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## ABSTRACT

In the 1983-84 school year, the Michigan State Board of Education conducted a survey of early childhood programs in all of the state's school districts. A total of 518 districts, or 93 percent, responded. Of these, 161 districts indicated that they had a 2-year developmental program for children who were old enough to enter kindergarten but were judged not ready for the regular kindergarten program. Schools with a readiness kindergarten program were asked what type of screening instrument they used. All tests used test reviews from the Seventh through Ninth Mental Measurements Yearbooks. Tests were examined for representative norming samples, validity data, and reliability data. Many were found to be deficient in one or more areas and many were found to be inapplicable or inappropriate. None of the screening instruments used by districts in 1984 met criteria of representative sampling, reliability, and validity. It is concluded that placements of young children into 2-year developmental readiness programs should be made with great caution. Given the lack of statistical data, screenings that result in indications of deficiencies should be followed by extensive examinations. (RH)

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Developmental Screening for Readiness Kindergarten in  
Michigan: Inappropriate or Inapplicable?

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**Abstract**

In 1984 the Michigan Department of Education conducted a survey of all school districts. One hundred sixty-one school districts responded that they had a 2-year developmental program for children age 5 by December 1 labeled readiness kindergarten. These districts also responded with the types of screening for readiness testing instruments that were used for placement. Using test reviews from the Seventh through Ninth Mental Measurements Yearbooks all tests were examined for representative norming samples, validity data, and reliability data. Many were found deficient in one or more areas. Many were found to be inapplicable or inappropriate.

In the 1983-84 school year the Michigan State Board of Education (1984) conducted a survey of early childhood programs in all school districts. The return rate for the survey was 93% (n=518). "Readiness Kindergarten" was defined as a program designed for those children who are five by December 1, but who are determined "not ready" for the regular kindergarten program. Schools having a readiness kindergarten program were asked what type of screening instrument was used for their program. A ranked listing of responses is presented in Table 1.

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Insert Table 1 about here

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In order for educational decisions to be informed and appropriate, certain measurement standards need to be met. The test needs to be valid, reliable, and applicable. A case for validity can be made based upon the content as it relates to professional theory, research, or literature. However, when one uses a screening instrument for placement, a case should also be made for its predictive accuracy. This quality of predictive validity has been labeled criterion-related validity. In order to determine reliability a test

maker may use any of the following statistical techniques: test-retest, alternate forms, split-half, and measures of homogeneity. A test cannot be valid if it is not reliable. In choosing a test for screening, one must determine if it is applicable to the sample for which it is intended. Since all school districts are different, test makers often will pilot a test with a sample representative of various population characteristics. This norming process establishes a test's external, or population validity. To give a test with norms based on a sample to another totally different sample with different characteristics and then apply the same norms would be inappropriate and raise doubts about population validity. (Thorndike and Hagen, 1977; Ary, Jacobs, Razavich, 1985; Kerlinger, 1986; Isaac and Michael, 1987).

A search was made in the Seventh, Eighth, and Ninth Mental Measurement Yearbooks (Buros, 1972; Buros, 1978; and Mitchell, 1985) for all test reviews regarding these screening instruments to determine whether professional reviewers had determined whether these instruments met standards for validity, reliability, and population validity. What follows is a summary of

test reviews found. A summary of findings is presented in Table 2.

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Insert Table 2 about here

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### Gesell School Readiness Test

The Gesell Test is based on years of clinical experience and theory by the Gesell Institute. However, its major limitations are its absence of data on reliability of any form; only one validation study relating scores to teachers' ratings of performance; lack of cutoff scores to demonstrate discriminant validity; and 1928 norms based only on one group of white, middle-class, New England students. (Bradley, 1985; Waters, 1985). In a study using the Gesell Test to predict later diagnosis for special needs, there was a 21% error rate; error rate increased when cutoff scores were lowered; one-half of those determined ready for kindergarten did not have a successful kindergarten experience; and although there was a significant difference to success or failure, the difference only accounted for 22% of the variance in the criterion measure. (Wood, Powell, and Knight, 1984). Another study, although finding a reliability coefficient of

.84, found that the unsystematic clinical method to score the test created such a large error of measurement that a 4.5 developmental age could not be readily distinguished from a 5.0 developmental age. (Kaufman and Kaufman, 1972). The same study found a correlation between the Gesell Test and first grade Stanford Achievement Tests to be .64. Shephard and Smith (1986) in their review of the Gesell Test concluded that it did not meet the standards of the American Psychological Association for validity, reliability, or normative information.

