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## Comparability of Group and Individual Bender Reproductions of Delinquents

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Comparability of Group and Individual  
Bender Reproductions  
Of Delinquents

by  
Richard G. Doiron

A Thesis Submitted to the Faculty of the Graduate School  
of Loyola University in Partial Fulfillment of  
the Requirements for the Degree of  
Master of Arts

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1965

## LIFE

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## CHAPTER I

### INTRODUCTION

Since Laretta Bender (1938) first originated her test of Visual-Motor Gestalten, different modifications from the standard method of administration have been suggested. Not only has the method of administration been varied but also different and more objective ways of scoring have been proposed, Billingslea (1948), Pascal and Suttell (1951, Koppitz (1958). Throughout the years, many studies have been published studying specialized aspects of the Bender and estimating the usefulness of the test with different nosological groups. A group in which the Bender studies have been few and far between has been the delinquent group. It is with this group that this study will concern itself.

It is the purpose of this study to investigate the comparability of two types of Bender administrations in a population of delinquent boys. More specifically, this study hopes to compare a group method of Bender administration with the standard method proposed by Laretta Bender. This comparison is being undertaken in an attempt to validate the group method of Bender administration which is being used at the Illinois Youth Commission (IYC) Reception and Diagnostic (R & D) Center.

The results of such a validating study as is being undertaken here could have decided implications not only for the



group Bender method being used at the IYC (R & D) Center, but also for other types of group administrations used with delinquents. Assuming that the validity of the group method of Bender administration is substantiated, then, such a method could be used as a screening device in penal institutions where it is not feasible because of a lack of staff to give individual Benders to each person.

On the other hand, if the group method of Bender administration is not found to be valid when compared with the standard method, then the inconsistencies which are found between the types of administrations might also be of value. Such inconsistencies could indirectly give some understanding to the factors responsible. These factors may be traceable to the method and materials used in the study and/or to the personality of the delinquent.

In order to compare the group method with the standard method, 15 variables involving destruction or modification of the Bender designs have been chosen. The individually and group administered Bender protocols of each subject will be checked to see how many of these 15 variables or deviations are present.

In any event, the value of this study lies in the added information that it provides for a better understanding of the delinquent and his performance on an instrument that is easily administered and has value as a screening device.

Now that the general purpose of this study has been stated, the two specific hypotheses to be tested will be presented.

#### HYPOTHESIS I

Bender Gestalt figure reproductions should not be significantly effected by the type of administration used.

If a person is administered the Bender in the standard way and is administered this same test in a group his resulting figure reproductions for both types of administration should, for the most part, be the same. It is rationalized that the personal factors which would lead to Bender deviations are relatively stable personality characteristics and, thus, are operating during both the group and individual methods of administration.

#### HYPOTHESIS II

The personality of the delinquent will be reflected by a significant increase in certain Bender variables which measure traits common to this population.

In order to proceed with this hypothesis, two basic assumptions must be made. The first is that delinquents form a nosologic category, no matter how diffuse, and that there is some essential homogeneity in the conditions underlying each nosologic category. The second is that the Bender is an instrument that can be used to present configurations for nosologic categories. This second assumption may be held in suspect by many, but when granted, permits Hypothesis II to be tested and the second assumption itself to be indirectly proven or disproven.

## CHAPTER II

## REVIEW OF RELATED LITERATURE

The review of the literature for this study will encompass several areas of Bender research. Since the main purpose of this study is to validate a group method of Bender administration then an emphasis will be placed on the research which is germane to this topic. However, there are other important areas to be covered also. Research on the use of the Bender with delinquents will be set forth. The findings of the studies in this area will serve as a point of reference for the results of this study. Research on objective scoring systems will be cited and critically evaluated. The scoring system devised for use in this study can, therefore, be compared with these other systems. An important sphere of research on the Bender has dealt with the use of this test as a projective technique. In conjunction with the second hypothesis of this study, research will be presented using the Bender in the assessment of personality traits and the grouping of the Bender trait measures to form configurations. At first glance it may appear that these different areas of Bender research are only minimally related. However, several of the studies to be cited do consider a majority of these topics but, like this study, they do focus on one or two major ones. The sequence that will be followed for the body of this chapter will be the same as has just been presented in this paragraph.

Lastly, all the pieces of research to be mentioned will be individually evaluated and criticized and a general evaluation for each area will follow.

Lauretta Bender (1938) in her original monograph pointed out that a tachistoscopic presentation of her figures could reveal disturbances of agnosia that might not otherwise appear distinctly. By taking this stand, she lent her endorsement of another method of administration and thereby opened the door for the other methods of Bender administration that have followed.

Hutt (1945a) was the first one to pursue Bender's suggestion and to go into detail about the tachistoscopic and other methods of Bender administration. While he furnished a detailed description about the procedure to be followed, his suggestions were noteworthy in their lack of reference to validating data.

Suczek and Klopfer (1952) used a group method of Bender administration to study the associative value of the individual Bender figures. They concluded that the figures do have relatively consistent stimulus value whether they are administered in the standard way or in groups. Since these authors were primarily concerned with studying the associative value of the figures, they failed to produce a detailed analysis of how the group method that they used compared with the standard method.

A study was done by Keogh and Smith (1961) using different Bender-Gestalt group techniques with children. They administered the Bender in the standard way, but also used two other

types of administration. In one group method of administration, each subject was given a booklet with the design reproduced in the upper one-third of the page, the lower two-thirds of the page having been left blank for the subject's design reproduction. In the third method of administration, each subject was given a blank booklet and each design was presented separately to the group on a white cardboard. Using analysis of variance as their statistical technique, they found no significant differences among the different types of administration. One of their conclusions was that it is feasible to use the Bender-Gestalt as a group test for young children. This study by Keogh and Smith is a well designed one. Their findings were quite meaningful and the authors were quite judicious in the conclusions that they reached. However, it seems that their subjects might have been controlled on more variables than they were.

