PSY554 Fall 10 Final Exam Information

As part of your work as a counselor, you will be exposed to a wide variety of assessment instruments. At times, you might be asked to comment on the appropriateness and strengths/weaknesses as a given test. The Mental Measurements Yearbook (MMY) is an outstanding initial source for this type of information. While we have discussed details about the psychometric strengths and weaknesses of a number of tests in class, a number of questions on the exam will evaluate your ability to evaluate measures on your own. I have attached a copy of the MMY reviews for the K-BIT-2, a brief measure of intelligence. Some questions on the exam will focus on evaluating issues pertaining to the standardization, reliability, and validity of the K-BIT-2. The answers to all of the questions can be found in (or inferred from) the material presented in the reviews.

You are welcome to discuss these reviews with one another, and I expect that it will be an important part of the studying process. With that said, you are the one who is taking your test, and the one who is ultimately responsible for your score. As such, use one another as resources, but don’t just take one another’s word for it – be certain you understand the material yourself.

The K-BIT 2 consists of 3 subtests that are used to compute 2 scale scores (verbal and nonverbal). These scale scores can be combined into a composite index that is used as a measure of overall intelligence, comparable to a FSIQ score. The subtests are as follows:

**Verbal Scale**
- Verbal Knowledge (tests receptive vocabulary and general knowledge)
- Riddles (comprehension, reasoning, and vocabulary knowledge).

**Nonverbal Scale**
- Matrices (ability to complete visual analogies and understand relationships)
Kaufman Brief Intelligence Test – Second Edition

Purpose

Intended as a brief measure of verbal and nonverbal intelligence.

Population

Ages 4-90.

Price


Administration

Individual

Scores

Verbal, Nonverbal, IQ Composite.

Manual

Manual, 2004, 147 pages

Time

(15-30) minutes

Comments

Examiners are encouraged to teach individuals, using teaching items, how to solve the kinds of items included in subtests; 3 subtests: Verbal Knowledge, Riddles, Matrices

Notes

See T5:1380 (21 references); for reviews by M. David Miller and John W. Young of an earlier version, see 12:205 (9 references); see also T4:1344 (4 references).

Review of the Kaufman Brief Intelligence Test, Second Edition by RONALD A. MADLE, Licensed Psychologist, Mifflinburg, PA, and Adjunct Associate Professor of School Psychology, The Pennsylvania State University, University Park, PA:

DESCRIPTION. The Kaufman Brief Intelligence Test, Second Edition (KBIT-2) is a brief intelligence test for individuals from 4 to 90 years of age. It is designed for traditional brief assessment purposes such as screening, conducting periodic cognitive reevaluations, and assessing cognitive functioning when it is a secondary consideration. Interestingly, in light of recent changes in IDEA, the manual recommended it to estimate cognitive functioning of children referred for specific learning disabilities evaluations when comprehensive intellectual
measures are not included in the assessment battery. The KBIT-2 includes a full-color stimulus book, manual, and test forms. Administration, which can be done by trained technicians or paraprofessionals as well as qualified professionals, takes about 15 to 30 minutes. A properly qualified professional, however, should always interpret the results. The KBIT-2 yields Verbal and Nonverbal subscales in addition to an IQ Composite. The Verbal scale is composed of two combined subtests that assess receptive vocabulary and general information (Verbal Knowledge) as well as comprehension, reasoning, and vocabulary knowledge (Riddles). The Nonverbal scale uses a Matrices subtest to tap the ability to complete visual analogies and understand relationships. Clear administration instructions and scoring criteria are provided in a well-designed easel, with some questions in the test booklet. All responses involve either pointing or one-word answers with binary scoring. Little querying is required. Basals for all subtests involve passing the first three items at an age-based entry point, with a procedure to drop back a starting point until they are passed. Failing four consecutive items constitutes a ceiling. In addition, two subtests include teaching items when early errors are made. The manual presents acceptable administration variations for using the Verbal or Nonverbal scales separately in special situations such as deafness, limited English proficiency, or severe visual impairments. Additionally, the Verbal subtests can have directions given and responses accepted in languages other than English, although items are always presented in English. In fact, Spanish instructions and response options are included. The trifold 8.5 by 11-inch record form has all identifying and summary information on the front page, with items on the remaining five sides. Spaces are provided for standard scores, 90% confidence intervals, percentile ranks, descriptive categories, and age-equivalents. All standard scores have a mean of 100 and standard deviation of 15, with the average range being defined as scores between 85 and 115. Subsequent descriptors are at 15-point intervals.

