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**The Wechsler Preschool and Primary Scales of Intelligence-Third Edition: Changes in  
Language Demands and the Relationship Between Recent Versions of the WPPSI and the**

**PLS**

**By**

**Elissa B. Cazassus, M.A., M.S.Ed.**

PREVIEW

**A Doctoral Project Submitted in Partial Fulfillment of  
The Requirements for the Degree of Doctor of Psychology  
In the Department of Psychology at Pace University**

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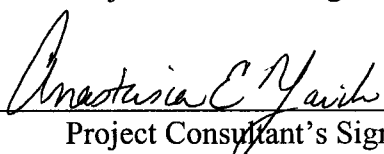
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## ABSTRACT

This study examined the effect of the revisions to the WPPSI-III on the level of receptive and expressive language demands of the test. Language demands were explored in relation to associated IQ scores. Service eligibility was also investigated vis a vis IQ scores. In addition, the correspondence between the nature of the revisions to the WPPSI-III, and the potential changes in the relationship between the WPPSI-III and the PLS-4 was investigated. The overall sample consisted of 221 preschool children, between the ages of 2 years, 7 months and 5 years, 3 months, who were referred for a comprehensive special education evaluation. WPPSI-III scores were obtained for 110 children, 76 of whom also had PLS-4 scores. WPPSI-R scores were obtained for 110 children, 82 of whom also had PLS-3 scores. An attempt was made to equate the two groups with regard to important demographic variables, such as age, sex, ethnicity, and reason for referral. Receptive and expressive language demands of both the WPPSI-III and the WPPSI-R were evaluated by two independent raters via a researcher created likert scale for use in categorizing relative language demands.

Results revealed that the WPPSI-III and the WPPSI-R differed significantly with regard to receptive and expressive language demands. The reduced language demands on the WPPSI-III, in turn, impacted IQ scores, as the children in this at-risk population who were evaluated with the WPPSI-III had significantly higher Verbal IQ scores than those who were assessed with the WPPSI-R. There was no significant difference between the correlations of the WPPSI-III and the PLS-4, and those of the WPPSI-R and the PLS-3.

One important implication of this study is that school and clinical psychologists must be very careful when utilizing an updated version of an intelligence test. Measuring cognitive functioning can become problematic during any period of transition from wide use of an established test to a revision, and this appears to be true for the WPPSI-III. The direction of the difference between the mean intelligence scores on the old and new instruments must be considered. Children in this at-risk population demonstrated higher Verbal IQ scores on the WPPSI-III, which is in the opposite direction of what would be predicted by the Flynn Effect. For this reason, psychologists can not necessarily give equal weight to IQ scores from the old and new versions of a test. Caution should be exercised with regard to service recommendation and considering reclassification. A balanced consideration of other diagnostic information will be most effective in preventing inappropriate discontinuance of services, especially in light of the reduced language demands on the WPPSI-III.

## CHAPTER 1

### INTRODUCTION

Revisions of the Wechsler intelligence scales have mirrored historical developments in the assessment of intelligence, as well as the practical and clinical needs of present-day society. The Wechsler Preschool and Primary Scales of Intelligence-Third Edition (WPPSI-III; Wechsler, 2002), a revision of the WPPSI-R, was introduced in 2002. With each revision of the Wechsler instruments, questions of agreement arise between the old and new versions. Release of the WPPSI-III renews these questions.

According to Vance, Maddux, Fuller, and Awadh (1996, p. 113), “the accuracy and efficiency of eligibility decisions depend partly upon the availability of reliable and valid instruments to measure cognitive functioning”. This can become problematic during any period of transition from wide use of an established test to its revision. This is especially true when the new norms result in significantly different mean scores on the old and new versions of the test for individuals taking both tests. It is therefore important to determine the relationship, or equivalence, of the two instruments.

Research consistently reveals different IQ scores on old and new versions of Wechsler instruments. These differences tend to be in the direction predicted by the Flynn effect. Named for political scientist, James Flynn, the Flynn effect indicates that IQ test norms become obsolete over time (Flynn, 1984, 1987, 1998). In effect, as time passes

and IQ norms get older, people perform better on the test, raising the mean IQ score by several points. When a test is renormed, the mean is reset to 100, which then “hides” the previous gains in IQ scores.

