1967

Indicators of manifest anxiety on the draw-a-person test

Ralph Dennis Greene

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INDICATORS OF MANIFEST ANXIETY ON THE DRAW-A-PERSON TEST

by

Ralph Dennis Greene

B.A. Stanford University, 1963

Presented in partial fulfillment of the requirements for the degree of

Master of Arts

UNIVERSITY OF MONTANA

1967

Approved by:

[Signature]
Chairman, Board of Examiners

[Signature]
Dean, Graduate School

SEP 5 1967
ACKNOWLEDGMENTS

I am deeply indebted to Dr. Herman A. Walters, Dr. Richard B. Boehmler, and in particular, to Dr. Bert R. Sappenfield, Committee Chairman, under whose expert guidance and friendly assistance this study has been pursued.

Ralph D. Greene
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PROBLEM

The purpose of this study was to determine which, if any, characteristics of a commonly used clinical test—the Draw-a-Person test (DAP)—would be useful in predicting anxiety as measured by the Taylor Manifest Anxiety Scale (TMAS).

The DAP has long been popular because of its ease of administration, low cost, and the small amounts of time required for the testing session. The only materials necessary are paper and pencil and S is simply told to "draw a person." The test can be administered individually or in groups. Testing sessions usually require 10 to 20 minutes with individuals, but groups sometimes require a little more time. With respect to scoring and interpretation, which are the most difficult aspects of the DAP, Machover (1949), the author of the test, reports that she is able to give "... a brief interpretation, sketching salient characteristics ..." in about 10 to 15 minutes.

Although the DAP is a simple test to administer, it has the disadvantage, common to projective tests, that it is difficult to set up clear scoring systems that can be validated and easily communicated. Machover, in an attempt to present a method of personality analysis based on the DAP, stated:

What has been lacking ... is a degree of systematization of analysis of the graphic product which is at once comprehensive, communicable, and does justice to the intricacies of personality (1949).

The present study, an attempt to find some fairly objective cues which could indicate manifest anxiety from drawings of the human figure, is aimed at such a systematized analysis.
Although there are a great many aspects to the problem of anxiety, there is one rather common effect of its presence in individuals that a number of investigators have reported. This effect can be summed up by the conclusion of May (1950), that anxiety tends to impoverish the personality. More specifically, this can be elaborated upon by summarizing the work of various investigators.

Beier (1949) hypothesized that individuals in a state of induced anxiety would show increased rigidity and disorganization. Two groups of subjects were equated with regard to age, education, Rorschach adjustment rating, abstract reasoning, and intelligence. A measure of the individual's capacity to abstract was obtained for every individual. Anxiety was then induced by giving the subjects of the experimental group an interpretation of their personality records as derived from the Rorschach test. In this experiment the interpretation was thought to constitute a generalized threat, a threat that caused anxiety. However, there was no independent measure of degree of induced anxiety. The individuals of the experimental group were referred to as the subjects who had been "threatened," the individuals of the control group as "not threatened." Both groups were then retested for measures of rigidity and disorganization (using an abstract reasoning test, a sorting test, and a mirror drawing test). A statistically significant difference was found between the experimental and control groups for all tests which followed the induced threat. The performance of the threatened (experimental) group on each test was poorer than that of the non-threatened (control) group. Beier concluded that individuals in a state of induced anxiety show greater rigidity and disorganization of the perceptual field.
In another study Beier investigated the effects of threat and anxiety on the organization of intellectual behavior (1951). The hypothesis of this study was that "... the individual in a state of anxiety is experiencing that type of disturbance that is characterized by deterioration in abstract thinking and by disorientation of behavior." Beier stated the reason for predicting these effects as follows:

The ability to judge, to see essential relationships, to shift adequately—all these abilities are disturbed because the individual projects his own need-confusion upon the stimulus, i.e., perceives the stimulus in terms of such conflicting needs that he cannot respond adequately.

As in the preceding study, anxiety was defined as the outcome of a "threatening" Rorschach personality interpretation given to individuals in the experimental group. Abstract ability was defined as the ability to sustain several tasks simultaneously and to synthesize them into a single action, the ability to group, and the ability to shift from one concept to another. Through the use of an abstract reasoning test, a vocabulary test, a mirror tracing test, and the sorting test of Holsopple, Beier found

... that individuals who are faced with threat and who are in a state of anxiety show a loss of the abstract abilities or, more specifically, face a loss in flexibility of intellectual function and a disorientation of visual-motor coordination as measured by the particular instruments employed.

Diethelm and Jones (1947) have investigated the effect of anxiety (as defined by clinical observation) on attention, learning, retention, and thinking. The investigators used two methods of testing attention, a digit span test and a test by Franz which measures fluctuations of attention with complex stimuli (a story is read and S must react to a certain word whenever it is mentioned). Learning and retention were
measured by the use of two stylus mazes, and immediate memory was tested by the Thorndike-McCall Reading Scale. The Kohs Block Test and Hausmann's Test for Appreciation of Absurdities were the instruments employed to investigate thinking. The evidence from the study indicated that anxiety decreased active attention (and also passive attention when anxiety was high). Also, retention, learning, and thinking were all affected adversely by anxiety. It should be mentioned, however, that some investigators have found that anxiety facilitates simple conditioning (Bitterman and Holtzman, 1952; Spence and Taylor, 1951; Taylor, 1951).

The work of Machover (1949) and Hartogs (1950) suggested that the DAP may show some effects of anxiety in S. Hartogs used four methods of indicating anxiety: katography, interpretative projective technique, level of aspiration test, and the DAP. He reported that the drawings of a group of patients suffering from anxiety neurosis showed marked concealment, omissions or shading of body parts such as primary and secondary sexual characteristics, hands, and leg spread (omitted). He also found fragmentation and/or reinforcement of lines, rigid postures, the presence of a base line, short extremities, masculinization of female figure and feminization of male figure. Although no controls or methods of cross validation were reported in the study, Hartogs concluded that the DAP was a fairly good measure of body image (i.e., the perception of one's own body structure) and that it showed certain changes or characteristics under high anxiety. In other words, high anxiety tended to affect the perception of one's own body structure. Machover reported only one clear indicator of anxiety on the DAP, that of shading.