**DEVELOPMENT.** The KBIT-2 development goals were to retain the K-BIT's strong features, to correct any problems, and to obtain up-to-date norms. Based on a survey of many K-BIT users, a major goal was to replace the K-BIT's Definitions subtest; this involved reading clues after age 7. There was concern that reading proficiency might taint the intellectual estimates. The final revision process resulted in updated norms, use of full-color stimuli, a completely new Verbal scale, an updated Matrices subtest, and use of the same tasks across the entire life span. The KBIT-2 was developed in conjunction with the Kaufman Assessment Battery for Children, Second Edition (KABC-II; 16:123) and drew on a number of similar constructs. Although all three subtests are used on the KABC-II, there is no item overlap. The interpretive framework for both scales is based on the Cattell-Horn-Carroll (CHC) theory of intelligence, with the Verbal scale as Crystallized Ability and the Nonverbal scale as an amalgam of Fluid Reasoning and Visual Processing. The Nonverbal scale also can be viewed through the lens of Luria's model as representing simultaneous processing and planning ability.

**TECHNICAL.**

**Standardization.** The KBIT-2 standardization sample of 2,120 individuals was stratified on race-ethnicity, geographic region, and educational level using the March 2001 Current Population Survey. A close match was obtained except for region, where the South was overrepresented (44.2% versus 36.0%) and the Northeast was undersampled (11.4% versus 19.8%). Equal gender representation was used rather than approximating the increasing
proportion of females in later adulthood. Non-English speakers, institutionalized individuals, and those with significant physical, perceptual, or psychological impairments were excluded, although special education and gifted-talented students were included at school age. The 23 normative age groups varied in size, with the largest (n = 125) at ages 5 through 10. Four-year-olds and the 11- to 15-year age groups used 100 participants each, whereas the 16- and 17-18-year age groups had 75 participants. Beyond age 18 the age spans were larger and had 50 to 100 participants per group. Examination of the norm tables show the KBIT-2 has floors of at least -3.20 standard deviations and ceilings of 3.33 standard deviations or better. The items gradients (Bracken and Walker, 1997) involve a respectable minimum of 4.86 items per standard deviation.

**Reliability.** The KBIT-2's IQ Composite internal consistency coefficient of .93 across ages (.89 to .96) is quite good, with reliabilities increasing with age. The Verbal (.91) and Nonverbal (.88) coefficients are somewhat lower but within acceptable ranges, although the Nonverbal scale coefficients are only .78 at ages 4 and 5. IQ Composite test-retest stability was .90 over mean intervals of 22.5 to 30.8 days, with a mean performance increase of 4 points. The Verbal (r = .91) and Nonverbal (r = .83) scales each showed similar increases on retesting. Coefficients at different ages were adequate (.83 or higher) except for the Nonverbal scale for the 4- through 12-year age groups (.76).

**Validity.** Several types of construct validity evidence are present. These involve demonstrating no meaningful differences across gender as well as showing increases in raw scores across age groups. In older examinees, the expected lifespan declines in performance (Baltes, Staudinger and Lindenberger, 1999) were noted. Matrices, as a measure of fluid ability, peaked during early adulthood and then began a slow decline, whereas the Crystallized-Verbal scales increased or remained stable until old age. Special group studies revealed mean scores of groups that involve intelligence as a key part of their definition had expected results (intellectually gifted = 115.0; mentally retarded = 61.1), as did other groups with likely intellectual deficits (traumatic brain injury = 73.4; dementia = 74.1). Groups that typically show average or slightly decreased cognitive scores did so on the KBIT-2 as well-learning disability (88.0), speech and language impaired (85.3), and attention-deficit-hyperactivity disorder (90.5). Concurrent validity evidence included data on the relationship with several other measures of intelligence. KBIT-2 scores were lower than the K-BIT by about 2 points, which is consistent with expected declines due to the Flynn Effect (Flynn, 1987). Adjusted correlations for the IQ Composite were substantial, ranging from .80 to .86, except for correlations of only .47 for the Nonverbal scale in 4- to 7-year-old children. Comparisons showed Full Scale and Performance IQs about 4.5 points and 7 points higher on the Wechsler Abbreviated Scale of Intelligence (WASI) than on the corresponding KBIT-2 scales, even though the correlations were strong. Correlational studies were reported with several comprehensive Wechsler scales. The Full Scale-IQ Composite correlations with the WISC-III and WISC-IV were .76 and .77, respectively. The WAIS-III correlation was .89. Mean Full Scale IQs, however, ranged from 1.3 points lower (WISC-IV) to 5 to 7 points higher (WAIS-III) than the KBIT-2 IQ Composite. Finally, the KBIT-2's relationship with two achievement measures showed typical IQ-achievement correlations for the KTEA-II (about .65) and WRAT3 (about .50).
COMMENTARY AND SUMMARY.
Overall, the KBIT-2 appears to be a well-designed screening test that was built on the solid foundation of the original version. It is easily administered and scored across a wide age range. The primary criticism of the K-BIT-possible contamination with reading ability—has been corrected in the revision. For a brief test the KBIT-2 has very respectable floors, ceilings, and item gradients. The KBIT-2’s psychometric characteristics are strong, with the possible exception of the Nonverbal scale for preschool and primary age children. The Nonverbal scale requires some interpretive caution at these ages. Although the KBIT-2 correlated highly with various Wechsler scales, data suggest lower mean IQs, with a KBIT-2 gifted sample mean of only 115, compared to the more commonly found means in the low to middle 120s for gifted groups in validation studies. Although this is based on a limited sample and should be further researched, this would be a factor to consider when the KBIT-2 is used for gifted screening programs. In addition, the ability to give instructions and accept answers in languages other than English, while a positive feature, can be a double-edged sword because non-English speakers were excluded from the normative sample. This reduces the likelihood of obtaining artificially low IQs with English language learners, but still makes the meaning of the scores unclear to some extent.