While the research which has investigated the different group methods of Bender administration is not very extensive, it does tend to suggest that it is legitimate to administer the Bender-Gestalt test to groups as well as to individuals. However, because of the paucity of studies in this area and the lack of a detailed information concerning the similarities and differences among different types of Bender administrations, definite conclusions should await the availability of more experimental data.

In this present study not only are two different types of Bender administrations being compared, but the population being used is a factor which has to be considered. In order to obtain a better understanding of the delinquent and how he might be expected to respond on the Bender, several studies which deal with the Bender-Gestalt test and delinquency will now be presented.

Zolik (1958) did a study in which he compared the Bender-Gestalt of 43 adolescent delinquents with those of 43 non-delinquents who resided in high delinquency areas. The subjects were matched individually for age and Otis I.Q. It was found that the two groups differed significantly on all comparisons made using the Pascal and Suttell scoring system. While this study is interesting in both its design and conclusions, the author might have gone into more detail about the individual Bender features which differentiated between the two groups.

Curnutt and Corotto (1960) attempted to replicate Zolik's recommended Pascal and Suttell cut-off score using an independent sample of 120 adolescent delinquents of whom sixty-three were males and fifty-seven females. Their results indicated poor prediction in terms of differentiating delinquent behavior from non-delinquent behavior whether one used the higher cut-off score suggested by Pascal and Suttell (1951) or the lower cut-off score suggested by Zolik. The authors concluded that the great

variability of scores in their sample was probably a reflection of the wide range of behavior attributable to the delinquent. Unfortunately, this study differed from Zolik's in several respects and it is, therefore, difficult to validly compare the two. When the author's say that the delinquent personality explains the great variability of the Bender scores, they are in actuality assigning this variability to a global and amorphous category.

In the literature on the use of the Bender with delinquents there seems to be a tendency to make rather sweeping and definite statements about the effectiveness of this instrument with this population.

Bender, herself, says the following:

Such terms as "behavior disorders", "character disorders", "psychopathic personality", "delinquency" cannot be categorized as representing any common or mutually exclusive experimental or pathological characteristics that would make it possible for different researchers to define their groups (1963 p. xvi).

On the subject of the variability of the personality of the delinquent, Glueck (1959) lists more than a dozen traits on which the delinquent differs from the non-delinquent. He also states that there are many traits which are common to both groups. Tolor and Schulberg (1963) seem to have taken a reasonable position in this matter. They believe that it is apparent that relatively little systematic information is available on the Bender performance of patients with character

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and behavior disorders. It is their opinion that the paucity of data available suggests that it probably is at least as difficult to differentiate such groups from normals as it is to make differentiations between neurotics and normals. Not only have there been too few studies from which to draw too many definite conclusions, but those studies just presented have also had their deficiencies. For the most part, they have been lacking in controls. They have restricted themselves to a very narrow age group (ages 16 and over). Lastly, when the results in these studies did not meet up to expectations, the wide range of behavior attributed to the delinquent nosological group was used as an explanation for the failure to obtain definite results.

In any attempt at comparing different groups and/or methods of administration on the Bender, one must have some method of comparison. More specifically, when faced with the task of comparing a group method with the standard method of administration, it was decided that an objective method of comparison would be needed. The use of objective scoring systems for the Bender dates back to the 1940's and a review of some of these will now be presented.

Billingslea (1948) set out to develop an objective scoring method for Bender-Gestalt Tests. He constructed 63 indices involving such things as the measurement of lengths of lines, angles, areas, irregularities in shape, and rotation of a whole



figure or parts of a figure relative to each other. These were established to give quantifying coefficients to 25 test factors. Billingslea (1963), himself, has given the best critique of his scoring system. He stated that while his scoring system stimulated much research activity, it has proven too cumbersome for research and clinical use.

The research activity that was stimulated by Billingslea's work was fructified in the early 1950's with the work of Kitay (1950) and Pascal and Suttell (1951). These experimenters developed objective scoring systems for the Bender which have, at least in the case of the Pascal and Suttell system, achieved greater prominence than had any of the other systems prior to that time and since that time. A more detailed analysis of these and other objective systems devised for use with adults and children will now be presented.

Pascal and Suttell (1951) put forth an objective scoring system in which they assumed that the amount of deviation which a subject commits in reproducing the Bender designs reflects his attitude toward reality and is a function of the integrative capacity of the ego. According to them, there is a progressive decrease in ego functioning from normal to neurptic to psychotic individuals which should be reflected in the Bender-Gestalt protocols. In their system, deviations were assigned weights and the total raw score is based upon the total of deviations on Designs 1 through 8, plus the overall configuration. Notwithstanding any other deficiencies that this system may have, its

application is restricted, especially with the population used in this study because of the fact that it was standardized on persons ranging in age 15 to 50.

A less widely used but still important scoring system was developed by Kitay (1950). It involves the measurement with graph paper of size deviations from the stimulus figures according to twenty-five indices. Standard scores are computed for the size deviations, and a V score (standard deviation) and D score (algebraic total) are calculated. It is Kitay's contention that a D score represents a subject's overall tendency toward contraction or expansion while the V score reflects his intra-individual variability in performance. He concludes that in general the greater the degree of distractability from the "form aspects" of the task, the greater the V score. The value of this system seems to lie in the fact that it is an attempt at basing a scoring technique on a theoretical framework. The paucity of research engendered by this system seems to suggest that the content of Kitay's work did not equal his methodological approach.

