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Instrument for Social Maturity

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Abstract

This study investigated the use of the Bender Visual Motor Gestalt Test (BVMGT) as a measure of social maturity. A group BVMGT was administered to 80 second grade children and scored using the Koppitz Developmental Scoring System. The Social Domain of the Vineland Adaptive Behavior Scale (VABS) served as the measure of social maturity. It was hypothesized that there is a significant positive relationship between VABS performance and BVMGT performance, also that there is a significant positive relationship between BVMGT performance and gender. The hypotheses were not supported. The VABS, variability within the subjects, age, halo effect, and scoring system were suggested factors accounting for this study's outcome.

Bender Visual Motor Gestalt Test as a Group
Screening Instrument for Social Maturity

Social maturity is defined here as the degree of social behavior attained by an individual at a specific age. It represents one of the characteristics commonly associated with successful academic performance. Currently, the assessment of social behavior requires a considerable amount of time even for a trained, professional interviewer. Visual motor maturity, another prerequisite for school achievement, is very often measured with the Bender Visual Motor Gestalt Test (BVMGT). Individual administration of the BVMGT can be accomplished in approximately fifteen minutes and administration to entire classes of school children within thirty to forty minutes. This study is directed toward investigating a quick, valid and efficient method of measuring social maturity through use of the BVMGT.

Feldhusen, Kryspin, & Benning (1970) had third, sixth, and ninth grade teachers nominate 1550 children as consistently displaying socially acceptable or socially disapproved behavior in the classroom. Five years later grades in English, science, math and social studies, rank in graduating class, and STEP scores were analyzed using analyses of covariance, with intelligence as the covariate. Results revealed significant differences among grades in all subject areas and STEP scores as well as consistently higher mean

scores for the socially acceptable group. These findings clearly establish a relationship between behavior and subsequent academic achievement.

Trachtman (1958) had teachers rate the developmental and personality characteristics of the highest twenty-five and lowest twenty-five children to make up most and least ready groups for kindergarten. Mental maturity was measured with the Stanford-Binet Intelligence Scale, physical maturity by height and weight measurements, motor development with the Bender Visual Motor Gestalt Test, emotional maturity with the Rorschach Test, and social maturity with the Vineland Social Maturity Scale. Academic progress was measured at the end of the first grade. It was concluded that visual motor and social maturity successfully differentiated the most ready from the least ready group; however, these variables proved to have predictive value for first grade progress only in identifying children for the least-ready group.

The Bender Visual Motor Gestalt Test, one of the most popular and widely used instruments available to psychologists, was developed by Laretta Bender as a systematic approach to relate Gestalt psychology to the problem of personality and its dynamic patterns. The Bender Visual Motor Gestalt Test is essentially applicable to the gestalt function or visual motor perception and its use will reveal this maturation process or disorders in development of

children. (Bender, 1938). It is commonly used in test batteries for diagnosis and placement of school children. More recently, the BVMGT has proved to be a useful screening instrument for evaluating readiness of children entering formal school programs as well as predicting arithmetic and reading achievement (Dibner & Korn, 1969; Keogh & Smith, 1967; Norfleet, 1973).

Keogh and Smith (1961) established the feasibility of a group administered BVMGT by investigating the effect of a modified administration and scoring technique. Their subjects were 221 kindergarten children. These children were administered the BVMGT using three different methods. One group was tested by the original, individual method. In the second method children were grouped by tens, with each child having their own set of designs from which to copy. The third method utilized enlarged cards placed in the center, front of the classroom. Results of this study revealed no significant differences among the three methods of administration.

Dibner and Korn (1969) conducted a study which was also aimed at testing group administration of the BVMGT with the Koppitz scoring system. Four hundred ninety two boys and girls, kindergarten through fourth grade, were tested under two conditions: projection of the designs on a screen and the use of individual decks of cards by each child. Analysis of

variance within each grade revealed no differences on scores between the projector and card conditions.

