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ABSTRACT

This study examined agreement rates between identified strengths and weaknesses in shared abilities and influences on the Wechsler Intelligence Scale for Children-Revised (WISC-R) and the Kaufman Assessment Battery for Children (K-ABC). Sixty-seven students in the first through seventh grades referred for learning disabilities (LD) evaluation were administered the WISC-R and K-ABC in counterbalanced order. For a total of 26 shared abilities and influences in common to both the WISC-R and K-ABC, there were 11 agreements between the two scales and 285 disagreements, yielding an agreement rate of .04. Agreement rates of .04 were also obtained when strengths and weaknesses in shared abilities and influences were analyzed separately. Major factors contributing to this lack of agreement were differences in the contents and formats of the subtests for similar abilities on the two instruments. These differences may be critical to student performance. The results are discussed in light of their implications for interpretation of the WISC-R and K-ABC. (Author/JAZ)

Concordance Between Shared Abilities and Influences on the WISC-R and K-ABC

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Abstract

This study examined agreement rates between identified strengths and weaknesses in shared abilities and influences on the WISC-R and K-ABC. For a total of 26 shared abilities and influences in common to both the WISC-R and K-ABC, there were 11 agreements between the two scales and 285 disagreements, yielding an agreement rate of .04. Agreement rates of .04 were also obtained when strengths and weaknesses in shared abilities and influences were analyzed separately. These results are discussed in light of their implications for interpretation of the WISC-R and K-ABC.

With the publication of Intelligent Testing with the WISC-R in 1979, Kaufman provided a systematic method for interpretation of the Wechsler Intelligence Scale for Children-Revised (WISC-R). His system of interpretation moves sequentially from an inspection of performance on the global scales (Full Scale IQ, Verbal IQ, and Performance IQ), to performance on the factor analytic clusters (Verbal Comprehension, Perceptual Organization, and Freedom from Distractibility), to the effects of shared abilities and influences on performance, and rarely to the interpretation of individual subtest strengths and weaknesses. Great care was taken in trying to integrate the findings of research in cognitive science, neuropsychology, developmental psychology, and other areas with interpretation of children's performance on the WISC-R. In defining the shared abilities and influences, which involve various combinations of individual subtests, Kaufman (1979) utilized both the empirical findings and clinical insights of many previous researchers such as Bannatyne (1971, 1974), Sattler (1974), Meeker (1975a, 1975b), and others. Kaufman (1979) says of his system, "The focus is the child . . . Global scores are deemphasized, flexibility and insight on the part of the examiner are demanded, and the test is perceived as a dynamic helping agent rather than as an instrument for placement, labeling, or other types of academic oppression." (p.1) He states further, "The key is to understand why the youngsters scored the way they did, not to stress how well

they performed . . . Finding the hypotheses that explain the pattern of scores obtained for each new child evaluated becomes the crux of individualized WISC-R interpretation . . ." (p. 3) Finding these hypotheses that explain a pattern of scores is a process that frequently requires going beyond the global scores on the WISC-R to an analysis of the various shared abilities and influences thought to affect children's performance.

More recently, Kaufman and Kaufman (1983) have proposed a similar approach to interpretation of the Kaufman Assessment Battery for Children (K-ABC). Again, shared abilities and influences play a major role in accounting for the pattern of scores obtained by an individual child on the K-ABC, particularly when the simultaneous/sequential dichotomy is not helpful in explaining the performance. Many of these shared abilities and influences proposed for inspection on the K-ABC are identical to those proposed by Kaufman (1979) for the WISC-R. Although it is clear that these abilities and influences are intended to generate hypotheses about children's performance and not explanations of their performance per se, it seems implicit that a certain degree of similarity is being posited between those abilities and influences that are labeled identically on both scales. The question arises then, "Should there be at least a moderate degree of similarity in identified strengths and weaknesses in shared abilities and influences between the WISC-R and K-ABC, when both scales are given to

the same children in close proximity of time and counterbalanced order?" For example, if the shared ability, facility with number, is identified as a weakness on the WISC-R for a given child, should it also be identified as a weakness on the K-ABC?

The purpose of this study was to investigate this question by examining agreement rates between identified strengths and weaknesses in shared abilities and influences on the WISC-R and K-ABC for a sample of students referred for learning disabilities (LD) evaluation.

