THE REPRESENTATION OF THE MOTIVE TO AVOID FAILURE IN THEMATIC APPERCEPTION

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CHAPTER I

INTRODUCTION

The research of McClelland, Atkinson, and their associates (5, 29) suggests that individuals differ in the strength of two motives which influence behavior when performance is evaluated. The first is a motive to achieve success and the second, a motive to avoid failure. The motive to achieve success is directed toward maximizing satisfactions contingent upon personal accomplishment. It results in instrumental activities perceived as leading to these satisfactions. The motive to avoid failure has as its goal the minimizing of pain resulting from failure and as its behavioral correlate the avoidance of situations in which performance is likely to be judged.

The inference that the strength of an approach motive and of an avoidance motive influences behavior in an achievement situation is suggested by several studies. That persons high in n Achievement (need achievement) are strongly motivated to achieve success is implied by their more rapid learning (25) and superior performance (8, 25, 29) in test situations. Other findings suggest, however, that n Achievement score does not indicate only the strength of a motive to achieve. In several experiments subjects low or moderate in n Achievement have exhibited behaviors which suggest that they are highly motivated to avoid failure. For example, in test situations, subjects moderate in n Achievement, compared with other subjects, recalled fewer tasks which they had failed to complete (29)

and recalled less well a story describing a severe failure experience (39). In another study, Mandler-Sarason Test Anxiety scores were found to be negatively correlated with n Achievement (37), suggesting that low n Achievement indicates strong anxiety concerning failure. These results imply that the level of n Achievement score reflects individual differences in a motive to achieve and a motive to avoid failure.

Studies concerning the sex motive (14), the fear of war catastrophe (43), aggression (19), and fear of competition (43) provide further support for the idea that defenses against anxiety may lead to the inhibition of the expression of a motive not only in overt behavior but in fantasy as well. It follows that the coding of manifest content for motives about which the individual experiences conflict may not yield valid measures. Low scores may have ambiguous meaning, reflecting either an approach motive of weak strength or a strong avoidance motive.

The evidence that fear may inhibit the direct expression of a motive in fantasy suggests two problems. The first concerns defining the conditions under which approach motives may be measured without the effects of anxiety. The second concerns the problem of measuring avoidance motives themselves. In reference to the first problem Atkinson (6) argues that it is at least theoretically possible to arouse approach motivation without simultaneously arousing avoidance motivation. If situations and pictures which aroused the expectancy of satisfying the approach motive without at the same time arousing the expectancy of punishment for its expression were employed, the approach motive would be expected to be more amenable to direct measurement.

Indications of the manner in which avoidance motives are expressed in fantasy have often arisen as a by-product in studies

concerning approach motives. In numerous studies (29) the relationships between n Achievement and other measures have been investigated. Empirical findings led to the inference that subjects moderate or low in n Achievement were highly motivated to avoid failure. While these results are of interest, they imply that n Achievement scores do not order individuals in the strength of a single motive. Further research is required to determine differences in thematic content that obtain for persons low in an approach motive and high in an avoidance motive. A study by Moulton (34) showed that persons presumed, on the basis of other evidence, to be motivated to avoid failure wrote stories in which fear content occurred with relatively high frequency. This evidence suggested that a manifest analysis of fear content yields a valid measure of the motive to avoid failure. However, other findings (13, 37) suggest that under some conditions persons highly motivated to avoid failure avoid content concerning failure. The avoidance of painful content may occur as a symbolic defense. The problem of determining the conditions under which the motive to avoid failure is expressed by an emphasis on fear content and when it is expressed by an avoidance of fear content assumes central importance.

In the present study we were concerned with the manner in which the motive to avoid failure is represented in thematic apperception. Two separate experiments were carried out to investigate this problem. In the first study several non-projective measures of the motive to avoid failure were administered. Subjects scoring high and low on these measures were compared on several projective indices which earlier evidence suggested reflect the motive to avoid failure. Research findings imply that the expression of the motive to avoid failure may vary with the conditions under which the projective is administered. To investigate this possibility,

separate analyses were made for data in the two arousal conditions. The hypothesis that a decline in motive score under achievement conditions characterizes persons highly motivated to avoid failure was also tested.

Serious methodological problems intervened in the first experiment and gave impetus to a second investigation. In this latter experiment scores on a single measure of the motive to avoid failure, the Mandler-Sarason Test Anxiety Questionnaire, were related to several projective scores derived from stories written under achievement conditions. Descriptions of both experiments and statements of the specific hypothesis tested appear later in this dissertation.

Research carried out by McClelland, Atkinson, and their associates has provided considerable support for the belief that analyses of manifest content yield valid measures of human motivation. Measures of the hunger motive (9), the achievement motive (29), the affiliation motive (7, 45), and the power motive (47) have been developed by forming scoring systems from content categories which occur with greater frequency under experimental arousal than in its absence. The validity of these measures has been established by the differences in behavior (7, 25, 29, 47) occurring for persons high and low in motive scores. A considerable amount of evidence suggests, however, that scoring systems based on a literal interpretation of words may obscure differences between persons low in a given motive and persons who are fearful of its expression. The experimental results and the implied conclusions are hardly surprising to those of a psychoanalytic persuasion who share with Freud the belief that the meaning of fantasy behavior can be understood only through an analysis of latent content. In the remainder of this chapter the findings of experiments critical of the

notion that manifest scoring systems permit the ordering of individuals in the strength of a single motive will be reviewed. Attention will be focused on the implications for the measurement of human motives which follow from these findings.

