Woodcock-Johnson® III

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Comparative Features of the *WJ III® Tests of Cognitive Abilities* and the Wechsler Intelligence Scales

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This document includes five tables that compare the WJ III Tests of Cognitive Abilities *(WJ III COG; Woodcock, McGrew, & Werder, 2001) to the Wechsler intelligence scales, including the* Wechsler Adult Intelligence Scale–Third Edition *(WAIS-III; Wechsler, 1997a), the* Wechsler Intelligence Scale for Children–Third Edition *(WISC-III; Wechsler, 1991), and the* Wechsler Preschool and Primary Scale of Intelligence–Revised *(WPPSI-R; Wechsler 1989). These tables make comparisons along a number of different dimensions, including content features (Table 1), administration features (Table 2), interpretation features (Table 3) and technical features (Table 4). Table 5 presents the broad and narrow cognitive abilities that underlie the WJ III COG and Wechsler batteries according to the well-validated Cattell-Horn-Carroll theory of cognitive abilities (CHC theory). This information may assist practitioners in test interpretation and provide insight into variation in test performance.*

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Comparative Features of the *WJ III Tests of Cognitive Abilities*

Table 1. Content Features

Content Features	Intelligence Battery	
	WJ III COG (2001)	Wechslers (1991–1997)
Age range of battery	Age 2 to 90+	WPPSI-R: Age 2-11 to 7-3 WISC-III: Age 6-0 to 16-11 WAIS-III: Age 16-0 to 89
Broad measure of general intelligence	General Intellectual Ability	Full Scale IQ (FSIQ)
Total test composite limited to subtests with high factor loadings on the first principle factor (omits subtests with low loadings on this factor)	No	No
Independent lower-order composite scores	1. Long-Term Retrieval 2. Short-Term Memory 3. Processing Speed 4. Auditory Processing 5. Visual Processing 6. Comprehension-Knowledge 7. Fluid Reasoning	WPPSI-R: 1. Verbal Scale 2. Performance Scale WISC-III/WAIS-III: 1. Verbal Comprehension 2. Perceptual Organization 3. Freedom from Distractibility (WISC-III) 4. Working Memory (WAIS-III) 5. Processing Speed
Nonverbal composite (requires receptive language but no oral	N/A	Yes
Nonverbal composite (requires no receptive or expressive language)[a]	N/A	No
Number of cognitive subtests normed at each age	Total: 20 Age 2-0 to 90+: 7 Age 4-0 to 90+: 20	WPPSI-R: 12 across age range WISC-III: 13 across age range WAIS-III: 14 across age range
Differential aptitude measures for predicting specific achievement criteria	Yes 1. Oral Language Aptitude 2. Reading Aptitude 3. Mathematics Aptitude 4. Written Language Aptitude 5. Knowledge Aptitude	No

Table 1. Content Features (cont.)

Content Features	Intelligence Battery	
	WJ III COG (2001)	Wechslers (1991–1997)
Controlled-learning tests[b]	Yes 1. Visual-Auditory Learning 2. Concept Formation 3. Analysis-Synthesis	No
Tasks are unspeeded (except those intended to measure speed)	Yes	No
Separately designed subtests for preschool children with varied printed and manipulative materials	No	WPPSI-R: Yes[d] WISC-III: N/A WAIS-III: N/A
Allows longitudinal followup with same measures across the age range of the	Yes	Yes

Note: N/A means not applicable.

[a] Tests are administered in pantomime and all responses are nonverbal.

[b] Tests that measure learning with corrective feedback provided throughout administration of the task.

[c] The same set of tests used for young subjects are also used for older subjects.

[d] It is important to note that although the WPPSI-R includes novel subtests specifically designed for preschoolers, many of its subtests are downward extensions of the WISC-III subtests.

Table 2. Administration Features

Administration Features	Intelligence Battery	
	WJ III COG (2001)	Wechslers (1991–1997)
Tests of auditory processing and/or memory taped for standardized administration	Yes	No
Principle of selective testing by assessment purpose emphasized[a]	Yes	No
Comprehensive manual includes examiner training activities[b]	Yes	No
Spanish-language version available	Not at this time	WISC-RM (Wechsler, 1984) EIWN-R-PR (Wechsler, 1993)[c]
Administration time	Standard Battery: 35–45 min. Extended Battery: 90 min.	WPPSI-R: 50–70 min. Optional Subtests: 10–15 min. WISC-III: 50–70 min. Optional Subtests: 10–15 min. WAIS-III: 60–90 min. Optional Subtests: 10–15 min.

[a] The phrase “selective testing” means that the test author/publisher encourages practicioners to tailor the battery to referral concerns.

[b] Examiner training activities include an examiner training checklist, an observation checklist, and so forth.

[c] Spanish norms provided by the publisher.

