

# Test Review

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001).  
Woodcock-Johnson® III Test. Riverside Publishing  
Company. Itasca, IL

## PURPOSE AND NATURE OF TEST

The Woodcock-Johnson® III (WJ III) is an individually administered battery of tests that provide a comprehensive measure of abilities and achievement across a wide age range. This battery of tests represents the most recent revision of the original Woodcock-Johnson Psycho-Educational Battery (WJ) published in 1977. The WJ III consists of two distinct, co-normed batteries: the WJ III Tests of Cognitive Abilities (WJ III COG) and the WJ III Tests of Achievement (WJ III ACH), Forms A and B. This co-norming procedure allows the batteries to function together as a diagnostic system for evaluating domain-specific skills with related cognitive abilities as well as traditional ability/achievement discrepancies. Together, these batteries provide for either comprehensive or focused norm-referenced assessments of general intellectual ability, specific cognitive abilities, oral language, and academic achievement (McGrew & Woodcock, 2001). The WJ III batteries are designed to maintain a range of measurement extending from children as young as age 2 years up through adults over 90 years of age.

## PRACTICAL APPLICATIONS

The WJ III COG and WJ III ACH each consists of a standard and an extended battery. Depending on the purpose of the assessment, the WJ III batteries may be used alone in standard or extended format or in combination with tests and clusters from the other battery (McGrew & Woodcock, 2001). The WJ III ACH is available in two forms (Forms A and B) of parallel content, which allows more frequent alternated use of this battery to measure achievement while reducing the effects of familiarity with

test items on performance (Mather & Woodcock, 2001a; Webster, 1994).

Each battery contains two easel test books, an examiner's manual and training workbook, a technical manual, a computer scoring program, examinee test records and response booklets, an audio recording, and scoring guides. Examiners must provide a stopwatch, audiocassette tape player with head phones, and pencils. Computerized scoring and profiling have replaced the complicated and tedious hand-scoring process of the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R; Lee & Stefany, 1995; Webster, 1994). Although estimated age- and grade-equivalent scores are still available from the "scoring tables" in the test record, for most tests use of the WJ III Compuscore™ and Profile Program is now required to complete all other scoring. This program calculates derived scores and discrepancies and provides a summary narrative report, age/grade profiles, and standard score/percentile rank profiles.

In function, the WJ III is designed to help reduce testing time and simplify administration by focusing testing at the individual's ability level and administering only the items and tests that are needed, unless a comprehensive overview is needed. The authors stress that examiners should follow the principle of selective testing in using the WJ III batteries. Application of the principle of selective testing will result in efficient testing and save considerable testing time in many situations. As is the case in any proper assessment, examiners must first formulate the assessment questions that need to be answered and then tailor the assessment to answer the questions. The test books' introductory sections includes a selective testing table that indicates which tests must be administered to obtain certain measures. These selective testing tables will facilitate the matching process between assessment ques-

tions and the assessment process (McGrew & Woodcock, 2001, p. 16).

Administration of the WJ III is relatively straightforward and easy to learn. The batteries were designed for convenience in test administration without using cumbersome test materials. The standard and extended test book easels are smaller than those used in the WJ-R. Test items for the WJ III COG and WJ III ACH are presented orally (some test items use a taped presentation), visually, or in both modalities concurrently, using timed and untimed formats requiring either oral or written responses. The standing easel test book enables the examiner to record responses on the test record out of the examinee's view. The authors state that special efforts were made to develop tests that measure all aspects of cognition and achievement without using manipulatives (McGrew & Woodcock, 2001). With the exception of timed tests, each test requires the examiner to establish a basal and ceiling level to limit the difficulty range of items that must be administered. These criteria vary among tests but are easily found in the test book and test record. Scoring of test items is very objective.

In keeping with the *Standards for Educational and Psychological Testing* (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999), the manuals also provide a number of administration accommodations to allow individuals with unique needs to participate more fully in the evaluation process. Included in these guidelines are recommended accommodations for young children, English language learners, and individuals with learning or reading difficulties, attention or behavioral difficulties, and hearing, visual, or physical impairments.

To expand specific skill and content areas for assessment, eight new tests (Auditory Working Memory, General Information, Retrieval Fluency, Auditory Attention, Decision Speed, Rapid Picture Naming, Planning, Pair Cancellation) and nine new clusters (Brief Intellectual Ability, Verbal Ability, Thinking Ability, Cognitive Efficiency, Phonemic Awareness, Working Memory, Broad Attention, Cognitive Fluency, Executive Processes) were added to the WJ III COG. Seven new tests (Reading Fluency, Story Recall, Understanding Directions, Math Fluency, Story Recall-Delayed, Spelling of Sounds, Sound Awareness) and eight new clusters (Oral Language, Listening Comprehension, Oral Expression, Phoneme/Grapheme Knowledge, Academic Skills, Academic Fluency, Academic Applications, Total Achievement) were added to the WJ III ACH.