Method

Subjects

The subjects for this study included 67 students referred for psychoeducational evaluation as a result of serious academic problems. All of the students were being considered for placement in a private school located in a midwestern metropolitan area that serves children with learning disabilities. The evaluations were conducted by two certified school psychologists on the school staff, both of whom had received training in WISC-R and K-ABC administration and interpretation. The subjects ranged in age from 6 to 12 1/2 and were in the first through seventh grades. Of the 67 students referred, 32 were identified as LD and accepted for placement; the remaining 35 were diagnosed as ED, BD, EMR, or were nonhandicapped.

Procedure

As a part of the diagnostic process, all 67 students were administered the WISC-R and K-ABC in counterbalanced order, as well as a variety of other instruments according to the nature of the referral. In order to determine the agreement between shared abilities and influences identified as strengths and weaknesses on the WISC-R and K-ABC, the techniques outlined by Kaufman (1979) and Kaufman and Kaufman (1983) were followed. First, specific subtest strengths and weaknesses were identified on both measures. These were established by using the tables provided by Kaufman (1979) for the WISC-R and Kaufman and Kaufman (1983) for the K-ABC, rather than general rules of thumb (i.e. ± 3 scaled score points on the WISC-R). Second, a list of shared abilities and influences found on both measures was generated. This resulted in a total of 26 shared abilities and influences in common to both the WISC-R and K-ABC (see Table 2). Finally, strengths and weaknesses for shared abilities and influences were determined by applying the rules for all subtests above or below the appropriate mean in conjunction with at least one significantly strong or weak subtest score. These results were then compared between the WISC-R and K-ABC for each subject and an agreement rate was calculated by using the formula: Agreements / Agreements + Disagreements.

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Results

The results of this study are not surprising. Several factors may be contributing to a lack of agreement between identified strengths and weaknesses in shared abilities and influences on the WISC-R and K-ABC. First, the context and format of the subtests may be critical to student performance. For example, Arithmetic on the K-ABC is both a visual and auditory task, as well as a colorful one, throughout the age range appropriate for its administration. Arithmetic on the WISC-R, however, is almost exclusively an auditory task with no visual cues at any but the earliest age levels. The degree of abstraction also appears greater on the WISC-R and the subtests are placed at different locations in their respective test batteries (i.e. near the middle on the WISC-R and near the end on the K-ABC). These factors undoubtedly affect performance for some children, yet they are both included in a common shared ability, facility with number. Because of these differences in context and format, a statistically significant weakness in Arithmetic may mean something quite different on the WISC-R than it does on the K-ABC and affect the interpretation of all shared abilities and influences in which it is a factor. In a sense, there may be abilities and influences within the shared abilities and influences themselves that affect children's performance on different tests. This may not be a problem when both scales are administered together and there is a means for examining discrepancies in shared abilities and influences identified as strengths or

weaknesses. But in many cases only one such scale is administered and unless the examiner takes particular care to examine alternative explanations for strengths and weaknesses, he or she may make inaccurate attributions about the child's performance.

A second example may further clarify the issue. Verbal expression is also a common shared ability to the WISC-R and K-ABC. On the K-ABC, strengths and weaknesses in this area are assessed by performance on the subtests, Magic Window, Gestalt Closure, Expressive Vocabulary, Faces and Places, Riddles, and Reading/Decoding. All of these subtests require predominantly one word utterances to either a visual or auditory stimulus. In contrast, verbal expression on the WISC-R is assessed by performance on the subtests, Similarities, Vocabulary, and Comprehension. All of these subtests require phrases or sentences in response to exclusively auditory stimuli. Quantity of utterance is not the only difference here. It is much easier to assess the quality of the child's verbal communications on the WISC-R than it is on the K-ABC. In fact, quality of verbal response is directly assessed on these three subtests of the WISC-R (scoring = 2,1,0) whereas on the K-ABC it is not (scoring = 1,0). Again then, strengths or weaknesses in verbal expression may mean something different on the WISC-R than they do on the K-ABC, although the shared ability is labeled identically on both measures.

The ultimate question that is raised here is one of generalizability. Kaufman (1979) and Kaufman and Kaufman (1983) make clear that the proper use of shared abilities and influences on both the WISC-R and K-ABC is hypothesis generation. Presumably these hypotheses about patterns of strengths and weaknesses on a specific standardized test are to be validated with additional information about each child's performance in other areas via classroom observations, teacher comments, other test data, and so on. But the final goal remains to identify relatively strong and weak areas in the child's repertoire of skills that may be useful in planning academic interventions. If this were not the case, then little justification could be offered for engaging in such an elaborate system of test interpretation. Our concern is that the initial direction taken for hypothesis testing is bound by the context of the instrument selected and that the hypotheses generated for inspection may be widely disparate even though many of them are identically labeled on two measures. That is, the reason for a particularly strong or weak performance on many of the shared abilities and influences may be due to factors other than those implied in the labels given to them. If these hypotheses are not carefully weighed in the light of other information, and validated from multiple other sources, the examiner may make incorrect inferences about the child's pattern of strengths and weaknesses.

