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# The Effect of Prior Knowledge, Social Desirability and Stress Upon the Thematic Apperception Test Performance

Awad A. Ismir

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THE EFFECT OF PRIOR KNOWLEDGE, SOCIAL  
DESIRABILITY AND STRESS UPON THE  
THEMATIC APPERCEPTION TEST  
PERFORMANCE

by

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B.A. in Psychology, Concordia College, 1958

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Submitted to the Faculty

of the

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for the Degree of

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1963



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This dissertation, submitted by Awad A. Ismir in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in the University of North Dakota, is hereby approved by the Committee under whom the work has been done.

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## CHAPTER I

### INTRODUCTION

When an individual is given a projective test, the outcome is frequently of vital importance for his future. Whether he is committed to a mental institution, recommended for psychotherapy, or selected for a position, may depend, in part, on his test performance. If he wants the position, he may make a deliberate effort to give responses which make him appear to be the kind of person most suited for the particular occupation. On the other hand, a person who wishes to be discharged from the armed forces may attempt to respond in such a way as to appear a bad prospect for adjustment to military service.

This tendency of subjects taking a personality test to try (consciously or unconsciously) to give a favorable picture of themselves has become a matter of increasing concern for personality assessors, since the appearance of Meehl and Hathaway's paper (1946) on the subject. In their discussion of the K Scale of the MMPI, Meehl and Hathaway have observed that one of the most important defects of personality inventories is their susceptibility to "faking," that is the conscious distortion of scores in terms of response tendencies, of the subject taking the inventories. Equally important, they note, is the susceptibility of inventories to unconscious self-deception and role-playing on the part of subjects who may, in general, be quite honest and sincere in their responses to personality statements contained in the inventories.



The possibility of such distortion which has been described as "faking good" or "faking bad," has been further noted by more than a score of authors who concluded from their own research with the MMPT that the conscious or unconscious tendency of subjects to present a certain picture of themselves in taking a personality test has a considerable influence upon their performance.

Similarly, many authors have recognized that distortion, faking and censorship can also occur on projective tests. For example, Cattell asserts:

It seems wrong to assume that the average person is completely taken off his guard by projective techniques so that he does not know what he is exposing. He may listen politely to the instructions that his "creative imagination" is being tested, but the psychologist is more naive than the subject if he believes that most subjects do not intuitively realize that they may be giving themselves away.

Since the Thematic Apperception Test (TAT) has been widely used, it is important, therefore, that the TAT be resistant not only to distorting malingerings and attempts to look better or "healthier," but that the influencing factors contributing to malingerings and faking and their effect upon response to a projective technique be experimentally investigated.

#### Need for Study

In general, the problem investigated in this study is by no means new to investigators. On the other hand, the huge bulk of research related to the problem studied has been confined to such influencing factors as the stimulus, the subject, and more recently, the experimenter or clinician. Very little experimental evidence bearing directly on the effects of the subject's previous knowledge on test performance has been collected.



Statement of Problem

The problem with which this study is concerned is to investigate the effect of such factors as prior knowledge, social desirability, and stress upon response to a projective test such as the Thematic Apperception Test.



## CHAPTER II

### HISTORICAL REVIEW

#### Studies Related to Fake-ability

Meehl and Hathaway (110), in their discussion of the K scale of the MMPI, observed that one of the most important defects of personality inventories was their susceptibility to "faking". They noted that subjects' responses on the MMPI were "falsified" in such a way that the subject obtained either a higher or a lower score on a particular MMPI variable. Thus, Meehl and Hathaway described a subject as either faking "good" or faking "bad". By faking "good" they referred to the subjects' tendency to create a more favorable impression. Faking "bad," on the other hand, referred to subjects' tendency to create a more unfavorable impression.

Since our interest lies in fake-ability as it relates to the Thematic Apperception Test, we shall be primarily concerned with studies as relate in particular to projective techniques fake-ability.

Although the work of Fosberg (62,63) indicated that the Rorschach was not resistant to faking, Carp and Shavzin (20) found that the Rorschach responses can be faked. Similarly, a study by Maltsoff (111, 112) with a sentence completion test indicated that this test may be subject to distortion. Weisskopf and Diappa (170) demonstrated that subjects trying to make a "good" or "bad" impression successfully influenced the diagnosis of their personalities made by experimental TAT



interpreters. They maintained that a test such as the TAT can be expected to be subject to faking to a higher degree than a test such as the Rorschach. This expectation was based on the impression that subjects were more aware of the principles of interpretation of the TAT than of the Rorschach.

The studies quoted above indicate that projective tests are susceptible to faking and that research is needed to increase our knowledge of what contributes to this distortive malingering.

Recently, research attention has turned to the idea that in the clinical interaction, the examiner's personality and behavior might influence the response of the subject in an unintended way.

Lord (99) demonstrated that variations in Rorschach performance can be experimentally induced. Sanders and Cleveland (136) also demonstrated that certain examiner-personality variables seem to have an influencing effect on the subject's Rorschach scores. The authors concluded that different examiners elicit significantly different Rorschach scores from their subjects. Similarly, Ferber and Wales (59), Fosberg, Freiberg, Vaughn, and Evans (64), Lindsey (97), Smith and Hysan (154), and Stanton and Baker (156) demonstrated that interviewers seemed to bias their respondents.

Orne (118,119) found that hypnotized subjects behaved as they felt they ought to behave or as the examiner might want them to behave. Orne further hypothesized that the demand characteristics of the experimental procedure may be a significant determinant of subject behavior.

Recent studies in experimenter bias by Fode (60,61), Rosenthal (124), Rosenthal et al. (128, 130, 131), and Rosenthal, Fode and Vikan (126), have shown that under a number of differing conditions, psycho-



logical experimenters were able to obtain from their subjects the data that the experimenters expected or wanted to obtain. In addition, other studies by Rosenthal and Lawson (129), and Rosenthal and Fode (125) demonstrated the occurrence of the experimenter bias phenomenon even when the subjects were laboratory rats.

In a recent study with the TAT, Iamir (86) found that subjects who were given information (prior knowledge) concerning the TAT looked "healthier" than subjects who were not given prior knowledge. The study is being replicated herein to verify these findings.

#### Studies Related to Social Desirability

It has long been recognized that personality test scores are influenced by non-test-relevant response determinants. Interest in the problem of response distortion, particularly by Meehl and Hathaway (110), has been concerned with attempts at statistical correction for "faking good" or "faking bad". The historical antecedent of this procedure was found in the earlier efforts of Humm and Humm (83), and Humm, Stormont and Iome (84) to obtain finer empirical discriminations by a joint consideration of raw scores and "no-counts" (number of noes). Another avenue of approach converging on the same problem has been the generalization of Cronbach's (30,31) concept of "response set" to include statistically deviant response sets by Berg (11) and the subsequent implementation of this notion by Barnes (6,7) with the MSPI.

Current research on social desirability by Cowen and Tongas (27), Edwards (44,45,46,47), Wiggins and Rumlill (179), has been chiefly concerned with a descriptive analysis of the influence of this variable on personality test responses. Along these lines, social desirability



has achieved major status as a psychometric variable; the properties typically ascribed to it by Jackson and Messick (88) are those of a stylistic response determinant. Pre-eminently social desirability has been considered to be a characteristic of test items by Edwards (47), and two models have been applied for its assessment. In the first of these procedures Edwards (46) presented items on a test to be rated for social desirability by judges and then responded to by subjects under standard instructions. The correlation of the two sets of responses was referred to indicate the amount of test response variance accounted for by social desirability. The second model by Edwards (44) involved the development of empirical social desirability scales the items of which showed marked social desirability properties. Correlations between these scales and various personality tests such as the MMPI, were assumed to reflect social desirability bias in the test responses.

Social desirability by Edwards (47) has been primarily considered as the "Scale value for any personality statement such that the scale value indicates the position of the statement on the social desirability continuum." The prevalent conceptions of social desirability thus reflected an exclusive concern with response distortion in psychometric situations with an attendant narrowing of research interests to investigations of the social desirability scalability of test items.

Recently, however, Marlowe and Cronne (32) proposed an alternate model to Edwards' conception of social desirability. Basic to their construct of social desirability was the definition of a population of culturally acceptable and approved behaviors which were, at the same time, relatively unlikely to occur. Test items were drawn from this



population in the development of a new social desirability scale, the Marlowe-Crowne Social Desirability Scale (M-C SDS). The scale was constructed so as to eliminate psychopathological items and to reflect "the need of the subject to respond in a culturally sanctioned way." Marlowe and Crowne further found that the Edwards Social Desirability Scale (Edwards SDS) correlated highly with seventeen MMPI subtests, while the M-C SDS appeared, by comparison, relatively independent. From these findings the investigators concluded that a psychopathologically oriented social desirability scale, such as the Edwards SDS, tended to reflect subjects' willingness to admit or deny psychopathology rather than choosing in terms of socially appropriate responses.

In a second study Marlowe and Crowne (106) assessed the utility of defining the construct of social desirability, in motivational terms, as a need for social approval. In this study the M-C SDS and the Edwards SDS were administered to subjects at two universities. Subjects performed a boring task and then rated their attitude toward the experiment. It was found that individuals with strong need for social approval tended to express significantly more favorable attitudes toward the experiment than individuals with a relatively weak need for social approval. Moreover, scores on the Edwards SDS were not found to be significantly related to the favorability of the subjects' attitudes. These findings provided a clear support for a theoretical rationale which views social desirability in motivational terms, regarding it as "a need for social approval accompanied by a belief that this need can be satisfied by engaging in culturally and situationally sanctioned behaviors."