#### ABC Inventory to Determine Kindergarten and School Readiness

A review of the ABC inventory found a claimed criterion validity coefficient with the Stanford-Binet of .78. However, the sample for this study was very small (n=14). No information is presented on the characteristics of the norming sample. While a predictive validity study was conducted for future success in kindergarten with a resultant .70 correlation, the test correctly identified 86% who failed, but failed to correctly identify 37% who passed. The predictive study was also questioned due to the fact

that the kindergarten class studied had a 26% failure rate. (Weikart, 1972).

DIAL - Developmental Indicators for the Assessment of Learning

DIAL was intended as a screening instrument to determine if a preschooler needed further evaluation, not for placement. DIAL was normed using a stratified sample located only in Illinois with an overrepresentation of blacks and low SES children. Reviewers found sufficient evidence for content validity. Criterion validity to I.Q. and mental age scores are made by the test authors but no correlations are presented. A predictive validity study was done between DIAL scores and standardized tests after two years. Predictive validity coefficients ranged from .45 to .73 with a median of .56. No reliability data is presented. (Grill, 1978; McCarthy, 1978).

Brigance Diagnostic Inventory of Essential Skills

The Brigance Inventory is a criterion-referenced measure. The measure obtains content validity from field testing and an extensive review of literature. No predictive or criterion validity is presented. No reliability data is presented. (Saigh, 1985). In 1982 the same author developed the Brigance K and 1 Screen



for Kindergarten and First Grade. The Screen is to be used to rank children to their local reference group, but no information is provided to make placement decisions. Once again, no validity or reliability statistics are provided. (Boehm, 1985).

### Locally Developed Objective Reference Tests

One can only assume that locally developed tests may have some reason to include certain tests items for content validity. An assumption is made that these are criterion-referenced tests which are intended to measure mastery of skills. Each local district would have to answer the question as to whether any predictive or criterion validation or reliability studies have been conducted and what norming has occurred to make comparative judgments.

#### Lesiak

No reference was found to a screening device or test titled or authored by Lesiak in Seventh through Ninth Editions of the Mental Measurements Yearbook (1972-1985).

#### Caldwell

No reference was found to a screening device or test titled or authored by Caldwell in the Seventh

through Ninth Editions of the Mental Measurements Yearbook (1972-1985).

### **Beery**

No review was made of the Beery Developmental Test of Visual Motor in the Seventh through Ninth Editions of the Mental Measurements Yearbook (1972-1985).

### **Developmental Tasks for Kindergarten Readiness**

The test was designed so that a composite score could not be obtained to discourage deciding whether a child is or is not ready to enter kindergarten. The norming sample had a disproportionate percentage of low-income and Caucasian children. A case for content validity is made based upon similar tests and preschool and kindergarten curricula. While the test-retest reliability was .90, the correlations for split-half ranged from .04 to .93 with only 4 of 12 subtests adequately able to distinguish between high and low performing children. A predictive validity study was conducted to scores on the Metropolitan Readiness Test Scores. Correlations ranged from .20 to .62. (Gray, 1985; White, 1985).

Anton Brenner Developmental Gestalt Test of School Readiness

The norms for this test were developed from 750 kindergarten and first grade children in Mt. Clemens, Michigan. No descriptive data is presented to determine the representativeness of the sample. No predictive validity is presented. Criterion validity was determined by comparisons to Metropolitan Readiness Tests which resulted in correlations between .61 and .81. Reliability was determined using test-retest (.55-.74) and split-half (.83-.92). The reviewer did not recommend the use of this test by teachers due to the ambiguity in the manual regarding interpretation. (Deloria, 1972).