Keogh and Smith (1967) used a longitudinal paradigm to examine the relationship of school achievement with visual motor ability and sex over the 7-yr. elementary school period. Visual motor performance was measured by the group administered BVMGT. School achievement by the California Achievement Test in third grade and the Iowa Test of Basic Skills in the sixth grade. Analysis revealed that girls were better than boys on the BVMGT at the kindergarten level while the reverse was true at grade three, however no sex difference was evident at grade six. BVMGT correlations for kindergarten to third and sixth grades were .55 and .62, Pearson r for third to sixth grade was .51. All values for girls were significant at the .01 level. For boys the correlation between kindergarten and third and sixth grade BVMGT scores were .41 and .30, significant at the .05 level. The relationship between BVMGT performance at third and sixth grades was non-significant ($r=.21$). Results of this study suggest that the kindergarten BVMGT is a useful predictor of educational achievement in the upper elementary school grades.

Dibner and Korn (1969) evaluated the predictive as well as the concurrent validity of the Koppitz Developmental scale with teacher ratings as criteria. The children were rated on the following variables using five point scales: (1) general

adequacy of school performance, (2) arithmetic, (3) reading, (4) general intelligence, (5) emotional control and (6) prediction of success in the next grade if promoted.

Comparisons of BVMGT developmental scores and original teacher ratings were made within each grade and had significant although low correlations. The BVMGT scores had low to moderate predictive ability which were strongest in kindergarten and first grade. Predictive ability was not found in the second grade but again appeared in third and fourth grades. BVMGT scores showed equal ability to predict performance in reading and arithmetic. Original teacher predictions of school performance had higher predictive value than the BVMGT score in every grade except kindergarten. It was concluded, however, that the BVMGT may be considered a preferred predictor because it is a more objective measure that is not contaminated by teachers' perceptions of social ability.

A study to investigate the feasibility of using group administration of the BVMGT to 311 boys and girls as a predictor of year-end reading achievement in the first grade was formulated by Norfleet (1973). Attention was given to how accurately BVMGT cut-off scores predicted successful and unsuccessful reading achievement, the relationship of BVMGT scores to teacher judgments of reading achievement, and the relationship of BVMGT scores to kindergarten experience and

first grade success. Results of the t-tests of total group for the BVMGT and chronological age showed no sex differences between boys and girls, but all of Gates-McGinitie Reading Test (GMRT) measures yielded significant differences between boys and girls. The girls scored better than the boys and had lower standard deviations on each of the GMRT measures which indicates that the girls represented a more homogeneous group in terms of their reading skills.

In effect, a significant interaction occurred when groups were formed by BVMGT cut-off scores. Also, there was a significant association between teacher judgments of reading achievement and BVMGT for girls and total. Chi square analysis on all sections of the GMRT when associated with the three BVMGT groups was significant at the .001 level. Norfleet suggested the possibility that teachers perceived girls as more socially mature than boys due to the percentage of girls passing to the next grade and first grade success.

As well as sex and age, ethnic background has been shown to have an effect on BVMGT performance. One possible explanation is related to IQ differences (Taylor & Partenio 1984). In an effort to clarify the effects of intelligence on BVMGT test performance, the Wechsler Preschool and Primary Scale of Intelligence or Wechsler Intelligence Scale for Children-Revised were individually administered to 223 black

children, 203 Hispanic children, and 226 white children, aged five to eleven. Results of this study supported previous research documenting performance differences on the BVMGT among black, white and Hispanic children. Black children made consistently more errors than did white or Hispanic children. This study also found that IQ accounted for a significant amount of the performance differences among ethnic groups.

Research cited in this study has established the group administered BVMGT as an adequate predictor of subsequent academic success. Teacher ratings are influenced by social concerns and have been considered as an even more powerful predictor but less desirable due to their subjective nature. BVMGT performance and teacher predictions have also been found to be highly related.

To this investigator's knowledge, there has been no study which has focused its attention on clarifying the contribution of social behavior to BVMGT scores. Although Trachtman indicated nonsignificant correlation between social behavior and visual motor performance, his research was limited to small numbers and preselected groups. Variables such as gender and ethnicity have been revealed through research to have an effect on BVMGT performance. Therefore, ethnic differences will be controlled by including subjects within the same ethnic group. It is therefore hypothesized that a statistically significant relationship exists between

social maturity and BVMGT performance, as well as between BVMGT performance and gender.

Method

Subjects

Four classes of second grade students from two schools in the Richmond Public School System served as participants. Although 120 children participated, data analysis was based on a total of 80 subjects. Forty subjects were dropped either to maintain racial control or because they were suspected of or diagnosed as having a physical handicap or organic impairment. Permission was obtained from parents or guardians of each child before they were allowed to participate (Appendix). The teacher of each class completed a questionnaire.

