selection criteria were employed to verify that the Spanish-language development of individual subjects had been maintained and was not arrested due to the introduction of a second language. The subject selection criteria for the U.S. sample consisted of school district and/or parent information. The criteria required that the subjects' native and primary language be Spanish. Additionally, subjects in the United States were administered an oral language test in English and its counterpart in Spanish to verify Spanish dominance. Only subjects whose Spanish-language ability was clearly dominant were recruited for participation. The subject selection criteria for subjects living in a Spanish-speaking country consisted of an informant's opinion of the subject's native language and primary language use.

Equated U.S. Norms

Batería III calibration data are equated to the WJ III norms. This means that tasks underlying each Batería III test are scaled according to their empirical difficulty on the parallel WJ III test. Rasch-model technology facilitated equating Batería III data to the WJ III. As suggested in the *Standards for Educational and Psychological Testing* (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 1999), Standards 4.13 and 4.14, the equating procedures should be documented (see Table 9). A discussion of these steps follows.

Table 9.

Comparability and Equating Standards from the Standards for Educational and Psychological Testing

Standard	Criterion
Standard 4.13	In equating studies that employ an anchor test design, the characteristics of the anchor test and its similarity to the forms being equated should be presented, including both content specifications and empirically determined relationships among test scores. If anchor items are used, as in some IRT-based and classical equating studies, the representativeness and psychometric characteristics of anchor items should be presented.
Standard 4.14	When score conversions or comparison procedures are used to relate scores on tests or test forms that are not closely parallel, the construction, intended interpretation, and limitations of those conversions or comparisons should be clearly described.

Preliminary WJ III Steps:

1. The banks of items for each of the WJ III tests (in English) were developed and Rasch-calibrated as part of the development of the WJ III.

2. Data were gathered to norm the scales underlying the banks of WJ III items.

3. Items were selected for the final version of the WJ III tests, and Rasch scoring tables for each test were computed. These tables provided raw score-to-*W* score transformations.

Additional Steps for the Batería III:

4. For tests that were not direct translations of the WJ III tests, potential equating items were selected from the WJ III item banks and translated into Spanish. A subset of "easy" to "difficult" equating items was identified for this purpose. The equating items were spaced across the full range of WJ III item calibrations. To be

included as an equating item, each WJ III item was required to have a reasonably direct counterpart in Spanish (e.g., authority/autoridad; circle is to square as oval is to _____/círculo es a cuadrado como óvalo es a _____). The calibration difficulty of each of the items in Spanish was unknown at this step.

5. The item banks for each of the nontranslated Batería III tests were assembled, including the designated equating items translated from the WJ III.

6. Calibration data then were collected on 1,413 new subjects. (Calibration subjects included native Spanish speakers from outside the United States and monolingual, or near-monolingual, Spanish speakers from within the United States.) The banks of Batería III items were Rasch-calibrated. The first six steps of the calibration-equating process are portrayed in Figure 3.

7. For each test, the coordinates of the WJ III and Batería III calibrated difficulties for the subset of equating items were plotted. Extreme outliers, identified by a linear regression procedure, were excluded from the set of equating items.

8. Next, means (M) and standard deviations (SD) were computed for the subsets of equating item difficulties from the Batería III and WJ III item bank calibrations.

9. Batería III item difficulties were then adjusted to the scale of WJ III item difficulties using the following unit transformation equation:

$$D_{e'} = \frac{SD_e}{SD_s} (D_s - M_s) + M_e \tag{1}$$

Here, $D_{e'}$ is the item difficulty of any Batería III item transformed onto the English WJ III item difficulty scale, SD_e is the standard deviation of the WJ III equating item difficulties, SD_s is the standard deviation of the Batería III equating item difficulties, D_s is the difficulty of the Batería III item to be transformed, M_s is the mean of the Batería III equating item difficulties, and M_e is the mean of the WJ III equating item difficulties.

10. Items were selected to be included in the final version of the Batería III, and the Rasch scoring table for each test was computed using the transformed item difficulties.
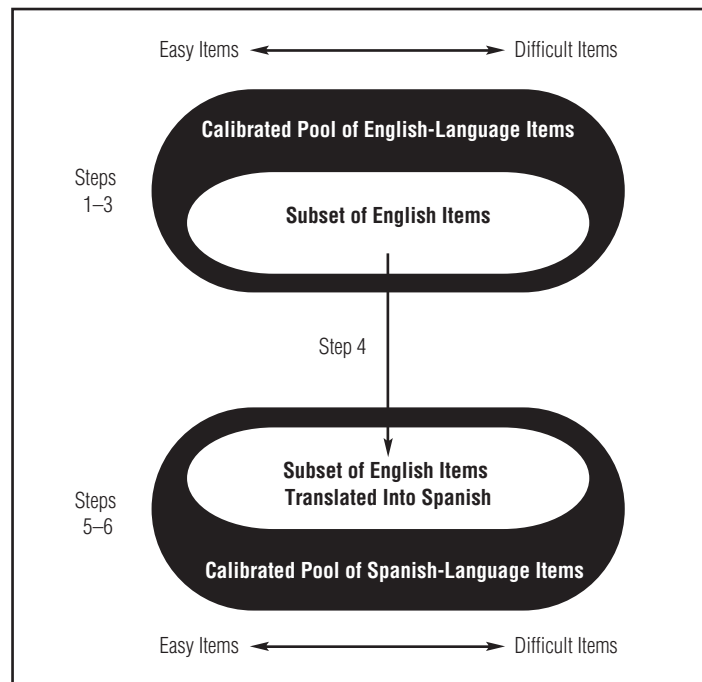

Figure 3.
Steps 1 through 6 of the calibration-equating process.

Briefly stated, the WJ III item banks were developed, Rasch-calibrated, and normed first. After the publication of the WJ III, similar banks of Spanish items were developed and Rasch-calibrated. The difficulty scale underlying each Batería III item bank was rescaled, through an intermediate subset of parallel (translated) equating items, to the difficulty scale underlying the WJ III.