In conlusion, it seems that much further research is needed on the many shared abilities and influences proposed for possible interpretation on the WISC-R and K-ABC. This is particularly true for the K-ABC which has had little time for this type of research to accumulate regarding groupings of its subtests. Kaufman (1979) is forthright in stating that , "Apart from the empirical technique of factor analysis, [many of the shared abilities and influences] have been derived from clinical, theoretical, and rational perspectives accumulating from psychologists experiences with the Wechsler scales for more than 40 years." (p. 109) Aside from this consensual kind of validation, it is not at all clear that these various groupings of subtests represent broad traits and abilities that can be generalized from one scale to another, or from the standardized testing situation to classroom performance. Prior to the initiation of such research, it is recommended that examiners entertain hypotheses based on shared abilities and influences in only the most tentative of terms, and validate these hypotheses with empirical data from other sources.

References

Bannatyne, A. (1971). Language, reading, and learning disabilities. Springfield, IL: Charles C. Thomas.

Bannatyne, A. (1974). Diagnosis: A note on recategorization of the WISC scaled scores. Journal of Learning Disabilities, 7, 272-274.

Kaufman, A.S. (1979). Intelligent testing with the WISC-R. New York: John Wiley and Sons.

Kaufman, A.S. & Kaufman, N.L. (1983). Kaufman Assessment Battery for Children: Intepretive manual. Circle Pines, MN: American Guidance Service.

Meeker, M.N. (1975a). Glossary for SOI factor definitions: WISC-R analysis. Available from SOI Institute, El Segundo, CA.

Meeker, M.N. (1975b). Template for SOI analysis. Available from SOI Institute, El Segundo, CA.

Sattler, J.M. (1974). Assessment of children's intelligence (Revised ed.) Philadelphia: W.B. Saunders Co.

Table 1

Means, Standard Deviations, and Minimum and Maximum Values for the Global Scales on the WISC-R and K-ABC

Variable	Mean	SD	Min-Ma
Full Scale IQ			
LD group	97.23	13.05	72-129
Non-LD group	101.07	20.70	40-134
Verbal IQ			
LD group	94.45	11.37	73-123
Non-LD group	102.10	21.31	45-140
Performance IQ			
LD group	100.81	15.28	65-130
Non-LD group	99.03	17.97	45-121
MPC			
LD group	94.16	13.87	68-119
Non-LD group	97.97	19.40	49-117
Sequential			
LD group	90.03	11.60	64-112
Non-LD group	95.56	20.96	42-126
Simultaneous			
LD group	98.13	14.49	71-129
Non-LD group	99.55	17.62	55-121
Achievement			
LD group	89.84	8.93	69-107
Non-LD group	94.10	19.79	44--125

Table 2

Agreement Rates for Strengths and Weaknesses in Shared Abilities and Influences in Common to the WISC-R and K-ABC

Shared Ability/Influence	Agree-ments	Disagree-ments	r
Verbal comprehension	0	10	.00
Acquired knowledge[a]	1	0	1.00
Fund of information[a]	2	9	.18
Long-term memory	0	1	.00
Alertness	0	21	.00
Verbal concept formation	0	17	.00
Verbal expression	0	8	.00
Perceptual organization	0	2	.00
Spatial	0	2	.00
Reproduction of a model	0	12	.00
Synthesis	0	15	.00
Visual memory (STM)	0	6	.00
Visual-motor coordination	0	7	.00
Visual organization (non motor)	0	7	.00
Visual perception (abs. stim.)	0	20	.00
Visual perception (mean. stim.)	1	3	.25
Essential/nonessential detail	1	14	.07
Number facility	2	27	.07
Reasoning	0	6	.00
Respond when uncertain	0	8	.00
Anxiety	4	19	.17
Attention span	0	21	.00
Cognitive style (fi/fd)	0	12	.00
Concentration	0	8	.00
Distractibility	0	21	.00
School learning (applied skills)	0	9	.00
TOTAL	11	285	.04

[a] Fund of Information and Acquired Knowledge are one shared ability on the K-ABC and two separate shared abilities on the WISC-R. Agreements were calculated when either WISC-R shared ability corresponded with the the K-ABC ability.