In a study inspired by Marlowe and Crowne's work, Ismir and Kleban (87) investigated the applicability of the M-C SDS to a psychiatric



hospital sample and the relationship of the M-C SDS to a psychopathologically oriented social desirability scale (K-G SDS). The K-G SDS consisted of the K scale from the MMPI (75) and the OI Scale from the California Psychological Inventory (69,70). Both scales were administered to a sample of psychiatric hospital patients. The statistically significant correlation of .62 suggested that both scales were useful scales in appraising social desirability in psychiatric hospital patients. However, the K-G SDS tended to reflect, in part, subjects' willingness to acknowledge psychopathology, whereas the M-C SDS reflected subjects' tendencies to respond in "culturally sanctioned ways."

In a similar study using a college sample, Izair (85) found a reliably high correlation between the M-C SDS and the K-G SDS, indicating again the usefulness of both scales in appraising social desirability. Nevertheless, the difference between the M-C SDS mean scores for the psychiatric and college samples appeared quite large and quite striking. These findings were in agreement with the earlier reported findings of Marlowe and Crowne (106).

While social desirability (SD) has been investigated primarily with reference to objective personality tests, studies by Meltsoff (111, 112) and Rozyenko (134) indicated that social desirability was also an important dimension in a less structured, semi-projective technique such as the sentence completion test. Meltsoff and Rozyenko ascertained that the SD of the sentence completion stem was significantly related to the SD of the response to these stems.

Reznikoff (121) moved a step beyond the partially structured sentence completion test to the more ambiguous picture material of the TAT. He found that the TAT as a projective instrument provided sufficient



structuring to trigger an SD set which accounted for some of the variance in the given themes.

The primary interest in this study lies in the investigation of social desirability and social desirability scores with reference to the Thematic Apperception Test.

#### Studies Related to Suggestibility

The quantity of experimental work on suggestion has become voluminous. To review all the experiments on suggestion and suggestibility would be a futile task since a large proportion of these studies really do nothing more than select some obvious instances of human gullibility, prey upon them, and give the results pseudo-quantitative form by ascertaining what percentage of the subjects "yield." The situation is usually made worse by confusing three quite distinct human tendencies:

- (1) The tendency to make a response which has been previously made in a similar situation, whether appropriate or inappropriate at the time.
- (2) The tendency to go on doing what one started doing simply because whatever factors were strong enough to start the activity continued strong enough to make it go on.
- (3) The tendency to believe or to do what one is told because of social motives. It is this third tendency, in particular, that is of interest in the pursued study. However, few of the empirical findings of suggestion and suggestibility illustrating all the above mentioned points will be presented.

Farnsworth and Beaumont (53) altered university students' preferences for pictures by informing some subjects that the pictures were masterpieces and others that they were of little value. Paragraphs to this effect were presented together with pictures by unknown painters and the subjects were asked to rate each picture on a five point scale.



Farnsworth and Beaumont found that the pictures attended by a favorable paragraph were ranked higher than those with unfavorable paragraphs.

Binet (15) in several experiments tested the ability of his subjects to reproduce correctly the lengths of lines shown briefly to them, found that on showing subjects a series of lines of gradually increasing lengths, but with occasional "catches" where the lines did not lengthen as expected, none of his subjects completely escaped the suggestion of increase in length in all lines.

Giroud (67), in a similar study using a progressive line test and progressive weight test, found that all the subjects made their lines keep on increasing with suggestions right up to the very end. Similar results were obtained with progressive weights.

Aveling and Hargreaves (5) induced hand rigidity by verbal suggestion in their subjects. Similarly they found that experimenters were able to influence their subjects by suggesting that their hands were getting lighter. Aveling and Hargreaves carried their work further and concluded from several studies that subjects tended to fall into two sharply divided groups, the suggestible and the non-suggestible. They further concluded that the more personal the suggestion, the more suggestible were the subjects.

Estabrook (53) in a study inspired by the work of Aveling and Hargreaves gave his subjects an electrical machine and a chance to get shock from it. Subjects were told that a current would be turned on as soon as their fingers came in contact with the machine, when in fact the experimenter never turned on the current before one minute elapsed. Estabrook found that the quicker the electricity was reported, the more suggestible were the subjects. He further concluded that the trait



"suggestibility" which appeared at first sight to be normally distributed yielded bimodality and thus indicated that many subjects were definitely suggestible while others were completely resistant to suggestion.

One of the earliest investigations in the area of suggestibility is that of Moore (113). Moore allowed his subjects the exercise of individual judgments in a series of situations and then ascertained the proportion of opportunities for a subject to change his mind and accept "majority opinion" and "expert opinion" with regards to offensive verbal expressions, ethical choices and choice of music. Moore found significant sway by the "majority" and "expert" opinion which he attributed to individuals' suggestibility.

Berkowitz (13) in a different study told pairs of subjects individually that their partners were congenial and they would probably like them (high like) or the converse (low like). Subjects were separated and given an artillery gunnery problem in which they were to judge the accuracy of their "observer's" range estimates. Both subjects in each pair thought the other was the "observer" which was actually a taped recording piped to each subject. Berkowitz found that "high like" subjects judged their observers' estimates as more accurate than "low like" subjects. Furthermore, subjects who were led to believe that they had "observers" of high proficiency in range estimates tended to judge the estimates as more accurate than subjects having low proficiency "observers."

Sherif (152) demonstrated that the factor of prestige altered subjects' evaluation of literary materials. In this study a group of college students read brief prose passages accompanied by a name of a well-known author. The task was to rank the passages in an order of



merit. On a previous occasion the same subjects ranked the authors for their merit. The ranked passages, however, were all taken from the writings of one author. From the results, Sherif concluded that authors who were rated high tended to push up the ratings of the passages attributed to them. Conversely authors rated low tended to pull down the ratings of passages attributed to them. In summary, he concluded that one can alter evaluations arbitrarily using some sort of suggestion.

Kelley (90) in a similar study introduced to three college sections a lecturer whom the students had not previously seen to lead a class discussion. Before the lecturer arrived, the experimenter distributed at random two brief descriptions of the person. The descriptions were identical in every respect except for the qualities of "warm-cold." From the subjects' description and ratings of the lecturer, Kelley concluded that the students' impressions were altered by the description given them before their encounter with the lecturer.

Kelman (91) in an experiment designed to test the effects of success and failure on an individual's suggestibility asked his subjects to judge the movements of a stationary point of light which appeared to be moving (autokinetic phenomena). The extent to which the subjects' judgments were influenced by judgments of "confederates" posing as fellow subjects served as an index of suggestibility. The results of the study indicated that success and failure affected suggestibility in a manner predictable by principles of reinforcement, and suggestibility reflected individuals' previous experiences.

Similarly the work of Annis and Meier (4), Baumgartner (8), Brown (17), Duncker (40), Kelman (91), Linton (98), Wegrodski (168),



Lorge (100), Marple (107), Myers (115), and many others provided further evidence of the effects of suggestion and suggestibility in altering and/or modifying subjects' opinions, attitudes and performance.

One further finds that suggestion and suggestibility have been widely used within the fields of propaganda. Krech and Crutchfield (94) have listed several guides for the propagandist which provides an excellent scheme for grouping the research done in the area:

- (1) A suggestion that seems to meet an existing need will be more readily accepted than one that does not meet the need. In a study by Star and Hughes (157) it was found that citizens who felt the need for information concerning the United Nations were affected by the propaganda offered there, while those people who felt no such need tended to ignore the propaganda.
- (2) A suggestion that allows people to identify with or be in harmony with other people will be more readily accepted than one which does not draw upon such social support. Pastore and Horowitz (120), among others, found that statements attributed to highly approved authors were more readily accepted by their subjects than the same statements if attributed to authors whom the subjects disapproved of.
- (3) A suggestion that is congruent with what a person already believes will be more readily accepted than one which is not. In a study reported by Ewing (54) two groups of subjects were exposed to identical propaganda which was much more unfavorable to the Ford Motor Company than was



the opinion of any of the members of either group. The subjects in one group were led to believe that the propaganda was quite favorable toward Ford, while the other group were led to believe that the propaganda was quite unfavorable. Only the expectations were different; the propaganda was the same for both groups. Being found that propaganda "worked" only when presented in a context which the subject saw as being congruent with what they already believed.

- (4) A suggestion concerning an ambiguous situation will be more readily accepted than one concerning a clearly structured situation. Coffin (22) found that his subjects resisted attempts to influence their judgments of the pitch of various sounds presented to them, but were consistently influenced by their judgment of a non-existent tonal quality of the sound. Luchins and Luchins (102,103) reported the same effect using visual stimuli.
- (5) A suggestion that makes effective use of the principles of good stimulus presentation will be more readily accepted than one which neglects these considerations has been demonstrated empirically by Hovland, Janis, and Kelley (90), and by Hovland and Weiss (81).

The work of Annis (3), Brodbeck (16), Cooper (25), George (66), Katz et al. (89), Lerner (96), and Lymadaine (104) provided further studies and support of the use and effectiveness of suggestion and suggestibility in altering subjects' attitudes through various forms of propaganda.



Using hypnotic suggestion, Wells (174) demonstrated that a person's muscular strength can be somewhat increased. Nicholson (116), Williams (180), among others, further reported that hypnotic suggestion can increase the work capacity of an individual. Eysenck (55) reported improvement of motor control during hypnosis. Among other bodily processes shown to increase (and generally decreased), by use of hypnotic suggestion, were respiration rate by Cohen and Cobb (23), pulse rate by Wilson (181), metabolic rate by Whitehorn, Lundholm and Gardner (178), gastrointestinal activity by Scantlebury (151), uterine contractions by Abramson and Heron (1) and blood pressure by White (176).