Technical Characteristics of the Batería III

The *Manual técnico* (McGrew & Woodcock, 2005), included on the *Batería III Compuscore and Profiles Program* CD-ROM, contains the basic reliability and validity information underlying the development and standardization of the WJ III, the parallel English battery to the Batería III. Because the Batería III calibration data is equated to the WJ III norms, the underlying psychometric characteristics of the WJ III apply to the Batería III. This section includes supplemental technical information based on the Batería III calibration sample.

Reliability

The reliability coefficient can be considered an index of the precision with which relative standing or position in a group is indicated, rather than the precision of underlying scores. The standard error of measurement (*SEM*) indicates the accuracy with which the underlying true score can be located on a scale. Tables 10 through 13 report reliability statistics at selected age levels based on the Spanish calibration data. The test standard errors of measurement of the *W* scores [$SEM_{(W)}$] reported in Tables 10 and 12 are calculated from data obtained from the calibration sample. The cluster standard errors of measurement reported in Tables 11 and 13 are computed as the geometric average of the component test standard errors (*SE*). The internal consistency reliability coefficients (r_{11}) are estimated by a traditional equation:

$$r_{11} = 1 - \left(\frac{SEM^2_W}{SD^2_W} \right) \qquad (2)$$

where SD_W is the standard deviation of a test on the equated U.S. norms scale. The standard error of measurement of the standard scores (SEM_{SS}) is calculated by:

$$SEM_{SS} = \left(\frac{SEM_W}{SD_W} \right) \times 15 \qquad (3)$$

where the standard score scale is set to have a standard deviation of 15.

The reliability coefficients and standard errors of measurement from the Batería III calibration sample approximate those obtained from the WJ III norming sample that are reported in the *Manual técnico.*

Validity

Test validity refers to the degree to which empirical evidence and theory support the use and interpretation of the test. This section presents a confirmatory factor analysis (CFA) of the Batería III standardization data. The primary indicator of internal structure validity for educational and psychological tests is the extent to which the relationship among test and test component scores conform to the relationship implied by a theory or theoretical construct (AERA, APA, & NCME, 1999). Internal structure validity is evidenced when tests measuring similar abilities correlate higher with each other than with tests measuring different abilities. Factor analysis typically is used to evaluate the internal structure of a test battery. Confirmatory factor analyses were conducted to determine if the patterns of correlations among the Batería III tests supported the organizational structure based on CHC theory.

Table 10.

*Batería III COG Test Standard
Errors of Measurement and
Reliability Coefficients Based
on Spanish Calibration Data*

Prueba	Statistic	Age 2	4	6	9	13	Adults	Median
Prueba 1: Comprensión verbal	n	38	56	50	63	41	302	
	M	427.68	452.38	470.96	492.81	516.89	542.06	
	SD	7.17	15.04	14.45	12.23	12.97	15.02	
	r_{11}	.93	.86	.92	.91	.94	.96	.93
	$SEM(W)$	1.90	5.63	4.09	3.67	3.18	3.00	
	$SEM(SS)$	3.97	5.61	4.24	4.50	3.67	3.00	
Prueba 2: Aprendizaje visual-auditivo	n	–	65	50	62	41	301	
	M	–	471.95	480.26	494.33	499.34	503.93	
	SD	–	13.86	9.68	6.46	12.43	9.11	
	r_{11}	–	.94	.92	.82	.83	.82	.83
	$SEM(W)$	–	3.51	2.81	2.73	5.12	3.87	
	$SEM(SS)$	–	3.79	4.35	6.33	6.18	6.36	
Prueba 4: Integración de sonidos	n	–	58	50	63	41	301	
	M	–	467.64	485.72	498.38	507.07	518.16	
	SD	–	17.72	14.94	12.10	16.95	15.45	
	r_{11}	–	.92	.90	.85	.89	.95	.90
	$SEM(W)$	–	5.11	4.68	4.69	5.62	3.45	
	$SEM(SS)$	–	4.32	4.70	5.81	4.97	3.35	
Prueba 8: Palabras incompletas	n	33	34	21	37	22	102	
	M	457.96	469.05	492.76	498.08	506.18	515.04	
	SD	15.58	15.39	7.90	6.06	8.10	8.05	
	r_{11}	.94	.93	.76	.77	.75	.83	.80
	$SEM(W)$	3.75	4.10	3.89	2.91	4.06	3.36	
	$SEM(SS)$	3.61	4.00	7.39	7.19	7.51	6.26	
Prueba 9: Memoria de trabajo auditiva	n	–	21	21	36	21	103	
	M	–	450.14	474.78	496.81	505.17	517.12	
	SD	–	19.54	14.53	12.95	19.13	15.06	
	r_{11}	–	.77	.79	.92	.90	.80	.80
	$SEM(W)$	–	9.33	6.67	3.66	6.05	6.74	
	$SEM(SS)$	–	7.16	6.89	4.24	4.74	6.71	
Prueba 10: Memoria deferida — Aprendizaje visual-auditivo	n	–	–	26	58	37	293	
	M	–	–	486.57	497.14	505.16	510.19	
	SD	–	–	6.98	6.68	13.04	9.68	
	r_{11}	–	–	.83	.82	.81	.81	.82
	$SEM(W)$	–	–	2.85	2.81	5.65	4.26	
	$SEM(SS)$	–	–	6.11	6.31	6.50	6.61	
Prueba 11: Información general	n	47	69	50	66	41	305	
	M	430.62	459.70	470.21	486.17	511.80	531.83	
	SD	15.70	11.40	10.54	10.13	15.51	16.65	
	r_{11}	.96	.91	.92	.94	.89	.91	.92
	$SEM(W)$	3.14	3.42	2.98	2.48	5.14	4.97	
	$SEM(SS)$	3.00	4.50	4.24	3.67	4.97	4.47	
Prueba 14: Atención auditiva	n	20	38	21	39	21	104	
	M	449.58	475.47	490.39	500.67	502.30	509.59	
	SD	13.97	12.06	8.89	7.89	9.45	6.00	
	r_{11}	.85	.90	.80	.81	.93	.87	.86
	$SEM(W)$	5.41	3.81	3.97	3.44	2.50	2.14	
	$SEM(SS)$	5.81	4.74	6.71	6.54	3.97	5.35	
Prueba 17: Memoria para palabras	n	38	56	50	63	41	303	
	M	411.84	443.59	479.52	499.39	520.87	532.84	
	SD	37.32	33.64	22.56	19.91	24.11	23.97	
	r_{11}	.86	.88	.80	.76	.84	.80	.82
	$SEM(W)$	13.96	11.65	10.09	9.75	9.64	10.75	
	$SEM(SS)$	5.61	5.20	6.71	7.35	6.00	6.72	
Prueba 22: Integración visual	n	46	67	49	63	41	303	
	M	419.03	454.91	470.84	489.28	499.72	512.80	
	SD	23.39	17.33	18.81	14.13	18.42	12.46	
	r_{11}	.88	.83	.85	.81	.84	.78	.84
	$SEM(W)$	8.10	7.19	7.28	6.16	7.27	5.84	
	$SEM(SS)$	5.20	6.22	5.81	6.54	5.92	7.04	
Prueba 27: Memoria para frases	n	39	56	49	63	41	305	
	M	419.49	459.19	476.54	497.74	516.45	530.86	
	SD	30.45	22.54	23.72	14.52	14.80	12.19	
	r_{11}	.94	.93	.94	.84	.72	.77	.89
	$SEM(W)$	7.46	5.96	5.95	5.81	7.83	5.85	
	$SEM(SS)$	3.67	3.97	3.76	6.00	7.94	7.19	

