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Structure of Adaptive Behavior in Samples With and Without Mental Retardation

Robert Bruininks, Kevin McGrew, and Geoffrey Maruyama
University of Minnesota

The structure of adaptive behavior as a function of age and status of handicap was investigated in two samples with mental retardation and five samples without retardation. Exploratory factor analysis of the subscale scores from a comprehensive, nationally standardized measure of adaptive behavior (Scales of Independent Behavior) revealed a large Adaptive or Personal Independence dimension. Although not consistently identified in all samples, secondary Academic, Personal Responsibility, and Community/Vocational dimensions were also identified. Possible differences were identified in the structure of adaptive behavior as a function of age.

Adaptive functioning—the extent to which an individual takes care of personal needs, exhibits social competence, and refrains from exhibiting problem behaviors—has received increased attention over the past 2 decades in service classification, eligibility decisions, and program planning (Bruininks, Thurlow, & Gilman, 1987; Witt & Martens, 1984). A number of developments are often cited as producing this increased emphasis on adaptive behavior assessment. First, recent court decisions and legislation regarding fairness in special education frequently have resulted in the mandated assessment of adaptive behavior in special education identification and placement procedures. Second, the mainstreaming, or normalization, movement has increased the need to assess and train behaviors that are important in the transition of individuals with handicaps into integrated learning and living environments (Holman & Bruininks, 1985). Third, concern about bias in assessment has focused attention on procedures such as adaptive behavior assessment. By focusing largely upon nonschool behaviors, professionals who assess adaptive behavior attempt to increase fairness in classification and placement decisions and thereby lessen the disproportionate representation of ethnic minorities in special education and other service programs. Fourth, adaptive behavior assessment is viewed as a means for effective parent involvement in educational planning. Finally, the inclusion of adaptive behavior, defined by Grossman (1983) as "significant limitations in an individual's effectiveness in meeting the standards of maturation, learning, personal independence, and/or social responsibility that are expected for his or her age level and cultural group" (p. 11) in the

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American Association on Mental Retardation definition of *mental retardation*, has increased the need to include adaptive behavior instruments in routine assessment practices.

It is interesting that the construct now called "adaptive behavior" is relatively old (Reschly, 1985), having its contemporary roots in Doll's (1934, 1953) social competency research and writings. Nonetheless, previously reported studies using a limited range of adaptive behavior instruments seem to have had trouble operationalizing the basic construct (Reschly, 1985), resulting in noticeable variations in its operational definition and assessment (Witt & Martens, 1984). The most comprehensive research-based attempt to elucidate the construct of adaptive behavior was Meyers, Nihira, and Zetlin's (1979) authoritative review of the adaptive behavior measurement literature from 1965 to 1979. In their review of factor analytic studies, they found adaptive behavior to be characterized by a two-dimensional structure. Across different instruments an autonomy dimension consistently emerged (labeled "functional autonomy," "self-sufficiency," or "independence" by different researchers), as did a second factor interpreted as representing a responsibility dimension. Meyers et al. (1979) considered these two dimensions to be factors that "would universally be determined in any competent studies employing the usual broad-ranged AB [adaptive behavior] scale" (p. 464). It is important, however, to note that most of the studies Meyers et al. reviewed used the Adaptive Behavior Scale (ABS, Nihira, Foster, Shellhaas, & Leland, 1969) with institutionalized samples with mental retardation. The primary use of the ABS, initially developed with samples in institutions, and the focus on samples in restrictive living environments may limit to some extent Meyers et al.'s (1979) conclusions regarding the definition and conceptual organization of adaptive behavior.

A number of additional research studies using different adaptive behavior instruments have been published more recently, some of which have contradicted Meyers et al.'s (1979) conclusion that adaptive behavior is a two-dimensional construct. Factor analysis of the Preschool Attainment Record (Doll, 1966) with a childhood sample without retardation (Hug, Barclay, Collins, & Lamp, 1978) and the ABS with an adult sample with retardation (Katz-Garris, Hadley, Garris, & Barnhill, 1980) identified single-factor solutions. Song et al. (1984) identified two factors in the Wisconsin Behavior Rating Scale (Song et al., 1980) in samples with and without retardation. Their Cognition factor was described as very similar to the Personal Self-Sufficiency or Independence dimensions identified by Meyers et al. (1979). Their Psychomotor factor, however, was inconsistent with Meyers et al.'s (1979) Responsibility factor. Research studies by Arndt (1981) and Millsap, Thackrey, and Cook (1987) also reinforce a unidimensional adaptive behavior structure. Arndt (1981) identified a large general factor through the use of oblique multiple group factor analysis of a short-form version of the ABS in a large institutionalized sample (N = 3,685). Millsap et al. (1987) also identified a large general factor in the standardization sample (N = 2,085) of the Adaptive Behavior Inventory for Children (Mercer, 1979).