Boehm Test of Basic Concepts

The purpose of the test is to assess students' knowledge of frequently used basic concepts. A case is made for content validity based upon a content analysis of curriculum materials and pilot testing. The standardization sample was geographically representative. No ethnic representation figures are presented and a disproportionately large number of lower socioeconomic students were included. Reliability coefficients ranged from .68 to .90. Other than

content validity, no further types of validity are reported. (McCandless, 1972; Smock, 1972).

Metropolitan Achievement Test (MAT)

The MAT includes both achievement and criterion-referenced tests for K.0 through 9.9. Item response theory and curriculum analysis was used to establish content validity and discriminate ability of test items. The norms were established from a national and representative sample. Both split-half and tests of homogeneity are reported with correlations at or above .80. Criterion validity was established with the Otis-Lennon School Ability Test. No predictive validity is reported. (Haertel, 1985; Linn, 1985). The Metropolitan Readiness Test (MRT) was designed as an assessment to determine readiness for reading. As the MAT, the MRT has extensive norming, reliability, and content validity data. Predictive validity tests with later achievement tests resulted in a .60 correlation with future reading achievement. The test was not intended to be diagnostic of specific deficiencies or disabilities. (Ravitch, 1985).

### Peabody Picture Vocabulary Test

The response on the original survey was for the Peabody PFS. No such test was found in the Seventh through Ninth Mental Measurements Yearbook. What follows is a summary of reviews of the Peabody Picture Vocabulary Test revised (PPVT-R). The PPVT-R was designed as a measure of receptive language. The norming sample was national and representative. Reliability coefficients for homogeneity, test-retest, and split-half reliability range from .61 to .91. Comparing PPVT-R scores to I.Q. measures and ability tests have resulted in correlations ranging from .16 to .78 for criterion validity. No predictive validity statistics were available. (Mccallum, 1985; Wiig, 1985).

### California Psychological Inventory (CPI)

The CPI was intended as an assessment of interpersonal behavior or social interaction for children ages 13 and over. There is a question as to the discriminate ability of the subtests. Criterion validity tests resulted in correlations ranging from .2 to .5. Despite its popularity, little information and little research is provided to interpret results. No information is provided on reliability. No predictive

validity information is provided. (Baucom, 1985; Eysenck, 1985).

DABERON: A Screening Device for School Readiness

DABERON was referred to and described in The Ninth Mental Measurements Yearbook. No review was found in the seventh through ninth editions.

Dallas

No review was found in The Seventh through Ninth Mental Measurements Yearbooks.

Eliot-Pearson Screening Inventory (Early Screening Inventory)

The Eliot-Pearson Screening Inventory was referred to and described in The Ninth Mental Measurements Yearbook. No review was found in the seventh through ninth editions.

Frostig Movement Skills Test Battery

The Frostig was developed as an assessment of sensory-motor and movement skills for students ages 6 through 12. The standardization sample consisted only of Caucasian children from one school district in California. Content validity is claimed based upon theory and research studies with adolescents and adults. No criterion-related or predictive validity is

presented. Correlations for reliability using common factor variance range from .44 to .88 with a median coefficient of .60. According to Oakland (1985) these correlations were too low to make judgments about placement. Rosen (1985) concluded his review that inadequacies in the test made it unacceptable in its present state. (Oakland, 1985; Rosen, 1985).

#### Haptic Perception

No review found in the Seventh through Ninth Mental Measurements Yearbooks. The only reference to "Haptic" was the Haptic Intelligence Scale for the adult blind.

#### Miller Assessment for Preschoolers (MAP)

The MAP was designed as a screening test for identifying children who exhibit moderate "preacademic problems". A case for content validity is made based upon preschool tests, research, theory, and pilot studies. The norming sample was a stratified national sample. Studies comparing the MAP to WPPSI and ITPA resulted in correlations of .27 and .31 respectively. Reliability correlations were .98 for interrater reliability and .79 for tests of homogeneity. No predictive validity statistics are presented.

(Deloria, 1985; Michael, 1985). A follow-up study was done by the test author of the original sample four years after initial screening. While predictive correlations were not presented, a significant difference ( $p < .01$ ) was found between those identified as deficient in the areas of retentions, teacher observations, special services, and below average report cards (Miller, 1988).

#### Miller Preschool Assessment

No such test was found. The assumption is made that this response was inaccurate and probably meant the Miller Assessment for Preschooler (see above).