Table 11.

*Batería III COG Cluster
Standard Errors of
Measurement and Reliability
Coefficients Based on Spanish
Calibration Data*

Cluster	Statistic	Age 6–13	Age 14–19	Age 6–29
Habilidad verbal – Escala extendida	$SEM(W)$	3.26	3.49	3.57
	r_{11}	.94	.95	.94
	$SEM(SS)$	3.67	3.35	3.67
Procesamiento auditivo	$SEM(W)$	3.34	3.00	3.30
	r_{11}	.86	.91	.88
	$SEM(SS)$	5.61	4.50	5.20
Percepción fonémica	$SEM(W)$	3.53	3.41	3.46
	r_{11}	.86	.91	.89
	$SEM(SS)$	5.61	4.50	4.97
Alcance de la memoria auditiva	$SEM(W)$	5.57	5.47	5.54
	r_{11}	.88	.90	.89
	$SEM(SS)$	5.20	4.74	4.97

Table 14 presents the results of the Batería III confirmatory factor analyses. Results are presented for two subsamples (ages 6 to 13 and ages 14 to 19) and for the total sample (ages 6 to 29)[1]. A two-stratum model (one general, or stratum III, *g*-factor and nine broad, or stratum II, factors—*Grw, Gc, Gsm, Ga, Gv, Gs, Glr, Gf, Gq*) was evaluated. The specification of this model was drawn directly from the best-fitting *g* + nine broad CHC factor model reported for the WJ III.[2]

The Amos® 4.0 computer program (Arbuckle & Wothke, 1999) was used to conduct the CFAs. All analyses were based on the ordinary or unweighted least-squares (OLS or ULS) estimator discrepancy function[3] of age-partialled test *W* scores.[4] The general structural model (one *g*-factor and nine subordinate first-order broad CHC factors) was retained throughout the CFAs with only minor model "tweaking" (i.e., adding or deleting factor-to-test paths or correlated test residuals) based on inspection of the Amos Modification Indices (MIs).

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[1] The small number of adult subjects (>19 years of age) precluded a separate adult subsample CFA.

[2] The curious reader should consult McGrew and Woodcock (2005) for a detailed discussion of the theoretical foundation and empirical support for the initial WJ III-based CFA model applied to the Batería III calibration data.

[3] The maximum-likelihood (ML) estimator has generally become the discrepancy function used in CFA model testing, often without careful consideration of potential pitfalls (MacCallum, 2003). According to MacCallum, when researchers recognize that structural or CFA models are imperfect representations in the population, the "choice of discrepancy function may be considerably more important than typically believed. Discrepancy functions carry implicit assumptions about the nature of error in data" (p. 122). The ML function implicitly assumes that the model is correct in the population and that all error is due to sampling. As a result, residuals associated with larger correlations in a matrix receive more weight than smaller correlations in the data matrix. In contrast, the OLS or ULS approach treats error as unstructured, and all residual correlations are weighted equally. The result is that the OLS method tries to fit all correlations equally. Given MacCallum's recent arguments and the nature of the calibration data, the Amos ULS estimator discrepancy function was used in these analyses. A resulting limitation is a smaller set of goodness-of-fit statistics from which to evaluate the models.

[4] Given that the *W* score is a developmental metric, it was first necessary to remove the strong effect of age or developmental variance present in those scores via partial correlation procedures. Residual *W* scores were used to calculate the covariance matrix that served as input for the CFAs.

Table 12.

