

# Early Childhood Measurement and Evaluation Tool Review

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## Wechsler Preschool and Primary Scale of Intelligence – Third Edition [Canadian] (WPPSI-III<sup>CDN</sup>)

### Measurement Areas:

The Wechsler Preschool and Primary Scale of Intelligence – Third Edition (WPPSI-III) is designed to test **intelligence** (cognitive ability) in English-speaking children ages **2 years 6 months to 7 years 3 months** in the following content areas:

1. Verbal Reasoning
2. Concept Formation
3. Sequential Processing
4. Auditory Comprehension
5. Cognitive Flexibility
6. Social Judgment
7. Perceptual Organization
8. Processing Speed

### Purpose:

The WPPSI-III is a norm-referenced intelligence assessment tool that can be used to:

- measure general cognitive functioning,
- identify intellectual giftedness, mental retardation, and cognitive strengths and weaknesses,
- guide treatment program development,
- make placement decisions in clinical and educational settings, and
- provide clinical information for neuropsychological evaluation and research.

### Length and Structure:

The WPPSI-III is designed to assess individual children; administration time depends upon the age category the child falls into. According to the Administration and Scoring Manual, the core subtests take approximately 30-35 minutes for most children aged 2 years and 6 months to 3 years and 11 months, and approximately 40-50 minutes for most children age 4 years to 7 years 3 months. The younger group requires 4 core subtests, while the older group requires 7 core

subtests. Several of the subtests have age-based start/finish points and reversal rules that allow the examiner to reduce the amount of time spent testing.

**2 years 6 months – 3 years 11 months:** Children in this age group must complete 4 core subtests: Receptive Vocabulary, Information, Block Design, and Object Assembly; Picture Naming is also available as a supplemental subtest. Based on these measures 4 composite scores can be calculated: Verbal IQ (VIQ), Performance IQ (PIQ), Full-Scale IQ (FSIQ), and General Language Composite (GLC).

**4 years 0 months – 7 years 3 months:** Children that fall into this age group must complete 7 core subtests: Information, Vocabulary, Word Reasoning, Block Design, Matrix Reasoning, Picture Concepts, and Coding. Based on these measures 5 composite scores can be calculated: Verbal IQ (VIQ), Performance IQ (PIQ), Full-Scale IQ (FSIQ), General Language Composite (GLC), and Processing Speed Quotient (PSQ). Additionally, 7 supplemental subtests are available: Comprehension, Similarities, Picture Completion, Picture Naming, Receptive Vocabulary, Object Assembly, and Symbol Search.

Supplementary subtests (such as Picture Naming) can either be used to generate additional composite scores (such as GLC) or can be used to replace a core subtest. Specific rules for subtest substitution are discussed in the manual.

The number of items in each subtest varies depending upon age group; item score ranges differ for each subtest (e.g., the Information subtest is scored 0-1, while the Vocabulary subtest is scored 0-2). Raw scores are compiled and converted into scaled scores, composite scores (VIQ, PIQ, FSIQ, GLC, PSQ), standard scores, score profiles, percentile ranks, descriptive classifications, and test-age equivalents.

#### **Materials:**

The publisher classifies the WPPSI-III as a “Level C” qualification that is targeted to institutions with personnel possessing masters or doctorates of psychology or education, and/or has licensure in a relevant area of assessment.

The WPPSI-III is available in several kits: the complete Canadian kit in a box is sold by the publisher for CDN \$1760.00, and includes the Examiner Manual, Technical Manual, Canadian Manual, 25 Record Forms (for each age group), 25 Response Booklets, Stimulus and Manipulative Materials. Scoring and interpretation software (WPPSI-III Canadian Scoring Assistant and WPPSI-III Canadian Writer for Windows) are available for CDN \$330 and CDN \$756 respectively; these are also available bundled-in with the WPPSI-III kit at a discount.

#### **Accessibility:**

The WPPSI-III is available in the English and French languages, with normative guides available for several different countries (i.e. USA, Canada, and United Kingdom). The Canadian technical and interpretation manual has a small section on contextual considerations for testing in Canada. There is also a French version with Canadian norms (Francophone children).

### **Administration, Scoring, and Interpretation:**

The WPPSI-III manual suggests that the test examiners and scorers have (at minimum) technical training in test administration. Individuals with formal graduate-level or professional training in psychological assessment should interpret test results using the 10-step method described in the manual. The test is moderately easy to administer, easy to score, and moderately difficult to interpret based on the interpretation guide in the manual, relevant education and experience. The manual contains an extensive section on interpretation that includes samples of interpretive reports.