In contrast to subscale level research, a number of item-based factor analytic studies have suggested a more multidimensional adaptive behavior structure. Nihira (1978) identified 9 to 10 factors in the ABS items in three samples with retardation. Silverman, Silver, Lubin, and Sersen (1983) identified 8 consistent factors in the Minnesota Developmental Programming System Behavioral Scales (Joiner & Krantz, 1979) in four samples with retardation. In an adult sample with retardation, Reynolds (1981) identified 3 factors (Adaptive, Cognitive, Affective) in the Personal Competency Scale. Finally, Widaman, Gibbs, and Geary (1987) determined that the Client Development Evaluation Report (California State Department of Developmental Services, 1978) was characterized by a 6-factor structure (of which 4 factors were in the adaptive behavior domain) in 14 samples with retardation.

It is clear that recent research has produced results discrepant from Meyers et al.'s (1979) conclusions. McGrew and Bruininks (in press) recent synthesis and extension of Meyers et al.'s (1979) review, however, suggests that some of the differences between studies are likely to be attributable to methodological variables. In particular, item-based factor analytic studies (which consistently identify many more factors than those using subscales) appear to be confounded by item difficulty or developmental factors (McGrew & Bruininks, 1988). McGrew and Bruininks concluded that subscale level studies provide the best available research base from which to examine the construct of adaptive behavior. Even the subscale level studies published since Meyers et al.'s (1979) review (Arndt, 1981; Hug et al., 1978; Katz-Garris et al., 1980; Millsap et al., 1987; Song et al., 1984), however, conflict with the conclusion that adaptive behavior is characterized by two consistent factors

All but one of the recently published studies (Song et al., 1984) appear to suggest a unidimensional adaptive behavior structure.

It is clear that the construct of adaptive behavior needs further exploration. Much of the literature covers only a narrow range of instruments and samples. Research is especially needed to explore the critical dimensions of the adaptive behavior construct as a function of important sample characteristics such as age, developmental level, and type of handicap. Other problems with available studies include the use of a limited range of instruments and the frequent failure to remove the effects of differences in chronological age (CA) in samples before conducting factor analysis. The current study was designed to contribute further information on these issues by presenting the results of an investigation on the structure of adaptive behavior as a function of age and level of handicap through exploratory factor analysis, controlling for effects of age, of the individual subscales of a recently developed, comprehensive, nationally standardized measure of adaptive behavior.

Method

Samples

Seven samples were used. The five groups without retardation were nationally representative samples from the norming sample used in the standardization of the Scales of Independent Behavior (Bruininks, Woodcock, Weatherman, & Hill, 1984). The two samples with retardation were individuals from the various validity studies reported in the Scales of Independent Behavior technical manual (Bruininks, Woodcock, Hill, & Weatherman, 1985). The samples with retardation represented a mixture of individuals with mild to severe retardation who were served in a variety of community-based special education and adult service programs. Table 1 shows subjects' age by sample.

Table 1
Subject Characteristics by Sample

Sample	N	CA		
		Mean	*SD*	Range
Without retardation				
Preschool	489	22.2	13.3	<48
Early childhood	460	72.4	12.3	48–95
Middle childhood	496	129.0	20.8	96–167
Adolescent	315	192.7	15.3	168–215
Adult	198	400.7	67.9	>215
With retardation				
Childhood	110	120.5	25.0	76–167
Adolescent/adult	178	310.3	123.7	>167

[a] In months.

