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ABSTRACT

The Wechsler Intelligence Scale for Children-Third Edition (WISC-III) provides a comprehensive measure of intelligence, whereas the Kaufman Brief Intelligence Test (K-BIT) provides a quick measure of intelligence, requiring less than 30 minutes to administer. Since both tests are frequently used in clinical settings and in schools for initial evaluations, it is important to determine the relationship of these tests to each other when administered to a variety of students. To meet this need, both tests were given to 40 Hmong students and test results are reported here. The mean age of the students was 9 years, 6 months and they had been in the United States for 8 years, on average. Results indicate that the K-BIT composite and the WISC-III fullscale scores are interchangeable. Likewise, the K-BIT Vocabulary score is interchangeable with the WISC-III verbal and verbal comprehension scores. K-BIT Matrices scores were also interchangeable with WISC-III processing speed and performance scores. Findings suggest that in situations in which a score alone is required or a second score to confirm a more in-depth measure of ability, the K-BIT offers practitioners a feasible alternative to the lengthier WISC-III. (RJM)

Use of the WISC-III and K-BIT with Hmong Students

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ABSTRACT

The Wechsler Intelligence Scale for Children-Third Edition (WISC-III) and the Kaufman Brief Intelligence Test (K-BIT) were administered in counterbalanced order to 40 Hmong students (16 males and 24 females) in order to determine the relationship between the two instruments. Mean age of the students was 9 years, 6 months. The WISC-III Full Scale IQ (FSIQ) correlated significantly with the K-BIT Composite ($r = .83$, $p < .001$). The K-BIT subtests of Vocabulary and Matrices also correlated significantly ($p < .05$) with the WISC-III Verbal IQ and Performance IQ ($r = .84$ and $r = .68$, respectively). T-tests for related samples indicated no significant differences for the WISC-III FSIQ and K-BIT Composite comparison.

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The Wechsler Intelligence Scale for Children-Third Edition (WISC-III; Wechsler, 1991) and the Kaufman Brief Intelligence Test (K-BIT; Kaufman and Kaufman, 1990) are individually administered tests of intelligence. The WISC-III provides a comprehensive measure of intelligence, while the K-BIT provides a quick measure of intelligence, requiring less than 30 minutes to administer. Although the purpose of the two tests differ, it is likely that they both will be used in clinical settings and in schools as part of an initial evaluation or as part of the re-evaluation process. Therefore, it is important to determine the relationship of these tests to each other with a variety of students.

The WISC-III is a comprehensive assessment instrument used with individuals ranging in age from 6 years to 16 years, 11 months. The test provides four factor based Index Scores, Verbal Comprehension (VC), Perceptual Organization (PO), Freedom from Distractibility (FD), and Processing Speed (PS), in addition to Verbal (VIQ), Performance (PIQ) and Full Scale (FSIQ) IQ scores. Age based standard scores (mean of 100, standard deviation of 15) are provided for the Index and IQ scores. The standardization sample consisted of 2,200 children and was designed to match the 1988 U. S. census estimates on the basis of age, gender, race/ethnicity, geographical region, and parent educational level. Split half reliability estimates for subtests with the Spearman-Brown correction ranged from .60 to .92 and from .89 to .97 for the global scales. Test-retest reliability for a sample of 353 children tested at a mean interval of 23 days ranged from .64 to .94. Several validity studies relating performance on the WISC-III with other ability tests are described in the test manual.

The K-BIT spans the age range of 4 to 90 years and consists of two subtests, Vocabulary and Matrices. Vocabulary requires verbal responses to (a) expressive vocabulary items in which the individual provides the name for a pictured object and (b) definitions (administered to individuals ages 8 years and older) in which the individual provides the word that best fits two clues (a descriptive phrase and partial spelling of the word). Matrices requires an understanding of relationships among visually presented stimuli (both meaningful and abstract). Age based standard scores (mean of 100, standard deviation of 15) are provided for each subtest and the overall K-BIT Composite. The standardization sample consisted of 2,022 individuals with approximately equal numbers of males and females at each age level. The sample was designed to match 1990 U. S. census estimates and stratified on the basis of geographic region, socioeconomic status, and race or ethnic group. Split-half reliability estimates corrected by the Spearman-Brown formula ranged from .88 to .98 for the Composite. Test-retest reliability coefficients for 232 individuals ages 5 to 89 tested at a mean interval of 21 days ranged from .92 (ages 5-12) to .95 (ages 20-54 and 55-89) for the Composite. Twenty validity studies comparing the K-BIT with other measures of ability and achievement are reported in the test manual.