The total number of students used in this study was 80. It consisted of 50 male and 30 female black, second graders. The mean chronological age of the boys in this group at the end of the second grade was 8 years 4 months with a standard deviation of 7.5 months and a range of 7 years 2 months to 10 years 3 months. Mean social age of the boys was 10 years 4 months with a standard deviation of 4 years 1 months and a range of 2 years 11 months to 16 years 6 months. Mean visual motor age equivalent was 8 years 5 months with a standard deviation of 1 year 6 months and range of 5 years 1 month to 11 years 6 months.

Mean chronological age of the girls in this group at the end of the second grade was 8 years 2 months with a standard deviation of 6.7 months and range of 7 years 5 months to 9 years 7 months. Mean social age of the girls was 11 years 3 months, standard deviation 3 years 3 months and a range of 5 years 1 month to 16 years; and mean visual motor age was 8 years, standard deviation 1 year 7 months and a range of 5 years 6 months to 11 years 6 months.

Materials

The nine BVMGT designs were administered by projection onto a screen with an opaque projector. Each subject was given a sheet of plain white paper and a pencil with eraser. The 30-point developmental Koppitz scale was used to score each protocol.

The Socialization Domain of the Vineland Adaptive Behavior Scales (VABS) was utilized in this study which consists of three subdomain scores: Interpersonal Relationships, Play and Leisure, and Coping Skills. The scale is arranged as a combination point and age scale containing 53 items that are in order of increasing difficulty. The VABS were designed to assess handicapped and non-handicapped persons from birth to adulthood in their personal and social functioning. The VABS, follows Edgar Doll's original conceptualization of adaptive behavior as multidimensional, and is organized around four Behavior Domains: Communication, Daily Living Skills,

Socialization, and Motor Skills. Split-half and test-retest reliability coefficients for the VABS scores are good, ranging from median values of .83 for the Motor Skills domain to .94 for the Composite (Campbell, 1985).

Procedure

The BVMGT was administered to all children in the sample, using a group method in which the designs were projected onto a screen at the front of the room, with an opaque projector. Each subject copied them on paper placed on the desk. The teacher remained in the classroom to assist in the administration. Each child was seated at his or her desk with one sheet of plain white 8 1/2" X 11" paper, and a pencil with an eraser. The children were given the following instructions: "Each of you will see nine different designs on the screen. Make a drawing on your paper just like the drawing on the screen. You will be given enough time to copy each design. Do not move your paper while drawing."

All of the BVMGT protocols were scored using the Koppitz Scoring System for children, and were coded to preserve the identity of each subject. To establish the reliability of the examiner's scoring, a random sample of the protocols were scored by the investigator and a Licensed Psychologist; an inter-rater reliability of .9 was established. Therefore, the

examiner scored the remainder of the BVMGT protocols as well as the VABS Questionnaires.

To analyze the data, Pearson product-moment correlation coefficients were calculated utilizing the SPSS^x statistical software package. The level of confidence established for this study was .05.

Results

Descriptive statistics were compiled and are summarized below in Table I.

Table I

Status of Group in Years

	<u>Boys</u>			<u>Girls</u>		
	<u>Mean</u>	<u>Range</u>	<u>SD</u>	<u>Mean</u>	<u>Range</u>	<u>SD</u>
CA	8-4	7- 2 to 10-3	0-7	8-2	7-5 to 9-7	0-6
¹ SMA	10-4	2-11 to 16-5	4-1	11-3	5-1 to 16-0	3-3
² VMA	8-5	5- 1 to 11-6	1-6	8-0	5-6 to 11-6	1-7

1 Social Maturity Age Equivalent

2 Visual Maturity Age Equivalent

Measurements of social (SMA) and visual motor age equivalents (VMA) were compared and correlation coefficients computed. Of the three correlations computed, none were significant. Results are shown in Table II.

Table II

Correlation Coefficients Among Groups

	VMA	SMA
Sex	- .13	.11
VMA		.01

To determine if the relationship between VABS performance and BVMGT performance was significant for either males or females, a post hoc decision was made to analyze each separately. The correlation coefficients computed yielded a Pearson r of .06 for males and .04 for females. Neither were significant.

Discussion

The focus of this study was to investigate the relationship between visual motor ability and social maturity, in an effort to offer an efficient method of measuring social maturity. The results of this study do not support the hypothesis that there is a significant relationship between social maturity and visual motor performance. It also does not support the hypothesis that there is a significant relationship between visual motor performance and sex.