Batería III APROV Test Standard Errors of Measurement and Reliability Coefficients Based on Spanish Calibration Data

Prueba	Statistic	2	4	6	9	13	Adults	Median
Prueba 1: Identificación de letras y palabras	n	47	68	50	66	41	305	
	M	300.32	330.46	407.91	518.72	550.81	575.93	
	SD	28.39	23.02	54.09	28.65	26.87	23.24	
	r_{11}	.97	.84	.98	.95	.95	.88	.95
	SEM (W)	5.31	9.32	8.38	6.47	5.89	8.05	
	SEM (SS)	2.81	6.07	2.32	3.39	3.29	5.20	
Prueba 2: Fluidez en la lectura	n	–	–	47	65	40	302	
	M	–	–	420.29	489.69	545.85	585.87	
	SD	–	–	26.88	25.85	35.49	37.63	
	r_{11}	–	–	.91	.96	.98	.98	.97
	SEM (W)	–	–	8.11	4.97	4.63	5.32	
	SEM (SS)	–	–	4.52	2.89	1.96	2.12	
Prueba 3: Rememoración de cuentos	n	–	64	50	66	41	303	
	M	–	485.23	491.66	496.85	504.57	507.16	
	SD	–	10.68	7.51	5.25	6.36	6.78	
	r_{11}	–	.77	.75	.73	.83	.91	.77
	SEM (W)	–	5.16	3.75	2.74	2.59	2.07	
	SEM (SS)	–	7.24	7.50	7.84	6.11	4.57	
Prueba 4: Comprensión de indicaciones	n	45	65	50	66	41	302	
	M	414.27	450.00	469.77	485.63	503.93	514.56	
	SD	17.92	17.19	12.41	10.90	12.01	10.57	
	r_{11}	.98	.93	.98	.98	.98	.85	.98
	SEM (W)	2.53	4.55	1.75	1.54	1.70	4.15	
	SEM (SS)	2.12	3.97	2.12	2.12	2.12	5.89	
Prueba 5: Cálculo	n	–	50	38	50	29	254	
	M	–	368.95	427.95	496.12	529.43	548.22	
	SD	–	39.01	46.37	13.34	16.21	19.70	
	r_{11}	–	.93	.97	.88	.84	.90	.90
	SEM (W)	–	10.25	8.30	4.62	6.40	6.23	
	SEM (SS)	–	3.94	2.68	5.20	5.92	4.74	
Prueba 7: Ortografía	n	45	69	48	63	41	303	
	M	295.41	376.72	448.06	508.23	534.49	556.94	
	SD	20.78	29.41	33.60	16.14	15.81	14.61	
	r_{11}	.81	.94	.97	.92	.96	.86	.93
	SEM (W)	9.06	7.20	5.82	4.56	3.16	5.51	
	SEM (SS)	6.54	3.67	2.60	4.24	3.00	5.65	
Prueba 8: Fluidez en la escritura	n	–	–	–	63	41	303	
	M	–	–	–	492.47	519.25	536.98	
	SD	–	–	–	13.22	19.19	16.38	
	r_{11}	–	–	–	.82	.92	.89	.89
	SEM (W)	–	–	–	5.61	5.43	5.43	
	SEM (SS)	–	–	–	6.36	4.24	4.97	
Prueba 9: Comprensión de textos	n	27	70	49	63	41	303	
	M	326.37	363.37	412.38	489.20	512.73	538.27	
	SD	55.84	30.42	57.55	13.52	18.76	22.00	
	r_{11}	.97	.90	.98	.84	.90	.92	.91
	SEM (W)	10.14	9.57	8.14	5.48	5.90	6.07	
	SEM (SS)	2.72	4.72	2.12	6.07	4.72	4.14	
Prueba 10: Problemas aplicados	n	46	70	50	66	41	299	
	M	342.03	398.96	441.63	486.52	518.36	543.66	
	SD	20.93	23.49	20.85	13.93	17.45	18.84	
	r_{11}	.90	.93	.95	.91	.89	.94	.92
	SEM (W)	6.62	6.22	4.66	4.18	5.79	4.61	
	SEM (SS)	4.74	3.97	3.35	4.50	4.97	3.67	
Prueba 11: Muestras de redacción	n	–	–	47	63	40	300	
	M	–	–	466.59	499.94	507.20	512.86	
	SD	–	–	33.93	6.72	8.60	12.46	
	r_{11}	–	–	.91	.83	.73	.79	.81
	SEM (W)	–	–	10.18	2.77	4.48	5.71	
	SEM (SS)	–	–	4.50	6.18	7.81	6.87	
Prueba 12: Memoria diferida – Rememoración de cuentos	n	–	48	46	63	37	284	
	M	–	489.17	489.48	495.35	502.20	504.98	
	SD	–	13.77	9.91	9.36	9.78	11.09	
	r_{11}	–	.67	.95	.88	.93	.83	.88
	SEM (W)	–	7.91	2.22	3.24	2.55	4.56	
	SEM (SS)	–	8.62	3.35	5.20	3.91	6.17	

Table 12. (cont.)
Batería III APROV Test Standard
Errors of Measurement and
Reliability Coefficients Based
on Spanish Calibration Data