Procedure

The Scales of Independent Behavior had been administered to all seven samples during standardization of the scale. This instrument, typically administered through a structured interview, is a comprehensive measure of problem behaviors and adaptive behavior in motor, social and communication, personal living, and community living skills. It consists of 226 individual items scored on a 4-point scale. The items are organized into 14 subscales, which are further organized into four clusters of adaptive behavior (Motor Skills, Social and Communication Skills, Personal Living Skills, and Community-Living Skills), each including two or more specific subscales. Based on a 45-area content classification system, Holman and Bruininks (1985) found that the Scales of Independent Behavior, along with five other major adaptive behavior scales, provide some of the most extensive coverage of the adaptive behavior domain. In addition to coverage of adaptive behavior, the Scales of Independent Behavior assesses maladaptive behavior through eight problem behavior areas that can be scored either separately or according to three broad summary indexes. The scores for the 14 adaptive behavior subscales—the measures used in the current investigation—were in the form of the W score metric, which is a special score transformation of the Rasch ability scales. The specific transformation is described in Woodcock and Dahl (1971) and is further discussed in Bruininks et al. (1985) and Woodcock (1978). The W scores are the preferred metric for statistical analysis due to their equal-interval measurement characteristic.

Exploratory factor analytic procedures were completed for each of the seven samples. Because of the developmental nature of the W scores used in the analyses, each analysis was preceded by the calculation of a subscale intercorrelation matrix with the effect of CA removed (i.e., partial intercorrelation matrix). The removal of CA effects is important to note because many prior studies did not partial out CA prior to factor analysis. Seven separate correlation matrices, one for each sample, served as the input for each exploratory analysis. The specific factoring method employed was a principal components analysis with unities

in the diagonals. The resulting solutions employed varimax rotation. A factor loading salience criterion of .40 or above was employed in the interpretation of the factors.

In the absence of prior factor analytic research with the Scales of Independent Behavior, an exploratory factor analytic approach was chosen over a confirmatory factor approach. Thus, testing whether a certain factor solution was a better fit than another solution (e.g., whether a two- or three-factor solution provided a better fit than a single factor solution) was not completed. Because the determination of the "correct" number of factors to retain is a fundamentally unresolved issue in factor analysis (Carroll, 1983; Cliff, 1988), a number of criteria were used. Although a number of the more objective factor extraction criteria were used (i.e., eigenvalues ≥ 1.0, scree test) to determine the number of final factors, the interpretability of meaningful factors was the primary criterion. In most cases the interpretability of factors decreased as more factors were extracted than were suggested by the more objective criteria. The final solutions, based primarily on interpretability of factors, retained no factors with eigenvalues less than one. Although the eigenvalue rule was not deliberately used, the fact that only factors with eigenvalues greater than one where retained suggests that the results may be conservative estimates of the number of possible factors (Carroll, 1983; Cliff, 1988).

Results

A review of Table 2 indicates that a three-factor solution was identified as most appropriate in the preschool sample without retardation. Interpretation of the three factors was guided by an inspection of the items within the subscales at this age level. Factor 1 appeared to represent a large (40.5% of the unrotated variance) General Developmental or Personal Independence factor, with significant loadings on 10 of the 14 subscales. The items at this age level for the salient (i.e., factor loadings of .40 or above) Time and Punctuality and Money and Value subscales for Factor 2 (14.9% of the unrotated variance) suggested a practical academic dimension with quantitative characteristics. The third factor (7.8% of the unrotated variance) had the most salient loadings for subscales tapping an individual's ability to look after his or her own personal needs (namely, Toileting, Dressing, and Self-Care) and was interpreted as a Personal Responsibility factor.

Table 2
Varimax Rotated Three-Factor Matrix of SIB Subscales in Preschool Sample Without Retardation

Subscale	Factor[a] 1	2	3
Gross Motor	*.84*	−.16	.02
Fine Motor	*.80*	.01	−.08
Social Interaction	*.86*	.02	−.03
Language Comprehension	*.61*	.39	.25
Language Expression	*.63*	.26	.21
Eating	*.80*	−.16	.13
Toileting	−.21	.16	*.69*
Dressing	*.43*	−.05	*.68*
Self-Care	*.70*	−.00	*.42*
Domestic Skills	.18	.16	*.61*
Time and Punctuality	−.05	*.86*	−.00
Money and Value	−.02	*.77*	.26
Work Skills	*.69*	*.33*	.19
Home–Community	*.79*	−.12	.10

Note. Figures in italics represent loadings of .40 or above.

A review of Table 3 indicates that adaptive behavior, as defined by the Scales of Independent Behavior subscales, is largely a unidimensional factor during the school-age years (i.e., early childhood, middle childhood, and adolescent samples). In each of these samples, the factor extraction criteria (the eigenvalue and scree tests in particular) consistently indicated single factor solutions. Inspection of the unrotated solutions revealed high loadings across all 14 subscales. This finding was consistent with the interpretation of a General Developmental or Personal Independence factor that accounted for approximately 60% to 80% of the unrotated variance.