The theoretical foundation of the WJ III COG was derived from the Cattell-Horn-Carroll model of cognitive processing, called Gf-Gc theory in the WJ-R. Gf-Gc is an acronym for fluid (Gf) and crystallized (Gc) intellectual abilities (McGrew & Woodcock, 2001). Building on two similar, empirically derived theories on the structure of

human cognitive abilities, the authors conceptualized that intellectual ability can be measured and predicted in terms of seven broad abilities, which in turn encompass about 70 narrow factors. The seven broad Gf-Gc cognitive abilities assessed by the WJ III include Comprehension-Knowledge (Gc); Long-Term Retrieval (Glr); Visual-Spatial Thinking (Gv); Auditory Processing (Ga); Fluid Reasoning (Gf); Processing Speed (Gs); and Short-Term Memory (Gsm). These abilities may then be grouped into three areas: Verbal Ability (Gc), Thinking Ability (Glr, Gv, Ga, Gf), and Cognitive Efficiency (Gs, Gsm).

The WJ III COG contains 20 tests, each developed to measure a different aspect of the seven broad Gf-Gc abilities. These tests are divided into two batteries: the standard battery (Tests 1 through 10: Verbal Comprehension [Gc], Visual-Auditory Learning [Glr], Spatial Relations [Gv], Sound Blending [Ga], Concept Formation [Gf], Visual Matching [Gs], Numbers Reversed [Gsm], Incomplete Words [Ga], Auditory Working Memory [Gsm], Visual-Auditory Learning-Delayed [Glr]) and the extended battery (Tests 11 through 20: General Information [Gc], Retrieval Fluency [Glr], Picture Recognition [Gv], Auditory Attention [Ga], Analysis-Synthesis [Gf], Decision Speed [Gs], Memory for Words [Gsm], Rapid Picture Naming [Gs], Planning [Gf/Gv], Pair Cancellation [Gs]). Depending on the purpose and extent of the assessment, an examiner can use the standard battery alone or in conjunction with the extended battery (Mather & Woodcock, 2001b). There is also a Brief Intellectual Ability (BIA) measure (consists of Tests 1 [Verbal Comprehension], 5 [Concept Formation], and 6 [Visual Matching]) that may be used for screening purposes.

The WJ III ACH, Forms A and B, consists of 22 tests subdivided into two batteries: the standard battery (Tests 1 through 12: Letter-Word Identification, Reading Fluency, Story Recall, Understanding Directions, Calculation, Math Fluency, Spelling, Writing Fluency, Passage Comprehension, Applied Problems, Writing Samples, Story Recall-Delayed) and the extended battery (Tests 13 through 22: Word Attack, Picture Vocabulary, Oral Comprehension, Editing, Reading Vocabulary, Quantitative Concepts, Academic Knowledge, Spelling of Sounds, Sound Awareness, Punctuation and Capitalization).

The WJ III ACH tests are grouped into five curricular areas: Reading, Mathematics, Written Language, Oral Language, and Academic Knowledge. Each broad achievement cluster (i.e., Reading, Mathematics, and Written Language) contains three tests measuring basic skills, fluency, and application. Using the standard battery provides a broad set of scores; the extended battery allows more in-depth diagnostic assessment of specific academic strengths and weaknesses (Mather & Woodcock, 2001a).

Although the WJ III incorporates a number of features to minimize the complexity of learning the administration and scoring procedures, administration of the

WJ III requires proficiency in test administration and scoring procedures. Graduate-level training in cognitive ability assessment (WJ III COG) and educational assessment (WJ III ACH) and a background in diagnostic decision making are recommended for interpretation (Mather & Woodcock, 2001a, 2001b). Each battery includes a self-study, examiner-training workbook that provides a reference to facilitate administration and scoring of the WJ III (Wendling & Mather, 2001a, 2001b). The authors emphasize, however, that the workbooks need to be "used in conjunction with the examiner's manual—not in place of the manual" (p. 1). Careful examination, study, and review of the examiner's manuals and test materials are necessary before administering the WJ III (Mather & Woodcock, 2001a, 2001b; Webster, 1994).

Experienced examiners will typically require approximately 45 to 50 minutes to administer all of the tests in the WJ III COG standard battery and about 1½ to 1¾ hours to administer the tests in the extended battery (Mather & Woodcock, 2001b), according to the manual. For the WJ III ACH, the manual projects approximately 60 to 70 minutes to administer the standard battery, and about 5 to 10 minutes each for the other tests, with the exception of writing samples, which requires approximately 15 to 20 minutes to administer.

## TECHNICAL ASPECTS

As with the WJ-R, the technical manual provides an impressive array of statistical and empirical data to support the psychometric integrity of the WJ III (Webster, 1994). The norm group for the WJ III consisted of 8,818 subjects from over 100 geographically diverse communities throughout the United States. The norming sample was selected to be representative of the U.S. population from age 2 years to age 90 years and older. The sampling was selected based on 10 community and subject variables (e.g., community size, gender, race, education, occupation).