Handler and Reyher (1964) hypothesized that external stress should increase manifestations of anxiety on the DAP. Fifty-seven male college
students drew a male and a female figure under stress and nonstress conditions. In the nonstress condition, Ss were tested in a group. In the stress procedure, Ss were tested individually in a tiny room which was crowded with apparatus, including a polygraph. The GSR electrodes were attached to the fingers of S's nonpreferred hand and E observed S as he drew his figures. Hand tremors, exaggerated swallowing, blushing, heavy labored breathing, and massive GSR responses were reported. The total impression was that the Ss were extremely anxious. Fifteen of the 21 indices differentiated at the .05 level or better between the stress and nonstress conditions for the male drawings while 11 of the 21 indices differentiated at the .05 level or better between the stress and nonstress conditions for the female drawings. The hypothesis, therefore, was supported. When Handler and Reyher inspected the stress and nonstress drawings of each S, they noted two drawing patterns under the stress procedure—constriction and expansion.

The constricted drawings were more often characterized by: (a) heavier lines, (b) mechanical breaks in the lines, (c) reduced line sketchiness, (d) detached or semidetached body parts, and (e) decrease in size. This pattern seems to reflect increased rigidity and constriction in response to stress. Expansion was marked by: (a) increased diffusion of body boundaries, (b) increased vagueness of body parts, (c) extremely sketchy lines, loosely bound together, (d) light lines, and (e) increased size.

Handler and Reyher offered no explanation for the finding of both constriction and expansion patterns in the drawings of Ss who had been tested under similar anxiety-inducing conditions.

The drawings of psychiatric patients have also been shown to indicate the presence of anxiety. Hoyt and Baron (1959) gave the DAP to 112 hospitalized women patients. The 27 per cent with the highest scores and the 27 per cent with the lowest scores on the Taylor Manifest Anxiety
Scale were used for the study. The "high anxiety" group included 30 Ss with TMAS scores ranging from one to 12 while the "low anxiety" group included 30 Ss whose scores ranged from 25 to 43. The patients were asked to draw a figure of their own sex. Placement in the upper left-hand corner and small size were found to be the most valid indices according to the TMAS criterion, with chi-square values significant at the .05 level of confidence.

The foregoing discussion suggests certain characteristics in the drawings of anxious individuals. The drawing of an anxious individual would be expected to be smaller, less elaborate with fewer details, show less movement, be drawn closer to the edge of the sheet, and tend to leave out or hide parts of the figure.

The findings of Hartogs, Handler and Reyher, and Hoyt and Baron indicated that size of drawing is affected by anxiety. The decrease in attention in anxiety (Diethelm and Jones, 1947) might cause S to draw smaller because he cannot keep as much of the paper within his span of attention. The anxious person cannot enter into this activity as fully because his energy is taken up in dealing with the anxiety. Furthermore, the general effects of anxiety on intellectual functioning and on visual-motor coordination (Beier, 1951; McNemar and Taylor, 1955)—effects that have been described as a loss of flexibility and disorientation, respectively—may cause S to have a limited interpretation of the figure drawing task. S's interpretation, according to Beier, would be consistent with his established pattern of responding under high anxiety. If anxiety limited S's pattern of responding, then he might be expected to draw a less detailed figure than an individual operating at a lower level of anxiety. The high frequency of shading and concealment found in the
drawings of anxious individuals (Hartogs, 1950; Machover, 1949) also led to the idea of covering up or leaving out parts of the drawing, and therefore having a less complete, less detailed, and smaller drawing.

Anxiety has been shown to increase the constriction of the individual (Beier, 1949; Cameron, 1945; Handler and Reyher, 1964). Such constriction might inhibit the person from showing movement in his drawing. Again, a decrease in freedom of intellectual functioning might add to this rigidity. Hartogs found such rigidity in the posture of the drawings.

That the drawings of anxious persons tend to be closer to the edges of the paper was based on May's assumption (1950) that an anxious individual reacts to stimuli in terms of the need to decrease in some way the unrest he feels. Such seeking for security might cause S to draw closer to the edge where he has more guidance to his drawing than in the middle of the sheet. The presence of a base line in the drawings of anxious individuals (Hartogs, 1950) was interpreted as one aspect of an attempt to structure the situation and thereby increase the individual's feelings of security.

The following general statement regarding anxiety, as measured in terms of the DAP, may be made: As the anxiety under which the individual is operating increases there will be a tendency for his drawing to be less expressive.

For the purpose of this study, anxiety was operationally defined in terms of the Taylor Manifest Anxiety Scale (TMAS). Taylor (1951) selected 200 items from the Minnesota Multiphasic Personality Inventory (MMPI) and gave them to various clinical psychologists who were asked to judge which of the items were indicative of manifest anxiety. Sixty-five
items were found on which 80 per cent or better agreement was shown, and these were included in the anxiety scale. Originally, the complete scale consisted of these 65 items plus the 135 items which were not judged as indicating manifest anxiety. When the scale was administered, the score was based only on the 65 anxiety items. Later, however, Taylor cut the anxiety items to 50 as a result of an item analysis of the original scale (1951). Taylor had tried the first scale on a group of 352 students in an introductory psychology class and obtained a range from one to 36 with a median of 14. The 50 item anxiety scale was derived from a test session of 574 students in introductory psychology classes and yielded a range from zero to 41. It was this newer scale that was used in the present study.

The TMAS was originally constructed by Taylor (1951) to provide data on the effect that differing levels of total effective drive (i.e., anxiety) would have on the development of a conditioned eyelid response. Taylor attempted to secure different levels of drive by two means: (a) selection of two groups of Ss, designated as anxious and nonanxious, on the basis of extreme scores made on her original anxiety scale, and (b) administration of differential instructions, designated as anxiety-producing or as anxiety-relieving, introduced during the course of the conditioning trials.

The results indicated that the subgroups which received differential instructions did not differ in the amount of conditioning in the subsequent course of the training trials, showing that the instructions had little or no effect. The data from the anxious and nonanxious groups showed that the anxious group was consistently superior in amount of conditioning throughout the course of the conditioning trials, the difference
between the two groups being significant at $p < .0001$. Taylor concluded that

... the consistent superiority of the anxious group in all measures of conditioning and extinction strongly indicates that there is a marked difference in the rate with which the strength of the conditioned response is developed under the two conditions of drive (anxiety) level. This might be interpreted to mean that anxious Ss have a more rapid conditioning rate, or in Hull's terms, develop habit strength ($sHr$) at a faster rate.

