







Agenda

- WJ IV Tests
- Levels of Interpretation
- Tests of achievement measure more than achievement
- Achievement manual interpretation (links among tests)
- Task demands chart
- Task demands are really used for PSW instead the score discrepancy
- Case study







Looking Beyond the Standard Score



RELATIVE PROFICIENCY INDEX (RPI)

Reflects the individual's proficiency on tasks that the average age or grade mate would have 90% proficiency.

Examples:

- When average grade mates would have 90% success in spelling, Sandy is predicted to have only 4% success (RPI = 4/90). Her proficiency on spelling tests would be very limited.
- Bennett's RPI of 98/90 on the Math Problem Solving cluster indicates his performance would be very advanced compared to his grade peers.

W Difference Values	Reported RPIs	Proficiency	Implications
+31 & above	100/90	very advanced	extremely easy
+14 to +30	98/90 to 100/90	advanced	very easy
+7 to +13	95/90 to 98/90	average to advanced	easy
<mark>-6 to +6</mark>	<mark>82/90 to 95/90</mark>	average	manageable
-13 to -7	67/90 to 82/90	limited to average	difficult
-30 to -14	24/90 to 67/90	limited	very difficult
-50 to -31	3/90 to 24/90	very limited	extremely difficult
-51 & below	0/90 to 3/90	extremely limited	nearly impossible

Interpreting Relative Proficiency Index (RPI) Scores

Adapted from Table 4, Descriptive Labels and Implications Corresponding to W Differences (W DIFF) and Relative Proficiency Indexes (RPI), WJ III Assessment Service Bulletin Number 11, p 10.

RPI	Instructional Level
96/90 to 100/90	Independent
76/90 to 95/90	Instructional
75/90 & below	Frustration

Task Demand Analysis

Obtaining a Deeper Understanding of the Learner

Achievement Tests Test More Than Achievement

Page 7 WJ IV Achievement Examiner's Manual

The WJ IV ACH contains tests that tap two other identified cognitive abilities: quantitative knowledge (*Gq*) (identified by Horn, 1988, 1989) and reading-writing ability (*Grw*) (identified by Carroll and Maxwell, 1979 and Woodcock, 1998). The WJ IV ACH also includes additional measures of comprehension-knowledge (*Gc*), long-term retrieval (*Glr*), and auditory processing (*Ga*). Because most achievement tests require the integration of multiple cognitive abilities, information about processing can be obtained by a skilled examiner. For example, processing speed (*Gs*) is involved in all speeded or timed tasks, including Test 9: Sentence Reading Fluency, Test 10: Math Facts Fluency, Test 11: Sentence Writing Fluency, and Test 15: Word Reading Fluency.

Gq is represented by Test 2: Applied Problems, Test 5: Calculation, Test 10: Math Facts Fluency, and Test 13: Number Matrices.

Grw is represented by Test 1: Letter-Word Identification, Test 3: Spelling, Test 4: Passage Comprehension, Test 6: Writing Samples, Test 8: Oral Reading, Test 9: Sentence Reading Fluency, Test 11: Sentence Writing Fluency, Test 12: Reading Recall, Test 14: Editing, Test 15: Word Reading Fluency, and Test 17: Reading Vocabulary.

Gc is measured by the Academic Knowledge cluster composed of Test 18: Science, Test 19: Social Studies, and Test 20: Humanities.

Glr, especially the narrow ability of meaningful memory, is required in Test 12: Reading Recall, Test 18: Science, Test 19: Social Studies, and Test 20: Humanities. Associative memory, another narrow Glr ability, is required in many of the tests that measure decoding, encoding, or recall of math facts.

Ga, in particular the narrow ability of phonetic coding, is required in Test 7: Word Attack and Test 16: Spelling of Sounds.

WJ IV Interpretive Guidance

One interpretive plan is to consider each test in terms of task complexity within a continuum. Some tasks are measures of isolated units; others require connected text, reasoning, or motoric output. This requires an analysis of the test in terms of stimulus material, task demands, and the expressive and receptive language requirements needed to complete the task.

The WJ IV ACH tests may also be interpreted with respect to a well-accepted theory of cognitive ability—the Cattell-Horn-Carroll (CHC) theory of cognitive abilities (Carroll, 1993; Cattell, 1963; Horn, 1988, 1991; Horn & Cattell, 1966; McGrew, 2005, 2009; Schneider & McGrew, 2012; Woodcock, 1990). The WJ IV COG Examiner's Manual and the Technical Manual contain more information on CHC theory.