Test reliability is the degree to which scores are free of errors of measurement for a given group (American Education Research Association, American Psychological Association, and National Council on Measurements in Education, 1999). With few exceptions, the reliabilities of the WJ III tests and clusters are quite impressive. The reliability statistics for all but the timed tests and tests with multiple-point scoring systems were established using the split-half procedure correlated for length by the Spearman-Brown correlation formula. "In this respect, reliability truly reflects the internal consistency for each test and not the replicability of scores across test administrations" (Webster, 1994, p. 811). Reliabilities for the timed tests and those with multiple-point scored items were calculated using Rasch analysis procedures. Median reliability coefficients for most tests fall in the .80 range or higher,

with most median cluster score values .90 or higher. Because the WJ III cluster scores are based on combinations of two or more tests and show consistently higher reliabilities, the authors recommend these scores for interpretation, particularly when important decisions are being made about an individual (McGrew and Woodcock, 2001).

Test validity refers to the degree to which empirical evidence and theory support the use and interpretation of the test (American Education Research Association, American Psychological Association, and National Council on Measurements in Education, 1999). Evidence for the validity of the WJ III is provided for three categories: content, construct, and concurrent. The authors present an extensive list of studies that have provided a broad variety of content and construct validity evidence supporting the WJ III. These studies cover a wide age range as reported previously for many of the WJ III tests that originally appeared in the WJ and the WJ-R (McGrew & Woodcock, 2001).

Concurrent validity for the various WJ III tests and clusters was examined across different age levels and with different ability and achievement anchor tests. Specific tests examined in these studies included the Wechsler Preschool and Primary Scales of Intelligence-Revised, the Differential Ability Scales, the Stanford-Binet Intelligence Scales-Fourth Edition, the Wechsler Intelligence Scale for Children-Third Edition, the Cognitive Assessment System, the Wechsler Individual Achievement Tests, the Kaufman Test of Educational Achievement, the Universal Nonverbal Intelligence Test, the Comprehensive Test of Nonverbal Intelligence, the Leiter International Performance Scale-Revised, the Kaufman Adolescent and Adult Intelligence Test, the Oral and Written Language Scales, the Wide Range Achievement Test-Revision 3, and the Nelson-Denny Reading Test. Correlations between the WJ III tests and clusters with these other instruments generally fall in the moderate to high range, suggesting that the WJ III is measuring skills and abilities similar to those measured by other tests.

A major feature of the WJ III is that the norms for the WJ III COG and WJ III ACH are based on data from the same sample of subjects, allowing "direct comparisons among and within an examinee's scores that have a degree of accuracy not possible when comparing scores from separately normed tests" (McGrew & Woodcock, 2001, p. 3).

## CONCLUSION

The WJ III represents the "next generation" of tests in the Woodcock-Johnson lineage of comprehensive assessment instruments. This most recent revision of the Woodcock-Johnson Psycho-Educational Battery has a number of positive features that warrant strong consideration for inclusion in cognitive/achievement test batter-

ies. The WJ III COG is one of the few intelligence tests developed on the basis of a theory of cognitive processing (McGrew & Woodcock, 2001). The WJ III battery has impressive psychometric support for a broad age range. A particular strength of the WJ III is the comprehensiveness of its measurement and the co-norming of the ability and achievement batteries. Because all of the WJ III tests are co-normed, "comparisons among and between an individual's general intellectual ability, specific cognitive abilities, oral language, and achievement scores can be made with greater accuracy and validity than would be possible by comparing scores from separately normed instruments" (McGrew & Woodcock, 2001, p. 4). Another strength of the WJ III, from a practical applications standpoint, is the relative ease of administration and objective scoring. The manuals also provide a number of administrative features that allow for accommodations of individuals with disabilities and other special needs. In summary, the WJ III represents a commendable addition to the field of individually administered, norm-referenced cognitive/achievement testing and assessment. It is expected that these tests will set the standard by which similar instruments will be judged.

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#### NOTE

*WJ III Complete Battery* (includes cognitive and achievement test books, examiner's manuals, audiocassettes, 25 test records and response booklets, scoring software [Windows and Macintosh], technical manual, and scoring guides) sells for \$875; *WJ III Complete Battery with two carrying cases* sells for \$1,025; *WJ III Cognitive Abilities Battery*

(includes test books, examiner's manual, audiocassette, 25 test records and response booklets, scoring software [Windows and Macintosh], technical manual, and scoring guides) sells for \$399; *WJ III Cognitive Abilities Battery with carrying case* sells for \$475; *WJ III Achievement Battery Form A or B* (includes test books, examiner's manual, audiocassette, 25 test records and response booklets, scoring software [Windows and Macintosh], technical manual, and scoring guides) sells for \$399; *WJ III Achievement Battery with carrying case* sells for \$475; *test records and response booklets* (pkg. 25 each) sells for \$55.

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