Table 3. Interpretation Features

Interpretation Features	Intelligence Battery	
	WJ III COG (2001)	Wechslers (1991–1997)
Types of derived scores: Developmental level scores	1. Age Equivalent 2. Grade Equivalent	Composite Test Age
Proficiency level scores[a]	1. Instructional Ranges 2. Developmental Level Bands 3. Relative Mastery Index	No
Peer comparison scores	1. Percentile Rank 2. Standard Score 3. T-Score 4. Normal Curve Equivalent 5. Stanine 6. CALP	1. Percentile Rank 2. IQ/Index
College/university norms[b]	Yes	WPPSI-R: N/A WISC-III: N/A WAIS-III: No
Co-normed with tests of achievement/special purpose batteries	Yes (WJ III ACH)	Yes (WAIS-III with WMS-III [Wechsler, 1997b])
Linked with tests of achievement/special purpose batteries	No	Yes (WPPSI-R and WISC-III linked to WIAT [Psychological Corporation, 1992]; WISC-III linked to CMS [Cohen, 1997]; and WISC-III and WAIS-III linked to WASI [Psychological Corporation,
Ability (aptitude)/achievement analysis based on *actual* discrepancy norms[c]	Yes	WPPSI-R: No WISC-III: No WAIS-III: No[d]
Ability (aptitude)/achievement analysis based on *estimated* discrepancy norms (e.g., correction for regression procedures)	No	WPPSI-R: Yes (with WIAT) WISC-III: Yes (with WIAT) WAIS-III: Not at this time
Significant high or low scores, compared to examinee's other scores, immediately identifiable on Record Form (i.e., separate tables are not needed)	No	No
Range of standard scores for total test composite	0 to 200	WPPSI-R: 41 to 160 WISC-III: 40 to 160 WAIS-III: 45 to 155
Confidence bands for composites centered on estimated true scores	Yes	WPPSI-R: No WISC-III: Yes WAIS-III: Yes
Confidence bands are plotted on profile	Yes	WPPSI-R: No WISC-III: Yes WAIS-III: Yes

[a] Quality of performance on age- or grade-level tasks.

[b] Refers to individuals who are enrolled in post-secondary educational institutions (grades 13-0 to 16-9). That is, separate grade norms are used to compare the individual to other college/university students whereas age norms include college *and* non-college individuals.

[c] Allows for a comparison of an individual's aptitude-achievement discrepancy with actual distributions of discrepancy scores obtained from a nationally representative sample (McGrew, 1994, p. 215; see also McGrew, Werder, & Woodcock, 1991).

[d] The WAIS-III provides ability/memory discrepancy analyses with the WMS-III based on actual discrepancy norms.

Table 4. Technical Features

Technical Features	Intelligence Battery	
	WJ III COG (2001)	Wechslers (1991–1997)
Rasch model used for item analysis and scaling	Yes	WPPSI-R: Yes WISC-III: Yes WAIS-III: Yes
Uses Rasch-based scale for measuring growth	Yes	No
Person variables in norming plan	1. Sex 2. Race 3. Hispanic Origin 4. Parent Education 5. Type of School (public, private, home) 6. Occupation of Adults 7. Occupational Status 8. Education of Adults	1. Gender 2. Race/Ethnicity (confounding Race and Hispanic Origin) 3. Family SES (Occupation and Education)
Community variables in norming plan	1. Location 2. Size 3. 13 Community Socioeconomic Variables[d]	1. Location 2. Size
Size of norming sample for the broad measure of intelligence	6,085	WPPSI-R: 1,700 (Average number per year of age: 283) WISC-III: 2,200 (Average number per year of age: 200) WAIS-III: 2,450 (average number per age group: 200)
Norms weighted to correct sample mismatch to population	Yes	No
Age blocks in norm tables[a]	Age 2-0 to 18-11: one-month blocks Age 19 to 90+: one-year blocks	WPPSI-R: three-month blocks WISC-III: four-month blocks WAIS-R: Age 16-0 to 19: two-year blocks Age 20 to 34: five-year blocks Age 35 to 64: ten-year blocks Age 65 to 89: five-year blocks
Grade-based norm tables available	Yes, by month from K.0 to 18.0	No
Bias analysis conducted with minority samples	Yes	WPPSI-R: Yes WISC-III: Yes WAIS-III: Yes
Mean floor of subtests at age 3-0[b]	In progress	WPPSI-R: –1.6 WISC-III: N/A WAIS-III: N/A
General composite standard score for a child at age 3-0 obtaining a raw score of 1 on all subtests	In progress	WPPSI-R: 68 WISC-III: N/A WAIS-III: N/A
SEM provided for each subtest score level[c]	Yes	No

[a] In most cases, age blocks represent linear interpolations.

[b] Standard deviations below the mean for a raw score of 1.

[c] This is an interpretive feature of Rasch, representing an advance from the classical approach of assigning a single *SEM* to all scores obtained on a subtest.

[d] Distribution of values controlled in the set of communities: three levels of adult education, three classes of occupational status, and three classes of occupation. For colleges and universities: two types of institutions and sources of funding.