Travis (166) has found evidence for hyperaudition while Erickson (50) has induced deafness through hypnotic states. Weitzenhoffer (171,172,173) has found some evidence for hypervision, while Erickson (51) has induced blindness. Eysenck (55) reported that severe disturbances of normal perception of time and space can be brought on under hypnosis.

White, Fox, and Harris (177) provided evidence that learning can take place a little faster than usual under hypnosis. Hull (82) concluded that post-hypnotic amnesia characteristic of most trance states was more a result of autosuggestion or suggestion by the hypnotist than of true forgetting.

A seemingly remarkable shift in a subject's moods, feelings and general behavior can take place under hypnotic suggestion. Orne (119), in a remarkably well controlled study of hypnotic age regression, concluded that these changes were all the result of "role playing" on the part of the subject. Weitzenhoffer (172) suggested that a normal



individual can under hypnosis be induced to perform an anti-social act (such as killing someone) that he would not perform if awake.

All in all the utilization of various forms of suggestion seemed to be an effective tool inducing a change in behavior and attitude, particularly since it has been estimated by Weitzenhoffer (172) that more than 80 per cent of the population is suggestible.

#### Studies Related to Stress and Anxiety

The principal problem in the study of behavior under stress has been the production of realistic stress situations. Variety of techniques have been tried. Indeed, it might be said that no two experimental studies in the literature exactly duplicated the same technique. The main techniques that have been used fall primarily into two main classes: (1) stress induced through failure, and (2) stress induced by the task itself.

Failure or threat of failure on a task has been the method most frequently used in experiments on stress. This has been specifically done by presenting the subject with an insolvable task, interrupting the subject at the task before he could possibly have finished, and by the introduction of false norms which indicated failure even if the performance has been adequate.

In addition to the experiments in which stress was produced through failure, pressure on the subject has been induced by manipulating the situation in various ways so as to produce excessive demands upon him. The various forms of distractions included almost any strong sensory input which is extraneous to the task at hand, such as electric shock, noises, or flashing lights.



The technique used in this study of inducing stress by means of electric shock has been employed by several investigators.

Eichler (49) compared the performance of two matched groups of college students on fifteen alleged Rorschach anxiety signs before and after exposure to stress conditions. "Stress" consisted of the administration of electric shock of increasing intensity, the implication by the experimenter of forthcoming application of stronger shock, and the use of certain equipment for suggestive effects. These conditions had a significant effect on four Rorschach indices, and three others yielded suggestive results.

Williams (180) reported a study aimed at validating two indices of "emotional" and "intellectual" control in the Rorschach test for further use as predictors of performance on the Digit-Symbol Test, under conditions of psychological stress. Using electric shock to induce stress, Williams obtained a remarkably high multiple correlation of .824. This study provided support not only for certain Rorschach concepts but also related directly to the practical and theoretical problem of predicting behavior under conditions of psychological stress.

In a similar study, Carlson and Lazarus (19) investigated the intellectual control under stress and associated Rorschach factors. In this study subjects were given the Rorschach test and the Wechsler-Bellevue Digit-Symbol test. Each subject completed a total of eleven trials on the Digit-Symbol test and then three trials under one of three stress conditions. The stressors consisted of electric shock, failure information, and the presence of several people observing the performance of the subject. The difference between the subject's performance during the trials preceding the stress period and the three



stress trials constituted the measure of decrement due to stress. Of the three stress conditions employed, electric shock was found to be most effective in impairing performance.

Similarly in their investigations of the effects of psychological stress upon performance, Deese and Lazarus (38), Deese, Lazarus and Keenan (39), Gombs and Taylor (24), Lazarus, Deese, Osler (95), and others used various forms of strong sensory inputs such as electric shock to induce stress.

This study further employed the Taylor Manifest Anxiety Scale (TMAS) in assessing subjects' sensitivity to stress. The Taylor Manifest Anxiety Scale was developed by Taylor as a part of an investigation of the relation between anxiety and eyelid conditioning, in order to discriminate experimental subjects on the manifest anxiety continuum. Taylor (160) selected approximately two hundred items from the Minnesota Multiphasic Personality Inventory (MMPI) and submitted these to clinical judges with the request that they select those items which they judged to be indicative of manifest anxiety according to a definition furnished them. The sixty-five items on which there was eighty per cent or better agreement were included in the scale, although in a later revision the scale was shortened to fifty scored items. The reliability of the TMAS has been shown by Hilgard (77), Spence and Taylor (155), and Taylor (159,160) to vary between .81 and .96, according to the method employed. Thus it was safe to conclude that adequate reliability has been demonstrated. The deficiency in the research with the TMAS to date has been the paucity of evidence concerning its validity. As originally developed and used by Taylor the scale was not validated against any criterion of manifest anxiety



external to the test itself. Taylor (162,163) has recently taken the position that the items of the scale may be regarded as an operational definition of manifest anxiety.

The currently available studies of the TMAS provided conflicting evidence as to its validity. Rosenbaum (123), in the process of studying anxiety and stimulus generalization, found that a division of his subjects into high and low anxiety groups by means of the TMAS and by means of psychiatric ratings gave similar results. These apparently positive findings as to the scales' validity were placed in doubt by the results of Holtzman and Bitterman (78). They found that a division of subjects by means of extensive clinical evaluation demonstrated a significant relation between anxiety and conditioning, whereas a division by means of the TMAS alone did not produce significant findings. In a more recent study Holtzman, Calvin, and Bitterman (79) obtained TMAS and Winne Scale scores for a group of subjects. A correlation of .72 was obtained between the scales. This the authors interpreted as evidence for the validity of the TMAS since the Winne Scale is an empirically divided scale of neuroticism. Taylor (163) has recently presented some indirect evidence of the scales' validity. She obtained the distribution of scores for a group of neurotic and psychotic subjects and found that the median score for psychotic subjects was equivalent to the 98.9 percentile for normal subjects. On the assumption that the former exhibited greater manifest anxiety than normals, she concluded that her findings seemed to indicate some relation between TMAS scores and clinical observations of manifest anxiety.

Kendall (92) in a study designed specifically to investigate the validity of the TMAS used a criterion of anxiety external to the



test itself. The criterion chosen was the rating by ward nurses of the manifest anxious behavior of chronically ill tuberculosis patients. The results indicated that the TMAS is a valid measure of manifest anxiety supporting the above reported findings by Rosenbaum (123), Holtzman, Calvin, and Bitterman (79), and Taylor (163).

Turning to the empirical findings and theoretical problems in the use of anxiety scales, one again encounters conflicting findings. Most investigators have assumed that high anxious subjects were more sensitive to implied personal threat than low anxious subjects. Although such investigators as Cox and Sarason (29), Farber and Spence (57), Gynther (71), Taylor (163), have presented evidence not consistent with the above assumption, the bulk of the available findings by Davidson, Andrews and Ross (37), Gordon and Sarason (68), Korohin and Levine (93), Lucas (101), Mandler and Sarason (105), Nicholson (117), Sarason (137, 138, 143, 144, 145, 146), Sarason, Mandler and Craighill (150), Sarason and Palola (147), Truax and Martin (167) and Westrope (175), suggested that high anxious subjects were affected more detrimentally by motivating conditions or failure reports than were subjects lower in the anxiety score distribution. Illustrative of this type of study was that of Davidson, Andrews, and Ross (37) in which three variables were studied. The variables consisted of the TMAS, reports of subjects of levels of failures, and speed of presentation of task stimuli. Significant interactions were obtained among all of the variables, and the authors concluded that high anxious subjects were more sensitive to experimental stress than low anxious subjects. High anxious subjects have been found to be more self-deprecatory, more self-preoccupied, and generally less content with themselves than subjects lower in the



distribution of anxiety scores by Bendig (9,10), Cowen, Hellizer, Axelrod, and Sheldon (26), Doris and Sarason (41), Holtzman and Bitterman (78), Holtzman, Calvin and Bitterman (79), Trapp and Kansler (165), Westrope (175), and Wolff (183).

Consistent with the interpretation of anxiety measures as indicators of sensitivity to implied personal threat was the finding by Hellizer, Axelrod, and Cowen (76), Sarason (137,138,143), Silverman and Blits (153), suggested that there were no differences among groups differing in scores on anxiety scales when tested under neutral and apparently non-threatening conditions. Sarason (137,138,143), in a series of three experiments involving the effects of anxiety and experimental stress on verbal learning, failed to find under pre-experimental neutral conditions significant differences in performance between groups which differed in anxiety, although varying performance was obtained under later conditions of personal threat.

Studies by Child (21), Davidson, et al. (37), Mednick (109), Nicholson (117), Saxeon and Bindra (135), and Sarason (141) have further led to what has been called a habit interpretation of anxiety. This interpretation stated that subjects scoring high and low in anxiety differed in the response tendencies activated by personally threatening conditions. Whereas low scoring subjects reacted to such conditions with increased effort and attention to the task at hand, high scoring subjects tended to respond to threat with self-oriented, personalized responses.

Sarason (137,138,139,140,143,144,145) concluded from several studies that the performance of high anxious subjects was detrimentally affected by verbally administered highly motivating communications.



These findings were found to be consistent with the view that high anxious subjects emit personalized, self-oriented interfering responses when threat is perceived in the environment.

#### Studies Related to Procedure and Method of the TAT

A study by Dana (36) revealed that TAT sets which used as few as five cards provided data which was roughly equivalent to that from the entire series. The use of five cards correlated .90 with the entire series total as compared with a .80 correlation when as few as three cards were used. He further asserted that the inclusion of particular cards appeared to be of less importance than the actual number of cards selected.

Weisskopf and Dioppa (170) similarly used as few as three cards in a study of experimentally induced faking of TAT responses.

In the light of the above findings, it was decided to use five cards for this study.