Table 3
SIB Subscale Loadings on Unrotated General Factor for Samples Without Retardation

Subscale	Early childhood	Middle childhood	Adolescents
Gross Motor	.76	.84	.79
Fine Motor	.84	.89	.91
Social Interaction	.76	.84	.87
Language Comprehension	.80	.88	.91
Language Expression	.81	.89	.94
Eating	.78	.84	.89
Toileting	.74	.84	.85
Dressing	.85	.85	.89
Self-Care	.82	.87	.91
Domestic Skills	.68	.79	.84
Time and Punctuality	.78	.89	.91
Money and Value	.79	.87	.91
Work Skills	.82	.91	.95
Home–Community	.66	.87	.93

Inspection of the results in the adult sample without retardation initially suggested a three-factor structure; however, the three-factor solution was not easily interpreted, with the resulting two-factor structure appearing to best represent the data (Table 4). Consistent with the other age groups, a large (40.5% of the unrotated variance) General factor was represented by Factor 1. Interpretation of Factor 2 (10.7% of the unrotated variance) required an examination of the individual subscale items in order to determine the communality between the Home–Community, Gross Motor, and Work Skills subscales (the three highest loading subscales). A Community/Vocational factor appeared to be the best interpretation of the second factor in this adult sample.

Table 4
Varimax Rotated Two-Factor Matrix of SIB Subscales for Two Samples

Sample/Subscale	Factor 1	2
Adults without retardation		
Gross Motor	.07	*.67*
Fine Motor	*.54*	*.41*
Social Interaction	*.74*	.26
Language Comprehension	*.68*	*.40*
Language Expression	*.67*	*.45*
Eating	*.74*	−.07
Toileting	.17	.00
Dressing	*.77*	−.13
Self-Care	*.78*	.10
Domestic Skills	*.35*	.30
Time and Punctuality	*.63*	.21
Money and Value	*.70*	.32
Work Skills	*.57*	*.54*
Home-Community	−.12	*.82*
Children with retardation		
Gross Motor	*.84*	.35
Fine Motor	*.87*	.34
Social Interaction	*.70*	*.48*
Language Comprehension	*.70*	*.55*
Language Expression	*.25*	*.87*
Eating	*.32*	*.84*
Toileting	*.57*	*.68*
Dressing	*.76*	*.34*
Self-Care	*.43*	*.75*
Domestic Skills	*.51*	*.74*
Time and Punctuality	*.37*	*.83*
Money and Value	*.54*	*.67*
Work Skills	*.76*	*.40*
Home-Community	*.83*	*.31*

Note. Figures in italics had loadings of .40 or above.

Tables 4 and 5 present the solutions for the two samples of persons with retardation. Although the childhood sample produced a two-factor solution (Table 4), the most striking finding was the presence of a large (70.5% of the unrotated variance) General factor (Factor 1). Factor 2 (7.9% of the unrotated variance) appeared to represent an Academic/Conceptual factor because the majority of subscales with salient loadings were those emphasizing cognitively oriented skills (namely, Language Expression, Language Comprehension, Time and Punctuality, Money and Value). Similar to the three school-age samples without retardation, the factor extraction criteria consistently indicated that a single factor solution was most appropriate in the adult sample with retardation, which was characterized by a large (82.0% of the unrotated variance) single general factor, with all subscales loading at or above .81. (see Table 5)

Table 5
SIB Subscale Loadings on Unrotated General Factor for Adolescent and Adult Samples With Retardation

Subscale	Loading
Gross Motor	.93
Fine Motor	.92
Social Interaction	.91
Language Comprehension	.95
Language Expression	.92
Eating	.90
Toileting	.89
Dressing	.91
Self-Care	.90
Domestic Skills	.88
Time and Punctuality	.88
Money and Value	.93
Work Skills	.93
Home-Community	.81

When all samples were combined, the exploratory analyses produced four single-factor solutions, two two-factor solutions, and one three-factor solution. Close inspection of the percentage of unrotated variance attributed to each dimension, as well as the first unrotated principal component in each solution, suggested that the second and third adaptive behavior factors accounted for limited variance compared to a consistently large General Competence or Personal Independence dimension.