Table 5. Coverage of Cattell-Horn-Carroll Broad and Narrow Cognitive Abilities[a]

Broad Cognitive Factor	WJ III COG (2001)	
	Tests[b]	Primary Narrow Ability[c]
Crystallized Intelligence	VERBAL COMPREHENSION	Lexical Knowledge Language Development
	GENERAL INFORMATION	General Information
Long-Term Storage and Retrieval	VISUAL-AUDITORY LEARNING	Associative Memory
	RETRIEVAL FLUENCY	Ideational Fluency
	VISUAL-AUDITORY LEARNING–DELAYED	Associative Memory
Visual Processing	SPATIAL RELATIONS	Visualization Spatial Relations
	PICTURE RECOGNITION	Visual Memory
	PLANNING	Spatial Scanning
Auditory Processing	SOUND BLENDING	Phonetic Coding: Synthesis
	AUDITORY ATTENTION	Ideational Fluency
	INCOMPLETE WORDS	Phonetic Coding: Analysis
Fluid Reasoning	CONCEPT FORMATION	Induction
	ANALYSIS-SYNTHESIS	General Sequential Reasoning
Processing Speed	VISUAL MATCHING	Perceptual Speed
	DECISION SPEED	Semantic Processing
	RAPID PICTURE NAMING	Naming Facility
	PAIR CANCELLATION	Attention and Concentration
Short-Term Memory	NUMBERS REVERSED	Working Memory Memory Span
	MEMORY FOR WORDS	Memory Span
	AUDITORY WORKING MEMORY	Working Memory Memory Span
Quantitative Knowledge	None	None

Table 5. Coverage of Cattell-Horn-Carroll Broad and Narrow Cognitive Abilities[a] *(cont.)*

Broad Cognitive Factor	Wechslers (1991–1997)	
	Tests[b]	Primary Narrow Ability[c]
Crystallized Intelligence	INFORMATION	General Information
	VOCABULARY	Language Development Lexical Knowledge
	SIMILARITIES	Language Development Lexical Knowledge
	COMPREHENSION	Language Development General Information
Long-Term Storage and Retrieval	None	None
Visual Processing	BLOCK DESIGN	Spatial Relations Visualization
	OBJECT ASSEMBLY	Closure Speed Spatial Relations
	Mazes	Spatial Scanning
	Picture Completion	Flexibility of Closure General Information (*Gc*)
	Picture Arrangement	Visualization General Information (*Gc*)
	Geometric Designs	Visualization *Psychomotor*–Finger Dexterity
Auditory Processing	None	None
Fluid Reasoning	MATRIX REASONING	Induction
Processing Speed	CODING/DIGIT-SYMBOL	Rate-of-Test-Taking
	SYMBOL SEARCH	Perceptual Speed Rate-of-Test-Taking
	Animal Pegs	Rate-of-Test-Taking
Short-Term Memory	DIGIT SPAN	Memory Span
	LETTER-NUMBER SEQUENCING	Working Memory Memory Span
	Sentences	Memory Span Language Development (*Gc*)
Quantitative Knowledge	Arithmetic	Math Achievement

Note: Information presented in this table was adapted from McGrew and Flanagan (1998), Flanagan, McGrew, and Ortiz (2000), and Flanagan and Ortiz (2001).

[a] The information in this table is most useful for the purpose of guiding practitioners in combining and interpreting data across batteries. It is important to understand, however, that practitioners whose views of the structure of intelligence and whose assessment practices and needs are in line with the theoretical basis of the individual batteries included in this table (i.e., theoretical bases that differ from CHC theory) may use any of these instruments as stand-alone batteries that measure *g* (general ability or intelligence) as well as other theoretical constructs purported to underlie these measures in a valid and reliable manner.

[b] Test names printed in BOLD UPPERCASE are strong measures as defined empirically; test names printed in **bold lowercase** are moderate measures as defined empirically; test names printed in regular type are classified logically, and test names printed in *italics* are mixed measures as defined empirically.

[c] In the absence of extensive empirical data upon which to evaluate and categorize the narrow abilities underlying individual subtests, McGrew's (1997) and McGrew and Flanagan's (1998) classification system was adopted. Specifically, these abilities were derived through an expert consensus process that revealed a moderate to strong correspondence between the content and task demands of a test and a particular CHC narrow ability definition.

Appendix A. Index of Abbreviations

CMS	*Children's Memory Scale*
EIWN-R-PR	*Escala de Inteligencia Wechsler para Niños–Revisada de Puerto Rico*
WAIS-III	*Wechsler Adult Intelligence Scale–Third Edition*
WASI	*Wechsler Abbreviated Scale of Intelligence*
WIAT	*Wechsler Individual Achievement Test*
WISC-III	*Wechsler Intelligence Scale for Children–Third Edition*
WISC-RM	*WISC-RM escala de inteligencia para nivel escolar Wechsler.*
WJ III COG	*Woodcock-Johnson III Tests of Cognitive Abilities*
WMS-III	*Wechsler Memory Scale–Third Edition*
WPPSI-R	*Wechsler Preschool and Primary Scale of Intelligence–Revised*

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