Weisskopf (169) found that M (cards used for men) and BM (cards used for both boys and men) pictures did not have higher transcendence indices (the quantitative measure of the degree to which the given descriptions of the picture go beyond objective observation) than F (cards used for women) and OF (cards used for both girls and women) pictures for male subjects, nor did F and OF pictures have higher transcendence indices than M and BM pictures for female subjects. Further it was found that pictures of Every Day Series 1-10 tended to have higher transcendence indices than pictures of the 11-20 series. Pictures which lent themselves to interpretation in terms of parent-child relationship or in terms of heterosexual relationship between contemporaries tended to have relatively high transcendence indices.



The findings of Bijou and Kenny (14) contradicted Murray's belief that cards numbered 10 and below were more structured than those numbered 11 and above (114).

#### Studies Related to Method of Administration

Eron and Ritter (52) found that both the oral and written TAT test administration methods were similar in the content which they elicit. They asserted that stories obtained by the written method could be utilized in establishing norms for the TAT.

Garfield, Belk and Melker (65) found that when a group of subjects was separated in terms of method of administration, no significant difference was obtained on any of the attributes rated (such as level of plot, mood, outcome of story and activity of the central character).

Summerwell, Campbell and Sarason (150) studied the effects of four kinds of instructions administered by two different examiners on TAT emotional tone and outcome. The difference due to examiners was found only for outcome ratings under the neutral condition. The Murray personality and intelligence instructions led to more depressive, sadder stories than did the neutral stories. From the study, it was concluded that neutral instructions were the more appropriate kind of instructions to give to subjects prior to taking the TAT.

The writer utilized the oral method and varied sets of instructions in his study based upon the above findings.

#### Rationale of TAT Card Selection

The rationale for the selection of the five cards to be used in the study was as follows:



- (1) An attempt was made to select pictures which elicited a relatively high amount of projection as shown by the study done by Weisskopf (169). The five selected pictures were among the TAT series of twenty which elicited the highest amount of projection (169).
- (2) An attempt was made to select pictures which elicited material on a variety of adjustment areas (132). The pictures used in this study usually contributed to the diagnosis in the areas of: level of aspiration (Card 8EM); relationship to parents (Card 1, 7EM, 8EM); aggression and homosexuality (Card 7EM, 8EM); heterosexual relationships (Card 4). Murray (114).
- (3) An attempt was made to select pictures which elicited stories most likely to be distorted when the subject tried to make a "good" or "bad" impression (170). This would be expected with pictures eliciting stories on such personality characteristics as level of aspiration or aggression, which are strongly regulated by social mores, either through encouragement or through taboos.
- (4) Pictures were also selected from the 1-10 series based on Murray's (114) belief that cards numbered 10 and below are more structured than 11 and above. Since Bijou and Kenny's (14) findings contradicted Murray's belief, pictures were selected to satisfy Murray's 1-10 classification and Bijou and Kenny's ambiguity list.
- (5) Pictures were selected which could be employed with both sexes (169), and which were most frequently used (14, 35, 36, 114, 170).



TAT Scoring System

The method of TAT scoring employed in this study was developed and validated by Dana (33,34,35). Using TAT stories given by normal, neurotic, and psychotic groups, three aspects of test behavior were considered in devising his objective scoring system. First, subjects' approach to the situation as reflected by the manner in which standard test directions were followed. Secondly, normality of responses, abstractions of structural and content material included by ninety per cent or more of normal subjects. Thirdly, those infrequent responses in a normal population which appeared with significantly higher frequency in psychopathological conditions. The three aspects of test behavior were objectified as Perceptual Organization (PO), Perceptual Range (PR) and Perceptual Personalization (PP), respectively. The scores obtained from the three categories were suggested by Dana as indicators of psychological health.

As to the reliability of this scoring system, Dana reported an 80 to 94 per cent agreement by naive scorers for the three scoring categories and a 75 to 100 per cent agreement on items composing the categories. Dana further presented evidence of the clinical usefulness of his method by using concurrent validity with clinical diagnosis as the criterion.

The Dana TAT objective scoring system was adopted by the writer due to its applicability and demonstrated reliability and validity.



## CHAPTER III

### METHOD AND PROCEDURE

#### Subjects

The subjects consisted of 136 college freshmen at Ursinus College in Collegeville, Pennsylvania. Ages ranged from 18 to 20 years with a median of 19 years. There were 57 males and 79 females.

The sixty-four subjects used in this study were the 32 subjects scoring the highest and lowest on the Social Desirability Scale (K-G SDS). Their ages ranged from 18 to 20 years with a median of 18 years. There were 30 males and 34 females.

#### Apparatus and Materials

The electric shock inducing apparatus, Figure 1, consisted of a wooden panel (26' x 12') and a box containing the electrical circuit. The panel contained two flash lights. One of the flash lights contained a white bulb and the other a red bulb. Both flash lights were fastened to the wooden panel about 10 inches apart. The experimenter operated both lights manually.

The electrical circuit, Figure 2, consisted of a 6 volt battery wired to a 6-10,000 volt car coil with a 1,000 ohm resistor. The shock apparatus was controlled by a momentary push button switch (normally open) and an off-on switch. Shock was administered once, by pushing down the momentary push button switch.



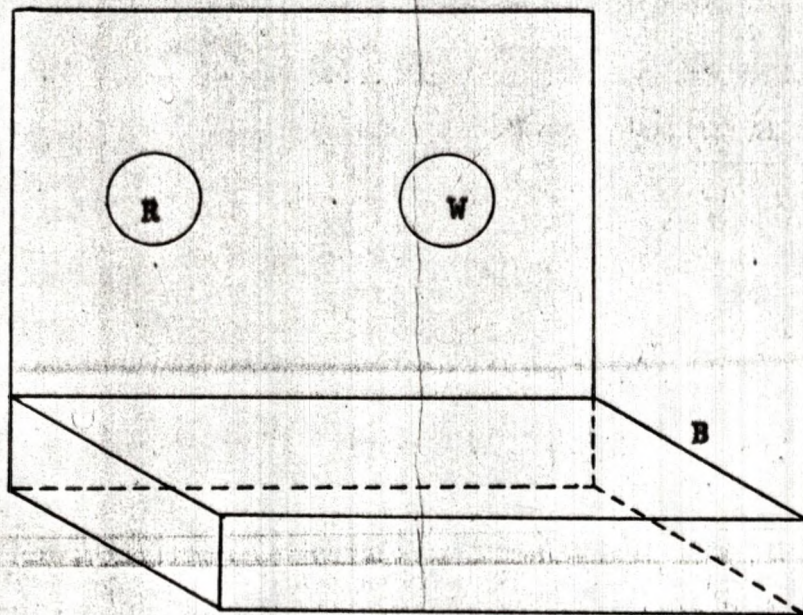


Fig. 1.--Diagram of Shock Apparatus - Panel and Wiring Box. P: Wooden Panel; B: Wiring Box; R: Red light (flash light); W: white light (flash light).



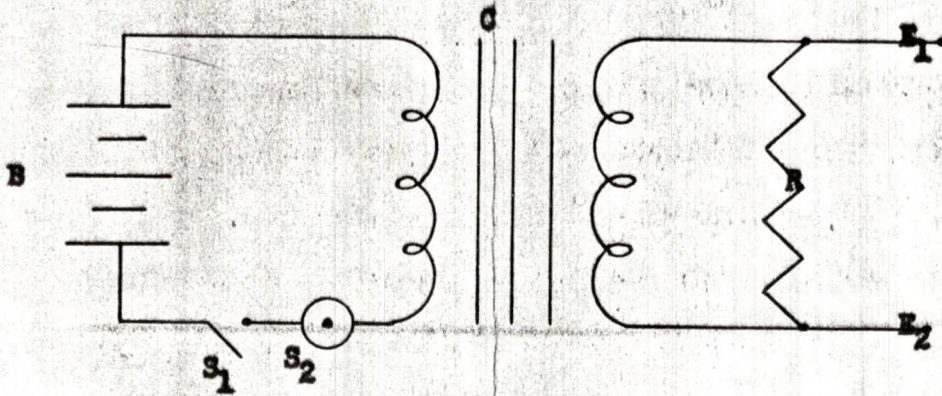


Fig. 2.--Wiring Diagram. S<sub>1</sub>: Switch (off-on);  
 S<sub>2</sub>: Momentary push button switch (normally open); B: 6 volt  
 battery; C: 6-10,000 volts car coil; R: 1,000 ohm resistor;  
 E<sub>1</sub> and E<sub>2</sub>: Electrodes.



The materials used in this study were five TAT pictures selected out of the standard set developed by Murray.

The following is a description of each of the pictures used in this study and is an adaptation from the manual by Murray.

Card No. 1: A young boy is contemplating a violin that rests on a table in front of him.

Card No. 2: Country scene: in the foreground is a young woman with books in her hand; in the background a man is working in the fields and an older woman is looking on.

Card No. 4: A woman is clutching the shoulders of a man whose face and body are averted as if he were trying to pull away from her.

Card No. 7BM: A gray-haired man is looking at a younger man who is sullenly staring into space.

Card No. 8BM: An adolescent boy looks straight out of the picture. The barrel of a rifle is visible at one side, and in the background is the dim scene of a surgical operation, like a reverse-image.