Table 5-4. WJ IV ACH Test Content, Process, and Construct	Achievement Test	Primary Broad CHC Ability Narrow Ability	Stimuli	Task Requirements	Cognitive Processes	Response
Descriptions	1: Letter-Word Identification	Reading & Writing Ability (Grw) Reading decoding (RD)	Visual (text)	Identifying printed letters and words	Feature detection and analysis (for letters) and recognition of visual word forms from a phonological lexicon; access of pronunciations associated with visual word forms	Oral (letter names, words)
	2: Applied Problems	Quantitative Knowledge (Gq) Mathematical achievement (A3) Fluid Reasoning (Gt) Quantitative reasoning (RQ)	Auditory (questions) Visual (numeric, text)	Performing math calculations in response to orally presented problems	Construction of mental models via language comprehension, application of calculation and/or quantitative reasoning; formation of insight	Oral (numbers, words)
	3: Spelling	Reading & Writing Ability (Grw) Spelling ability (SG)	Auditory (words)	Spelling erally presented words	Access to and application of knowledge of orthography of word forms by mapping whole- word phonology onto whole-word orthography, by translating phonological segments into graphemic units, or by activating spellings of words from the semantic loxicon	Motoric (writing)
	4: Passage Comprehension	Reading & Writing Ability (Grw) Reading comprehension (RC)	Visual (text)	Identifying a missing key word that makes sense in the context of a written passage	Construction of propositional representations; integrational syntactic and semantic properties of printed words and sentences into a representation of the whole passage	Oral (words)
	5: Calculation	Quantitative Knowledge (Gg) Mathematical achievement (A3)	Visual (numeric)	Performing various mathematical calculations	Access to and application of knowledge of numbers and calculation procedures; verbal associations between numbers nepresented as strings of words	Motoric (writing)
	6: Writing Samples	Beading & Writing Ability (Grw) Writing ability (WA)	Auditory (text) Visual (text)	Writing meaningful sentences for a given purpose	Retrieval of word meanings; application of psycholinguistic rules of case, grammar, and syntax; planning and construction of bridging inferences in immediate awareness (auditory and/ or visual buffer)	Motoric (writing)
	7: Word Attack	Reading & Writing Ability (Grw) Reading decoding (RD) Auditory Processing (Ga) Phonetic coding (PC)	Visual (word)	Reading phonically regular nonwords	Grapheme-to-phoneme translation and accessing pronunciations of pseudowords not contained in the mental lexicon	Oral (words)

WJ IV ACH Test Content,	Achievement	Primary Broad CHC Ability				-
Process, and Construct	Test	Narrow Ability	Stimuli	Task Requirements	Cognitive Processes	Response
Descriptions	8: Oral Reading	Peading & Writing Ability (Grw) Reading comprehension (RC) Verbal (print) language comprehension (V)	Visual (text)	Reading sentences orally with accuracy and fluency	Integration of orthographic, phonological, and semantic processes; articulatory planning and motor execution	Oral (sentences)
	9: Sentence Reading Fluency	Reading & Writing Ability (Grw) Reading comprehension (RC) Reading speed (RS)	Visual (text)	Reading printed statements rapidly and responding true or talse (yes or no)	Speeded semantic decision making requiring reading ability and generic knowledge	Motoric (circling)
		Processing Speed (Gs)				
	10: Math Facts Fluency	Quantitative Knowledge (Gq) Mathematical achievement (A3)	Visual (numeric)	Adding, subtracting, and multiplying rapidly	Speeded access to and application of digit-symbol arithmetic procedures	Motoric (writing)
		Processing Speed (Gs) Number facility (N)				
	11: Sentence Writing Fluency	Reading & Writing Ability (Grw) Writing ability (WA) Writing speed (WS)	Visual (words with pictures)	Formulating and writing simple sentences rapidly	Speeded formation of constituent sentence structures requiring fluent access to semantic and svntactic knowledge	Motoric (writing)
		Processing Speed (Gs)				
	12: Reading Recall	Reading & Writing Ability (Grw) Reading comprehension (RC)	Visual (text)	Reading and recalling details of stories	Construction of propositional representations and recoding	Oral (passages)
		Long-Term Retrieval (<i>Glr</i>) <i>Meaningful memory</i> (MM)				
	13: Number Matrices	Fluid Reasoning (Gf) Quantitative reasoning (RQ)	Visual (numeric)	Determining a two- dimensional numerical pattern	Access to verbal- visual numeric codes; transcoding verbal and/ or visual representations into analogical representations; determining the relationship between/ relationship between/ first part of the structure and mapping (projecting) the structure to complete the analogy	Oral (numbers)
	14: Editing	Reading & Writing Ability (Grw) English usage (EU)	Visual (text)	Identifying and correcting errors in written passages	Access and application of lexical and syntactic information about details of word forms and writing conventions	Oral (sentences)
	15: Word Reading Fluency	Reading & Writing Ability (Gnw) Reading comprehension (RC) Reading speed (RS)	Visual (words)	Rapidly reading words and marking the two in each row that are semantically related	Speeded semantic decision making requiring reading ability	Motoric (slash marks)