In designing her anxiety scale, Taylor assumed that the directly observable reactions of anxiety states, e.g., tenseness, restlessness, excessive perspiration, etc., were accompanied by internal emotional responses. Accordingly, she assumed that individuals who experienced such reactions would be able to report them. Therefore, it followed that variation in drive level of an individual was related to the level of anxiety, and that the intensity of the anxiety could be ascertained by responses on a test consisting of items descriptive of overt or manifest symptoms of this anxiety state. The number of responses which indicated anxiety, therefore, was a theoretically valid index of the anxiety construct.

In addition to tenseness, restlessness, and excessive perspiration, some additional components of manifest anxiety have been identified. O'Connor, Lorr, and Stafford (1956) gave the TMAS to 220 male university students. The tetrachoric correlations between 42 of the items purporting to measure manifest anxiety were factored by the centroid method and rotated obliquely to simple structure. The five factors identified were chronic anxiety or worry, a factor of increased physiological reactivity, sleep disturbances associated with inner strain, sense of personal inadequacy, and motor tension.
Pflaum (1964) administered the TMAS to 74 female and 54 male college sophomores. In both males and females the most frequently given anxiety responses touched upon feelings of "inadequacy or inferiority in academic or social situations, and frustration at delay or postponement of biosocial gratifications." These results, along with those of O'Connor et al., indicate that the TMAS measures several different components of anxiety rather than a single common factor of manifest anxiety.

In the same study, the number of Ss giving anxiety responses was tabulated for each question, as well as the number of anxiety responses for each of the 128 Ss. The 74 females gave an average of 12.18 anxiety responses and the 54 males an average of 7.89. The average anxiety response per question was 24.4 per cent in the female group and 15.8 per cent in the male group. The difference between means for males and females was significant at the .01 level, indicating that, on the TMAS, women as a group express a greater degree of anxiety than do men. While the difference was statistically significant, Pflaum observed that it most probably reflected a greater willingness on the part of the females to reveal themselves to other.

The TMAS was developed as a device for selecting experimental Ss with little regard for the relationship of the scores to more common clinical definitions of anxiety (e.g., clinical observation). While defining degree of anxiety in terms of the anxiety scale scores is a perfectly legitimate operational procedure, determining the relationship between this definition and clinical judgments would extend the applicability of the scale. Taylor (1953) found evidence for such a relationship from the anxiety scores of patients undergoing psychiatric treatment. Using the unrevised Biographical Inventory form of the TMAS, anxiety
scores were obtained from 103 neurotic and psychotic individuals drawn from both an in- and outpatient population. The distribution of scores for these patients was highly negatively skewed. The median score was approximately \( \frac{3}{4} \), a score equivalent to the 98.8 percentile of the 1971 university students on whom the TMAS was standardized. The distribution of scores, therefore, for the patient and normal group was markedly different. Taylor did not differentiate the score distributions of the neurotic and psychotic groups. On the assumption that psychiatric patients tend to exhibit more manifest anxiety symptoms (as determined by direct observation) than do normal individuals, Taylor concluded that "this difference between the two groups appears to indicate that there is some relationship between the anxiety-scale scores and clinical observations of manifest anxiety."

The TMAS can be easily administered and objectively scored, and has high split-half and test-retest reliabilities. The odd-even reliability (corrected for length) was found to be .92 (Holtzman, Calvin, and Bitterman, 1952; Taylor, 1953). Hedlund, Farber, and Bechtoldt (1951) gave the newer scale to 1971 college students and reported a test-retest reliability of .82 after five months and .81 after nine to 17 months. They also stated that there was no practice effect and no difference in scores due to the variability in the filler items.

Holtzman \textit{et al.} (1952) found added evidence for the validity of the Taylor scale by comparing it with a similar scale constructed by Winne. The Winne scale (1951) was made by an empirical analysis of items from the neurotic triad (Hs, D, Hy) of the MMPI. Thirty items were found which discriminated at or beyond the .01 level between criterion groups, and the reliability of the scale was .86 for the normals.
and .84 for the neurotics. Holtzman reasoned that since the Winne scale was empirically highly valid it would give evidence for the validity of the Taylor scale if the two were highly correlated. He reported correlation coefficients of .74 and .77 between the two scales, derived from the use of linear and non-linear correlational methods.

From the general statements given in the introduction concerning the expected effects of anxiety on the drawings of the human figure, five hypotheses were derived and were tested in this investigation. These were stated in the form of five research hypotheses as follows:

1. Ss who score above the median on the TMAS will draw smaller figures on the DAP than Ss who score below the median.

2. Ss who score above the median on the TMAS will show less detail and elaboration in the DAP than Ss scoring below the median.

3. Ss scoring above the median on the TMAS will draw less complete figures on the DAP (in terms of gross body parts) than Ss who score below the median.

4. Ss who score above the median on the TMAS will show less movement in their DAP drawings than Ss who score below the median.

5. Ss who score above the median on the TMAS will draw their DAP figures closer to the edge of the sheet of paper than Ss scoring below the median.
METHOD

Subjects. The sample consisted of 151 students in the child and adolescent and introductory psychology classes at the University of Montana. Of these, 82 were females and 69 were males. The age range was from 18 to 50 years with five persons over 40 years of age included in the sample. The mean age of the total group was 21 years 2 months and the median age was 19 years 4 months. All Ss volunteered to participate in the study.¹

When the Ss were divided into high and low anxiety groups on the TMAS, the low anxiety group of 77 Ss contained 40 females and 37 males. The age range was from 18 to 50 with a mean of 22 years 6 months.

The high anxiety group consisted of 74 Ss, and there were 42 females and 32 males. The age range in this group was from 18 to 34 and the mean age was 19 years 10 months.

Materials. The DAP and the Biographical Inventory form of the TMAS were administered to all Ss. Each S was provided with a medium-soft pencil and an eight and one-half by 11-inch sheet of paper for drawing a human figure. The Biographical Inventory form of the TMAS consisted of 50 anxiety questions and 150 filler items.