### Procedure

#### (1) Social Desirability:

The "K Scale" from the MMPI combined with the "UI Scale" from the California Psychological Inventory was selected as the relevant matching criterion. The scales identify persons attempting to present a "good" appearance on a test and to respond in a culturally sanctioned way. Since the correlation of the "UI Scale" and the "K Scale" was



only .60, both scales were used. The combined 70-item scale hereafter will be referred to as the K-G Social Desirability Scale (K-G SDS). The Social Desirability was further correlated with Marlowe-Crowne Social Desirability Scale (M-C SDS) to determine its adequacy. Both scales correlated .54 on a college population and .62 on psychiatric hospital population. One hundred thirty-six undergraduate college freshmen at Ursinus College in Collegeville, Pennsylvania, were given the K-G Social Desirability Scale. The thirty-two subjects scoring the highest on the scale will be referred to as the High Social Desirability Group. The thirty-two subjects obtaining the lowest scores on the scale hereafter will be referred to as the Low Social Desirability Group.

(2) Treatments:

Using a table of random permutation, the thirty-two subjects of the High Social Desirability Group were randomly assigned to one of four treatment groups.

- Group I: This group was given information concerning the Thematic Apperception Test (TAT). The group shall be referred to as the "Prior Knowledge" group, (PK) -- (Instruction X).
- Group II: This group served as a "Control" group, (C). Neither information or shock was administered-- (Instruction Y).
- Group III: Subjects in this group were informed that unless a certain level of performance was attained in giving the TAT stories, they would receive a shock. Electrodes were used. This group shall be referred to as the "Stress" group, (S) -- Instruction Z).



Group IV: This group received both "Prior Knowledge" and shock, and shall be referred to as the "Prior Knowledge - Stress" group. (PKS) -- (Instructions I and 2).

Similarly the thirty-two subjects of the Low Social Desirability Group were randomly assigned to one of the above treatment groups.

The subjects assigned to the High Social Desirability Groups hereafter will be referred to as the High Impressionable Groups. Similarly those subjects assigned to the Low Social Desirability Groups will be referred to as the Low Impressionable Group. Accordingly, the conditions of the study represented a Three-Factor A x B x C design.

The Means and Standard Deviations of the Social Desirability Scores on the K-G SDS and subject assignment in the four groups are presented in Table 1.

TABLE 1

## MEANS AND S.D.s OF SOCIAL DESIRABILITY SCORES

		"Prior K"	"Control"	"Stress"	"Prior K and Stress"
High Social Desirability	M	39.0	M 39.25	M 37.87	M 37.75
	S.D.	5.93	S.D. 5.52	S.D. 4.07	S.D. 2.82
Low Social Desirability	M	18.75	M 19.87	M 19.50	M 20.12
	S.D.	4.41	S.D. 2.71	S.D. 3.5	S.D. 4.37

(3) Instructions:

Three sets of instructions were given.

Instructions I: (Given by experimenter to all subjects.)



"I am going to show you some pictures which are such as you might see, or find, in any magazine used to illustrate some story. What I would like you to do is simply to use your imagination to write a story about each one. For each picture I would like you to tell me who the people are, what led up to the event shown in each picture, how the characters are feeling, and what they are thinking. Finally please give your stories a definite ending. In other words, tell the outcome of the situation or how the story is going to turn out. It should be understood that I am not interested in your stories from a literary point of view; so don't worry about your grammar, spelling, punctuation and so forth. (I must also add that there are no wrong or right answers about the pictures.) Do you understand?"

**Instructions II: (Given to "Prior Knowledge" and "Prior Knowledge-Stress" Groups.)**

"You are about to take a TAT test. This is the story telling test that indicated whether or not you are mentally sick. You know what I mean, it is the kind of a test given to people when they are admitted to Norristown State Hospital. This test reveals things that you won't even tell your closest friend. Such things as how well you get along with people, what kind of person you are, how you feel about sex, the kind of problems you have, etc., are revealed by this test. This test even brings out the deep hidden things that you won't even admit to yourself. The stories you give are kind of an 'X-ray' of your personality."

**Instructions III: (Given to "Stress" and "Prior Knowledge-Stress" Groups.)**

"Please rest your arm that is attached to the electrodes on the table and keep it there from now on. You will notice that the electrodes on your arm are connected to the panel before you, (WHITE light is turned on and left on.) The white light switch has just gone on, indicating that the shock apparatus has been turned on. You are connected to this apparatus. During the following period you may receive a strong electric shock whenever it is felt that your test performance is not up to the required standards. (RED light turned on.) Whenever the red light goes on you are not meeting standards and you are in danger of being shocked -- like this -- (Shock administered through electrodes, RED light turned off.) Are you ready? . . . Let us proceed."

The subjects were tested individually. All testing took place in a 20' by 28' room in the Psychology Department on the Ursinus College Campus.

Upon entering the room all subjects were given instruction I. Instruction II was given to "Prior Knowledge" (PK) and "Prior Knowledge-Stress" (PKS) groups, and instruction III was given to both "Stress"



(3) and "Prior Knowledge-Stress" (PKS) groups.

No further instructions were given. The five selected TAT pictures were then administered. Subjects dictated their stories.

(4) Scoring:

Using Dana's Objective TAT scoring system, the sixty-four protocols were scored by the experimenter. A random sample of thirty-two protocols was scored by three judges. The judges were a psychologist with an M.A. degree and two years of clinical experience, a psychologist with a Ph.D. degree and three years of clinical experience, and a secretary. All judges were employed by the Psychology Department at Norristown State Hospital, in Norristown, Pennsylvania, and were trained by the experimenter in the use of Dana's scoring system. The following description and scoring specifications were given to all judges:

**I PERCEPTUAL ORGANIZATION (PO)**

**DESCRIPTION.** - This category reflects Subject's ability to follow the standard directions to "tell a story." Seven possible components are included: (a) card description, (b) present behavior, (c) past events, (d) future events, (e) feeling, (f) thought, (g) outcome.

- (a) **Card Description (CD):** Physical description of two or more things or persons actually present in the picture. It may be a listing such as, "This is a man, a woman, a tree, etc." It may serve to introduce the story, "The boy is on the floor," "The woman who is by the tree is . . ." In these cases there is never any action, merely description. If the word "picture" is used, then only ONE person or thing need follow, "This is a picture of a boy." (CD may occur anywhere in the story.)
- (b) **Present Behavior (PB):** Any activity or behavior that occurs in the present or is in the process of occurring within the picture, i.e., (Card 2), "The man is plowing the field." Activity which occurs outside of the frame-of-reference of the picture is scored Past Events or Future Events.
- (c) **Past Events (PE):** Things, events or situations which have taken place in the past, i.e., before the time of the scene pictured on the card and described in the story. These may



be in the immediate or the remote past and must be specified and definite things, events or situations.

- (d) Future Events (FE): Things, events or situations which will take place or do take place in the future, i.e., after the time of the scene pictured on the card and described in the story. These may be in the immediate or remote future and must be specific things, events or situations.
- (e) Feeling (F): Any expression of feeling or emotion on the part of the characters present in the story. This includes affect, i.e., "sad," "mad," "in love," and "desire," i.e., wishing and wanting (but not NEED).
- (f) Thought (T): Any expression of thought, memory, dream, or allied mental state present in the story. This includes decision, belief, realization, knowing, praying, figuring, etc.
- (g) Outcome(O): The inclusion of a specific statement which indicates the ending, denouncement, finale, or conclusion of the story. This may consist in behavior, feeling, thought, or even, rarely, be present by implication in future events. If this does occur, both outcome and future events are scored. Usually appears at or near the end of the story, i.e., the last sentence or phrase.

## II PERCEPTUAL RANGE (PR)

DESCRIPTION. - This category includes three separate stimulus properties (as indicated below) that were chosen for each card on the basis of inclusion by approximately 90% or more of a "normal" group.

- Card 1. a. Young boy, activity specified.  
b. Emotion noted.  
c. Violin or musical instrument.
- Card 2. d. Family: young girl, woman (activity specified), adult male.  
e. Fields or farm.  
f. Books or school.
- Card 4. g. Male (emotion noted, activity specified).  
h. Female (activity specified).  
i. Conflict or cooperation.
- Card 7B. j. Older male (activity specified, relationship specified).  
k. Male (emotions noted).  
l. Personality referent.



- Card 8M. m. Surgical scene; activity specified.  
 n. Boy, emotion and activity specified.  
 o. Gun and knife.

### III PERCEPTUAL PERSONALIZATION (PP)

**DESCRIPTION.** - This category includes the frequency of deviations from the relatively consistent, organized, coherent protocol - product of the TAT story. These deviations, in order to be scored, must be extreme. They may refer to things labeled performance, adequacy, comments, parenthetical remarks, qualifications, picture criticisms, adventitious descriptions, vagueness, evasion, or direct personal reference.

**QUESTIONS:** "Is that a boy or a girl?" "What's that supposed to be?"

**ADEQUACY OF PERFORMANCE:** "I can't figure that one out."

**QUALIFICATIONS:** "Wait a minute . . ." "It's not really that at all."

**PICTURE CRITICISMS:** "This picture is silly." "There is no point to this at all."

**PARENTHETICAL COMMENTS:** "That's about all on that." "There is not much connected with it."

**ADVENTITIOUS DESCRIPTIVE COMMENTS:** Any remarks just thrown in without apparent connection to the rest of the story. These remarks often pertain to physical description of the picture of the people in it.

**VAGUENESS AND EVASION:** "or . . . or," "either . . . or," "more or less," "or something," ". . . whatever it is."

**PERSONAL REFERENCES:** Any reference to "I". Any inclusion of personal information which is identified as such by S.

### SCORING DIRECTIONS

#### P.O. Scoring Directions:

The score sheet contains a list of the seven components (abbreviated as CD, PB, PE, FE, F, T, ), respectively) and spaces to record presence or absence of each component for each card used. Columns have been labeled for Card 1, 2, 4, 7, 8.

Each PO component present in the story is scored by placing a plus sign (+) in the appropriate space on the score sheet. A minus (-) is scored for components not included. No score is given for frequency of appearance on each card.