The Flynn effect has been noted for both the Wechsler Intelligence Scale for Children (WISC) and the Wechsler Adult Intelligence Scale (WAIS). The WISC-III manual (Wechsler, 1991) revealed the following estimates for IQ gains over the 17 years that separated the norming of the WISC-R and the WISC-III: 5.3 points for the Full scale; 2.4 points for the Verbal scale; and 7.4 points for the Performance scale. The WAIS-III manual (Wechsler, 1997) divulged the following estimates in IQ gains between the introduction of the WAIS-R and the WAIS-III: 2.9 points for the Full scale; 1.2 points for the Verbal scale; and 4.8 points for the Performance scale.

Other research has examined the significance of the Flynn effect for a school-aged special education population. A variety of studies have consistently determined that scores on renormed tests are at least 8 points lower than those on the older version of the test (Bolen, Aichinger, Hall, & Webster, 1995; Vance et al. 1996). This decrease in scores can be problematic when classification or educational services are under consideration, especially when eligibility is determined by ability-achievement discrepancies. The lower IQ scores on the newer version of the test could render the discrepancies nonsignificant and result in termination of services.

Mean composite score differences between the WPPSI-R and the WPPSI-III may also be in the direction predicted by the Flynn effect, with WPPSI-III scores consistently lower than WPPSI-R scores. Preliminary research, as noted in the WPPSI-III manual

(Wechsler, 2002), revealed very small differences in scores: 1.2 points for the Full scale; 0.4 for the Verbal scale; and 3.1 for the Performance scale. It is not clear what the differences are for an at-risk preschool population, and how these differences, in turn, would affect eligibility for services.

The WPPSI-III is a commonly utilized clinical instrument for assessing the intelligence of preschool children, as was its predecessor, the WPPSI-R (Wechsler, 1989). It is often used as part of a comprehensive evaluation in order to determine a young child's need and/or eligibility for intervention. A vast majority of preschoolers are evaluated due to concern regarding communication skills. At least 70% of preschool children with identified disabilities have speech, language, and communication impairments (U.S. Department of Education, 1987). Although the assessment of intelligence is an integral component of the multidisciplinary process of evaluating preschool age children who are suspected of having delays or impairments in development, typically both a cognitive and a language measure are utilized. In addition to the WPPSI, these youngsters are also frequently administered the Preschool Language Scale-4 (PLS-4; Zimmerman, Steiner, & Pond, 2002), or its precursor, the PLS-3 (Zimmerman, Steiner, & Pond, 1992) in order to assess their language development. Understanding the relationship between these two measures is a key steppingstone to a more integrated diagnostic process, as well as better intervention planning. Review of developmental literature finds no published data formally examining the correspondence between the WPPSI and the PLS (communication with the publisher of both instruments confirms this finding) despite the fact that they are often used together as part of a comprehensive evaluation. While each

child should continue to be provided with specialized evaluations (i.e., language and cognitive), the psychologist who is trying to synthesize and integrate the findings would be better able to serve the child by understanding the association between the two measures.

The purpose of this study is to investigate the effects of the revisions to the WPPSI-III. Specifically, changes in language demands and its effect on IQ scores and eligibility for services are examined. In addition, correspondence between the WPPSI-III and the PLS-4 are explicated, and this relationship is compared to that of their predecessors.

PREVIEW



## CHAPTER 2

### LITERATURE REVIEW

#### *Assessment and Eligibility*

One of the major functions accomplished by school psychologists is the assessment of cognitive functioning and the interpretation of test results in order to determine eligibility for special education services. Vance et al. (1996) reported that school psychologists spend approximately two thirds of their time carrying out tasks related to assessment and eligibility.

The passage of the Education of Handicapped Act Amendments of 1986, or Public Law 99-457, started a downward focus on providing an appropriate education to preschool age children with handicapping conditions. The 1997 passage of Public Law 105-17 (IDEA) ensured that public school systems give children 3 to 5 years of age the same opportunities for identification and intervention as those children ages 5-21 years. Most experts agree that it is important to identify children with developmental delays or disorders as early as possible. According to the Regulations of the Commissioner of Education (2000) in the State of New York, a preschool child is entitled to a psychological evaluation, a social history, a structured observation in the current educational placement, and all other appropriate assessments as part of an initial evaluation.