Prueba	Statistic	Age						Median
		2	4	6	9	13	Adults	
Prueba 13: Análisis de palabras	n	–	–	19	32	21	105	
	M	–	–	437.91	504.56	511.55	533.53	
	SD	–	–	47.18	24.02	27.71	23.54	
	r_{11}	–	–	.98	.96	.91	.81	.94
	$SEM(W)$	–	–	6.67	4.80	8.31	10.15	
	$SEM(SS)$	–	–	2.12	3.00	4.50	6.47	
Prueba 14: Vocabulario sobre dibujos	n	46	71	50	63	41	303	
	M	427.87	461.67	475.79	496.43	512.83	537.41	
	SD	17.93	14.49	14.85	14.47	15.80	17.56	
	r_{11}	.93	.89	.88	.85	.89	.93	.89
	$SEM(W)$	4.75	4.81	5.15	5.60	5.24	4.65	
	$SEM(SS)$	3.97	4.97	5.20	5.81	4.97	3.97	
Prueba 15: Comprensión oral	n	–	16	19	32	21	102	
	M	–	445.46	473.42	497.11	511.23	530.95	
	SD	–	15.11	16.26	12.85	21.28	17.62	
	r_{11}	–	.91	.97	.92	.96	.93	.93
	$SEM(W)$	–	4.53	2.82	3.63	4.26	4.53	
	$SEM(SS)$	–	4.50	2.60	4.24	3.00	3.85	
Prueba 16: Corrección de textos	n	–	–	–	30	21	103	
	M	–	–	–	490.29	523.70	549.71	
	SD	–	–	–	19.33	18.92	18.88	
	r_{11}	–	–	–	.95	.98	.87	.95
	$SEM(W)$	–	–	–	4.32	2.68	6.75	
	$SEM(SS)$	–	–	–	3.35	2.12	5.37	
Prueba 17: Vocabulario de lectura	n	–	27	19	35	21	101	
	M	–	439.05	452.24	491.19	510.75	508.64	
	SD	–	9.42	19.34	14.39	11.61	14.72	
	r_{11}	–	.98	.97	.86	.92	.95	.95
	$SEM(W)$	–	1.33	3.35	5.39	3.28	3.29	
	$SEM(SS)$	–	2.12	2.60	5.61	4.24	3.35	
Prueba 18: Conceptos cuantitativos	n	–	48	39	50	41	255	
	M	–	418.12	452.53	494.80	531.98	543.69	
	SD	–	19.56	17.97	17.17	15.49	15.60	
	r_{11}	–	.89	.85	.90	.91	.93	.90
	$SEM(W)$	–	6.49	6.96	5.43	4.65	4.10	
	$SEM(SS)$	–	4.97	5.81	4.74	4.50	3.94	
Prueba 19: Conocimientos académicos	n	38	57	47	63	41	302	
	M	420.82	443.44	468.94	485.63	511.23	531.05	
	SD	21.71	18.44	15.33	13.20	16.13	17.71	
	r_{11}	.90	.95	.93	.86	.95	.86	.92
	$SEM(W)$	6.86	4.12	4.06	4.94	3.61	6.67	
	$SEM(SS)$	4.74	3.35	3.97	5.61	3.35	5.65	
Prueba 20: Análisis de sonidos	n	–	41	46	66	41	301	
	M	–	421.75	473.09	502.83	506.19	511.49	
	SD	–	29.01	29.68	7.45	7.20	11.07	
	r_{11}	–	.80	.91	.84	.84	.89	.84
	$SEM(W)$	–	13.07	8.95	2.98	2.88	3.60	
	$SEM(SS)$	–	6.76	4.52	6.00	6.00	4.88	
Prueba 21: Discernimiento de sonidos	n	–	62	47	60	40	298	
	M	–	426.12	458.36	489.15	507.18	518.01	
	SD	–	22.47	24.33	13.75	12.08	11.00	
	r_{11}	–	.97	.98	.98	.98	.97	.98
	$SEM(W)$	–	3.89	3.44	1.94	1.71	1.91	
	$SEM(SS)$	–	2.60	2.12	2.12	2.12	2.60	
Prueba 22: Puntuación y mayúsculas	n	–	45	43	62	41	301	
	M	–	414.98	447.07	491.09	516.92	534.54	
	SD	–	27.66	22.30	14.02	14.71	14.70	
	r_{11}	–	.97	.92	.95	.95	.83	.95
	$SEM(W)$	–	7.82	4.99	3.13	3.29	6.08	
	$SEM(SS)$	–	4.24	3.35	3.35	3.35	6.20	

Table 13.

Batería III APROV Cluster Standard Errors of Measurement and Reliability Coefficients Based on Spanish Calibration Data

Cluster	Statistic	Age		
		6–13	14–19	6–29
Amplia lectura	$SEM(W)$	2.12	2.75	2.44
	r_{11}	0.99	0.99	0.99
	$SEM(SS)$	1.50	1.50	1.50
Destrezas básicas en lectura	$SEM(W)$	3.65	4.50	4.01
	r_{11}	0.98	0.95	0.97
	$SEM(SS)$	2.12	3.35	2.60
Comprensión de lectura	$SEM(W)$	3.19	2.84	3.08
	r_{11}	0.96	0.96	0.96
	$SEM(SS)$	3.00	3.00	3.00
Lenguaje oral-Estándar	$SEM(W)$	3.14	3.26	3.31
	r_{11}	0.86	0.78	0.82
	$SEM(SS)$	5.61	7.04	6.36
Lenguaje oral-Extendida	$SEM(W)$	2.38	3.05	2.71
	r_{11}	0.95	0.93	0.94
	$SEM(SS)$	3.35	3.97	3.67
Comprensión auditiva	$SEM(W)$	3.44	4.86	4.26
	r_{11}	0.93	0.89	0.91
	$SEM(SS)$	3.97	4.97	4.50
Expresión oral	$SEM(W)$	3.56	3.51	3.47
	r_{11}	0.88	0.91	0.90
	$SEM(SS)$	5.20	4.50	4.74
Razonamiento en matemáticas	$SEM(W)$	3.50	3.56	3.28
	r_{11}	0.96	0.97	0.97
	$SEM(SS)$	3.00	2.60	2.60
Amplio lenguaje escrito	$SEM(W)$	2.63	2.91	2.66
	r_{11}	0.95	0.94	0.95
	$SEM(SS)$	3.35	3.67	3.35
Destrezas básicas en escritura	$SEM(W)$	4.15	3.46	3.62
	r_{11}	0.95	0.96	0.96
	$SEM(SS)$	3.35	3.00	3.00
Expresión escrita	$SEM(W)$	3.26	3.44	3.36
	r_{11}	0.90	0.90	0.90
	$SEM(SS)$	4.74	4.74	4.74
Conocimientos académicos	$SEM(W)$	4.24	4.09	3.70
	r_{11}	0.92	0.95	0.95
	$SEM(SS)$	4.24	3.35	3.35
Conocimiento de fonemas y grafemas	$SEM(W)$	3.94	4.75	3.80
	r_{11}	0.95	0.87	0.94
	$SEM(SS)$	3.35	5.41	3.67
Destrezas académicas	$SEM(W)$	3.41	2.91	3.20
	r_{11}	0.97	0.97	0.97
	$SEM(SS)$	2.60	2.60	2.60
Aplicaciones académicas	$SEM(W)$	2.93	2.63	2.80
	r_{11}	0.96	0.96	0.96
	$SEM(SS)$	3.00	3.00	3.00
Aprovechamiento total	$SEM(W)$	1.31	1.63	1.46
	r_{11}	0.99	0.99	0.99
	$SEM(SS)$	1.50	1.50	1.50

Table 14.