#### Minnesota Child Development Inventory (MCDI)

The MCDI was designed as a supplement to a parent interview in order to identify children with below average developmental abilities through parent experiences with the child. The norms are based upon a sample of white, middle-class, intact families. Split-half reliability coefficients were derived from the sample with a median correlation of .79. No validity data is present.



### Zimmerman

The only test referred to with the name "Zimmerman" in the Seventh through Ninth Mental Measurements Yearbooks was the Zimmerman-Sanders Social Studies Test intended for grades 7 and 8.

### Discussion

In order for decisions to be accurate and informed using test data, the test must be valid, reliable, and based on a representative norming sample. A reexamination of Table 2 will show that none of the screening instruments reportedly used in the 1984 Michigan survey meet all of the criteria. A test should not be used to identify and place children without reliability and validity data (Meisels, 1987). Shephard and Smith (1986) in their examination of tests in use at the kindergarten level concluded that none of the existing tests are accurate enough to justify removing children from their normal peer group and placing them in two-year programs. A justification for placement may be made if predictive validity data indicates potential problems. However, as was shown, few tests have predictive data and even those that do have minimal data.

The use of many of the tests reported for screening and placement is inappropriate or inapplicable. Achievement and criterion-referenced tests measure current abilities, skills, or achievement and do not presume how much a student could or could not learn in regular or readiness kindergartens. Many simply were not designed for the purpose of screening and placement (e.g. CPI). Meisels (1987) argues that readiness tests are only to be used to assess current abilities and to facilitate curriculum planning. The National Association for the Education of Young Children would appear to agree when they took the following position: "It is the responsibility of the educational system to adjust to the developmental needs and levels of the children it serves . . . ." (1985, p.16).

Placements into two-year programs should be made with the greatest of caution. Given the lack of statistical data, screenings resulting in indications of deficiencies should be followed by more extensive examinations as intended by many test authors.

Table 1

**Ranked Responses for Screening Instruments for  
Readiness Kindergarten**

Instrument	Frequency of Districts Reporting Use
Gesell	48
ABC	19
DIAL	16
Brigance Diagnostic	11
Locally developed objective reference test	9
Lesiak	6
Caldwell	5
Beery	3
Deu-Task of K-R	3
Anton Brenner, Brenner Gestalt	3
Boehm Slater	2
MAT	2
Peabody	2
CPI	1
Daberon	1
Dallas	1
Elliot-Pearson	1
Frostig	1
Haptic Perception	1
MAP	1
Miller Preschool Assessment	1
Minnesota	1
Zimmerman	1

Table 2

Test Reviews of Readiness Kindergarten Screening Instruments in Mental Measurement Yearbook

Name	Validity			Reliability Norms Comment		
	Content	Predictive	Criterion			
Gesell	+	.64?	22%	.84?	?	21% or greater error rate
ABC	U	.70?	.78	0	?	37% false negatives
DIAL	+	0	.56IQ	?	0	
Brigance	0	0	0	0	0	criterion-referenced
Locally Developed	?	?	?	?	?	
Lesiak	U	U	U	U	U	no review
Caldwell	U	U	U	U	U	no review
Beery	U	U	U	U	U	no review
Deu-Task	+	0	.20-.62	.90	?	
Brenner	0	0	.66-.75	.54-.92	?	
Boehm	+	0	0	.68-.90	?	
MAT	+	0	+I.Q.	.75-.90	+	
Peabody	+	0	.16-.78	.52-.91	+	
CPI	0	0	.2-.5	0	?	for ages 13 & over
Daberon	U	U	U	U	U	no review
Dallas	U	U	U	U	U	no review
Eliot-Person	U	U	U	U	U	no review

Table 2 (Continued)

Name	Validity			Reliability	Norms	Comment
	Content	Predictive	Criterion			
Frostig	+	0	0	.60	?	judged unacceptable
Haptic	U	U	U	U	U	no review
MAP	+	0	.27-.31	.79-.98	+	
Minnesota	0	0	0	.79	+	
Zimmerman	U	U	U	U	U	no review

Note.

+ = present in reviews

? = in question or doubtful

0 = not present by test author or reviewers

U = unknown

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