Studies comparing the WISC-III and the K-BIT are somewhat limited. The K-BIT manual (Kaufman and Kaufman, 1990) reports a correlation of .80 ($p < .001$) between the K-BIT Composite and the Wechsler Intelligence Scale for Children-Revised Full Scale IQ. Prewett (1992) demonstrated a significant correlation ($r = -.81$, $p < .001$) between the K-BIT Composite and the WISC-R FSIQ for students referred for psychoeducational evaluation. More recent studies comparing the WISC-III FSIQ and the K-BIT Composite have obtained

significant correlations ranging from .53 to .80 for gifted students, for referred students in an urban school district, and for students with learning disabilities (Levinson and Folino, 1994; Prewett, 1994; Smith, Buckley, and Pingatore 1993). Smith, Buckley and Pingatore (1993) further found strong correlations between WISC-III index scores and K-BIT subtests ranging from .47 (Performance IQ/K-BIT Matrices) to .76 FSIQ/K-BIT Composite). No studies were located that compared the two instruments with samples of Hmong students or with samples of other minority group students.

The purpose of the present study was to compare the performance of Hmong students on the WISC-III and the K-BIT. The subjects consisted of 40 students (16 males and 24 females) enrolled in a middle-class, predominantly white, rural school system in the midwest. In an effort to establish local norms for the WISC-III and K-BIT, parents of all Hmong students (kindergarten through sixth grade) were asked to provide permission for testing. The sample for this study consists of the first 40 students for whom permission was obtained. The subjects ranged in age from 6 years, 7 months to 12 years, 5 months with a mean age of 9 years, 6 months.

The WISC-III and the K-BIT were administered in counterbalanced order by graduate students in school psychology trained in the administration and interpretation of intelligence tests. Each child was tested the same day with a break between tests.

The mean scores on the WISC-III ranged from 72.18 (VC) to 99.53 (PS) and from 72.49 (Vocabulary) to 94.21 (Matrices) on the K-BIT. However, considerable variability in scores was demonstrated. For example, FSIQ scores ranged from 50 to 118 and K-BIT Composites ranged from 44 to 117. Mean standard scores on the WISC-III follow with standard deviations in

parentheses: VIQ = 74.32 (14.76); PIQ = 95.05 (13.69); FSIQ = 82.70 (13.90); VC = 72.18 (15.37); PO = 94.65 (13.07); FD = 93.18 (12.56); and PS = 99.53 (13.53). Mean standard scores on the K-BIT included: Composite = 81.59 (14.97); Vocabulary = 72.49 (15.37); and Matrices = 94.21 (14.95). T-tests for related samples indicated that differences in mean scores between similar scales (FSIQ/K-BIT Composite; VIQ/K-BIT Vocabulary; VC/K-BIT Vocabulary; PIQ/K-BIT Matrices; and PO/K-BIT Matrices) were not significant.

Pearson product moment correlations were significant. The FSIQ and K-BIT Composite produced a correlation of .83 ($p < .001$). The VIQ/Vocabulary correlation was .84 ($p < .001$) and the VC/Vocabulary correlation was .83 ($p < .001$) suggesting the VC Index Score and the VIQ are strongly related to the K-BIT Vocabulary subtest. Correlations between the K-BIT Matrices subtest and the PIQ and PO Index Scores were .69 and .70 ($p < .001$) respectively, again suggesting a strong relationship between measures.

For this sample of Hmong students, the WISC-III and K-BIT related strongly to each other with no significant differences between FSIQ and K-BIT Composite scores, suggesting the scores are equivalent. Strong relationships were also indicated between the VIQ and VC Index Scores and the K-BIT Vocabulary subtest. Similarly, the K-BIT Matrices subtest was strongly related to the PIQ and PO Index Score. The magnitude of global scale correlations in this study approximate those reported in the K-BIT Manual for the WISC-R and K-BIT with a nonhandicapped sample.

The students in the present sample had been in the United States for eight years on average with a range of two years to twelve years. The parents of half the students indicated that Hmong alone was spoken at home and the parents of half the students indicated that both Hmong and English were spoken

at home. A series of one-way analyses of variance indicated no significant difference ($p < .01$) between the two groups on K-BIT or WISC-III scores. Thus, experience with English at home was not related to performance on the two tests.

The results indicate that for this sample of Hmong students the K-BIT Composite and the WISC-III FSIQ are interchangeable. Likewise, the K-BIT Vocabulary score is interchangeable with the WISC-III VIQ and VC scores, while the K-BIT Matrices score is interchangeable with the WISC-III PIQ and PO scores. Thus, in situations in which a score alone is required or a second score to confirm a more indepth measure of ability, the K-BIT offers practitioners a feasible alternative to the lengthier WISC-III. Of course, in cases in which an indepth or a diagnostic evaluation are needed, the K-BIT would not be an appropriate measure. It should also be emphasized that this study addressed the relationships between the two tests and not their validity with this sample of Hmong students. This important issue should be addressed in future studies.

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