*Batería III Calibration Sample
Confirmatory Factor Analyses
for Two Age Groups and Total
Sample Through Age 29*

	Factor Loadings		
Factor/Test	Ages 6–13 (n = 377)	Ages 14–19 (n = 282)	Ages 6–29 (n = 860)
Cluster			
Glr	.97	.93	.96
Gs	.84	.70	.74
Gv	.71	.69	.71
Gf	.76	.88	.82
Gq	.91	.83	.87
Grw	.76	.86	.74
Ga	.96	.97	.97
Gsm	.93	.92	.92
Gc	.86	.87	.86
***Grw* tests**			
APROV Prueba 22: Puntuación y mayúsculas	.34	.80	.42
APROV Prueba 16: Corrección de textos	.22	.83	.30
APROV Prueba 20: Análisis de sonidos	.82	.45	.71
APROV Preuba 7: Ortografía	.89	.72	.86
APROV Prueba 8: Fluidez en la escritura	.62	.58	.67
APROV Prueba 11: Muestras de redacción	.78	.65	.73
APROV Prueba 17: Vocabulario de lectura	.39	.16	.23
APROV Prueba 2: Fluidez en la lectura	.76	.49	.63
APROV Prueba 13: Análisis de palabras	.77	.58	.70
APROV Prueba 9: Comprensión de textos	.88	.73	.79
APROV Prueba 1: Identificación de letras y palabras	.85	.68	.79
***Gc* tests**			
APROV Prueba 17: Vocabulario de lectura	.54	.75	.70
APROV Prueba 15: Comprensión oral	.74	.80	.77
COG Prueba 1: Comprensión verbal	.86	.95	.89
COG Prueba 11: Información general	.52	.70	.60
APROV Prueba 19: Conocimientos académicos	.69	.85	.77
APROV Prueba 3: Rememoración de cuentos	.56	.54	.57
APROV Prueba 4: Comprensión de indicaciones	.30	.22	—
APROV Prueba 22: Puntuación y mayúsculas	.55	—	.45
APROV Prueba 16: Corrección de textos	.59	—	.51
APROV Prueba 9: Comprensión de textos	—	.15	.10
***Gsm* tests**			
COG Prueba 9: Memoria de trabajo auditiva	.60	.69	.64
SD Prueba 27: Memoria para frases	.55	.70	.62
COG Prueba 17: Memoria para palabras	.48	.61	.54
COG Prueba 7: Inversión de números	.50	.60	.54
APROV Prueba 4: Comprensión de indicaciones	.39	.50	.70

Table 14. *(cont.)*
Batería III Calibration Sample
Confirmatory Factor Analyses
for Two Age Groups and Total
Sample Through Age 29

Factor/Test	Factor Loadings		
	Ages 6–13 (n = 377)	Ages 14–19 (n = 282)	Ages 6–29 (n = 860)
***Ga* tests**			
COG Prueba 8: Palabras incompletas	.32	.43	.38
COG Prueba 4: Integración de sonidos	.47	.58	.52
APROV Prueba 21: Discernimiento de sonidos	.80	.81	.77
COG Prueba 14: Atención auditiva	.30	.47	.34
SD Prueba 23: Configuración de sonidos – Vocalizada	.48	.50	.46
SD Prueba 29: Configuración de sonidos – Musical	.40	.46	.42
***Gv* tests**			
COG Prueba 19: Planeamiento	.58	.53	.55
SD Prueba 28: Rotación de bloques	.68	.80	.71
COG Prueba 3: Relaciones espaciales	.68	.65	.73
SD Prueba 22: Integración visual	.67	.57	.63
COG Prueba 13: Reconocimiento de dibujos	.65	.62	.58
SD Prueba 26: Tachar	.06	.24	.24
COG Prueba 15: Análisis-Síntesis	.45	.43	.42
***Gs* tests**			
COG Prueba 16: Rapidez en la decisión	.42	.44	.47
SD Prueba 26: Tachar	.45	.49	.32
COG Prueba 6: Pareo visual	.63	.78	.68
APROV Prueba 6: Fluidez en matemáticas	.75	.26	.45
APROV Prueba 8: Fluidez en la escritura	.14	—	—
COG Prueba 12: Fluidez de recuperación	—	.26	.17
***Glr* tests**			
SD Prueba 21: Memoria para nombres	.49	.50	.49
COG Prueba 2: Aprendizaje visual-auditivo	.63	.71	.65
COG Prueba 12: Fluidez de recuperación	.49	.48	.39
COG Prueba 18: Rapidez en la identificación de dibujos	.44	.38	.40
***Gf* tests**			
COG Prueba 15: Análisis-Síntesis	.48	.44	.46
COG Prueba 5: Formación de conceptos	.81	.80	.78
SD Prueba 24: Series numéricas	.37	.61	.40
SD Prueba 25: Números matrices	.38	.44	.31
APROV Prueba 10: Problemas aplicados	.16	.28	.16
COG Prueba 3: Relaciones espaciales	—	.18	—
***Gq* tests**			
APROV Prueba 10: Problemas aplicados	.73	.65	.74
APROV Prueba 18: Conceptos cuantitativos	.83	.86	.83
APROV Prueba 5: Cálculo	.83	.85	.83
SD Prueba 25: Números matrices	.22	.34	.38
SD Prueba 24: Series numéricas	.49	.28	.47
APROV Prueba 6: Fluidez en matemáticas	—	.41	.27