WJ IV ACH Test Content, Process, and Construct	Achievement Test	Primary Broad CHC Ability Narrow Ability	Stimuli	Task Requirements	Cognitive Processes	Response
Descriptions	16: Spelling of Sounds	Reading & Writing Ability (Grw) Spelling ability (SG)	Auditory (letters, words)	Spelling letter patterns that are regular patterns in written English	Translating spoken elements of norwords into graphemic units; phonologically modiated	Motoric (writing)
		Auditory Processing (Ga) Phonetic coding (PC)		Engnan	mapping of orthography	
	17: Reading Vocabulary	Reading & Writing Ability (Grw) Reading comprehension (RC)	Visual (words)	Reading words and providing an appropriate synonym or antonym	Recognition of visual word forms; semantic access and activation; semantic matching	Oral (words)
		Comprehension- Knowledge (Gc) Lexical knowledge (VL)				
	18: Science	Domain-Specific Knowledge (<i>Gkn</i>) <i>General science</i> <i>information</i> (K1)	Auditory (questions) Visual (text, pictures)	Responding to questions about science	Implicit, declarative category-specific memory	Oral (words, sentences)
		Comprehension- Knowledge (<i>GC</i>) <i>General (verbal)</i> <i>information</i> (KD)				
	19: Social Studies	Domain-Specific Knowledge (Gkn) Knowledge of culture (K2) Geography achievement (A5)	Auditory (questions) Visual (text, pictures)	Responding to questions about social studies	Implicit, declarative category-specific memory	Oral (words, sentences)
		Comprehension- Knowledge (<i>Gc</i>) <i>General (verbal)</i> information (KD)				
	20: Humanities	Domain-Specific Knowledge (<i>Gkn</i>) Knowledge of culture (K2)	Auditory (questions) Visual (text, pictures)	Responding to questions about humanities	Implicit, declarative category-specific memory	Oral (words, sentences)
		Comprehension- Knowledge (<i>Gc</i>) <i>General (verbal)</i> information (K0)				

the 5-3. UIV OL Test Content, rocess, and Construct	Oral Language Test	Primary Broad CHC Ability Narrow Ability	Stimuli	Task Requirements	Cognitive Processes	Response
Descriptions	1: Picture Vocabulary (10: Vocabulario sobre dibujos)	Comprehension- Knowledge (Gc) Lexical knowledge (VL) Language development (LD)	Visual (pictures)	Identifying objects	Object recognition; lexical access and retrieval	Oral (words)
	2: Oral Comprehension (11: Comprensión oral)	Comprehension- Knowledge (Gc) Listening ability (LS)	Auditory (text)	Listening to an oral passage and identifying a missing key word that makes sense	Construction of propositional representations through syntactic and semantic integration of orally presented passages in real time	Oral (words)
	3: Segmentation	Auditory Processing (Ga) Phonetic coding (PC)	Auditory (words)	Listening to a word and breaking it into syllables or phonemes	Analysis of acoustic, phonological elements in immediate awareness	Oral (word parts, phonemes)
	4: Rapid Picture Naming	Long-Term Retrieval (<i>GIr</i>) Naming facility (NA) Speed of lexical access (LA)	Visual (pictures)	Recognizing objects, then retrieving and articulating their names rapidly	Speed/fluency of retrieval and oral production of recognized objects; speeded serial naming; rapid object recognition	Oral (words)
	5: Sertance Repetition	Short-Term Working Memory (Gwm) Memory span (MS) Comprehension- Knowledge (Gc) Listening ability (LS)	Auditory (words, sentences)	Listening to and repeating words, phrases, or sentences in the correct sequence	Formation of echoic memories aided by a semantic, meaning-based code	Oral (words, sentences)
	6: Understanding Directions (12: Comprensión de indicaciones)	Short-Term Working Memory (Gwm) Working memory capacity (WM) Comprehension- Knowledge (GC) Listening ability (LS)	Visual (pictures) Auditory (text)	Studying a picture, then listening to a sequence of instructions and following the directions by pointing to items in the picture	Construction of a mental structure in immediate awareness and modification of the structure via mapping	Motoric (pointing)
	7: Sound Blending	Auditory Processing (Ga) Phonetic coding (PC)	Auditory (phonemes)	Synthesizing language sounds (phonemes) to say a word	Synthesis of acoustic, phonological elements in immediate awareness; matching the sequence of elements to stored laxical entries; lexical activation and access	Oral (words)
	8: Retrieval Fluency	Long-Term Retrieval (GIr) Speed of lexical access (LA) Ideational fluency (FI)	Auditory (directions only)	Naming as many examples as possible in a given category within 1 minute	Pecognition, fluent retrieval, and oral production of examples of a semantic category; activation of semantic network; speeded name generation	Oral (words)
	9: Sound Awareness	Auditory Processing (Ga) Phonetic coding (PC)	Auditory (questions, words)	Providing a rhyming word; removing parts of words to make a new word	Access, retrieval, and application of the rules of English phonology	Oral (words)