REVIEWER’S REFERENCES

Review of the Kaufman Brief Intelligence Test, Second Edition by STEVEN R. SHAW, Assistant Professor of Educational and Counselling Psychology, McGill University, Montréal, Quebec, Canada:

DESCRIPTION.
The Kaufman Brief Intelligence Test, Second Edition (KBIT-2) is a short, individually administered test of intelligence for children and adults. The KBIT-2 is an update and renorming of the popular Kaufman Brief Intelligence Test (Kaufman and Kaufman, 1990). In addition to updating the normative sample, several changes have been made. An additional Verbal subtest, Riddles, has been added. Additional items have been added to expand the floor and ceiling of all subtests. And full color plates have been added to the subtests. The KBIT-2 manual suggests several uses and purposes. Among these are screening to identify high-risk children, screening cognitive ability in the gifted and talented selection process, assisting in adolescent and adult job placement decisions, estimating intelligence as part of a personality evaluation, reassessing the intellectual status of a child or adult who has already had a full cognitive evaluation, and measuring cognitive ability for research purposes. The KBIT-2 provides three scores: Verbal, Nonverbal, and IQ Composite. The Verbal score is composed of Verbal Knowledge and Riddles subtests. Verbal Knowledge involves the examiner requesting the examinee to point to a word or phrase (e.g., "Point to ... winter"). The examinee then simply points to one of six presented pictures on the stimulus easel that best represents the word or phrase. This is a familiar format for many examiners, much like the Peabody Picture Vocabulary Test (T6:1823). Riddles is a new
subtest for the KBIT-2. Riddles involves a simple question with two or three variables (e.g., "What has whiskers, is a common household pet, and meows?"). All responses require a one-word oral or signed response. The manual states that responses on Riddles must be exact or nearly exact matches to the correct responses provided on the test protocol. The Matrices subtest, the sole marker for the Nonverbal score, is similar to matrices tasks on a variety of tests such as the Wechsler Intelligence Scale for Children-Fourth Edition (16:262), Raven's Progressive Matrices (T6:2064), and the Reynolds Intellectual Assessment Scales (16:213). Like the Verbal Knowledge subtest, Matrices requires only a pointing response to select from six presented options. The KBIT-2 is intended for examinees aged 4 through 90 years of age. The KBIT-2 requires between 15 and 30 minutes to administer. Adults, high ability children, and examinees with the reflective style of test taking may take longer. It is also worth noting that none of the three subtests on the KBIT-2 are timed. The KBIT-2 is reported to be easy to administer and may be administered by technicians or paraprofessionals, if those individuals have received appropriate training in standardized testing by appropriately qualified professionals. The protocol and easel format stimulus book are well designed and nearly self-explanatory. Basal and discontinue rules are simple and consistent across the three subtests. The only potential complex component of administering the KBIT-2 is the "teaching items." When examinees fail to understand the task, further explanation of the task and instructions is permitted. These items are labeled as teaching items in the protocol. The purpose of teaching items is to ensure that the examinee completely understands the task. Teaching items are not intended for coaching or giving problem-solving strategies to the examinee. The distinction between explaining directions and coaching the examinee can be subtle to inexperienced examiners. Although administration of the KBIT-2 is extremely simple, analysis and interpretation of test scores require some level of psychometric sophistication and clinical experience. The KBIT-2 manual discusses interpretation of test scores from the vantage point of the Cattell-Horn-Carroll (CHC) theory of intelligence, and interpretation of KBIT-2 scores based on Luria's neuropsychological theory of simultaneous and successive processing. Such sophisticated interpretations of test scores are not likely to be appropriate for technicians and paraprofessionals who may be administering this test.

