

Proceedings of the Iowa Academy of Science

Volume 62 | Annual Issue

Article 49

1955

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Recommended Citation

Taylor, James R. and Schenke, Lowell W. (1955) "The Bender Visual-Motor Gestalt Test as a Measure of Aggression in Children," *Proceedings of the Iowa Academy of Science*: Vol. 62: No. 1 , Article 49.
Available at: <https://scholarworks.uni.edu/pias/vol62/iss1/49>

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The Bender Visual-Motor Gestalt Test as a Measure of Aggression in Children

By JAMES R. TAYLOR AND LOWELL W. SCHENKE

INTRODUCTION

The Bender-Gestalt Test has been routinely used for the past two years at the Annie Wittenmyer Home, an institution for dependent and neglected children in Iowa. This simple test was first designed by Bender (1938), as a performance test for young children. Her manual also indicates that the test can be used in the differentiation of organic brain anomalies, schizophrenias and psychoneuroses. This area of research has been covered by Hutt (1945) Swenson and Pascal (1953), Guertin (1954), and others.

The observations of the writers have indicated that there is a wide difference in the way apparently normal children respond to these designs. These differences have heretofore been interpreted in the light of Hutt's (1945) findings with an adult population. For example, he indicated that such things as diminution of the figures, conservation of space and the use of light pressure in drawing are indicative of "social withdrawal, limited activity and unassertiveness." In another article Hutt (1953) stated that, "aggressive and rebellious individuals usually show an excessive use of space. On the other hand an inordinately small amount of space between successive drawings is indicative of repressed hostility, occasionally turned inwards in the form of masochistic strivings or needs." Peek (1953) has shown that the direction of drawing a single line such as the diagonal on the figure 5 (an incomplete circle with an intersecting slanting line both composed of dots) can be indicative of differences in personality adjustment. He found that patients drawing the diagonal toward the half-circle rather than in the popular direction, i.e., away from the half-circle were significantly more immature and dependent than the control group. Rather than being able to direct their hostility upon the sources of their frustration they were inclined to use less adaptive mechanisms such as headaches and other somatic complaints. They were therefore more apt to build up frustrations which spill over into poorly controlled and indirect forms of aggressive hostility.

PROBLEM

Since most reported studies of this test have been done with neuropsychiatric patients in Veteran's Administration Hospitals and Out-patient Clinics it was felt that the interpretative data were in-

adequate for use with younger subjects. The problem then was to establish some kind of norms for use with the present population. Since there was evidence that this test had been used in previous studies to detect aggressive behavior it was decided to use an aggressive-passive dichotomy to determine what distortions in the drawing and organization of the figures were significant in detecting the aggressive from the non-aggressive child.

METHOD

The first necessity was to establish two groups of children one of which could be considered to be aggressive and one essentially passive, i.e., compliant in the present social situation. A questionnaire was developed listing traits of an aggressive nature which had been brought to the attention of the psychologist by housemothers and teachers. In other words the trait list for aggressiveness was made up of characteristics actually shown by the children at the Home which had caused them to be in conflict with their housemother and/or teacher. The trait list for passive characteristics was generally the reverse of the aggressive list. This questionnaire was given to the teacher and the housemother of each child. A point count was made of each trait checked as characteristic of the child by the two raters with no attempt to quantify individual traits as more or less aggressive or more or less passive than others. The total plus value (aggressiveness) was then subtracted from the total minus value (passiveness). Children with a corrected plus value of five or more were rated as essentially aggressive in their behavior at the Home and those with a minus value of four or more were rated as passive. A control group was chosen from among those children who had corrected ratings of + 1 to - 1.

The aggressive group consists of 38 children with an average age of 12.77 years, and an age range from 9 years, 9 months to 16 years, 0 months. The passive group consists of 20 children with an average age of 13.44 years with a range from 10-0 to 17-10. The control group consists of 20 children with an average age of 12.63 years and an age range of 9-7 to 16-8. There is no significant difference between the I.Q. range of the three groups. They were chosen from a total N of 151 children over nine years of age.