An objective scoring system was developed by Gobetz (1953) for use with a more limited population of adults. It was his intention to determine whether neurotics and normals could be distinguished on the basis of their Bender-Gestalt protocols. His scoring system involved the use of graphic signs which are scored by inspection or measurement of the figures in the test

record and method signs, which result from direct observation of a subject's test behavior. A list consisting of eighty-two scoring categories which yielded 312 global and individual figure signs were produced. Gobetz found that only four global and forty individual signs were capable of differentiating the neurotic from the normal groups at the .05 level of confidence. Even though Gobetz did, for the most part, achieve the goals that he set for himself in this study, his system has not gained wide acceptance among clinicians. This is probably because of the limited scope of his system as compared with the Pascal and Suttell system which is not restricted to only the normal and neurotic populations.

Up to now this paper has limited itself to the presentation of objective scoring systems devised for use with adults. However, attempts have been made at constructing such systems for use with the Bender protocols of children and early adolescents. The principal contributor to this area of research has been Elizabeth Koppitz (1958) who attempted to determine whether a scoring system could distinguish between children whose school achievement was above or below average. It was her hope that such a scoring system could be based primarily on the Pascal and Suttell categories. A composite score was obtained by adding all of the subject's points in the significant categories, a low total score being indicative of good performance. Koppitz (1960) proceeded to revise her system by including thirty items

under the categories of distortion of shape, rotation, integration, and perseveration. She found that all of these items differentiated consistently at the .05 level or better between the above and below average students in the first and second grade. Norms were presented by the author for 1,055 children between the ages of five and ten and a half years of age. The size of this sample is much larger than most of the other standardization samples used in the development of different scoring systems. This is a commendable aspect of Koppitz's work but further research is needed in order to ascertain whether her scores are related to criteria other than school achievement.

What is the current status of objective scoring systems? According to Billingslea (1963) the Pascal and Suttell scoring system has proven useful on adult protocols and the Koppitz's modification has been similarly useful with protocols of children. Toler and Schulberg (1963) state that most objective scoring methods are generally quite reliable. However, they add that such systems are often-times unnecessarily complicated and they have not been found to be more efficacious than intuitive evaluations of individual protocols.

The final area of research with which this study is concerned is the use of the Bender as a projective technique. Bender (1938) states in her original monograph that an integrated organism responds to patterns or gestalten. While she generally speaks in terms of visual motor defects and maturational lags, she does allude to certain personality traits at

dissociation and regressive trends. However, it has not been Laretta Bender but rather Max Hutt who has been the chief proponent of the Bender-Gestalt as a projective instrument. He began proposing his system in the mid nineteen forties when he wrote his "Tentative Guide for the Administration and Interpretation of the Bender-Gestalt Test" (1945a). He felt since this test involved a fairly neutral task and revealed the nature of the person's perceptual and adaptive behavior, it could be of great value in analyzing the psychodynamics of the personality. In this work he related certain Bender modifications with specific dimensions of the personality. In their recent text, Hutt and Briskin (1960) again promote the use of configurational analysis in the interpretation of the Bender. Their rationale is that since psychiatric syndromes do not constitute unique, reliable, or conceptually distinct entities, then one should look for a configuration of test signs rather than any one sign.

Much research has been done in the area of the projective use of the Bender. Many of the studies previously mentioned in this paper have been, at least, indirectly related to this topic. Some of the more relevant of these studies will not be considered.

In a study using the Bender-Gestalt Test as a measure of personality, Corotto and Curnutt (1960) investigated the effectiveness of this instrument in differentiating a flight group from an aggressive group of adolescents. The subjects used in

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this study consisted of 46 pairs of adolescents who were matched by age, sex, and education. The groups were then segregated on a sex basis and significant differences were obtained. It was found that adolescent girls who utilize primarily flight behavior tend to have lower Bender-Gestalt scores than do adolescent girls who react primarily with aggressive behavior. However, adolescent boys who tend primarily to react with aggressive behavior have lower Bender Gestalt scores than do boys whose primary behavior reactions are characterized by running away. Generally speaking, the results of Corotte and Curmutt's study are new and interesting. However, their findings might have been more valid had the two authors not relied on themselves as the only scorers for the Bender protocols used in this study.

Clawson (1959) did a study in which she investigate the Bender as an index of emotional disturbances in children. The subjects consisted of an experimental group of 80 children in a guidance center and a control group of 80 public school children judged by teachers to be normal. The groups were matched for age, sex, I.Q., and socioeconomic status. Three general hypotheses and a number of secondary hypotheses were made. The following results were obtained. Well adjusted children tend to draw Figure 5 outward and disturbed children tend to draw the design inward. An expansive Bender style is associated with acting out behavior in children.

A decrease in the size of the figures is related to a tendency to withdraw. There is an association between problems in reading and the drawing of an incorrect number of units in Designs 1, 2, 3, 5, and 6. Continuing, Clawson found that constricted Bender drawings are associated with a constricted Rorschach. Closure difficulties were found to occur frequently when the Rorschach revealed interpersonal aggression. Lastly, extreme unevenness in figure size was found to be associated with aggressive content on the Rorschach. Clawson's study seems to be a well planned and controlled one. Furthermore, her results have certainly advanced the knowledge in the field of the Bender as a projective instrument.