DEVELOPMENT.

The KBIT-2 was developed in conjunction with the Kaufman Assessment Battery for Children, Second Edition (KABC-II; 16:123). Verbal Knowledge and Riddles are parallel forms of subtests that also appear on the KABC-II. Matrices is based on the original KBIT. Approximately half the items on the KBIT-2 Matrices subtest also appeared on the original KBIT Matrices. A large-scale try-out administration of potential Matrices items was conducted with 463 examinees aged 4 through 18 years. The Rasch procedure was used to identify items that may indicate bias. Based on this study and one additional tryout study, several items were dropped due to bias. Items were also selected based on development of adequate subtest reliability, appropriately low floor, appropriately high ceiling, and correlations with other subtests.

TECHNICAL.

Standardization. The KBIT-2 was normed on a sample of children, adolescents, and adults aged 4 through 90 who speak English, are not institutionalized, and did not have physical, perceptual
or psychological impairments that may affect cognitive functioning. Data were collected on 2,120 examinees in 34 states and the District of Columbia. The normative sample is a fairly good match to the 2001 U.S. Census data on educational status (for adults), mothers’ educational level (for children and adolescents), geographic region, and race and ethnicity. The only minor deviation from an otherwise excellent match with Census data is that the normative sample overrepresented the Southern and Northeastern regions of the United States. In addition, validation studies were conducted on several special populations. These populations include persons with learning disabilities, persons with speech and language disorders, persons with attention deficit hyperactivity disorder, persons with mental retardation, persons identified as gifted or talented, individuals with traumatic brain injury, and individuals with dementia.

Reliability. The KBIT-2 manual reports test-retest reliability and internal consistency reliability estimates. Internal consistency reliabilities calculated by age range from .86 to .96 on the Verbal score. Internal consistency reliabilities range from .78 to .93 on the Nonverbal score. IQ Composite internal consistency reliabilities range from .89 to .96. Test-retest reliabilities are based on two administrations of the KBIT-2 to 271 examinees aged 4 through 89. The interval between test sessions ranges from 6 to 56 days with the mean interval of about 28 days. Test-retest reliabilities range from .76 (Nonverbal score for ages 4-12) to .93 (Verbal score for ages 13-21). From first testing to second testing the mean gain in scores for IQ Composite was 4 standard score points.

Validity. Validity data consist primarily of a series of concurrent validity studies with well-established tests of cognitive ability and academic achievement. Data are reported for studies with the Wechsler Abbreviated Scale of Intelligence (WASI), Wechsler Intelligence Scale for Children: Third Edition and Fourth Edition, Wechsler Adult Intelligence Scale: Third Edition, Wide Range Achievement Test: Third Edition, and the Kaufman Test of Educational Achievement: Second Edition. Correlation coefficients are consistently in the moderate to high range and provide strong evidence of construct validity. Likewise, the validation studies using special populations indicate differences from the norm sample in expected directions. For example, scores for the gifted special population are significantly higher than that of the mean of the norm sample. And scores from the mental retardation sample are significantly lower than the mean of the norm sample. There are no confirmatory factor analytic studies supporting the CHC or neuropsychological interpretation of the KBIT-2.

COMMENTARY.

The KBIT-2 is a well-designed brief measure of general cognitive ability. The manual is comprehensive, clear, and useful. The KBIT-2 compares favorably to other brief measures of intelligence such as the Wechsler Abbreviated Scale of Intelligence (WASI; T6:2690; The Psychological Corporation, 1999) and Reynolds Intellectual Screening Test (16:213; Reynolds and Kamphaus, 2003) on features of brevity, psychometric characteristics, theoretical soundness, ease of administration and interpretation, and attractiveness of materials. The KBIT-2 represents another well-conceived and professionally executed assessment instrument by Alan and Nadeen Kaufman and published by American Guidance Service.
SUMMARY

The KBIT-2 is an update and renorming of the original Kaufman Brief Intelligence Test. The changes and updates are fairly minor, yet represent an improvement over the previous edition. The developmental and technical aspects of the KBIT-2 meet high standards of psychological and educational assessment development.

REVIEWER'S REFERENCES