Procedure. Ss were tested in groups, and the DAP and TMAS were administered in that order. Both tests were completed within an hour session. Instead of requiring two drawings (i.e., one male figure and

¹Students in the introductory and child and adolescent psychology classes were required to participate in six hours of experimentation. The Ss in the present study, therefore, were fulfilling a part of their course requirement and were not volunteers in the strictest sense of the word.
one female figure), which are usually requested on the DAP, Ss were asked to draw a single figure only. There was no inquiry following the DAP (i.e., Ss were not asked to make up a story about the figure they had drawn, "as if he were a character in a play or novel."). The following instructions were read to all Ss by E:

On a sheet of paper I am about to hand out to you, I would like you to draw a person. It can be any kind of a person at all, as long as you do not draw a stick-figure. When you have finished your drawing, raise your hand and I will give you the rest of the experimental materials. When you have completed the entire experiment, please remain seated until the end of the hour. You should be able to finish within 50 minutes. Any questions?

E then distributed sheets of paper and pencils to all Ss. Each S immediately began drawing after he had received his test materials. As the Ss finished their drawings, E passed out the Biographical Inventory form of the TMAS. The Ss were reminded to read the printed instructions on the first page (see Appendix 1). When the TMAS booklets had been given to most of the Ss, E announced:

Be sure to put your age in years and months since your last birthday, and your sex, male or female, on both the drawing and the booklet. Do not put your name on the drawing or the booklet. When you have answered all the questions in the booklet, raise your hand and I will pick up your materials. Please answer all the questions.

The Biographical Inventory and drawing of each S were fastened together with a paper clip so they would not become separated. Before dismissing the Ss, E assured them that their answers to the questionnaire would be kept in strict confidence. He also requested that they tell no one about the experiment since others were to be tested.

Testing was conducted in a classroom which had a seating capacity of 100 persons. E remained in the room during each of the one-hour sessions.
Ss whose scores fell above and below the median of the TMAS distribution were assigned, respectively, to a high anxious (HA) and a low anxious (LA) group. The number of males and females in each group was determined in order to check on the possibility of sex difference in level of manifest anxiety. A chi-square analysis for a 2 x 2 contingency table was then performed to determine whether there were significantly more males or females in the HA and LA groups of the TMAS. A level of confidence of $p < .05$ was adopted as a standard for rejecting the hypothesis that there was no sex difference between Ss scoring above or below the median on the TMAS.

Five scoring categories were chosen on the DAP, and the drawings of the HA Ss were compared with the drawings of the LA Ss in terms of each of these scores. These scoring methods were chosen because the previous literature suggested the hypotheses. The scores were appropriate for testing the five hypotheses that were under investigation and were determined as follows:

**Size** (Hypothesis 1)

The figure was measured in eighths of an inch. The scores were converted into whole numbers by having each eighth inch equal to one point so that a score of eight in this category indicated a drawing one inch high, and so on.

**Placement** (Hypothesis 5)

A center line was drawn through the middle of the head perpendicular to the bottom of the sheet extending through the whole figure. A

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2 A more common procedure is to select individuals for the HA and LA groups whose scores fall in the highest and lowest percentile of the anxiety range, excluding the middle range.
score in this category was the horizontal distance (in eighths of an inch) from the center line to the nearest edge of the paper. The largest score occurred, therefore, if the figure was in the center of the paper. The score decreased as the drawing approached the edge of the sheet. The scores were expressed as whole numbers.

**Detail or Elaboration (Hypothesis 2)**

A list was made of the items that could be included in a drawing to elaborate it. This list seemed to cover, in general, all the elaborations that were possible on such drawings.

A point was scored for each of the following items, and the points were totaled: (1) general indication of clothing, (2) general, but elaborate clothing, (3) hair and/or hat, (4) buttons and/or buckles, (5) jewelry (including watches, necklaces, bracelets, rings, and earrings), (6) full set of features (two points if the face showed excessive expression), (7) pipes, (8) cigarettes, (9) guns and other props, (10) over-emphasized parts (a part that had been given more attention than any other part of the drawing), and (11) background material not part of the figure. A high score, therefore, indicated greater detail or elaboration.

**Movement (Hypothesis 4)**

A scale of the amount of movement or action shown in the drawings was set up. It ranged from zero (no movement) to four. The scale was arbitrarily chosen, and in order to make the judgment of movement easier the levels were based on the following suggested amounts of action.
The drawings shown characterize, roughly, the type of animation at each level of the scale. To be judged "0" the figure had to stand perfectly still with the legs close together and the arms at the sides. At the "1" level the figure could show a slow walk with the arms still at the sides. At the "2" level the figure would again show a slow walking movement with the arms and legs not too far from the torso. Up to this point the trunk could not be involved in the action. The score of "3" was given to those figures which manifested movement that was not extreme but was greater than that shown by a figure that was merely walking. On this level such actions as throwing, running, pushing, catching, dancing, etc. were included. The highest level of the scale was reserved for those figures which showed extreme movement in which every part of the figure was involved. Actions that gave the impression of being wild and abandoned and those in which every part of the figure was moved away from the position it would hold if the figure were merely standing were included at this level.

The scores in this category were determined by two judges who independently ranked the amount of movement suggested by each drawing. The judges were not told the purpose of the study. In case of disagreements on any drawing, the mean rank of the two judgments was used. This method also allowed a check on the reliability of the scores.

Neither judge (both of whom were male university students) had any previous experience in evaluating human figure drawings for movement. One judge was a 22 year old senior in business administration and the other was a 23 year old graduate student in biology.

This resulted through rounding in giving the higher rank when the judgments differed by one, and the middle one when they differed by two. No larger discrepancy was observed in the 36 cases out of 151 where the judges disagreed.
Completeness (Hypothesis 3)

This category was used to judge the completeness of the drawings in terms of gross parts of the body. One-point was given for each of the following parts if they were included in the drawing:

1. Head  6. Right foot
2. Trunk  7. Left arm
3. Right arm  8. Left hand
4. Right hand  9. Left leg
5. Right leg  10. Left foot

A score of 10 in this category indicated a complete figure.

The scores obtained in each of the five categories by the HA Ss were compared with those obtained by the LA Ss. A one-tailed test of significance was made for each of the five research hypotheses concerning the effects of anxiety on human figure drawing. The level of confidence for accepting the general research hypotheses was $p < .05$.

As a control for artistic ability, the drawings of all Ss were independently evaluated by 10 judges. The judges were not told the purpose of the study but were simply asked to select those drawings which were outstanding in terms of artistic excellence. They impressed upon the judges that they were to make their selections according to absolute standards of artistic quality, not on the basis of comparison. For a drawing to receive an outstanding rating, at least eight of the 10 judges had to agree on its excellence. The drawings rated outstanding by 80 percent or more of the judges were omitted from the sample.
RESULTS

Of the 151 drawings which were independently evaluated by the 10 judges, only five were selected with any consistency as exhibiting a high level of artistic ability. Three of the drawings were each selected by 40, 50, and 60 per cent of the judges, respectively. The other two were rated outstanding by 90 and 100 per cent of the judges, respectively. Only the latter two drawings met the minimum criterion of artistic excellence, that is, selection by at least eight of the 10 judges.