The aforementioned study by Zelik (1958) yielded incidental findings which can be considered under the heading of the Bender as a measure of personality. He found that the variables of 'Dots, Dashes, and Circles' differentiated significantly between his delinquent and non-delinquent groups. He postulated that this fact was indicative of the possibility of either a maturational failure or of emotional factors giving rise to regressive tendencies in the delinquent group. Another finding was that "tremor" was found to be significant in the delinquent group suggesting the possibility of neuromuscular incoordination under conditions of tension and anxiety. In conclusion, 'second attempt' was found to be significantly present in the protocols of delinquents. With reference to

this finding, the author mentioned Hutt's hypothesis that considers the curvilinear part of Figure 4 to have dynamic implications concerning an individual's relationships with female figures.

While the number of studies dealing with the Bender as a projective instrument, have been fairly substantial, too many of these studies have been poorly designed. In addition, the proponents of the Bender as a measure of personality seem to have been overly digmatic in their claims. That is, the claims made for this instrument as a projective technique appear to be running far ahead of any validating data. This is not to say that such claims will be discounted, but rather that they should be held in abeyance until more data is available.

### Summary

Now that the literature in these different areas of Bender research has been reviewed, some general conclusions will be presented with particular reference being made to how these conclusions pertain to this study. With regard to the group methods of Bender administration, the research is not very extensive but it does tend to suggest that it is legitimate to administer the Bender-Gestalt Test to groups as well as to individuals. However, it should be noted that delinquent populations were not used in validating these group methods of



administration and this fact may have some bearing on the results obtained in this study. While there have been some studies using the Bender with delinquents, these studies have been few and for the most part, poorly controlled. Furthermore, the rather sweeping conclusions that have been drawn from these studies have been questioned by such Bender experts as Laretta Bender, herself, and Tolor and Schulberg. The third area of Bender research reviewed in this chapter was the objective scoring system. Of all the objective systems that have been developed, the Pascal and Suttell system has proven useful on adult protocols and the Koppitz modification has been found useful with the protocols of children. Many objective scoring systems have been found useful but not more efficacious than the intuitive evaluation of protocols. With respect to this study, it was felt that an objective method of comparison was needed in order to objectively compare the two types of administration used. Since none of the commonly used objective systems seem appropriate for the type of population and age groups used in this study, an original objective method of comparison was devised. The final area of research reviewed in this section was the use of the Bender as a projective instrument. This area of research has been generally characterized by many poorly designed studies. In addition, certain proponents of this approach to Bender interpretation have been

too dogmatic in their claims. This is not to suggest that this area of research may not yield fruitful results but rather that better designed studies should be conducted and a more parsimonious interpretation of results of these studies should follow. These two goals have been the intent of this study.

CHAPTER III  
EXPERIMENTAL DESIGN AND  
PROCEDURE

Subjects

The subjects used in this study were 100 males between the ages of 12 to 16 inclusive with a mean age of 15.2 years and a standard deviation of 1.7 who were committed to the Illinois Youth Commission (IYC) as delinquents. The subjects were selected at random from the population of boys who are sent to the Youth Commission's Reception and Diagnostic Center where they are evaluated before being sent to other IYC facilities, private agencies, or returned to the community. During the initial stages of this study, most of the boys at the Reception Center were eligible to be used as subjects. Excluded from the study were boys who did not fall within the age groups of 12 to 16 inclusive and who, subsequent to the start of the study were known to have been administered the Bender. Since the variables of age, race and prior familiarization with the test were being kept constant by means of categorizing the subjects, then the process of subject selection became less random and more selective as these different categories were being filled. The manner in which the subjects were categorized will be presented in the Methodology section of this chapter.

## Methodology

The sample used was divided into two groups which were called Group A and Group B. Group A consisted of 50 subjects who were administered the group Bender Test first and the individual test second. Group B consisted of 50 subjects who were administered the individual Bender Test first and the group test second. The distribution of the subjects according to mean ages and standard deviations for the two experimental groups is presented in Table I. This Table shows that there are no significant differences between groups A and B with regard to age.

Table I  
 A Comparison of the Mean Ages and  
 Standard Deviations of  
 Groups A and B

Ages	Group A		Group B		CR	P
	Mean	SD	Mean	SD		
12 (N=4)	12.3	-	12.4	-	-	-
13 (N=8)	13.2	1.2	13.5	2.2	.020	-
14 (N=24)	14.5	3.0	14.6	3.8	.680	-
15 (N=32)	15.6	1.3	15.5	3.6	.103	-
16 (N=32)	16.4	2.6	16.3	3.1	.312	-
Total	15.2	1.2	15.2	1.1	.087	-

The Bender Gestalt is generally thought of as an instrument that has good test - retest reliability (Tolor and Schulberg (1963)). Notwithstanding such evidence, this study included a counterbalancing of groups with regard to administration in order to insure that recent and prior familiarization with the test would not introject any indeterminate variable into the study.

The individual and group administered reproductions were compared as far as the presence or absence of 15 different variables. These variables were chosen from a group of 55 variables which are regularly used by the staff of the Illinois Youth Commission Reception and Diagnostic Center in evaluating the Bender Tests of IYC wards. The final 15 variables chosen represented a consensus of the staff's opinion as to which of the 55 variables involved Bender-Gestalten distortions having the following two characteristics. They had to be Bender distortions which were readily observable and whose scoring was subject to minimal personal bias.

Bender (1938, 1946), Hutt (1945a), Pascal and Suttell (1951) and others have set precedences for the clinician or researcher selecting certain Bender factors on an a priori basis. In the case of the Pascal and Suttell system, empirical support has since been furnished for the factors which were chosen, Pascal and Suttell (1951), Nadler (1957) and a list of variables is to be found in Appendix A.

Olin and Resznikoff (1957)

Therefore, the variables used in this system are well known ones that were selected in an a priori manner. Their validity and effectiveness in differentiating different types of Bender administration in a delinquent population will be better known once the results of this study are analyzed.