Analysis of the visual motor age equivalent and the level of social maturity of the sample revealed no evident sex

differences at the end of the second grade. As a whole, the group demonstrated an average level of performance on the BVMGT, and performance on the Social Domain of the VABS was also average. There was, however, considerable variability among the scores, with BVMGT performance ranging from five years five months to eleven years five months and VABS performance ranging from two years nine months to sixteen years five months.

As noted previously, Keogh and Smith (1967) discussed the differences found between boys and girls in visual motor maturity at different grade levels. In Kindergarten, girls' visual motor ability exceeded that of boys', however by Spring of third grade, boys were found to have surpassed the ability of girls in this area and Sixth grade represented a period of no difference. It appears that the results of this study are consistent with those findings in that a period of no difference would have to precede the point at which boys' visual motor ability would surpass the ability of girls'. Although the mean number of errors of girls (4.8) exceeded the mean for boys (3.9) the difference between the two was not significant ($F = 1.86, p > .05$), and the end of second grade represents essentially equivalent performance between boys and girls.

Girls' mean scores of social maturity exceeded the boys' mean scores by eight months. Although eight months does not represent a significant statistical difference, it would be interesting to know if a perceptual difference is represented in expectations of girls by their teachers.

One factor that might explain these results may be the test used for the measure of social maturity. It was assumed at the outset of this study that the Socialization Domain with its three subdomain scores would accurately classify each child. The "halo" effect experienced with parent reports may well be applicable to teacher reports. Whether the parent or teacher completes the questionnaire, that child's functioning will be reported as someone's perception of it.

Another factor possibly explaining the lack of relationship between the variables is the large amount of variability within the sample. Trachtman's task to differentiate children most and least ready for first grade, revealed that such differentiation existed in the areas of mental, visual motor, and social maturity. Each variable had the ability to predict achievement in only the least ready group. Perhaps, predictive ability was not achieved in this study because there was no differentiation between ability levels, and any slight differences may have been concealed due to the inclusion of average as well as above average abilities. Norfleet also found that on the basis of cut-off

scores, prediction of reading ability was accurate in the good scoring group but not in the poor scoring group.

The Koppitz scoring system was designed to reflect the level of visual motor development by the number of errors made while reproducing the BVMGT designs. Perhaps had another scoring method, either an existing method or one newly designed, been utilized in this study the outcome would not have been the same.

In summary, the purpose of this study was to find a valid and efficient method of measuring social maturity using the BVMGT. The results of this study do not support the hypothesis that there is a significant relationship between social maturity and BVMGT performance or the hypothesis that there is a significant relationship between BVMGT performance and sex. The instrument chosen to measure social maturity, the variability within the subjects, age of subjects, halo effect, and the scoring system used were suggested factors that may account for this study's non-confirming outcome.

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Appendix

June 1, 1987

Dear Parents/Guardians:

As part of my requirements for a graduate degree, I will be conducting a research project in your child's school.

One paper and pencil test which measures visual-motor coordination will be administered. Each child will be asked to copy a set of geometric figures. The test will take approximately fifteen minutes and will be given during classroom hours. The teacher will be asked to complete a questionnaire for each child which measures social development.

The data will be coded and your child's name will not be associated with any of the information. This data collection will serve as a basis for research and will not be used by the school in any other way.

I am requesting your cooperation by signing the attached form so that your child may participate. If you would like results of this study, you may send a self-addressed envelope to me at Richmond Hall, the University of Richmond, Virginia 23173 in October, 1987.

Thank you,

Andrea Davis
Graduate Student
Richmond Hall
University of Richmond

I understand that this data collection will serve as a basis for research and will not be used in any other way by the school.

I understand the data will be coded and my child's name will not be associated with any information that will be provided.

My child has permission to participate in this research project.

Parent/Guardian

Date

Biography

The author of this paper is a native of Richmond, Virginia. She graduated from Virginia Commonwealth University with a B.S. degree in Business. She has combined her undergraduate and graduate studies with the responsibilities and duties of marriage, motherhood and employment. Her decision to earn a graduate degree in Psychology grew out of an interest in the mental health field which developed while working in the office of a local psychiatrist. Currently, she is employed as a psychometrician and plans to continue her education.