Discussion

The current investigation, which explored the factor structure of adaptive behavior in samples with and without retardation from preschool to adult ages, consistently converged on a large General Competence of Adaptive Behavior dimension. Averaged across these seven samples, the General Adaptive Behavior factor accounted for approximately 64% of the total unrotated variance, and the second and third factors (when present) typically accounted for 10% of the unrotated variance. The presence of such a large General Adaptive Behavior factor reinforces the conclusion (McGrew & Bruininks, in press; Meyers et al., 1979) that a substantial portion of the adaptive behavior construct (as measured by available

adaptive behavior scales) is represented by a large Personal Independence factor. The presence of only one Responsibility factor (i.e., Personal Responsibility in the preschool sample without retardation) differed from Meyers et al.'s (1979) conclusion that the adaptive behavior construct contains a second "Responsibility" dimension. Also discrepant from prior factor analytic research was the presence of an Academically Oriented factor in the childhood sample with retardation and the preschool sample without retardation. The presence of a Community/Vocational factor in the adult sample without retardation is also unique to the current research study. Because community and work adjustment is an important criterion in defining mental retardation in late adolescence and adulthood (Grossman, 1983; Reschly, 1986), the presence of a Community/Vocational dimension in the Scales of Independent Behavior is a positive finding.

When compared to Meyers et al.'s (1979) review and factor analytic studies completed since that review (Arndt, 1981; Hug et al., 1978; Katz-Garris et al., 1980; Millsap et al., 1987; Song et al., 1980), the identification of Academic and Community/Vocational factors, as well as the failure to consistently identify a Responsibility factor, suggests possible scale and/or sample differences in the adaptive behavior factor analytic literature. Although the presence of a large Personal Independence factor suggests the Scales of Independent Behavior is similar to most other adaptive behavior instruments, the presence of unique second or third factors does suggest at least slight differences in the operationalized measurement of adaptive behavior by different adaptive behavior scales. This finding is consistent with McGrew and Bruininks' (in press) review of adaptive behavior subscale level factor analytic studies, in which they found that the number of factors extracted, and the type of second or third factors extracted, is most likely related to differences in the specific adaptive behavior scales used in different investigations.

Closer inspection of the exploratory results suggest possible developmental differences in the construct of adaptive behavior. A review of the number of factors identified in the five samples without retardation shows two- or three-factor solutions in the extreme age samples (i.e., preschool and adult). In contrast, only single-factor solutions were present between these extreme age samples. The occurrence of single-factor solutions during the years of formal education suggests possible differential environmental influences as a result of schooling. Individuals at the preschool and adult age levels typically do not share similar educational experiences. These observations suggests the hypothesis that adaptive behavior may be more multidimensional during those years of life not dominated by a single set of common experiences (i.e., school). The influence of a standard set of educational experiences may reduce the dimensionality of adaptive functioning during the formal school years. There is also some likelihood, however, that the nature of skills achieved may differ during these developmental periods. During the preschool period, items on adaptive behavior scales assess early maturational skills and results of learning to master self-help, mobility, community, and personal-care skills. During adolescence and adulthood, adaptive behavior skills typically require increased mastering of social interactions, use of community resources, economic transactions, and employment-related behaviors. The combination of differences in skills mastered at stages of the life cycle and the effects of the environment may differentially influence the structure of adaptive behavior skills by age. This hypothesis, as well as the alternative hypothesis that this trend may be reflective of developmental changes in adaptive behavior, suggests a focus for future research.

An important feature of this study was the examination of factor structures across age groups and in samples with and without retardation. An important finding was the lack of any noticeable difference in the number of adaptive behavior factors in samples with and without retardation. Both single-factor and two-factor solutions were identified in each type of sample. Also, similar Personal Independence and Academic factors were present in samples with and without retardation. Although a different number of factors were extracted from comparable age groups (i.e., 2 for children with retardation, 1 for nonretarded children, 1 for adolescents/adults with retardation, 2 for nonretarded adults), these differences were not systematically related to sample type (i.e., retarded vs. nonretarded). Further, given the modest size of the second factors that emerged, the pooling of adolescents and adults with retardation may have masked the presence of a second factor in that group. Overall, the present study provides data generally supportive of McGrew and Bruininks' (in press) conclusion that adaptive behavior factor analytic research does not appear to show any difference in the structure of adaptive behavior as a function of degree of mental retardation or presence or absence of retardation.