The purpose in choosing the variables used in this study was that an objective means of comparing a person's individually administered reproductions with his group-administered reproductions was needed. The scale used would have to include only variables which were capable of being operationally defined. It is felt that the variables used meet this criterion. As they are defined they are of a dichotomous nature. That is, a decision of whether or not x variable is present in x protocol is necessitated by the type of variable used.

In comparing the two types of Bender administrations used in this study, the following assumption has to be made. The two methods of administration are judged comparable if there is no significant difference between the number of deviations present on the individually administered Bender protocols versus the group-administered ones. The converse would be that if the presence of one or more variables is significantly different for the two types of administration, then these two

Table 2  
 A Comparison Of The Size of Standard To  
 Group Bender Gestalt Stimuli  
 Designs

Bender Cards	Dimensions	A	1	2	3	4	5	6	7	8
Standard	Length	2.0"	5.2"	5.1"	1.8"	1:7"	1:3"	4.9"	2.1"	3.0"
	Width	1.0"	.1"	.4"	1.0"	1.7"	1.0"	2.9"	1.3"	.6"
Group	Length	12.0"	13.0"	14.5"	6.8"	8.0"	5.0"	16.5"	6.8"	13.7"
	Width	6.0"	2.5"	1.4"	3.7"	8.0"	4.5"	10.7"	5.0"	1.8"

Ratio Of Individual To Group Cards

Length	1:6	1:2.5	1:2.8	1:3.7	1:4.7	1:3.8	1:3.3	1:3.8	1:4.5
Width	1:6	1:2.5	1:3.5	1:3.7	1:4.7	1:4.5	1:3.6	1:3.3	1:3.0



methods of Bender administration, objectively speaking, are not comparable.

### Materials and Testing Procedure

In both methods of administration the subject was provided with a medium soft pencil which had on it a usable eraser. The subject was also furnished with eight and one-half by eleven inch blank unruled paper. The apparatus used consisted of the standard B-G cards copyrighted in 1946 by Laretta Bender and the American Orthopsychiatric Association, Inc., and twelve and one-half inch by seventeen inch white cards on which enlarged reproductions of the original B-G figures were printed in India Ink. The group cards used in this study were devised for use at the IYC Reception and Diagnostic Center. While the size of all the cards is the same, the ratios of the group reproductions to the standard are different for the different figures. The size of the group figures and their relationship to the standard will be shown in Table II. And now for the instructions which were the same for both individual and group administrations.

The instructions read as follows:

I am going to show you some cards, one at a time. Each card contains some simple figures. I would like you to copy these figures on paper as well as you can. Work in any way that is best for you. This is not a test of artistic ability, but copy the figures as well as you are able to. If you have any questions, feel

free to ask them. You will have one Minute in which to draw the figure. Copy this as well as you can.

The factor of time was kept constant. That is to say that in both the group and individual tests the subject was given a maximum of one minute in which to complete one of the individual figures. Except for the variable of time the method of individual administration was the one prescribed by Laretta Bender. She points out in her original work that limiting the time element can result in primitive gestalt forms. However, this type of result usually occurred with tachistoscopic exposure times of approximately 5 seconds. It is not felt that a time limit of one minute, as used in this study, appreciably affected the resulting Bender forms. On the other hand, by keeping the variable of time constant for both methods of administration, any possible resulting effect (because of the time factor) would be the same for the two types of administration. In reality what did occur in the individual administration was that no subject used the entire time limit of one minute to complete one design and the majority of subjects completed each of their designs within 30 seconds.

While she did not set down a rigid method of administering her test, Bender did set down some general guidelines to follow. She states that the examiner should have

his materials prepared. He should have the Bender Cards arranged in correct order and placed upon the table in such a manner that they are in a pile and face down. The test materials previously mentioned should be placed upon a table in sight of the subject. The test should not be started until a degree of rapport is established which will insure the subject's cooperation in the testing. The formal part of the test begins with the examiner presenting Card A with the base towards the subject, and saying "copy this as well as you can". The subject is not allowed to use any mechanical guides since this is a free hand drawing test. All the subject's questions are referred to him by such remarks as "That's up to you", or "Do it the way you think is best". After Card A has been completed the other cards are presented in sequence, the same procedure being used as was used with the first card. No two cards should be presented simultaneously and the subject should be encouraged not to turn the card while he is copying the figure.

Except for the possibility of the subject rotating the card, the instructions for the group administration were the same as for the individual administration.

The group administration was conducted in the following manner. While one person read the instructions to the group

and kept the time with a stopwatch, the other person held the group cards at chest level and stood approximately 4 feet in front and centered on the group.

With regard to the testing rooms, the group testing took place in an average size, well-ventilated and lighted classroom. The average size of the groups was approximately 20. The individual administrations were conducted in four separate but identically constructed, well-lighted and ventilated offices.

## Chapter IV

### Results and Discussion

The data gathered in this study were treated by means of the Chi Square statistical technique (Underwood et al. 1954). The following format will be followed in presenting the results. Four tables will be employed in testing Hypothesis I which states that the type of Bender administration will not have a significant effect on the resulting figure reproductions. Following the presentation of these four tables, Hypothesis II (The personality of the delinquent will be reflected by a significant increase in certain Bender variables which measure traits common to this population) will be tested by means of a verbal illustration of three frequency constellations of Bender variables. Once the results have been put forth, a discussion of these findings will be presented.

We shall now proceed to present the results for Hypothesis I. In Figure 1 can be seen the frequency of Bender variables for the two types of administration. From this graph it can be seen that the percentages of deviations are generally somewhat lower for the individually administered protocols than for the group administered ones. Only in the case of variables 3 (erasures), 6 (numbering designs), 14 ( $\frac{1}{2}$  page used) are there noteworthy differences between the two types of administrations.