At the same time that the above data were being collected, each child in the Home from the second through the ninth grade was examined in the usual manner with the Bender-Gestalt. They came for individual examination by class groups having been instructed in a group that they were being asked to assist the psychologist in an experiment. Individually they were instructed: "I have some designs on these cards which I want you to draw for me just the way they look to you." The cards provided by the American Orthopsychiatric Association were used. A stack of white 8½ x 11 bond

was on the table with an eraser and two sharpened pencils. Before the child entered one sheet of paper was placed horizontal to the table edge and in front of the chair where the subject was to sit. This is in accordance with the directions given by Peek and Quast (1951) and by Hutt (1953). No further instructions were given and questions by the subject were referred back to him with the statement to "do it just the way it looks to you." No effort was made to restrict the number of pages used, but the majority of children used only one page. Two girls used two pages each and one girl used a page for each design.

During the course of examination note was made of handedness, directionality of drawing, direction of the diagonal of number 5, time to complete the total task; and behavioral data such as erasing, counting, retracting, etc. Inasmuch as interest lay only in the original reproduction of the subject no recall or association techniques such as those described by Hutt (1945, 1953), Peek and Quast (1951) and Suczek and Klopfer (1954) were used.

After they were obtained the drawings were scored basically in accordance with the Peek and Quast scoring system for specific variables to be studied.

RESULTS

The results of the drawings of the three groups were tabulated in the following categories: order of drawing, cohesion, use of margin, rotations, retracing, tone of lines, direction of drawing the diagonal on the figure 5 and the relative size of the design in relation to the stimulus.

The order of drawing in this test is typically either down the page vertically with the remaining drawings in a second column down the page or else in a horizontal manner row by row down the page. The drawings were rated as either in normal, irregular or confused order. Of the aggressive group 16 percent showed a confused order while only 10 percent of the passive group showed this distortion. However, a greater percentage of the passive group showed irregular order than did the aggressive group so that 50 percent of each group showed either irregular or confused order. The *t* value in regard to confused order is .27 with a probability of about .75. (A corrected value of chi-square for small samples was used in determining the significance of these results.)

The tone of line was rated against a half-tone scale as heavy, medium or light. On the basis of hypothesis the aggressive group would be expected to show a greater concentration of heavy tones than the passive group. The percentage of each group showing this trait was 29 percent and 30 percent respectively. The corrected chi-square value for each cell is a minus value. The total chi-square a purely chance relationship.

The direction of drawing the diagonal on figure 5 was noted to be either towards or away from the half-circle of dots regardless of inversions or rotations of the total figure. According to the previously mentioned study by Peek it seemed possible to hypothesize that the aggressives would be more likely to draw the diagonal toward the half-circle than the passives. Of the aggressives 29 percent drew in the direction indicated and of the passives 25 percent drew in the direction indicated. This would point to no significant difference, and an obtained *t* of only .0004 gives a probability of .99 that this is true.

Table 1

Items checked for differentiation of aggressive from passive group
 N aggressive group equals 38, passive group equals 20

Item	N showing positive direction		<i>t</i>	<i>p</i>
	Aggressive	Passive		
Cohesion-expanded	10	1	20.98	>.001
Cohesion-compressed	18	5	23.60	>.001
Cohesion expanded or compressed	28	6	109.00	>.001
Margin based	8	1	10.25	>.01
Heavy tone	11	6	-1.08	.99
Diagonal #5 drawn toward half-circle	11	5	.00	.99
Size of design distorted	29	12	3.84	.05
Confused order	6	2	.27	<.75

The size of each design was determined to be either small, large or normal in relation to the actual size of the stimulus. If at least 5/9's of the designs were one or the other the result was rated as large, small or normal. If less than 5/9's were rateable as one or the other the result was said to be mixed. Eighteen percent of the aggressives were rated as mixed in regard to size and 10 percent of the passives were so rated. On the basis of Hutt's results we would hypothesize that the aggressives would produce drawings larger than normal and that the passives would produce drawings smaller than normal. However, none of the drawings of aggressives could be rated as enlarged. The chi-square ratio was therefore determined in regard to distortion of size irrespective of whether the designs were basically small, large or mixed. The obtained *t* of 3.84 is at the 5 percent confidence level. It would therefore seem that aggressive children are more likely to distort the size of their drawings than passive children. The direction of distortion, however, can not be predicted, and on the basis of other data it is shown that children who are rated as neither aggressive or passive show a strong tendency to make their reproductions either smaller or larger than the stimulus. (It is the feeling of the writer that this

is related to the test situation rather than to personality characteristics.) It is felt that any interpretation of aggressiveness or passiveness on the basis of the size of the design as far as children's drawings are concerned is fraught with danger.