Typically, psychologists are responsible for synthesizing and integrating the findings of the various assessments. Currently, in New York State, the focus of

assessment for preschool children is in determining eligibility for services. Eligibility is based on a standardized test score that is at least two standard deviation units below the mean in one functional area (cognitive, language, gross motor, fine motor, adaptive, socio-emotional), or standardized scores that are at least 1.5 standard deviation units below the mean in two areas of functioning. If appropriate standardized instruments are not administered, a child can qualify if there is a 12-month or 33% delay in one functional area, or a 25% delay in two functional areas. No diagnoses are offered; instead, a child with any type of delay is simply classified as a Preschool Student with a Disability. This is a result of Public Law 99-457, which indicates that 3-5 year old children can receive services without having to label them. However, children receive services within the domain of their delay, for example, a child who demonstrates a significant delay in the area of speech/language functioning would receive services from a Speech/language Therapist or Pathologist.

A psychologist is generally responsible for representing the evaluation site and presenting the findings to a Committee on Preschool Special Education. The committee is then accountable for recommending appropriate special education services via an Individual Education Plan. Intervention at earlier stages in the child's development may result in a greater reduction in the short-term and long-term consequences of these disorders.

### *Cognitive Assessment*

As previously stated, assessment of a child's cognitive functioning is a critical aspect of the comprehensive evaluation. Cognitive assessment began to flourish in the

United States in the early 1900s, with the introduction of the Binet-Simon scales by Terman and his colleagues at Stanford. Binet described intelligence as the inclination to take and maintain a definite direction, the capability to make adaptations for the purpose of achieving a desired end, and the power to examine oneself (Binet & Simon, 1916). The definition of intelligence has been problematic, with it being variously defined as a measure of innate capacity, observed behavior, and performance on specific tests of cognitive ability. For the purposes of this study, Wechsler's view of intelligence will be emphasized.

According to Wechsler, intelligence is the overall capacity of an individual to understand and cope with the world around him/her (Wechsler, 1989). It is different from most other definitions in two respects. It conceives of intelligence as a global entity that is multi-determined rather than an independent, uniquely defined trait. It also avoids singling out any one ability as overwhelmingly important. The evolution of the Wechsler Preschool and Primary Intelligence Scales began with the original Wechsler-Bellevue Intelligence Scale, which incorporated both verbal and performance scales. Wechsler selected and developed subtests that highlighted the aspects of intelligence that he thought were important to measure: abstract reasoning, perceptual organization, verbal comprehension, quantitative reasoning, memory, and processing speed.

In 1967 the Wechsler Preschool and Primary Scales of Intelligence was developed in order to assess intelligence in children between the ages of 4:0 and 6:6. The original WPPSI subtests included: Information, Comprehension, Arithmetic, Vocabulary,

Similarities, Sentences, Geometric Design, Block Design, Mazes, Picture Completion, and Animal House. Each child was administered all eleven subtests regardless of age.

The first six subtests combined to form the Verbal IQ, while the last five formed the Performance IQ. The division of the WPPSI into two scales has logical and empirical support. With regard to logical support, motor responses are related to the Performance subtests, while verbal responses are made on the Verbal subtests. In addition, factor-analytic studies have consistently demonstrated the existence of two distinct subtest clusters, which correspond to the Verbal and Performance scales.

Twenty-two years later, the WPPSI-R was published. The central reasons for developing this new version were to update the norms and to extend the age range. The age range was extended in both directions in order to include children between the ages of 3:0 and 7:3. An additional Performance subtest, Object Assembly, was also added. Two subtests, Animal Pegs on the Performance scale and Sentences on the Verbal scale, were considered to be optional. Age determined start points were also included (Wechsler, 1989).

The most extensive revisions have recently taken place in the development of the WPPSI-III, which was published in 2002. The five principal revision goals were to: update theoretical foundations; increase developmental appropriateness; enhance clinical utility; improve psychometric properties; and increase user friendliness. With regard to updating theoretical foundations, new subtests were included to tap more specific abilities and factor-based index scores represented narrower areas of cognitive functioning than previous Verbal and Performance IQ scores. For example, additional subtests (Matrix