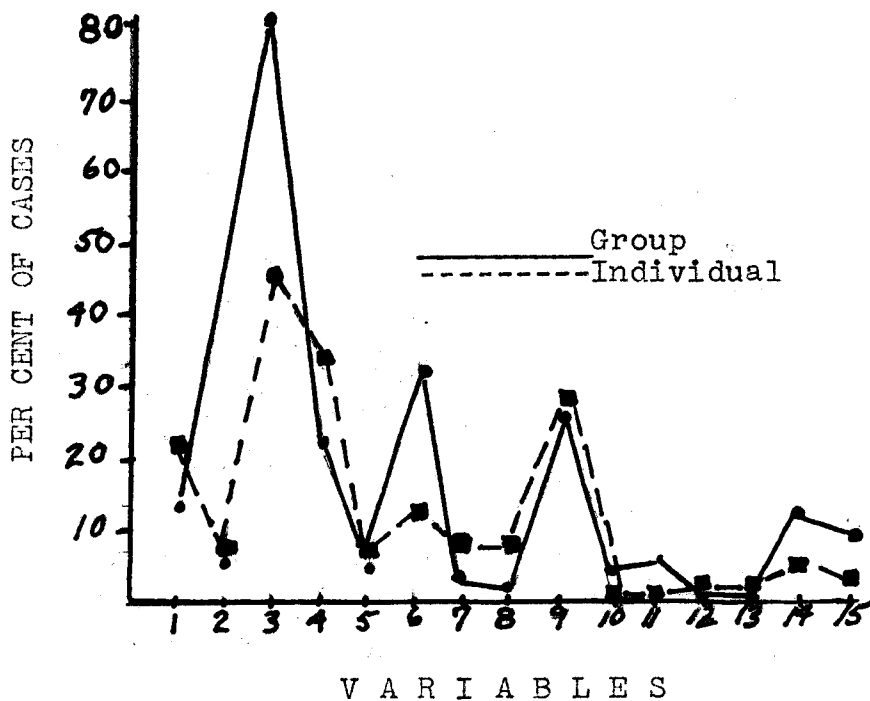


Fig. 1 Frequency polygons representing the percentage of cases in which the Bender variables were present in both types of administration

In order to compare the frequencies of the different age groups, the differences for each of the 15 variables were transformed into percentages which in turn present a comparison among age groups having different N's. These values can be seen in Table 3. In this Table it can be seen that there is significantly more variability among the 12 year olds than any other age group. From ages 13 to 15 there is a progressive decrease in variability. Howeverm the variability increases slightly with the 16 year olds. Theser results will be discussed further in the second part of this chapter.

**Table 3**  
**Presentation of Differences in the Form of Percentages**  
**Between Group and Individual Bender Administration**  
**According to Ages and Variables**

Ages	Variables															Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
12	25	0	50	25	25	25	0	50	100	0	0	0	0	0	0	300
13	25	0	38	25	0	0	0	25	0	0	0	0	0	12	12	112
14	17	4	25	4	0	4	4	0	4	0	4	0	0	4	33	100
15	0	0	31	12	3	25	3	3	6	3	3	0	0	9	6	96
16	9	0	40	6	0	22	3	0	3	3	6	0	0	22	3	117





Table 4 shows the overall significance of those Bender variables which have a theoretical frequency or expected frequency of 5 or more. The overall  $X^2$  of 26.424 is significant at the .01 level of confidence using 7 degrees of freedom. From the Table it can be seen that 8 variables had a theoretical or expected frequency of 5 or more

Table 4  
Testing Overall Significance by Means of Chi Square  
of Two Types of Bender Administration

	Fo (Gr)	Fo (Ind)	Ft	X <sup>2</sup>
1. Separations	14	22	18	1.760
2. Rotations	4	3	3.5	a
3. Erasures	80	46	63	9.160
4. Imp. No. Sides	22	29	25.5	.960
5. Free Floating Diamond	5	5	5	.000
6. Number and/or Comp.	30	15	22.5	5.000
7. Pers. to End Page	3	5	4	a
8. Collision	1	4	2.5	a
9. More than One Page	25	23	24	.084
10. Concrete Figures	2	0	1	a
11. All 9 Fig. One Edge	4	0	2	a
12. One Design Whole Page	0	0	0	a
13. All Designs One Quarter Page	0	0	0	a
14. All Designs One Half Page	16	4	10	7.200
15. Duplications	8	3	5.5	2.260
	<u>214</u>	<u>159</u>		<u>26.424</u>

a. Chi Square not computable because \*Ft is less than 5.

Table 5 provides an illustration of the level of significance or non-significance for the 8 Bender variables which were computable by means of Chi Square. From this Table it can be seen that the variables of Erasures and All Designs One-Half Page have  $X^2$  values great enough to be significant at the .01 level. The variable of Numbering and/or Comp. with an  $X^2$  of 5.000 is significant at the .05 level. All the other variables did not significantly differentiate between the two types of administration.

Table 5  
 Illustration of Significance or Non-Significance  
 For Bender Variables Computable  
 By Means of Chi Square

Variables	Level of Significance		
	N.S.	.05	.01
Separations	1.760		
Erasures			9.160
Imp. No. Sides	.960		
Free Floating Diamond	.000		
Numbering and/or Comp.		5.000	
More Than One Page	.084		
All Designs One-Half Page			7.200
Duplications	2.260		

In Table 3 it should be noted that the amount of variability was nearly three times as great for the 12 year olds as it was for any of the other age groups. This inordinate amount of variability could be due to the very small number of subjects in this age group. Also to be considered are the emotional factors operating in youngsters who have acted out extensively enough to be called delinquents by the time they are 12 years old. This Table also illustrated how there was a progressive decrease in variability from the ages 13 through 15 and how the variability increased again with the 16 year olds. There is, therefore, a curvilinear relationship between age and amount of variability on the Bender. The curvilinearity of this relationship is reflected in the very low linear correlation coefficient of  $-.04$ . This correlation coefficient is very much in keeping with the findings of Zolik (1958), who found a correlation of  $.04$  between the ages of his delinquent group and their functioning on the Bender.