Table 5-2. WJ IV COG Test Content, Process, and Construct	Cognitive Test	Primary Broad CHC Ability Narrow Ability	Stimuli	Task Requirements	Cognitive Processes	Response
escriptions	1: Oral Vocabulary A: Synonyms B: Antonyms	Comprehension- Knowledge (GC) Lexical knowledge (VL) Language development (LD)	Auditory (words)	Listening to a word and providing a synonym; listening to a word and providing an antonym	Semantic activation, access, and matching	Oral (words)
	2: Number Series	Fluid Reasoning (<i>GY</i>) <i>Quantitative reasoning</i> (RQ) <i>Induction</i> (I)	Visual (numeric)	Determining a numerical sequence	Representation and manipulation of points on a mental number line; identifying and applying an underlying rule/ principle to complete a numerical sequence	Oral (numbers)
	3: Verbal Attention	Short-Term Working Memory (<i>Gwm</i>) Working memory capacity (WM) Attentional control (AC)	Auditory (words, numbers)	Listening to a series of numbers and animals interminglod and answering a specific question regarding the sequence	Controlled executive function; working memory capacity; recoding of acoustic, verbalized stimuli held in immediate awareness; selective auditory attention; attentional control	Oral (words)
	4: Letter-Pattern Matching	Processing Speed (Gs) Perceptual speed (P)	Visual (letters)	Rapidly locating and circling identical letters or letter patterns	Speeded visual perception and matching; visual discrimination; orthographic processing; divided attention	Motoric (circling)
	5: Phonological Processing A: Word Access B: Word Fluency C: Substitution	Auditory Processing (Ga) Phonetic coding (PC) Word fluency (GIr-FW) Speed of lexical access (GIr-LA)	Auditory (words)	Providing a word with a specific phonic element; naming as many words as possible that begin with a specified sound; substituting part of a word to make a new word	Semantic activation, access; speed of lexical access	Oral (words)
	6: Story Recall	Long-Term Retrieval (GIr) Meaningful memory (MM) Listening ability (Gc-LS)	Auditory (text)	Listening to and recalling details of stories	Construction of propositional representations and recoding	Oral (passages)
	7: Visualization A: Spatial Relations B: Block Rotation	Visual Processing (Gv) Visualization (Vz)	Visual (shapes, designs)	Identifying two- dimensional pieces that form a shape; identifying two three- dimensional rotated block patterns that match a target	Visual feature detection; manipulation (mental rotation) of visual images in space; matching	Oral (letters) or Motoric (pointing)
	8: General Information A: Where B: What	Comprehension- Knowledge (<i>GC</i>) <i>General (verbal)</i> <i>information</i> (K0)	Auditory (questions)	Identifying where an object is found and what people typically do with an object	Semantic activation and access to declarative generic knowledge	Oral (phrases, sentences)
	9: Concept Formation	Fluid Reasoning (Gf) Induction (I)	Visual (drawings)	Identifying, categorizing, and determining rules	Rule-based categorization; rule switching; induction/ inference	Oral (words)
	10: Numbers Reversed	Short-Term Working Memory (Gwm) Working memory capacity (WM) Attentional control (AC)	Auditory (numbers)	Listening to and recalling a sequence of digits in reversed order	Span of apprehension and recoding in working memory; working memory capacity, attentional capacity	Oral (numbers)