#### P.R. Scoring Directions:

The 15 stimulus properties are shown on the scoring sheet. All items in each criterion must be mentioned for a score to be earned. Check off complete criteria on the score sheet using plus sign (+) for those present and a minus sign (-) for those not included in the story.



P.P. Scoring Directions:

List the words and phrases by card number on the score sheet.  
List each word or phrase to be scored separately.  
One point is given for each word or phrase.

Final Scores:

The PO Score is the plus scores obtained for each story.  
The PR Score is the plus scores obtained for each story.  
The PP Score is the total number of points for all cards scored.

All protocols were scored on the three aspects of test behavior as specified by Dana. Perceptual Organization (PO), Perceptual Range (PR), and Perceptual Personalization (PP) constituted the three scoring categories. The three categories' sum total hereafter will be referred to as the "Psychological Adjustment Score." The scores are indicative of "Psychological Health."

Protocols were given numbers. The name and method of treatment were withheld from the judges. Reliability of the scoring procedure was determined by inter-rater correlations.

Following the TAT administration to all subjects, the Taylor Manifest Anxiety Scale (TMAS) was administered. The five stories obtained from the same subject by the same set of instructions will be referred to as a protocol.

Hypotheses

The first null hypothesis was that prior knowledge of the Thematic Apperception Test (TAT) has no effect on test performance. The research hypothesis was that prior knowledge of the Thematic Apperception Test (TAT) has an effect on test performance and that the effect is in the direction of scores reflecting greater psychological health.



The second null hypothesis tested was that there would be no difference between induced "stress" during the administration of the Thematic Apperception Test (TAT) performance and Prior Knowledge. The research hypothesis was that there would be a significant positive difference between induced "stress" during the administration of the Thematic Apperception Test (TAT) performance and Prior Knowledge.

The third null hypothesis tested was that subjects who are highly motivated to give a good impression do not score more healthy psychologically than subjects who are not highly motivated to give a good impression. The research hypothesis was that subjects who are highly motivated to give a good impression do score as more healthy psychologically than subjects who are not highly motivated to give a good impression.

The fourth null hypothesis tested was that there would be no difference between subjects who are highly motivated to give a good impression and they would appear more anxious on the Taylor Manifest Anxiety Scale than subjects who are not highly motivated to give a good impression. The research hypothesis was that subjects who are highly motivated to give a good impression would appear significantly less anxious on the Taylor Manifest Anxiety Scale than subjects who are not highly motivated to give a good impression.



## CHAPTER IV

### RESULTS AND INTERPRETATIONS

The raw scores and totals in the three scoring categories-- specified by Dana--obtained by the judges, are shown in Tables (B) and (C) in the Appendix. These raw scores have been summarized and are shown in Table (D) in the Appendix. The scores are the psychological adjustment scores which are indicative of Psychological Health.

The correlations between the four judges' results on a random selection of protocols are shown in Table 2. By inspection, the lowest correlation obtained was .76 and correlations as high as .91 were obtained. The median correlation was .81.

The means and standard deviations of the psychological adjustment scores for the different treatment groups were computed and these are presented in Table 3.

Inspection of Table 3 shows that the largest obtained standard deviation was 10.08 and smallest was 3.39. When these deviations are squared, they represent the largest and smallest variances. The ratio of these two variances was 10.30. This heterogeneity of variance is well within the limits of Norton's study. Norton found that even when the ratio of the largest and the smallest variance was 45, the analysis of variance model still provided meaningful significance tests. The heterogeneity of variance, in the present study, was not so profound and therefore the analysis of variance model could be used meaningfully with the data.

and



TABLE 2  
 PEARSON PRODUCT MOMENT CORRELATION  
 COEFFICIENT AMONG JUDGES

Judges	B	C	D
A	.82	.79	.91
B	-	.85	.80
C	-	-	.76

Judge A - Examiner

Judge B - Psychologist, M.A. + 2 years clinical experience

Judge C - Psychologist, Ph.D. + 3 years clinical experience

Judge D - Secretary, high school graduate



TABLE 3  
 MEANS AND S.D.'s USING R. H. DANA'S  
 TAT SCORING SYSTEM

	"Prior K"	"Control"	"Stress"	"Prior K and Stress"
High Social Desirability	M 60.12 S.D. 10.88	M 41.12 S.D. 6.39	M 39.62 S.D. 5.92	M 60.37 S.D. 6.62
Low Social Desirability	M 47.25 S.D. 3.39	M 38.37 S.D. 6.44	M 36.37 S.D. 3.90	M 42.00 S.D. 7.12



In order to test the significance of the various experimental treatments, an analysis of variance test based upon the model described by Lindquist, as a Three-Dimensional A X B X C Design, was performed. The one percent level of significance was adopted prior to the computation of the statistics as the region in which the null hypothesis was to be regarded as false. The scores used in the analysis consisted of the subjects' Psychological Adjustment Score. This score was obtained by summing R. H. Dana's TAT scoring categories. The results of this analysis are presented in Table 4.

It may be discerned from Table 4, that the second-order interaction of Prior Knowledge x Stress x Social Desirability, did not result in an  $F$  ratio which would indicate significant differences. However, the first-order interaction of Prior Knowledge x Social Desirability resulted in an  $F$  ratio of 17.36, indicating significant differences at the .001 level. Further inspection of Table 4 reveals that Prior Knowledge resulted in an  $F$  ratio of 79.00, indicating significant difference at .001 level. Similarly, Social Desirability, resulted in an  $F$  ratio of 37.26, indicating significant difference at the .001 level.

The interactions across the high and low social desirability splits were graphed and are presented in Figure 3. Inspection of Figure 3 shows PK to be consistently above no PK and similarly high SD to be consistently above low SD for the TAT analysis.

The Taylor Anxiety raw Scores and totals obtained from each subject are given in Table (E) in the Appendix. The means and standard deviations of the Taylor Anxiety Scores for the different treatment groups are presented in Table 5.

Inspection of Table 5 shows that the largest obtained standard



TABLE 4  
SUMMARY TABLE (TAT - ANALYSIS OF VARIANCE)

Source of Variation	df	SS	MS	F
Prior Knowledge	1	2943	2943	79.88 <sup>**</sup>
Stress	1	72	72	1.93
Social Desirability	1	1308	1308	37.26 <sup>**</sup>
Cells	(7)	5104	729.14	
Prior Knowledge x Stress	1	3	3	0.03
Prior Knowledge x Social Desirability	1	647	647	17.36 <sup>**</sup>
Stress x Social Desirability	1	36	36	0.96
Prior Knowledge x Stress x Social Desirability	1	15	15	0.40
Within - Cells (w)	56	2036	37.25	
TOTAL	63			

\*\*Significant at .001 level.



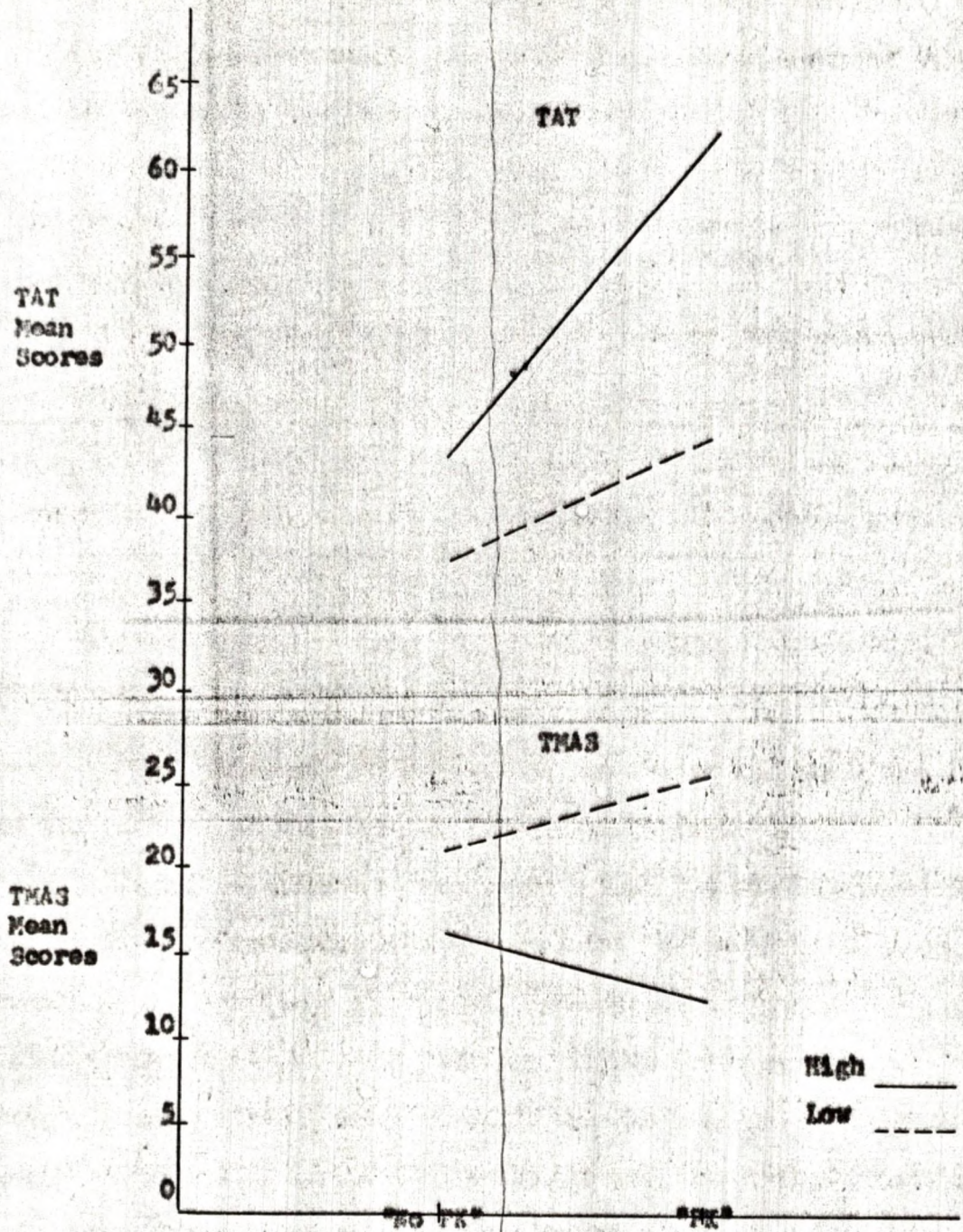


Fig. 3.--Graphings of Treatments Across High and Low Social Desirability Splits.



deviation was 7.93 while the smallest was 3.51. When these deviations are squared, they represent the largest and smallest variances. The ratio of these two variances was 5.10. This heterogeneity of variance is well within the limits of Norton's study.