The total Chi Square value of  $26.424$  on Table 4 is significant at the  $.01$  level. Because of small theoretical frequencies, only 8 variables were computable by means of Chi-Square, Burke (1949). At first glance an apparent significant difference seems to exist between the group and the

standard method of Bender administration. A closer inspection of this Table reveals that only three of the 8 computable variables have Chi Square values of 5.0 or higher. One conclusion from this phenomenon is that the relatively large Chi Square value of these three variables may be inordinately affecting the overall level of significance. As important as the variables which show a high frequency of occurrence in either or both of these methods of administration are those variables which are never or seldom found in the protocols of this population. The presence of such things as rotations, perseveration to the end of the page, collisions, concretized figures, all 9 figures on one edge of page, one design on a single page, and all the figures occupying a quadrant of the page, were found to be present in less than 5% of all the protocols studied. Therefore, the examiner upon seeing one or more of these variables present in any particular record, should be forewarned that, at the very least, this is an uncommon record and, therefore, it might warrant further investigation.

In Table 5 is pursued a further investigation of the significance or non-significance of the 8 computable variables. From this table one can see that only 3 of the 8 variables are significant at the .05 level or higher. This table seems to bring to a focus the inordinate effect of these three variables in contributing to an overall level of significance.

Before going into the implications of these findings for Hypothesis I, it probably would be well to analyze the three significant variables individually. The first to be investigated is the variable of erasures. This variable occurred with much more frequency than any other variables. It was also found significantly more often in the group than in the individually administered protocols. Several explanations might be put forth to explain this fact. A major factor might be the one of the group influence during the group administration of the test. That is, if one boy sees that another boy is erasing he might do the same. Or if he should happen to see that the figures he drew are not the same as his neighbor he might be prone to change them. Another explanation might be that since the group test is administered with Bender Cards that are at a distance from the subject, then the person might be less sure of his efforts than if he had the individual cards immediately in front of him and within his reach as is the case in the individual administration. Billingslea (1948) implies that erasures are an indication of uncertainty.

The second variable which showed up significantly different in the two types of administrations was the variable of numbering and/or compartmentalization of the figures. Here again this variable was present significantly more often in the group administered protocols. The explanation put forth for

the variable of erasures might be applicable for this variable. If a person sees another numbering and/or compartmentalizing his figures he may feel that it is expected and that he should do the same. The factor of having the cards at a distance from the subject again may result in some uncertainty. Related to this insecurity is a factor worthy of notice and that is that the group test was administered in a classroom setting. This type of setting has many negative feelings attached to it for the delinquent who, according to Clueck, (1959) has often been unsuccessful in meeting the requirements of the normal school curriculum. The numbering and/or compartmentalization, thus, might have been an attempt to compensate for this uncertainty of the classroom atmosphere by setting external guidelines such as might be provided by numbering and/or compartmentalizing the figures. Anderson and Anderson (1951) say that numbering and/or compartmentalization are reflective of a search for security.

The third variable is all designs occupying a half of the page. This is a variable which may again be effected by the subject, in the group session, being afraid to extend himself and therefore, limiting his effort to as small an area as possible. To refer to Anderson and Anderson, a subject who places all of his figures on the upper half of a page is a person who is trying to attain security through contiguity.

What are the implications of these findings for Hy-



pothesis I? We are confronted with an overall significance between the Group and Individual method of administration. Upon further analysis it is evident that there are only 3 variables which differentiated significantly between the two types of Bender administration. In other words, the majority of variables showed no significant difference of administration. The following can probably be said. Using all of the variables which this study employed, certain ones will show significant differences but the majority will not. Also, those variables which showed up significant were of a self imposed type which could be effected by situational factors such as the influence of the peer group or effect of the classroom setting. Those variables such as rotations, improper number of sides and concretization, which are not felt to be the result of situational factors but rather more stable personality factors, did not vary significantly with the type of administration used. Therefore, in reference to Hypothesis I, our data leads us to conclude that there is a difference between group and individual Bender administration of delinquents when the measure of comparison used is the 15 variables employed in this study. In other words, Hypothesis I is rejected. However, it must be stated that the majority of the variables studied showed no significant difference between the two types of administration which is

in keeping with the findings of Suczek and Klopfer (1952), Blum and Nims (1953) and Keogh and Smith (1961). Our results apropos to Hypothesis I is that there is an overall similarity between the two types of administration but that with this delinquent population there are several variables which do differentiate quite significantly between the two types of administration. It could very well be that with a more refined statistical technique where the effect of the different variables is better weighed there would be no overall significant difference found.

The results of this study as they are related to Hypothesis II will now be discussed. This Hypothesis states that the personality of the delinquent will be reflected by a significant increase in certain Bender variables which measure traits common to this population. An attempt will be made to delimit three small constellations or groupings of those Bender variables which appear fairly frequently in the protocols of the delinquents used in this study. The frequency of these variables was summed for the two types of administration and are felt to reflect traits common to the delinquent. In constellation I is found the variable with the greatest frequency of occurrence. This variable was discussed earlier at which time it was felt to be indicative

of insecurity. Constellation II has three variables which will be discussed individually. The first is the variable of Improper Number of Sides which, according to Anderson and Anderson (1951), is reflective of some disturbance in visual motor coordination. Zolik (1958) found similar results. The second variable in this constellation is the one of More Than One Page Used. The use of more than one page is indicative of an expansiveness of Bender style. Clawson (1959) found that an expansive Bender style is associated with acting out behavior in children.