The scores of the 151 Ss on the TMAS ranged from 2 to 43. The distribution approximated that of the normal curve (see Appendices 1 and 2), with a mean of 17.5 and a standard deviation of 7.83. For the purposes of this study, the HA and LA groups were differentiated at the median, 17.2.

When the scores from the TMAS were inspected it was found that some difference between the sexes existed. The median of the anxiety scores for females was 17.8, while the median for males was 16.0. In order to determine whether or not there was a relationship between sex and degree of manifest anxiety, a chi-square test for two samples with two classes was performed. Since the obtained figure failed to meet the criterion level of significance ($p < .05$), it was concluded that sex and level of manifest anxiety on the TMAS were independent of each other. The results of the analysis are presented in Table 1.

**Hypothesis 1**

When the scores of males and females were compared on the size category of the DAP (see Appendix 3), a difference was observed between
TABLE 1. Number of males and females scoring above and below the median on the TMAS.

<table>
<thead>
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<th>LA Group</th>
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<td>Females</td>
<td>42</td>
<td>40</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>77</td>
<td>151</td>
</tr>
</tbody>
</table>

chi-square = .181

p > .50

the sexes at the .01 level of significance. Therefore, separate comparisons were made between the HA and LA and male and female subgroups to determine whether the observed differences in the sizes of the drawings were related to a sex difference and/or to level of manifest anxiety shown on the scale. Three comparisons between means were made: (a) the total HA group with the total LA group, (b) the HA females with the LA females, and (c) the HA males with the LA males. The results of the comparisons are presented in Tables 2 and 3.

TABLE 2. Means and standard deviations for the "size" variable.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>47.51</td>
<td>15.30</td>
<td>151</td>
</tr>
<tr>
<td>High anxiety</td>
<td>45.16</td>
<td>15.13</td>
<td>74</td>
</tr>
<tr>
<td>Low anxiety</td>
<td>49.87</td>
<td>15.53</td>
<td>77</td>
</tr>
<tr>
<td>Males</td>
<td>45.23</td>
<td>14.23</td>
<td>69</td>
</tr>
<tr>
<td>Females</td>
<td>49.40</td>
<td>16.22</td>
<td>82</td>
</tr>
<tr>
<td>High males</td>
<td>45.00</td>
<td>14.49</td>
<td>34</td>
</tr>
<tr>
<td>Low males</td>
<td>45.47</td>
<td>15.34</td>
<td>35</td>
</tr>
<tr>
<td>High females</td>
<td>45.29</td>
<td>15.82</td>
<td>41</td>
</tr>
<tr>
<td>Low females</td>
<td>53.51</td>
<td>16.94</td>
<td>41</td>
</tr>
</tbody>
</table>
TABLE 3. Comparisons of differences in sizes of the DAP figures for various groupings of the sample.

<table>
<thead>
<tr>
<th></th>
<th>Difference between the means (DM)</th>
<th>$\sigma_d$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>High anxiety vs. low anxiety</td>
<td>4.71</td>
<td>2.50</td>
<td>1.88</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Males vs. females</td>
<td>4.17</td>
<td>.80</td>
<td>5.21</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>High males vs. low males</td>
<td>.47</td>
<td>3.48</td>
<td>.14</td>
<td>&gt;.40</td>
</tr>
<tr>
<td>High females vs. low females</td>
<td>8.22</td>
<td>3.62</td>
<td>2.27</td>
<td>&lt;.025</td>
</tr>
</tbody>
</table>

Since the distribution of scores on the size category was approximately normal, one-tailed $t$ tests were performed to test the significance of the differences between the means. As shown in Tables 2 and 3, the drawings of the HA Ss were smaller than the drawings of the LA Ss at the .05 level of significance. There was also a clear tendency for the females to draw larger figures than the males. Within the female group, the HA individuals drew significantly smaller figures than the LA individuals. There was no such relationship within the male group.

Pearson $r$'s were computed between the size and TMAS scores of the total HA group, the total LA group, males, females, the HA females, and the LA females. The obtained $r$'s are presented in Table 4.

None of the correlation coefficients reported in Table 4 was significant. Scores on the DAP size category were not linearly associated with level of anxiety as measured by the TMAS.
TABLE 4. Correlations between the size and TMAS scores of various groupings of the sample.

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>Pearson r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>High anxiety</td>
<td>72</td>
<td>+.086</td>
<td>&gt;.05</td>
</tr>
<tr>
<td>Low anxiety</td>
<td>75</td>
<td>+.021</td>
<td>&gt;.05</td>
</tr>
<tr>
<td>Males</td>
<td>67</td>
<td>-.037</td>
<td>&gt;.05</td>
</tr>
<tr>
<td>Females</td>
<td>80</td>
<td>-.11</td>
<td>&gt;.05</td>
</tr>
<tr>
<td>High females</td>
<td>39</td>
<td>+.20</td>
<td>&gt;.05</td>
</tr>
<tr>
<td>Low females</td>
<td>39</td>
<td>+.044</td>
<td>&gt;.05</td>
</tr>
</tbody>
</table>

Hypothesis 2

The scores in the detail category approximated a normal distribution and ranged from zero to seven. As shown in Table 5, there was no significant difference between the scores of males and females (p > .45). Therefore, only the drawings of the total HA and LA groups were compared for amount of detail. The result of the comparison is presented in Table 6.

TABLE 5. Sex differences in amount of detail shown in figures on the DAP test.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>DM</th>
<th>σ^d</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>69</td>
<td>3.9</td>
<td></td>
<td>.01</td>
<td>.182</td>
<td>.06</td>
</tr>
<tr>
<td>vs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>82</td>
<td>3.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 6. Means and standard deviations for the "detail" category, and comparison of differences in detail shown in the DAP figures of high and low anxiety subjects.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>DM</th>
<th>$\sigma_d$</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detail</td>
<td>3.90</td>
<td>1.10</td>
<td>151</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High anxiety</td>
<td>3.87</td>
<td>1.11</td>
<td>74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low anxiety</td>
<td>3.93</td>
<td>1.10</td>
<td>77</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High anxiety vs.</td>
<td></td>
<td></td>
<td></td>
<td>$0.06$</td>
<td>$0.179$</td>
<td>$0.34$</td>
<td>$&gt;0.35$</td>
</tr>
<tr>
<td>Low anxiety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The value of $t$ reported in Table 6 indicated that the LA Ss did not show significantly more detail in their drawings than the HA Ss.