I ADIE 5-2. (CONT.) WJ IV COG Test Content, Process, and Construct	Cognitive Test	Primary Broad CHC Ability Narrow Ability	Stimuli	Task Requirements	Cognitive Processes	Response
Descriptions	11: Number-Pattern Matching	Processing Speed (<i>Gs</i>) Perceptual speed (P)	Visual (numbers)	Rapidly locating and circling identical numerals from a defined set	Speeded visual perception and matching; visual discrimination; divided attention	Motoric (circling)
	12: Nonword Repetition	Auditory Processing (Ga) Phonetic coding (PC) Memory for sound patterns (UM) Memory span (Gwm-MS)	Auditory (nonsense words)	Listening to a nonsense word and repeating it exactly	Analysis of a sequence of acoustic phonological elements in immediate awareness; efficiency of the phonological loop	Oral (words)
	13: Visual-Auditory Learning	Long-Term Retrieval (<i>Glr</i>) Associative memory (MA)	Visual (rebuses) Auditory (words)	Learning and recalling pictographic representations of words	Paired-associative encoding via directed spotlight attention; storage and retrieval	Oral (sentences)
	14: Picture Recognition	Visual Processing (GV) Visual memory (MV)	Visual (pictures)	Recognizing a subset of previously presented pictures within a field of similar distracting pictures	Formation of iconic memories and matching of visual stimuli to stored visual representations	Oral (words) or Motoric (pointing)
	15: Analysis- Synthesis	Fluid Reasoning (<i>Gf</i>) General sequential reasoning (RG)	Visual (drawings)	Analyzing puzzles (using symbolic formulations) to determine missing components	Algorithmic reasoning; deduction	Oral (words)
	16: Object-Number Sequencing	Short-Term Working Memory (<i>Gwm</i>) <i>Working memory capacity</i> (WM)	Auditory (words, numbers)	Listening to a series of numbers and words intermingled and recalling in two reordered sequences	Recoding of acoustic, verbalized stimuli held in immediate awareness; working memory capacity	Oral (words, numbers)
	17: Pair Cancellation	Processing Speed (<i>Gs</i>) Perceptual speed (P) Spatial scanning (<i>Gv</i> -SS) Attentional control (<i>Gwm</i> -AC)	Visual (drawings)	Rapidly locating and marking a repeated pattern	Executive processing; attentional control; inhibition and interference control; sustained attention	Motoric (circling)
	18: Memory for Words	Short-Term Working Memory (Gwm) Memory span (MS)	Auditory (words)	Listening to and repeating a sequence of unrelated words	Formation of echoic memories and verbalizable span of echoic store	Oral (words)

Table 5-4.	Test/Cluster From WJ IV OL	Test/Cluster From WJ IV ACH	Consider	
Example Comparisons Using WJ IV OL and WJ IV	Test 1: Picture Vocabulary	Test 17: Reading Vocabulary	Role of oral vocabulary knowledge in reading vocabulary	
ACH Tests and Clusters	Test 2: Oral Comprehension	Test 4: Passage Comprehension	Role of oral language in reading	
	Broad Oral Language	Reading Comprehension	comprehension	
	Listening Comprehension	Reading Comprehension- Extended		
	Test 3: Segmentation	Test 1: Letter-Word Identification	Role of phonological/phonemic	
	Test 7: Sound Blending	Test 3: Spelling	awareness in decoding or encoding	
	Test 9: Sound Awareness	Test 7: Word Attack	Idono	
		Test 16: Spelling of Sounds		
	Phonetic Coding	Basic Reading Skills		
		Phoneme-Grapheme Knowledge		
	Test 4: Rapid Picture Naming	Test 8: Oral Reading	Role of rapid naming and/or speed	
	Test 8: Retrieval Fluency	Test 9: Sentence Reading Fluency	of lexical access in any reading	
		Test 15: Word Reading Fluency	nuency difficulties	
	Speed of Lexical Access	Reading Fluency		



Sample Statements for Report Writing

- "In addition to these strengths, she was able to perform all tasks that require processing speed (Gs) as Letter-Pattern Matching, Sentence Reading Fluency, Sentence writing fluency all were in the range of SS 106-112) EXCEPT for math facts fluency which the obtained standard score of 66, RPI 3/90. This finding suggests that Olivia struggles with processing speed when paired with math calculations and is specific to math."
- "Tony displays strengths on tasks that have limited language demands, with most of his weaknesses on tasks that require adequate language development. For example, he scored in the average range on tasks that required quantitative reasoning (Number Series, SS 98; Calculation, SS-92), however when language comprehension was required to quantitatively reason (Applied Problems, SS 67) he scored significantly less."

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