The reproductions were considered to be margin based if as many as $\frac{2}{3}$'s of the figures tended to follow the verticle edge of the paper so as not to extend beyond the mid-line. Eight of the aggressive group and one of the passive group responded in this manner. A t of 10.24 was obtained which is greater than the 1 percent confidence level. On the basis of the literature it was predicted that the passives would be more inclined to margin base their drawings than the aggressives. Obtained results are in the opposite direction. However, again the percentage of those children who are rated as neither aggressive or passive who margin base their drawings is greater than the percentage of passive children who do so. The safest conclusion is that if a child's reproductions are primarily margin based he is not apt to be a wholly compliant child.

Finally the drawings were rated as to cohesiveness. If a lot of white space was left between successive designs they were rated as expanded. If comparatively little space was left they were rated as compressed. Others were rated as normal. This rating had nothing to do with the size of the figures since a person who drew the figures much smaller than normal was just as apt to compress as to expand, and only one of the whole group drew the designs appreciably larger than normal. In general those drawings which were rated as expanded made use of the whole page with an inch or more of white space between successive figures. Those which were rated as compressed left considerable white space on two or more margins.

Ten children in the aggressive group were rated as having expanded cohesion while only one of the passives was so rated. The t of 20.98 is greater than the .001 confidence level. Among children in the control group it was noted that few tend to show expansion. This is the only ratio which is in the predicted direction. Further inspection indicates, however, that the aggressives are also more apt to compress their drawings into a small space than the passives. The chi-square ratio for this item is 23.60 which is greater than that obtained for expansion. A t was then obtained from those who either expanded or compressed their drawings as compared with those whose drawings were normal. Seventy-four percent of the aggressives showed either one or the other variable while only 30 percent of the passives did. The t of 109.00 would point rather definitely to the fact that aggressive children tend to either place successive drawings quite close to each other or on the converse to leave considerable white space between successive drawings whereas passive children are more prone to place their drawings

in a normal relationship to each other. A control group of 20 showed 40 percent of these children distorting the cohesiveness of their drawings. A t computed between the aggressive and the control group in respect to this sign is 61.16 with a probability greater than .001. This would indicate that the sign differentiates between both "normal" and passive groups. The factor of expansion is in the direction of Hutt's (1953) statement that individuals who are aggressive tend to show an excessive use of space. It would not necessarily deny his statement that the use of a small amount of space between successive drawings is indicative of "repressed hostility" because there is no accurate measure as to whether the aggressive children are showing all of their aggression or whether some of them tend to repress as much of their hostility as the super-ego will permit while the over-flow spills out into behavior which brings difficulty in adult-child relationships. The implication would be that the children who are rated as passive are better adjusted in this respect in that they do not harbor either repressed or overt hostilities.

SUMMARY

Three groups were chosen from a population of 151 children in a state home for dependent and neglected children. These groups were chosen on the basis of responses of housemother and teachers as to whether they were aggressive, passive or relatively in-between in behavior characteristics. The aggressive group had an N of 38 while the other two had N's of 20 each. Since the control group approximated the passive group in most respects statistics were run primarily to determine whether or not there was a true difference between the performance of the aggressives and the passives on the Bender Visual-Motor Gestalt Test. On the basis of the writings of Hutt, Peek and others it was predicted that the aggressive children would differ in performance on the following characteristics: non-margin based drawings, tone of lines heavier, the diagonal of number 5 drawn toward the half-circle, size of design larger than normal and expanded use of space. Chi-square ratios constructed on the basis of each sign showed only one original hypothesis to be valid. That was the fact that children who were rated as aggressive were more likely to draw the designs with considerable space between successive drawings. On the other hand, those aggressives who did not show expanded cohesion were likely to show compressed cohesion. That was a significant relationship between distortion of cohesion and aggressiveness when compared with both the passive and the control group. This relationship holds true for both expansion and compression and for a combined distortion total. Margin basing of designs differentiated between aggressive and passive groups at the 1 percent level, but did not differentiate between the aggressive and the control groups. This tends in the opposite direction from

what was predicted. Other signs did not show a significant difference between the two experimental groups.

The main conclusion to be drawn is that children who show aggression in their behavior at a children's home demonstrate a greater need to exercise control over their reproductions on the Bender-Gestalt Test than do compliant children. They do this either by leaving plenty of room between drawings so that there is no collision of one drawing with another or by placing them close together in a compact semi-protected unit by margin basing or in some other manner. It is plain that pre-adolescents and adolescents tend to react differently to the Bender-Gestalt than veteran or neuropsychiatric patients. If one is to use this test as a measure of aggression in children he must proceed with great caution.

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