TABLE 5  
MEANS AND S.D.'s OF TAYLOR ANXIETY SCORES

		"Prior K"		"Control"		"Stress"		"Prior K and Stress"
High Social	M	12.25	M	15.50	M	17.37	M	13.00
Desirability	S.D.	3.90	S.D.	7.93	S.D.	7.73	S.D.	5.12
Low Social	M	24.50	M	20.62	M	21.37	M	26.00
Desirability	S.D.	3.51	S.D.	6.31	S.D.	5.19	S.D.	7.73

The results of the Analysis of the Taylor Anxiety Scale by means of the analysis of variance are summarized in Table 6.

It may be discerned from Table 6 that the second-order interaction of Prior Knowledge x Stress x Social Desirability, did not result in a significant difference. The obtained  $F$  ratio, 5.49, was not significant at .01 level, however, it was found significant at .05 level. The obtained  $F$  ratio of 24.97 for the high and low Social Desirability splits across all treatments were found significant at .001 level. The interactions across the high and low Social Desirability are presented in Figure 3. Inspection of Figure 3 shows that the high and low Social Desirability splits have a proportional effect upon one another.



TABLE 6  
 SUMMARY TABLE  
 (TAYLOR ANXIETY - ANALYSIS OF VARIANCE)

Source of Variation	df	ss	ms	F
Prior Knowledge	1	1	1	.02
Stress	1	24	24	.50
Social Desirability	1	1182	1182	24.97**
Cells	(7)	1470	210	
Prior Knowledge x Stress	1	0	0	0.00
Prior Knowledge x Social Desirability	1	260	260	5.49*
Stress x Social Desirability	1	0	0	0.00
Prior Knowledge x Stress x Social Desirability	1	3	3	.06
Within - Cells (w)	56	2650	47.32	
TOTAL	63			

\*Significant at .05 level.

\*\*Significant at .001 level.



### ○ Interpretation

The analysis of variance test was selected to test the hypothesis that whatever differences existed among the means for treatment conditions, these reflected chance variations and not true differences. The one per cent level of significance was adopted prior to the computation of the statistics as the region in which the null hypothesis was regarded to be false.

Reference to Table 4 indicates that the combination of Prior Knowledge, Stress, and Social Desirability does not have an effect on the Thematic Apperception Test performance, more than expected by chance. However, Prior Knowledge and Social Desirability separately seem to have an effect on the TAT test performance. Furthermore, it appears that the combination of Prior Knowledge and Social Desirability have a significant effect on the TAT test performance, thus indicating that the effect of Prior Knowledge is not proportional for each level of Social Desirability.

The individual treatments were further analyzed using the *t* test. A *t* of 9.99 with 30df between high PK and high "no PK" was found significant at .01 level. Similarly a *t* of 3.35 with 30df between low PK and low "no PK" was found significant at .01 level, indicating that regardless of high or low SD, PK is different from "no PK." A *t* of 1.38 with 30df between high and low SD was not found significant at .01 level. Similarly a *t* of 1.97 and df of 30 between high "no PK" and low PK did not reach the .01 level of significance. However a *t* of 10.58 and df of 30 between high PK and low "no PK" was found significant at .01 level, indicating that high SD when coupled with PK leads to an increase over and above that produced by either PK or SD.

Reference to Table 6 indicates that the second order interaction



of Prior Knowledge, Stress and Social Desirability failed to reach the selected region of rejection. The obtained  $F$  ratio of 5.49 for the first-order interaction was not found significant at .01 level. Inspection of Figure 3 shows low SD to be consistently above high SD on the TMAJ analysis. Thus the significant found difference at the .001 level for the high and low social desirability groups across all treatments, indicates that Social Desirability has a most important effect on the Taylor Manifest Anxiety Scores.

#### Summary of Results

Essentially, the results supported the following hypotheses.

The hypothesis that "prior knowledge of the Thematic Apperception Test has an effect on test performance and that the effect is in the direction of scores reflecting greater psychological health" was substantiated by the results. The results shown by Tables 6 and 7 seemingly support this directional hypothesis.

The hypothesis that there would be a significant difference between "induced stress" during the administration of the Thematic Apperception Test performance and prior knowledge was supported.

The hypothesis that "subjects who are highly motivated to give a good impression do score as more psychologically healthy than subjects who are not highly motivated to give a good impression" was also supported.

The last hypothesis that "subjects who are highly motivated to give a good impression appear less anxious on the Taylor Manifest Anxiety Scale than subjects who are not highly motivated to give a good impression" was supported by the results shown in Tables 8 and 9.



## CHAPTER V

### DISCUSSION

This investigation sought to investigate the effect of prior knowledge, social desirability, and stress upon responses to the Thematic Apperception Test.

Contrary to the findings of Fosberg (62,63) who found that a projective test such as the Rorschach could not be faked, the present investigation found that the TAT was subject to distortion. This finding was consistent with the findings of Ismir (86) and Weisskopf and Kieppa (170) who maintained that a test such as the TAT could be distorted even to a higher degree than a test such as the Rorschach. This expectation was found particularly true when subjects were aware of the purpose and principles of interpretation of the TAT as was demonstrated in this study by the introduction of a two-minute information period ("Prior Knowledge").

Clearly, the findings of this research do not support the projective technique assumption that responses will be projected without censorship. Of course, the findings of this study cannot be generalized to include all projective techniques, but they should be of interest in considering other methods in which content is directly interpreted. By the same token, generalization can not be made beyond the experimental population of college students. Yet the results of this study lead one to question: What, then, might be the effect of the information passed



from one patient to another in an institutional setting? What might be the effect of the publicity that many psychological tests have received via the news media? Or, what might be the effect of distorted and, perhaps, traumatic prior knowledge?

Another finding in this study was that stress in the form of electric shock did not have a similar effect on TAT test performance as that of prior knowledge. This finding is contrary to those reported by Eichler (49) and Williams (180) who found that stress in the form of electric shock did have a significant effect on projective test performance, particularly that of the Rorschach test. Such investigations as Alice (2), Carlson and Lazarus (19), Carp (20), Cox (29), Deese and Lazarus (38), Deese, Lazarus and Keenan (39) and Taylor (160), not only contradicted the reported findings of Eichler and Williams, but further pointed out that prior to generalisation from one projective test to another, one should take into consideration such factors as the stimulus properties of the test, their tapping power and the degree or lack of structuring. It further appears from this study that regardless of the threat of shock, the information received concerning the TAT proved to be a more important variable in influencing the subjects' performance.

Of central interest in this study was the investigation of social desirability and social desirability scores with reference to the Thematic Apperception Test performance. The findings in this study that subjects who were highly motivated to give a good impression tended to score as psychologically more healthy than subjects who were not highly motivated to give a good impression, were consistent with the reported findings of Izmir (86), Resnikoff (121) and Marlowe and Cronne (106).



The theoretical rationale of Marlowe and Crowne (106) which views social desirability in motivational terms, regarding it as a need for social approval accompanied by a belief or expectancy that this need can be satisfied by engaging in culturally and situationally sanctioned behaviors, provides a theoretical model upon which the results of this study may be understood. The two-minute information (prior knowledge), which was intended in this study to give the subject a feeling that the TAT was a revealing instrument, was seemingly so perceived by the high impressionable subjects who guarded against unfavorably presenting themselves with a tendency to create a more favorable impression. In contrast, individuals less strongly motivated for social approval resisted stating what seemed socially appropriate and offered instead a possibly more realistic appraisal of themselves. This low need for social approval further appears to imply a degree of independence of cultural definitions of acceptable behavior. Thus a person less motivated by a need for social approval might, in a testing situation such as the one employed in this study, acknowledge certain symptoms, and express with greater freedom even socially undesirable characteristics and thus appear less psychologically healthy.

Closely related to social desirability in this study was the finding that subjects who were highly motivated to give a good impression appeared less anxious on the Taylor Manifest Anxiety Scale than subjects who were not motivated to give a good impression. This finding is consistent with those of Crowne and Marlowe (32) in which a non-significant  $-.25$  correlation between the M-C SDS and the TMAS was reported. This negative correlation indicated that subjects who obtain low scores on the TMAS are those who, in general, would obtain high



scores on the social desirability scale.