Table 14. *(cont.)*

Batería III Calibration Sample
Confirmatory Factor Analyses
for Two Age Groups and Total
Sample Through Age 29

	Ages 6–13 (*n* = 377)	Ages 14–19 (*n* = 282)	Ages 6–29 (*n* = 860)
Model fit			
chi-square	72591662.64	35290761.33	103427652.20
df	1009.00	1008.00	1008.00
GFI	.98	.98	.98
AGFI	.97	.88	.98
PGFI	.87	.88	.88
Significant correlated residual parameters			
SD Prueba 27: Memoria para frases & COG Prueba 17: Memoria para palabras	.37	.20	.31
APROV Prueba 13: Análisis de palabras & APROV Prueba 1: Identificación de letras y palabras	.49	.58	.49
APROV Prueba 7: Ortografía & APROV Prueba 20: Análisis de sonidos	.10	.29	.16
SD Prueba 23: Configuración de sonidos – Vocalizada & SD Prueba 29: Configuración de sonidos – Musical	.48	.28	.39
COG Prueba 2: Aprendizaje visual-auditivo & SD Prueba 21: Memoria para nombres	.38	.37	.36
SD Prueba 27: Memoria para frases & APROV Prueba 15: Comprensión oral	.42	.34	.25

The pattern and relative magnitude of factor loadings and model fit statistics (i.e., chi-square, Goodness-of-Fit Index [GFI], Adjusted Goodness-of-Fit Index [AGFI], Parsimony Goodness-of-Fit Index [PGFI]) for the three CFAs are presented near the bottom of Table 14. Although the chi-square statistic is presented, it typically is not regarded as an inferential statistical test, but rather a goodness-of-fit measure by which to compare different models (Bynner & Romney, 1985). High GFI, AGFI, and PGFI values that approach 1 are reflective of good model fit (see Keith, 1997). The fit statistics presented in Table 14 suggest that the WJ III *g* + nine broad CHC factor model, when applied to the Batería III, is a good fit across the reported age ranges and represents a plausible explanation of the internal structure of the Batería III.

The general pattern and relative magnitude of the Batería III test factor loadings also suggest strong similarities between the Batería III and WJ III internal factor structures. Inspection of factor loadings for select tests reveals some developmental differences across the two age-differentiated Batería III samples. For example, in the ages 6 to 13 sample in Table 14, the Batería III APROV *Prueba 22: Puntuación y mayúsculas* (*Grw* = .34, *Gc* = .55) and APROV *Prueba 16: Corrección de textos* (*Grw* = .22, *Gc* = .59) are factorially complex tests (i.e., they load on more than one broad factor), while they are exclusively single indicators of *Grw* (APROV *Prueba 22: Puntuación y mayúsculas* = .80; APROV *Prueba 16: Corrección de textos* = .83) in the ages 14 to 19 sample. Another

example is Batería III APROV *Prueba 9: Comprensión de textos,* which displays a single strong *Grw* loading (.88) in the ages 6 to 13 sample, while demonstrating the influence of both *Grw* (.73) and *Gc* (.15) in the ages 14 to 19 sample. Additional developmental differences for select Batería III tests can be found by inspecting the results presented in Table 14.

Figure 4 is a visual portrayal, in standard path diagram format, of the hypothesized correspondence between the Batería III tests[5] and broad CHC factors and *g* for the ages 6 to 29 sample.

Summary

The Batería III is the parallel Spanish version of the WJ III. Based on CHC theory, the Batería III COG includes 31 cognitive tests for measuring multiple intelligences, such as general intellectual ability, broad and narrow cognitive abilities, and aspects of executive functioning. The Batería III APROV includes 22 tests for measuring oral language ability; reading, mathematics, and writing achievement; phonological awareness; and academic knowledge. Administration of the Batería III requires proficiency in Spanish. Interpretation of the Batería III should be performed by highly qualified and trained assessment professionals who are knowledgeable about Spanish-language development and the impact of second-language acquisition.

The Batería III standardization-calibration data were obtained from 1,413 native Spanish-speaking subjects from several regions of the Spanish-speaking world. Batería III data are equated to the WJ III norms.

The *Manual técnico* contains basic WJ III reliability and validity information that is applicable to the Batería III. The reliability and *SEM* characteristics of the Batería III calibration sample reported in this bulletin are similar to the corresponding WJ III values reported in the *Manual técnico*.

The *Manual técnico* presents extensive confirmatory factor analysis evidence for a *g* + nine broad CHC factor model for the WJ III, the battery from which the Batería III is derived. The specification and CFA evaluation of the validated WJ III model in the Batería III calibration sample suggests that the WJ III *g* + nine broad CHC factor (*Grw,*