Hypothesis 3

Since the distribution of scores in the completeness category (from five to 10) was badly skewed in a negative direction, the chi-square test was used in the analysis of the data. For the chi-square table the scores were divided at the median, 9.7, so that a drawing which received a score from one to nine was considered incomplete. A score of 10 characterized the drawing as complete. As shown in Table 7, no significant differences between the scores of males and females were observed ($\phi = 0.06$; $p > 0.30$). The completeness scores of the total HA group, therefore, were compared with those of the total LA group. The result of the comparison is presented in Table 8.

The chi-square value reported in Table 8 indicated that level of anxiety was not significantly associated with the completeness of the DAP figures.
### TABLE 7. Sex differences in completeness of figures on the DAP test.

<table>
<thead>
<tr>
<th></th>
<th>Incomplete</th>
<th>Complete</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>22</td>
<td>47</td>
<td>69</td>
</tr>
<tr>
<td>Females</td>
<td>32</td>
<td>50</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>97</td>
<td>151</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 5.4, \quad p > .30 \]

### TABLE 8. Differences between high and low anxiety subjects in completeness of figures on the DAP.

<table>
<thead>
<tr>
<th></th>
<th>Incomplete</th>
<th>Complete</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>31</td>
<td>43</td>
<td>74</td>
</tr>
<tr>
<td>Low</td>
<td>23</td>
<td>54</td>
<td>77</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>97</td>
<td>151</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 1.56, \quad p > .20 \]

Hypothesis 4

Since the scores on the movement category did not yield a normal distribution and since the range was so small (zero to four), chi-square was again used. The scores were divided at the median, 1.1, so that a score from zero to one was classified as showing no movement while a score from two to four was classified as showing movement. The
estimate of reliability obtained for the scores in this category was 75 per cent of agreement between the judges.

As shown in Table 9, no differences between the sexes were found that were large enough to warrant any further consideration of this factor in the data analysis (phi = .02; p > .70). The scores of the HA and LA Ss were compared and the results of the comparison are presented in Table 10.

TABLE 9. Sex differences in movement of the figures on the DAP test.

<table>
<thead>
<tr>
<th></th>
<th>No Movement</th>
<th>Movement</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Males</strong></td>
<td>43</td>
<td>26</td>
<td>69</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td>54</td>
<td>28</td>
<td>82</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>97</td>
<td>54</td>
<td>151</td>
</tr>
</tbody>
</table>

\[ \text{chi-square} = 0.07 \]

\[ p > .70 \]

TABLE 10. Differences between high and low anxiety subjects in movement of figures on the DAP.

<table>
<thead>
<tr>
<th></th>
<th>No Movement</th>
<th>Movement</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High</strong></td>
<td>52</td>
<td>22</td>
<td>74</td>
</tr>
<tr>
<td><strong>Low</strong></td>
<td>45</td>
<td>32</td>
<td>77</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>97</td>
<td>54</td>
<td>151</td>
</tr>
</tbody>
</table>

\[ \text{chi-square} = 1.27 \]

\[ p > .20 \]
The value of chi-square reported in Table 10 indicated that level of anxiety was not significantly associated with the movement shown in the DAP figures.

**Hypothesis 5**

The distribution of scores in the placement category was negatively skewed, so chi-square was used in the analysis of the data. The scores ranged from 10 to 34. For the chi-square table, the scores were divided at the median, 29.7, so that a drawing which received a score from 10 to 29 was classified as off-center (in a left or right direction) while a score from 30 to 34 classified the drawing as centered.

As shown in Table 11, no overall significant differences between the scores of males and females on the placement category were found ($\phi = .05; p > .50$). However, inspection of the mean scores of the HA and LA females presented in Appendix 3 revealed a substantial difference between the two subgroups. Two $2 \times 2$ chi-square analyses were therefore made: (a) the total HA group vs. the total LA group, and (b) the HA females vs. the LA females. The results of these analyses are presented in Tables 12 and 13.

**TABLE 11.** Sex differences in placement of the figures on the DAP test.

<table>
<thead>
<tr>
<th></th>
<th>Off-Center</th>
<th>Centered</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>31</td>
<td>38</td>
<td>69</td>
</tr>
<tr>
<td>Females</td>
<td>12</td>
<td>40</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>78</td>
<td>151</td>
</tr>
</tbody>
</table>

$\chi^2 = .37$

$p > .50$
TABLE 12. Differences between high and low anxiety subjects in placement of figures on the DAP.

<table>
<thead>
<tr>
<th></th>
<th>Off-Center</th>
<th>Centered</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>39</td>
<td>35</td>
<td>74</td>
</tr>
<tr>
<td>Low</td>
<td>34</td>
<td>43</td>
<td>77</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>78</td>
<td>151</td>
</tr>
</tbody>
</table>

chi-square = .54

$\chi^2 < .50$

TABLE 13. Differences between high and low anxiety females in placement of figures on the DAP.

<table>
<thead>
<tr>
<th></th>
<th>Off-Center</th>
<th>Centered</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High females</td>
<td>26</td>
<td>15</td>
<td>41</td>
</tr>
<tr>
<td>Low females</td>
<td>16</td>
<td>25</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>40</td>
<td>82</td>
</tr>
</tbody>
</table>

chi-square = 3.95

$\chi^2 < .05$

As shown in Table 12, level of anxiety was not significantly associated with the placement of the drawings on the page.

The chi-square value reported in Table 13 indicated that, for female Ss, level of anxiety was significantly associated with the placement of the drawings on the page. The phi coefficient between the placement scores and level of anxiety was .22 ($\chi^2 < .05$). There was a significant tendency, therefore, for the drawings of the LA female Ss to be
more centered on the page than the drawings of the HA female Ss.

The scores on the five DAP categories were compared with each other to determine the degree of relationship that might exist between them. In order to obtain such information it was necessary to use three measures of correlation: The Pearson product-moment correlation coefficient, the biserial correlation coefficient, and the tetrachoric coefficient. The 10 independent comparisons of the scores on the five categories are presented in Table 14.

