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ABSTRACT

The concurrent validity of the Kaufman Assessment Battery for Children (K-ABC) was examined by comparing K-ABC scores and Weschler Intelligence Scale for Children--Revised (WISC-R) scores for 58 school children in primary and intermediate grades. Thirty-seven of these children had either educable mental retardation, learning disabilities, or emotional disturbances; six were gifted. To determine if these scores were related or significantly different, t-tests, Pearson r correlations, a canonical correlation, and regression equations were computed. Results indicated that mean scores of the scales of both the WISC-R and the K-ABC did not differ significantly. Also, significant correlations were obtained since all scales were highly interrelated. Separate K-ABC achievement subscale scores were also correlated with the K-ABC's mental processing composite subscale score. These outcomes suggested that the K-ABC possesses high concurrent validity when compared with the WISC-R. However, it may be premature to assume that the K-ABC is an adequate substitute. (Author/GDC)

A COMPARISON OF THE K-ABC AND WISC-R:

A VALIDITY STUDY

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Abstract

The purpose of the study was to examine the concurrent validity of the Kaufman Assessment Battery for Children (K-ABC) by comparing K-ABC scores and Weschler Intelligence Scale for Children--Revised (WISC-R) scores for 58 school children in primary and intermediate grades. To determine if these scores were related and/or significantly different, t-tests, Pearson r correlations, a canonical correlation, and regression equations were computed. Results indicated that mean scores of the scales of both the WISC-R and the K-ABC did not differ significantly. Also, significant correlations were obtained as all scales were highly interrelated. These outcomes suggest that the K-ABC possesses high concurrent validity when compared with the WISC-R. However, it may be premature to assume that the K-ABC is an adequate substitute.

A Comparison of the K-ABC and WISC-R: A Validity Study

The Kaufman Assessment Battery for Children (K-ABC) is a measure of the intelligence and achievement of 2½- to 12½-year-old children (Kaufman, 1983). The intelligence battery is designed to measure problem-solving skills in a manner less directly related to prior academic achievement or other planned experiences (Zins & Barnett, 1983). It is composed of four Global scales, three of which measure mental processing abilities (Sequential, Simultaneous, Mental Processing Composite); whereas, a separate scale is used for achievement assessment. The battery consists of 16 subtests. Of the 16, 10 assess a child's simultaneous and sequential processes and 6 evaluate a child's achievement.

The sequential processing scale consists of three subtests which are:

1. Hand Movements (ages 2½-12½)--performing a series of hand movements in the same sequence as the examiner performed them.
2. Number Recall (ages 2½- 12½)--repeating a series of digits in the same sequence as the examiner said them.

3. Word Order (ages 4-12½)--touching a series of silhouettes of common objects in the same sequence that these objects were named orally by the examiner.

The simultaneous processing scale is composed of:

1. Magic Window (ages 2½-4½)--identifying a picture which is rotated behind a narrow window and, hence, only partially visible to the child at any one time.
2. Face Recognition (ages 2½-4½)--selecting from a group of people the one or two faces that were just exposed briefly.
3. Gestalt Closure (ages 2½-12½)--naming an object or scene pictured in a partially completed "inkblot" drawing.
4. Triangles (ages 4-12½)--assembling 2 to 9 triangles, all identical, into an abstract pattern that matches a model.
5. Spatial Memory (ages 5-12½)--recalling the placement of pictures on a page that was just exposed briefly.
6. Matrix Analogies (ages 5-12½)--selecting a concrete picture or an abstract design which best completes a visual analogy.

7. Photo Series (ages 6-12½)--placing photographs of an event in chronological order.

A variety of data regarding the validity and reliability of the K-ABC is presented in the manual (Kaufman & Kaufman, 1983). The reliability (internal consistency) for the Mental Processing Composite for 11 separate age groups ranges from .40 to .76 with a median of .60. The validity data of most interest to the practitioner are those correlations between the K-ABC and the WISC-R and the Stanford-Binet. In a summary of 18 studies comparing the K-ABC and the WISC-R, Kaufman suggests that for normal children the K-ABC Mental Processing Composite and the WISC-R Full Scale I.Q. correlate .70; whereas the Simultaneous Processing Scale and the Sequential Processing Scale correlate in the upper .60s and .47, respectively. Comparisons of the K-ABC MPC and Stanford-Binet I.Q.'s indicate a correlation of .61. This correlation is described by Kaufman as representative of the relationships for six selected groups.