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[5] Key to Batería III test name abbreviations used in Figure 4: ANÁLISPAL = *Análisis de palabras;* ANÁLISONID = *Análisis de sonidos;* ANÁLIS-SÍNT = *Análisis-Síntesis;* APRVIS-AUD = *Aprendizaje visual-auditivo;* ATENAUDIT = *Atención auditiva;* CÁLCULO = *Cálculo;* COMPRINDIC = *Comprensión de indicaciones;* COMPRTEXT = *Comprensión de textos;* COMPORAL = *Comprensión oral;* COMPVERB = *Comprensión verbal;* CONCCUANT = *Conceptos cuantitativos;* CONFSON-MUS = *Configuración de sonidos – Musical;* CONFSON-VOC = *Configuración de sonidos – Vocalizada;* CONACADÉM = *Conocimientos académicos;* CORRECTEX = *Corrección de textos;* DISCSONID = *Discernimiento de sonidos;* FLUIDRECUP = *Fluidez de recuperación;* FLUIDESCRIT = *Fluidez en la escritura;* FLUIDLECT = *Fluidez en la lectura;* FLUIDMATEM = *Fluidez en matemáticas;* FORMCONC = *Formación de conceptos;* IDENLETPAL = *Identificación de letras y palabras;* INFORGEN = *Información general;* INTEGSONID = *Integración de sonidos;* INTEGVISUAL = *Integración visual;* INVERSNUM = *Inversión de números;* MEMTRABAUD = *Memoria de trabajo auditiva;* MEMFRASES = *Memoria para frases;* MEMNOMB = *Memoria para nombres;* MEMPALAB = *Memoria para palabras;* MUESREDAC = *Muestras de redacción;* NÚMMATR = *Números matrices;* ORTOGRAF = *Ortografía;* PALINCOMP = *Palabras incompletas;* PAREOVIS = *Pareo visual;* PLANEAM = *Planeamiento;* PROBAPLIC = *Problemas aplicados;* PUNTMAYÚS = *Puntuación y mayúsculas;* RAPDECIS = *Rapidez en la decisión;* RAPIDENTDIB = *Rapidez en la identificación de dibujos;* RECDIBUJ = *Reconocimiento de dibujos;* RELACESPAC = *Relaciones espaciales;* REMCUEN = *Rememoración de cuentos;* ROTACBLOQ = *Rotación de bloques;* SERIESNUM = *Series numéricas;* TACHAR = *Tachar;* VOCLECTUR = *Vocabulario de lectura.*
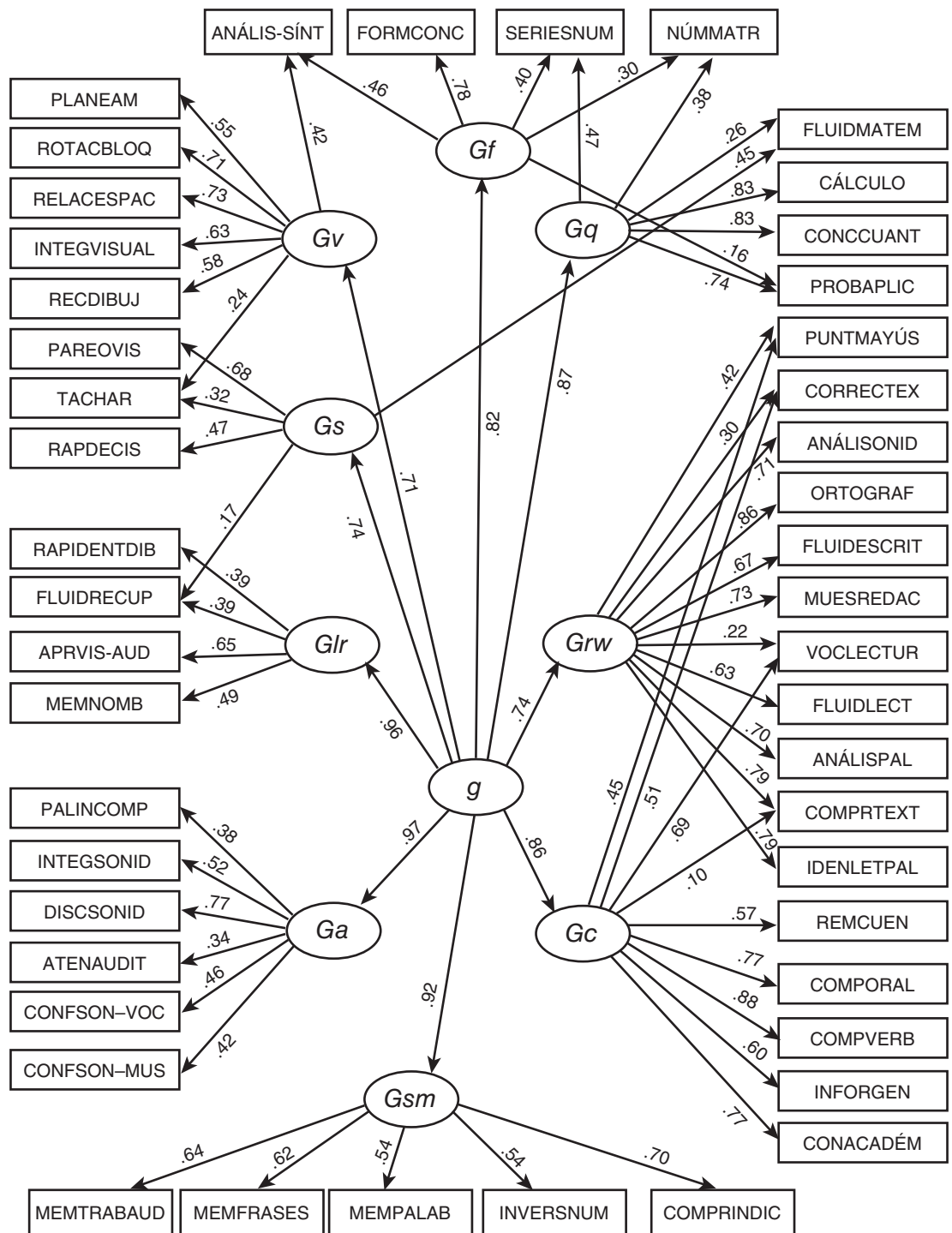
Figure 4.
Hypothesized model of the Batería III on nine broad CHC factors and g.

Gc, Gsm, Ga, Gv, Gs, Glr, Gf, Gq) structural model, when applied to the Batería III, is a good fit across the reported age ranges and represents a plausible explanation of the internal structure of the Batería III.

The procedures followed in developing and standardizing the Batería III have produced an instrument that can be used with confidence in a variety of educational and noneducational settings. The wide age range and breadth of coverage are important advantages underlying its use for clinical purposes or for research with subjects from the preschool to the geriatric level. The WJ III and Batería III especially are suited to meet certain assessment needs in bilingual settings. The parallel English and Spanish versions, related through the equated U.S. norms procedure, provide the specific and comparative information often required for program placement and instructional planning.

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