**TABLE 14.** The degree of relationship between the five DAP scoring categories: Size (S), placement (P), movement (M), detail (D), and completeness (C).

<table>
<thead>
<tr>
<th></th>
<th>S</th>
<th>P</th>
<th>D</th>
<th>M</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>.30^b</td>
<td></td>
<td>.04^a</td>
<td>.07^b</td>
<td>.09^b</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td>.12^c</td>
<td>.30^c</td>
<td>-.02^c</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td>-.004^c</td>
<td>.16^c</td>
</tr>
<tr>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.34^c</td>
</tr>
</tbody>
</table>

^aPearson correlation coefficient (it is insignificant).

^bBiserial correlation coefficients (all are insignificant except the r_b between the S and P scores, which is significant at about the .01 level).

^CTetrachoric coefficients (the r_c's between the P and M and the M and C scores are both significant at about the .01 level; all the others are insignificant).

As shown in Table 14, scores on the placement category were significantly correlated with the size and movement scores. A significant correlation was also observed between the movement and completeness scores. The correlation coefficients for the other seven independent comparisons of the DAP scoring categories were non-significant.
DISCUSSION

The results of the present investigation supported the findings of Hartogs (1950), Handler and Reyher (1964), and Hoyt and Baron (1959) that size of drawing was affected by anxiety. The tendency for HA females to place their drawings nearer the edge of the page than the LA females provided support for May's assumption that an anxious individual reacts to stimuli in terms of the need to decrease in some way the unrest he feels. The effects of anxiety on intellectual functioning and on visual-motor coordination (Beier, 1951; McNemar and Taylor, 1955) were not significantly associated with the amount of detail shown in the drawings. There was no support for the hypothesis derived from Hartogs (1950) and Machover (1949) that individuals rated high in anxiety tend to draw less complete figures than those who are rated low in anxiety. The failure to obtain a significant association between the movement scores and level of anxiety did not agree with the findings of Beier (1949), Cameron (1945), and Handler and Reyher (1964) that anxiety increased the constriction of the individual.

The scores of both men and women on the DAP size category failed to show a linear relationship to level of anxiety. Yet the figures drawn by women on the average were significantly larger than those drawn by men. The possibility exists, therefore, that a sex difference as well as level of anxiety may have accounted for the differences between the scores observed on the size category.

Although a statistically significant difference ($p < .05$) was obtained between the mean size scores of the HA and LA groups, size of drawing was not linearly related to level of anxiety. Apart from the
overall significant difference observed between the size scores of the HA and LA Ss, comparisons of various subgroups revealed some interesting information. The mean of the LA females on the size category was larger than that of the HA females at the .025 level of significance. Since only a negligible difference was observed between the means of the HA and LA males, the implication seemed clear that size was a better indicator of level of anxiety for females than for males. The Pearson r's computed between the size and MAAS scores of the HA and LA females, however, were not significantly greater than zero.

A non-significant association in the predicted direction was observed between the placement scores and level of anxiety. Research hypothesis 5, therefore, was not accepted. However, the tendency of the LA females to place their drawings nearer the center of the page than the HA females was significant at $p < .05$. Since the scores of the males on the placement category were only slightly associated with level of anxiety, placement was apparently a better indicator of level of anxiety for women than for men.

Besides the conclusions regarding the five research hypotheses, the following tendencies were inferred from the data:

1. The size of a figure and its placement on the paper are more sensitive indicators of level of anxiety for females than for males. While the figures drawn by the HA females clearly tended to be smaller than those drawn by the LA females, the drawings of the HA and LA males did not differ significantly in size. Similarly, the LA females placed their drawings significantly nearer the center of the page than the HA females. The placement scores of the LA and HA males, however, differed
only slightly. These findings supported Pflaum's inference (1964) that women are more willing than men to reveal themselves to others.

2. Size of drawing may be an indicator of sex difference as well as level of anxiety. There was an overall significant tendency for women to draw larger figures than men.

If the present study is treated as a pilot investigation in an attempt to find some measures of anxiety on the DAP, some suggestions for further research are indicated. In a follow-up study, level of anxiety should be manipulated and the sex variable controlled. Experimental manipulation of anxiety would indicate how sensitively the DAP measures several different levels of anxiety. If males only or females only were included in the sample, then E might conclude with confidence that the observed differences between his treatment groups were due to the effects of his experimental manipulation. In the present study, it was not possible to estimate how much of the observed differences between the scores of HA and LA Ss on the DAP categories was related to manifest anxiety and how much to sex. As a check on the effectiveness of his anxiety manipulation, E might administer the TMAS to the anxiety groups to determine whether their scores differed significantly.

Instead of administering the DAP in group fashion, E could test S individually. Such a procedure would approximate more closely the conditions of clinical practice. After S draws both a male and a female figure, E asks him to make up a story about each person drawn. S's level of anxiety could be determined by instructing several judges to independently rate him on various anxiety indices. A broader operational definition of anxiety than that provided by the TMAS is necessary in order to make the results of further studies more applicable to clinical practice.
SUMMARY

In the present investigation certain characteristics of an individual's drawing on the Draw-a-Person Test (DAP) were proposed which could be used to indicate level of anxiety in terms of a score on the Taylor Manifest Anxiety Scale (TMAS). The hypothesis under test was that as the manifest anxiety under which a person is operating increases his drawing will tend to be less expressive and more rigid. Specifically, the proposal was made that the drawing of an anxious individual would be smaller, less elaborate with fewer details, show less movement, be drawn closer to the edge of the sheet, and tend to leave out or hide parts of the figure.

The results clearly indicated that the low anxious (LA) Ss tended to draw larger figures than the high anxious (HA) Ss. The drawings of the LA females were placed significantly nearer the center of the page than those of the HA females, though the overall difference between the HA and LA Ss was insignificant. Hypotheses 1 and 5, therefore, were supported. Although these results were confounded by two factors (a) the significant interrelationships between the DAP scoring categories, and (b) a tendency for females to draw larger figures than males, the data suggested that a high score on the TMAS was associated with a tendency to draw smaller and to place the drawing closer to the edge of the paper. Neither the amount of movement nor detail shown in the drawing nor the completeness of the figure in terms of gross body parts was significantly related to level of anxiety. Hypotheses 2, 3, and 4, therefore, were rejected.
REFERENCES


The statements in this booklet represent experiences, ways of doing things, or beliefs or preferences that are true of some people but are not true of others. You are to read each statement and decide whether or not it is true with respect to yourself. If it is true or mostly true, underline the letter T opposite the statement you are answering. If the statement is not usually true or is not true at all, underline the letter F opposite the statement you are answering. You must answer the statement as carefully and honestly as you can. There are no correct or wrong answers; we are interested in the way you work and in the things you believe.