Comparisons of group means for the K-ABC and the WISC-R with normal children indicate that K-ABC scores were about 3-4 points lower. However, with culturally different groups the results may be reversed.

Similarly, mean score comparisons between the K-ABC and Stanford-Binet indicate that Binet I.Q.'s are about 2 to 3 points higher than are MPC scores. Another finding of note is that for gifted children K-ABC scores were about ½ standard deviation lower.

The development of the K-ABC has produced a great deal of enthusiasm because the initial information suggested that it was a carefully developed test, well grounded in contemporary theories, and that it had accomplished two major goals. First it had separated intelligence and achievement, an accomplishment of some magnitude, and it had reduced the differences between intelligence test scores of black and white children. While the euphoria of some may still remain, recent reviews have raised some very serious challenges. Bracken (1985), while seemingly attempting to be charitable toward the end of his review, chops off the theoretical foundation of the test and points to what may be its downfall. That is, he suggests that if the "K-ABC generated simultaneous-successive diagnostic prescriptive information does not prove valuable in remediating children's problems, then why use it." That problem, of course, has never been solved effectively by any

test, and the hope that K-ABC should be the first seems over-optimistic.

The questions posed by Bracken led to this study which examined the concurrent validity of the K-ABC. K-ABC and WISC-R scores were compared to determine whether the relationships in a selected sample are similar to those reported in the K-ABC manual. Primary questions were:

1. Do K-ABC mean scores and WISC-R mean scores differ significantly?
2. Are WISC-R and K-ABC scores significantly correlated?

Method

The sample consisted of 58 public school children, 53 white and 5 black, who resided in a southern state. There were 42 males and 16 females between the ages of 6-0 and 12-5 ($\bar{X}$ = 9.5, s = 1.93). The sample was quite heterogeneous as 43 children had been referred for special services or were already being served. These exceptionalities included 15 educable mentally retarded, 17 learning disabled, 5 emotionally disturbed, and 6 gifted; 15 were non-handicapped. Testing of the subjects was conducted by nine school psychologists from diverse areas of the state.

Results and Discussion

Means and standard deviations of the WISC-R and the K-ABC were computed and reported in Table 1. To examine possible intra-test differences, t-test comparisons for correlated data were conducted for all pairs of scale means (except for the Achievement Scale). No significant differences were obtained as the mean scores for all scales were quite similar. Also, no particular trend in mean differences was apparent as no mean difference exceeded 3 points, and five of the nine differences were in favor of the WISC-R.

Insert Table 1 about here.

To examine the relationships between the scales of the tests, Pearson r correlation coefficients were computed between all sets of subscale scores (except for the Achievement Scale). The obtained correlation coefficients are reported in Table 2. To examine the differences between the correlation coefficients, each correlation coefficient was compared with all the others by using Fisher's Z transformation. However, no significant differences were obtained.

Insert Table 2 about here.

While the differences among the correlations were not significant, it is instructive to examine the interrelationships. Surprisingly, the range of the correlations was rather limited (.77 to .91). But, as expected, the correlation between the WISC-R Full Scale I.Q.'s and the MPC scores was the highest accounting for 91% of the variance. However, the relationships between the WISC-R subscales and the K-ABC scales were also moderately high to high as the Verbal I.Q.'s correlated .82, .78, and .85 with the Simultaneous, Sequential, and MPC scales, respectively. Also, the Performance Scale correlated .90, .77, and .90 with the Simultaneous, Sequential, and MPC scales, respectively.