These findings can be further explained by using the earlier social desirability model presented by Marlowe and Crowne. Let us assume that the two groups selected on the basis of their scores on the Taylor Manifest Anxiety Scale differ not with respect to anxiety, but rather with respect to their tendencies to give socially desirable responses to the items in the scale. Thus, we have already speculated that, in order to obtain a high score on this scale, a subject must endorse statements that would be judged socially undesirable. An examination of the items in the Taylor Scale indicates that, if a subject is to obtain a high score, he must be willing to acknowledge, among other things, that he is lacking in self-confidence, that he cries easily, that he is unhappy most of the time, and that at times he thinks he is no good at all. It can be easily seen that if a subject attributes these characteristics to himself in self-description, he is acknowledging characteristics that are judged socially undesirable by people in general. This has been experimentally supported by Edwards (43, 44, 45, 46, 47). High scores on the TMA3 can only be obtained by endorsing these and other socially undesirable characteristics. Low scores on the TMA3, on the other hand, can be obtained by anyone who simply responds to the items by denial of socially undesirable characteristics and instead adopts responses that are considered culturally and constitutionally sanctioned behaviors.

Consistent with the above interpretation are the studies of Child (21), Davidson, et al. (37), Mednick (109), Nicholson (117), Sampson and Bindra (135) and Sarason (141) which offer, what has been called, a habit interpretation of anxiety. This interpretation states



that subjects scoring high and low on the TMAS differ in the response tendencies activated by personally threatening conditions. Whereas low scoring subjects on the TMAS react to such conditions with increased effort and attention to the task at hand, high scoring subjects on the TMAS tend to respond to threat with self-oriented, personalized responses. Sarason (1942) further offers another explanation. He points out that high scores on the TMAS may be obtained by certain subjects who attribute "bad" characteristics to themselves, subjects who are particularly frank and open or subjects who are perceptive of their own needs.

No matter how these findings are interpreted, it is still possible to describe the low scoring subjects on the TMAS as more highly impressionable subjects who desire to make a good impression or respond in culturally sanctioned ways and the high scoring subjects on the TMAS as low impressionable subjects who are less interested in what others may think of them, who are less conforming and who in turn tend to be better able to resist stating only what seems socially appropriate. Probably for this reason, highly impressionable subjects in this study did score as more psychologically healthy than the low impressionable subjects.

The implications of these findings are that:

- (1) An investigator should be cognizant of the conditions under which the test is administered.
- (2) He should be aware of the subjects' conception of the purpose of the test, the expectations of his subjects, and the subjects' attitude toward the measure employed.
- (3) He should take into account the subjects' need to behave in culturally sanctioned ways.



(4) He should determine the meanings that findings may have for the subject.

(5) He should take these meanings into account in the final analysis.



## CHAPTER VI

### SUMMARY

This investigation sought to test four hypotheses:

(1) that "prior knowledge" of the Thematic Apperception Test has an effect on test performance and that the effect is in the direction of scores reflecting greater psychological health,

(2) that induced "stress" during the administration of the TAT does not have an effect on test performance similar to that of "prior knowledge",

(3) that subjects who are highly motivated to give a good impression do score as more psychologically healthy than subjects who are not highly motivated to give a good impression, and

(4) that subjects who are highly motivated to give a good impression appear less anxious on the Taylor Manifest Anxiety Scale than subjects who are not highly motivated to give a good impression.

The subjects were 136 college freshmen at Ursinus College in Collegeville, Pennsylvania. The sixty-four subjects used in the study were the thirty-two subjects scoring the highest and the thirty-two scoring the lowest on the Social Desirability Scale (K-G SDS). Ages ranged from 18 to 20 years. There were thirty males and thirty-four females.

The apparatus consisted of an electric shock inducing apparatus. The shock apparatus consisted of a panel and a box containing the



electrical circuit. The panel contained two flash lights, one containing a white bulb and the other a red bulb. The experimenter operated both lights manually. The electrical circuit consisted of a 6 volt battery wired to a 6-10,000 volt car coil, with 1,000 ohm resistor. The shock apparatus was controlled by a momentary push button switch and an off-on switch. Shock was administered by pushing down the momentary push button switch.

The materials used consisted of five TAT cards, out of the set developed by Murray. The cards used were cards number 1, 2, 4, 7BM, and 8BM. A social desirability scale and the Taylor Manifest Anxiety Scale were also employed in the study.

The thirty-two subjects scoring the highest and the thirty-two subjects scoring the lowest on the social desirability scale consisting of the "K Scale" and "OI Scale" from the MMPI and the California Psychological Inventory respectively were assigned by means of tables of random permutation into the following four treatment groups: group 1 was given information concerning the TAT and was referred to as "Prior Knowledge" group; group 2 served as a "Control" group; group 3 received shock and was referred to as "Stress" group; and group 4 received both "Prior Knowledge" and shock and was referred to as "Prior Knowledge-Stress" group.

All subjects were administered the five selected TAT cards followed by the administration of the Taylor Manifest Anxiety Scale. The TAT stories were scored by four judges using R. H. Dana's objective TAT scoring system.

Analysis of results was mainly accomplished by using an analysis of variance design described by Lindquist as a Three-Factor A x B x C



design. Essentially, the results of all of these various Analyses of the data supported all of the four hypotheses advanced in this study.

The conclusions from this investigation were:

(1) "Prior Knowledge" of the Thematic Apperception Test does have an effect on test performance and subjects with "Prior Knowledge" "looked healthier" than subjects without knowledge of the test.

(2) Induced "Stress" does not have an effect on Thematic Apperception Test performance similar to that of "Prior Knowledge."

(3) Subjects who are motivated to give a good impression do score as more psychologically healthy and appear less anxious on the Taylor Manifest Anxiety Scale than subjects who are not highly motivated to give a good impression.



**APPENDIX**



TABLE A  
SOCIAL DESIRABILITY SCORES

SUBJECTS	"PRIOR K"		"CONTROL"		"STRESS"		"PRIOR K AND STRESS"	
	"Social Desirability"		"Social Desirability"		"Social Desirability"		"Social Desirability"	
	High	Low	High	Low	High	Low	High	Low
1	36	22	36	23	35	21	38	11
2	34	21	40	21	35	12	35	13
3	52	20	39	20	38	16	42	21
4	33	23	36	16	42	21	40	28
5	44	18	46	22	33	23	33	21
6	38	9	50	15	39	22	35	23
7	35	22	34	22	46	19	38	22
8	40	15	33	20	35	22	41	22
<b>Total</b>	<b>312</b>	<b>150</b>	<b>314</b>	<b>159</b>	<b>303</b>	<b>156</b>	<b>302</b>	<b>161</b>



TABLE B  
 "SUBJECTS' SCORES USING R. H. DANA'S  
 THREE SCORING CATEGORIES"

GROUP		"STRESS"						"PRIOR K & STRESS"					
Sub- jects	Social Desir- ability	High			Low			High			Low		
	Dana's Crit- erion	FO	PR	PP	FO	PR	PP	FO	PR	PP	FO	PR	PP
1		22	10	1	24	12	0	35	13	9	30	11	3
2		24	12	12	20	8	12	35	12	8	35	15	7
3		28	10	3	25	9	4	35	15	15	25	10	2
4		30	13	4	20	11	0	32	11	6	22	13	8
5		20	12	0	22	10	1	29	14	13	21	12	0
6		27	11	3	31	12	1	32	12	21	24	11	10
7		22	11	0	26	8	2	35	13	19	30	9	4
8		30	10	2	20	10	3	30	15	24	21	13	0
TOTAL		203	89	25	188	80	23	263	105	115	208	98	34



TABLE C

"SUBJECTS' SCORES USING R. H. DANA'S  
THREE SCORING CATEGORIES"

Sub- jects	Social Desir- ability	"CONTROL"						"PRIGR K"					
		High			Low			High			Low		
		Dana's Crit- erion	PO	PR	PP	PO	PR	PP	PO	PR	PP	PO	PR
1		35	13	6	33	11	9	34	12	10	31	14	5
2		28	12	2	25	10	4	28	10	6	28	12	11
3		20	10	1	28	12	0	32	15	13	24	10	6
4		32	12	2	21	9	3	35	13	34	27	15	4
5		24	11	2	20	11	8	33	12	9	30	12	3
6		28	13	0	26	8	5	30	13	28	30	11	9
7		30	10	1	22	9	0	33	15	11	26	11	10
8		22	10	5	24	8	1	25	11	19	31	10	8
	TOTAL	219	91	19	199	78	30	250	101	130	227	95	56



TABLE D  
TOTAL SCORES USING R. H. DANA'S TAT SCORING SYSTEM

Sub- jects	"PRIOR K"		"CONTROL"		"STRESS"		"PRIOR K AND STRESS"	
	"Social Desirability"		"Social Desirability"		"Social Desirability"		"Social Desirability"	
	High	Low	High	Low	High	Low	High	Low
1	56	50	54	53	33	36	57	44
2	44	51	42	39	48	40	55	57
3	60	40	31	40	41	38	65	37
4	82	46	46	33	47	31	49	43
5	54	45	37	39	32	33	56	33
6	71	50	41	39	41	44	65	45
7	59	47	41	31	33	36	67	43
8	55	49	37	33	42	33	69	34
TOTAL	481	378	329	307	317	291	483	336



TABLE II  
TAYLOR ANXIETY SCORES

Sub- jects	"PRIOR K"		"CONTROL"		"STRESS"		"PRIOR K AND STRESS"	
	"Social Desirability"		"Social Desirability"		"Social Desirability"		"Social Desirability"	
	High	Low	High	Low	High	Low	High	Low
1	14	19	15	14	9	31	17	37
2	9	24	12	17	20	18	11	36
3	11	13	19	29	12	24	9	28
4	9	28	8	26	24	24	8	21
5	15	26	6	26	9	18	19	19
6	7	31	9	25	11	25	21	29
7	20	20	23	13	31	14	6	13
8	13	35	27	15	23	17	13	25
TOTAL	98	196	124	165	139	171	104	208



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