### **Subscales:**

The WPPSI-III consists of 5 subscales: Verbal IQ (VIQ), Performance IQ (PIQ), Full-Scale IQ (FSIQ), Processing Speed (PSQ), and General Language Composite (GLC). Each subscale consists of the scores from each of their respective subtests. As discussed previously (see Length and Structure, above), the number of subscales used in the test depends upon both the selection of subtests and the age of the child.

### **Documentation:**

The WPPSI-III Administration and Scoring Manual provides specific procedures for administration and scoring. The [Canadian] Technical and Interpretive Manual has comprehensive chapters on interpretation, test standardization, norm development, validity and reliability. Examples of interpretive reports are included in the manual, and show how the WPPSI-III can be used to improve clinical utility when used with other standardized tests.

### **Norming Sample:**

#### **Note: The following information pertains only to the Canadian edition of the WPPSI-III**

The WPPSI-III<sup>CDN</sup> was normed and standardized using a **Canadian** sample of 700 English-speaking children (50% Female, 50% Male) ages 2 years and 6 months to 7 years and 3 months. The sample was stratified according to demographic variables such as age, sex, race/ethnicity, parent education level, and geographic region. According to the authors, 3% of the sample consisted of children who were identified as having “various learning and attentional disorders who were participating in regular education classes.”

The authors maintain that a close correspondence was kept between the sample’s demographics and demographic information based on the 2001 Canadian Census. It should be noted that two northern Canadian regions (the Northwest Territories and Nunavut) were not included in the sample. Approximately 6% of the standardization sample was First Nations, which closely matches the 2001 Canadian Census demographic. According to the manual, persons classified as being First Nations included “Inuit,” “Métis,” and “North American Indians.” The manual contains a detailed report of the sample’s demographic information.

### **Reliability:**

#### **Note: The following information pertains only to the Canadian edition of the WPPSI-III**

The WPPSI-III manual discusses three kinds of reliability measures:

**Internal Consistency:** A split-half reliability test determined the reliability of scores for two halves of the test using the standardization sample's data. According to the manual, average reliabilities for the subtests fell between .81 and .94, and composite scales fell between .90 and .96, both suggesting a reasonable amount of score consistency.

**Test-retest Reliability:** A separate sample of 104 children was tested with the WISC-IV twice in a 2-7 week interval. The test-retest reliabilities were calculated, and yielded correlations in the .70s and .80s for both subtest scores and composite scores.

**Standard Error of Measurement and Confidence Intervals:** The manual also discusses the degree to which measurement error should contribute to an individual's observed score. According to the manual, if a child has a FSIQ score of 106, their "true score" should fall between 101 and 111 points at a 95% confidence interval.

### Validity:

**Note: The following information pertains only to the Canadian edition of the WPPSI-III**

The WPPSI-III Manual also contains a section on validity and validation. According to the authors, the WPPSI-III taps "a broad range of cognitive domains, including: verbal reasoning, concept formation, sequential processing, auditory comprehension, cognitive flexibility, social judgment, perceptual organization, and psychomotor processing speed." The technical and interpretive manual contains a chapter that discusses the rationale for item content in more depth.

**Construct and Convergent Validity:** The manual discusses an intercorrelation analysis that was performed on the WPPSI-III to determine how related each of the subtests were to each other. The authors hypothesized that the subtests would vary in their relations to each other (e.g., subtests within the Verbal scale would correlate more strongly with each other than if they were compared with other subtests), and that most of the intercorrelations would support a general intelligence factor *g*. Significant correlations were found between all subtests, and subtests generally correlated in the .50s and .60s with each other. According to the authors, the results suggest that the WPPSI-III does measure a single factor related to general cognitive intelligence, and that the scales have strongly-related subtests.

The manual includes a single study that shows the relationships of scores between the WPPSI-III (Canadian) and Wechsler Individual Achievement Test – Second Edition (WIAT-II). The study consisted of a Canadian sample of 74 children (ages 5 years and zero months to 7 years and 3 months) who were given both tests in a 0 to 6 week period. According to the authors, the PSQ (WPPSI-III) and Reading (WIAT-II) composite scales showed the lowest correlations between the tests (.31), while FSIQ (WPPSI-III) and Total Achievement (WIAT-II) showed the strongest relationship (.78). Other subscale scores were correlated to lesser degrees, which suggests to the authors that, "certain subtests relate differentially to specific domains of achievement."

### Publication Information:

This review is based on the 3<sup>rd</sup> edition of the Wechsler Preschool and Primary Scale of Intelligence [Canadian] published in 2004 by Harcourt Assessment.

### Materials Used for Tool Review:

- WPPSI-III Canadian Manual
- WPPSI-III Technical and Interpretive Manual
- WPPSI-III Administration and Scoring Manual
- Publisher's website
- Test Reviews

### References:

Publisher's website: [www.harcourtassessment.com](http://www.harcourtassessment.com)

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