Remember: Underline the letter T if the statement is true or mostly true; underline the letter F if the statement is false or mostly false. Be sure the letter you underline is in the row numbered the same as the item you are answering. Mark each item as you come to it; be sure to mark one answer for each item.

Here is an example: I would like to be an artist. T F

If you would like to be an artist, that is, if the statement is true as far as you are concerned, you would underline the letter T. If the statement is false, you would underline the letter F.

If you have any questions, please ask them now.

1. I do not tire quickly. (F)
2. I am often sick to my stomach. (T)
3. I am about as nervous as other people. (F)
4. I have very few headaches. (F)
5. I work under a great deal of strain. (T)
6. I cannot keep my mind on one thing. (T)
7. I worry over money and business. (T)

1Items included on the TMAS and responses scored as "anxious" are numbered as they appear in the complete Biographical Inventory.
18. I frequently notice my hand shakes when I try to do something. (T)
21. I blush as often as others. (F)
25. I have diarrhea ("the runs") once a month or more. (T)
26. I worry quite a bit over possible troubles. (T)
27. I practically never blush. (F)
33. I am often afraid that I am going to blush. (T)
35. I have nightmares every few nights. (T)
36. My hands and feet are usually warm enough. (F)
37. I sweat very easily even on cold days. (T)
38. When embarrassed I often break out in a sweat which is very annoying. (T)
41. I do not often notice my heart pounding and I am seldom short of breath. (F)
43. I feel hungry almost all the time. (T)
44. Often my bowels don't move for several days at a time. (T)
48. I have a great deal of stomach trouble. (T)
51. At times I lose sleep over worry. (T)
54. My sleep is restless and disturbed. (T)
56. I often dream about things I don't like to tell other people. (T)
66. I am easily embarrassed. (T)
67. My feelings are hurt easier than most people. (T)
77. I often find myself worrying about something. (T)
82. I wish I could be as happy as others. (T)
83. I am usually calm and not easily upset. (F)
86. I cry easily. (T)
87. I feel anxious about something or someone almost all of the time. (T)
94. I am happy most of the time. (F)
99. It makes me nervous to have to wait. (T)
100. At times I am so restless that I cannot sit in a chair for very long. (T)
103. Sometimes I become so excited that I find it hard to get to sleep. (T)
107. I have often felt that I faced so many difficulties I could not overcome them. (T)
112. At times I have been worried beyond reason about something that really did not matter. (T)
117. I do not have as many fears as my friends. (F)
123. I have been afraid of things or people that I know could not hurt me. (T)
136. I certainly feel useless at times. (T)
138. I find it hard to keep my mind on a task or job. (T)
145. I am more self-conscious than most people. (T)
152. I am the kind of person who takes things hard. (T)
153. I am a very nervous person. (T)
163. Life is often a strain for me. (T)
164. At times I think I am no good at all. (T)
168. I am not at all confident of myself. (T)
183. At times I feel that I am going to crack up. (T)
187. I don't like to face a difficulty or make an important decision. (T)
190. I am very confident of myself. (F)
APPENDIX 2

Distribution of scores on the TMAS for 151 Ss.
APPENDIX 3

Mean Scores of the Various Subgroups of the Sample on Each of the DAP Categories

<table>
<thead>
<tr>
<th>DAP Category</th>
<th>Males (n = 69)</th>
<th>Females (n = 82)</th>
<th>Total sample (n = 151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA HA</td>
<td>LA HA</td>
<td>LA HA</td>
<td></td>
</tr>
<tr>
<td>Sum of scores</td>
<td>315 303 377 379</td>
<td>692 682</td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>9.26 8.91 9.20 9.24</td>
<td>9.23 9.09</td>
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</tr>
<tr>
<td>Mean of the combined HA and LA group</td>
<td>9.09 9.22</td>
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Completeness

<table>
<thead>
<tr>
<th>DAP Category</th>
<th>Males (n = 69)</th>
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<th>Total sample (n = 151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA HA</td>
<td>LA HA</td>
<td>LA HA</td>
<td></td>
</tr>
<tr>
<td>Sum of scores</td>
<td>136 129 159 161</td>
<td>295 290</td>
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</tr>
<tr>
<td>Mean score</td>
<td>4.0 3.79 3.88 3.93</td>
<td>3.93 3.87</td>
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<tr>
<td>Mean of the combined HA and LA group</td>
<td>3.90 3.91</td>
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Detail

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<tr>
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<th>Males (n = 69)</th>
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<th>Total sample (n = 151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA HA</td>
<td>LA HA</td>
<td>LA HA</td>
<td></td>
</tr>
<tr>
<td>Sum of scores</td>
<td>39 37 48 34</td>
<td>88 79</td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>1.15 1.18 1.20 0.95</td>
<td>1.17 1.05</td>
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<tr>
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<td>1.17 1.08</td>
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Movement

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<th>DAP Category</th>
<th>Males (n = 69)</th>
<th>Females (n = 82)</th>
<th>Total sample (n = 151)</th>
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</thead>
<tbody>
<tr>
<td>LA HA</td>
<td>LA HA</td>
<td>LA HA</td>
<td></td>
</tr>
<tr>
<td>Sum of scores</td>
<td>965 961 1208 1062</td>
<td>2173 2023</td>
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</tr>
<tr>
<td>Mean score</td>
<td>28.38 28.28 29.46 25.90</td>
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<tr>
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<td>28.32 27.68</td>
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Placement

<table>
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<th>Females (n = 82)</th>
<th>Total sample (n = 151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA HA</td>
<td>LA HA</td>
<td>LA HA</td>
<td></td>
</tr>
<tr>
<td>Sum of scores</td>
<td>1546 1530 2134 1857</td>
<td>3740 3387</td>
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<tr>
<td>Mean score</td>
<td>45.47 45.0 53.51 45.29</td>
<td>49.87 45.16</td>
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<td>Mean of the combined HA and LA group</td>
<td>45.23 49.40</td>
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