Another point of interest concerns the relationship between WISC-R Full Scale I.Q.'s and K-ABC Achievement Scale scores. Since total battery scores were not available for all subjects, a Pearson r correlation coefficient for a subsample (N = 25) was computed and a value of .90 was obtained. Also, the Achievement scores were correlated with MPC scores

and a value of .87 was obtained. These outcomes raise questions regarding the value of the Achievement scores as a distinct source of variance within the total battery. While the high correlations may be attributed to some response bias on the part of the examiners, the possibility exists that Kaufman has not succeeded in his goal of separating intelligence from achievement. Further, the strong relationship between MPC scores and Full Scale I.Q.'s for the total sample suggests that the K-ABC is not a "theoretical breakthrough." If one accepts the fluid versus crystallized intelligence dichotomy that provides part of the theoretical underpinning for the K-ABC, then these results suggest that the K-ABC is as strong a measure of crystallized intelligence as is the WISC-R.

Since both the Full Scale score of the WISC-R and the MPC scale score of the K-ABC are derived from subscale scores, Pearson r correlation coefficients may not be the most accurate indicators of the interrelationships between them. To examine this possibility, the scores of both tests were compared using a canonical correlation technique. An examination of Table 3 indicates that two significant canonical correlations were obtained, .93 and .32.

Insert Table 3 about here.

The coefficients between th canonical variables and the dependent variables are also included. These results indicate that moderate relationships were obtained between the Simultaneous Scale, the Sequential and the Performance I.Q.; whereas, stronger relationships were obtained for Verbal I.Q. with both Sequential and Simultaneous Scales.

The canonical analyses, then, corroborated the outcomes of the Pearson r analyses and supported the strong construct validation of the K-ABC.

In summary, a variety of comparisons between K-ABC scores and WISC-R scores for a small, incidental sample indicated that the K-ABC possesses high concurrent validity and suggests that both tests are measuring similar constructs. However, until the challenges to the validity of the K-ABC are answered (Bracken, 1985), it should be used and interpreted with caution.

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Table 1

Mean and Standard Deviation for Test Instruments

Instrument	Mean	S.D.
WISC-R		
Verbal	94.79	27.26
Performance	93.89	22.89
Full Scale	94.16	26.20
K-ABC		
Simultaneous	93.80	22.73
Sequential	95.66	21.52
Mental Processing Composite	94.13	23.49
Achievement (N = 25)	89.76	28.10

t-tests	t
WISC-R Full Scale vs. K-ABC MPC	.02
WISC-R Full Scale vs. K-ABC Sequential	-.72
WISC-R Full Scale vs. K-ABC Simultaneous	.23
WISC-R Verbal vs. K-ABC MPC	.34
WISC-R Verbal vs. K-ABC Sequential	-.38
WISC-R Verbal vs. K-ABC Simultaneous	.48
WISC-R Performance vs. K-ABC MPC	-.17
WISC-R Performance vs. K-ABC Sequential	-.87
WISC-R Performance vs. K-ABC Simultaneous	.07

Table 2

Correlation Coefficients, Percent of Shared Variance and Regression Equations for K-ABC and WISC-R Scores

	K-ABC					
	Simultaneous		Sequential		Mental Processing Composite	
WISC-R	r	r^2	r	r^2	r	r^2
VIQ	.82	68%	.78	61%	.85	72%
PIQ	.90	81%	.77	58%	.90	81%
FSIQ	.90	81%	.81	65%	.91	83%

FSIQ vs. K-ABC MPC	y' = -1.52 + 1.02 X
FSIQ vs. K-ABC Sequential	y' = .294 + .98 X
FSIQ vs. K-ABC Simultaneous	y' = 2.98 + 1.04 X
VIQ vs. K-ABC MPC	y' = 1.98 + .986 X
VIQ vs. K-ABC Sequential	y' = .52 + .985 X
VIQ vs. K-ABC Simultaneous	y' = 1.63 + .99 X
PIQ vs. K-ABC MPC	y' = 11.01 + .88 X
PIQ vs. K-ABC Sequential	y' = 16.04 + .81 X
PIQ vs. K-ABC Simultaneous	y' = 8.54 + .91 X

Table 3

Canonical Correlation between the Subscales of the K-ABC and the Subscales of the WISC-R

Roots	Eigenvalue	Canonical Correlation	Level of Significance
1	6.00030	.92582	.001
2	0.11781	.32464	.01

Correlations between Dependent and Canonical Variables

	VIQ	PIQ
K-ABC	1	2
Sequential	.88773	-.46036
Simultaneous	.96864	.24848