Although the use of the same adaptive behavior scale in samples with and without retardation, as well as in different samples across the entire life-span, adds important information to our understanding of the adaptive behavior construct, considerable additional research is needed. First, research into the development of more comprehensive adaptive behavior scales is necessary. Almost all published adaptive behavior scales do not adequately measure certain critical personal competence dimensions (e.g., motivational orientation, social intelligence) (Greenspan, 1979; Meyers et al., 1979). The development of scales that tap these additional dimensions, followed by subsequent factor analytic research (both exploratory and confirmatory), should add important information to our knowledge of the construct of adaptive behavior. Second, research in this area should include a broad range of samples (e.g., representing different placement/living settings and different degrees of retardation) and instruments (e.g., to assess motor, adaptive behavior, maladaptive behavior, intelligence, achievement, and affective behaviors). Studies in which the construct of adaptive behavior is analyzed in the context of other important constructs, with appropriate methodology, should greatly increase our understanding of the adaptive behavior construct. Keith and his colleagues' covariance structure modeling of the relationships among adaptive behavior, intelligence, and achievement (Keith, Fehrmann, Harrison, & Pottebaum, 1987; Keith, Harrison, & Ehly, 1989) and McGrew and Bruininks' (1987) multivariate analyses (i.e., factor, cluster, canonical correlation) of similar measures of adaptive behavior, maladaptive behavior, intelligence, and achievement are examples of research that has the potential to add important insights to our understanding of these constructs. Finally, similar research needs to occur in the domain of maladaptive behavior. Analysis of the structure of maladaptive behavior has been limited to a handful of studies (McGrew & Bruininks, 1987, in press; Meyers et al., 1979). Through research in all of these directions, it is likely that improvements can be achieved in our understanding and assessment of personal competence in educational and service programs for individuals with mental retardation.

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Differential Validity of the K-ABC for Lower Functioning Preschool Children Versus Those of Higher Ability

Allan S. Bloom, Anna Mary Allard, Frank A. J. Zelko, Wendy J. Brill, and Carolyn W. Topinka
University of Louisville School of Medicine

William Pfohl
Western Kentucky University

The Kaufman Assessment Battery for Children (K-ABC) and the Stanford-Binet Intelligence Scale, Form L-M, were administered to 93 preschool children at risk for learning problems. Lower and higher functioning groups were determined by a Stanford-Binet IQ median split. Although the Stanford-Binet and K-ABC yielded nearly identical results in the higher group, K-ABC standard scores were significantly higher than Stanford-Binet IQ in the lower group. The Stanford-Binet and K-ABC correlated more strongly in the higher group than in the lower group. These findings question the ability of the K-ABC to discriminate among at-risk preschoolers functioning in the lower ranges of cognitive ability.

The Kaufman Assessment Battery for Children (K-ABC) has been of considerable clinical, theoretical, and investigative interest since its appearance in 1983 (Kaufman & Kaufman, 1983a). The development of the K-ABC was based on models of intelligence that differentiate "fluid" (K-ABC Mental Processing Scales) from "crystallized" (K-ABC Achievement Scale) abilities and that emphasize the manner or process in which intellectual tasks are approached (K-ABC Sequential vs. Simultaneous Scales). Although there is controversy regarding how well it conforms to these models (Jensen, 1984; Obrzut & Nelson, 1987; Sternberg, 1984), the K-ABC has been demonstrated to correlate reasonably well with traditional measures of intelligence for nonretarded preschool children (e.g., Bracken, 1983; Durham, Bolen, Childers, & Smith, 1983) and for school-age children with learning disabilities or mental retardation (e.g., Naglieri, 1985a, 1985b; Obrzut, Obrzut, & Shaw, 1984).

Although the K-ABC can be used with children as young as 2.5 years, there have only been a few studies of its validity for young children who have or are at risk for developmental problems. Of the 43 validity studies reported in the K-ABC Interpretive Manual, only one involved an exceptional group that was predominantly preschool age (Klanderman, Wisehart, & Alter, 1983). Those children had been identified as at risk for problems in kindergarten because of speech and language impairments, high activity levels, or multiple handicapping conditions that included physical disabilities. The correlation obtained in that study between the Stanford-Binet Intelligence Scale, Form L-M, IQ (Stanford-Binet)

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