The last variable in constellation II is Numbering and/or Compartmentalization of figures which, like the variable of erasures, was discussed earlier in this chapter. In short, it is reflective of an attempt to gain security. Constellation II has two variables and they are separations and all designs occupying a half page. Separations is a complex variable in that, according to Anderson and Anderson, it can be either due to organic conditions or functional disorders. The second variable in this discussion is termed all designs occupying a half page. This variable was earlier in this chapter said to be due to a search for security by means of contiguity. Once these constellations are considered together we get the picture of an average delinquent. He is a basically insecure person with a possible visual motor disturbance who acts out because of a personality disturbance

of undeterminate origin.

## Chapter V

### Summary and Conclusions

This study was conducted for the purpose of comparing a group method of Bender administration with the standard method. It was also the purpose of this research to set down some constellations of Bender variables which would give some understanding of the personality of the delinquent. In order to fulfill these two goals, 15 Bender variables were selected by the author as the instrument of comparison. These 15 variables were used to evaluate the group and individual Bender protocols of 100 male delinquents between the ages of 12 to 16 inclusively who were administered both a group test and an individual test. The factors of age, race and practice effect were kept constant by a combination of a counterbalancing of groups and a matching of subjects. The results for the two types of administration were compared by means of Chi Square.

The results of this study lead to the following conclusions. The two types of Bender administration were significantly different in the population tested and with the method of comparison used. However, the majority of variables showed no significant difference between the two types of administration. Therefore, it is concluded that in a delinquent population the method of administration may influence only

those Bender variables which are sensitive to situational factors and may not influence variables which measure more stable personality traits. A further conclusion would be that once those Bender variables that are influenced by situational factors are recognized then the group administered reproductions of the delinquent are comparable to the individually administered reproductions.

A secondary purpose of this study was to present Bender configurations which would give some further understanding to the personality of the delinquent. It is concluded that before such a goal is reached, more research is needed to substantiate the meaning of these variables. As it was, this study could only present a few rather global personality characteristics of the delinquent which do not really help differentiate him from other nosological groups such as the organic or the psychotic.

The same number of cases in each age group would have provided a more representative sample of the population of delinquents. The variables used might have been more refined and discriminating; of the 15 variables only 8 had an expected frequency large enough to permit the use of the Chi Square statistical technique. Lastly, the subjects were not matched for IQ or educational levels.

Future research should be undertaken to investigate the comparability of these two modes of Bender administration

using other scoring techniques. More work needs to be done to correlate variables on the Bender with behavioral signs. Until this is accomplished it probably will be difficult to devise any constellation of Bender signs which would aid in understanding the personality of the delinquent.

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## APPENDIX A

- 1) Separations: The figure being split into subparts at the point where a connection between the subparts is existent in the standard cards. The figures where this variable will be checked are figures A, 4, and 8. (Separation is not checked on figure 8 when variable 5 is checked, and this is done so as to not doubly penalize one distortion.)
- 2) Total Rotation: A revolution of 180 degrees of the total figure on its axis. This variable concerns itself with figures A, 3, 4, 5, and 7.
- 3) Erasures: The eradication of a mark previously made in the figure reproductions by the use of the pencil eraser provided with the test materials. (A combination of a certain type of paper and erasers used in the group administration permitted a valid use of this variable).
- 4) Improper Number of Sides: The perceptual reproduction of an improper number of linear subparts of a figure when compared with the standard cards. This variable is checked in figures A, 4, 7, and 8.
- 5) Free Floating Diamond: Failure of the enclosed diamond in Fig. 8 to meet with the upper and lower lines of the large hexagon.
- 6) Numbering and/or Compartmentalization of Figures: Providing any or all the figures with a number and/or other type of individuation.
- 7) Perseveration to End of Page: Continuing the horizontal progression of a figure whose horizontal length is longer than half of the width of the page in such a manner that the figure is terminated by the right hand margin. This variable is applicable to figures 1, 2, 6, and 8.
- 8) Collision of Figures: The crossing or colliding of one figure with one or more figure reproductions on the same protocol.
- 9) More than One Page Used: The use of more than one side of an 8 and one half by 11 inch sheet of white unruled paper.
- 10) Concretization: The addition to or elaboration of one or more figures in such a manner that the gestalten is not destroyed but rather made into a representation of a concrete object.
- 11) Nine Figures on One Edge of Page: When all nine B-G figures are aligned along either of the vertical edges of one page.

- 12) Only One Design Per Page: When no more than one figure occupies one side of a page.
- 13) All Designs Occupying One Quarter of Page: The page first being divided into four quadrants, all the designs must be contained in the area enclosed by no more than one quadrant.
- 14) All Designs Occupying One-Half of Page: The page first being divided into quadrants, all designs must be contained in the area enclosed by no more than two adjacent quadrants nor less than one complete quadrant.
- 15) Duplications: When two or more reproductions of the same figure are contained on the same test result sheet.

APPROVAL SHEET

The thesis submitted by Richard G. Doiron has been read and approved by three members of the Department of Psychology.

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the thesis is now given final approval with reference to content, form, and mechanical accuracy.

The thesis is therefore accepted in partial fulfillment of the requirements for the Degree of Master of Arts.

January 19, 1965  
Date

Frank Kobler  
Signature of Adviser