In one study deriving from a clinical viewpoint Eriksen (19) predicted that the same factors which lead to a high threshold for stimuli of a given kind in tachistiscopic presentation operate when the stimulus is a Thematic Apperception Test (TAT) card. Support for his position was given in an experiment in which individual recognition thresholds for persons engaged in aggressive activities were related to responses to TAT cards highly cued for aggression. Eriksen found that where sensitization occurred for the aggressive slides, the TAT record was marked by stories openly aggressive in content. When perceptual defense characterized the response to aggressive slides, on the other hand, the stories seldom revealed direct aggression. The aggressive need was revealed, rather, by blocking, inaccurate interpretations, and unelaborated stories in response to TAT cards suggestive of aggressive interpretations. This finding lends support to Eriksen's contention that the TAT is likely to reveal directly only non-repressed needs, not those that are repressed.

Tomkins (46) believes that while the power of the TAT in circumventing the defenses that may operate in direct self-report measures is not to be denied, it is erroneous to assume that in the TAT, repressive forces are reduced to zero. In his view, by allowing the individual to achieve distance between himself and his characters the projective permits the weakening of defenses. If the subject is asked what he would do were he the person in the picture, responses are meager and guarded. When the remoteness of the picture in terms of the resemblance the characters bear to the subject

or the similarity of the situation to the subject's life situation is increased, repressive forces are reduced and the motive becomes more amenable to direct expression. Tomkins asserts that a summative need score may fail to distinguish individual differences in motives, since both the strength of the motives and the strength of the defenses will contribute to this score. More adequate judgments may be made by considering the circumstances under which the need is expressed: the more "remote" the circumstances, the more repressed the need. It follows that the use of "bizarre" or highly remote pictures may allow a better measure of repressed needs than will less remote pictures. It is interesting to observe that Tomkins' position deriving from a psychoanalytic approach is similar to that of investigators deriving hypotheses from the Miller (32) conceptualization of approach-avoidance conflicts. In each case the idea is stressed that a low emphasis on content of a given kind may imply either a motive of weak intensity or the presence of strong defenses against the motive. Both views further imply that the ordering of individuals in the strength of a motive based on TAT stories will be affected by the stimuli employed and the conditions under which the stories are written.

Other suggestions that low manifest content of a given kind does not necessarily reflect a motive of low strength have appeared with regularity in experimental studies of the effects of motivation on fantasy. Comparing stories written by two groups of subjects, one after the experimental arousal of sexual motivation, and the other under neutral conditions, Clark (13) found a reversal of the customary results. The aroused group wrote stories containing less manifest sexual imagery than the neutral group. An analysis of the symbolic expression of sexual motivation (15) indicated an increase between neutral and aroused conditions. These findings support the value of the Freudian distinction between manifest and latent meaning in their suggestion that the forces that operate against the

expression of motives are not silenced in fantasy. Clark's concluding comments, however gloomy, are difficult to deny:

> If the results and interpretations in this study are at all valid, it is going to be quite difficult to evaluate the strength of sex motivation for a given individual. This is true because apparently the amount of sex imagery appearing in a TAT protocol is a function of both the degree of sex arousal and the degree of guilt arousal. Thus two individuals could be operating at the same level of sex motivation but have entirely different TAT protocols because of differing guilt gradients that might well obtain for those individuals [13, p. 21].

Scott's (43) study of the fear of war catastrophe raises again the problem of evaluating a low score. In this study some subjects, while failing to write war-catastrophe stories to pictures independently judged as highly structured for war catastrophe, wrote stories involving that theme for one or more pictures judged less suggestive of war catastrophe. This pattern of responses cannot be explained on the basis of the approach tendency alone. If the approach motive is considered alone, it would be expected that when cue value is varied, responses will be scalar. This means that if the report of a critical event is the response to a weak stimulus, it should also be the response to the strong. To account for the lack of scalability among the responses for some subjects, Scott suggested that the avoidance motive may lead to the non-report of the critical event as a symbolic defense. The avoidance of painful content in fantasy is considered analogous to the physical retreat of an animal from a painful stimulus. Employing an argument based upon the Miller model for approach-avoidant conflicts, Scott states that the relative strength of the avoidant tendency as well as its absolute strength increases as the situational and picture cues increasingly resemble the conditions in which threat is maximized. In this formulation a decline in the number of themes occurring between a low-cue and a

high-cue situation implies the presence of strong avoidant tendency. Deriving his hypotheses from this conceptualization, Scott defined subjects who wrote war-catastrophe stories to one or more low-cue pictures and not to the high-cue picture as avoidant, and compared their stories with those of other subjects. The results indicated, as predicted, that avoiders showed evidence of greater fear than other subjects when they did write war-catastrophe stories, i.e., for these subjects there were fewer successful outcomes, fewer instances of problem-oriented activity, fewer stories in which the outcome was volunteered before the probe, and shorter protocols.

An investigation of the avoidance response in fantasy with regard to fear of competition was conducted by Scott (43) within the same theoretical framework. Considering the stories of subjects to whom the n Achievement measure had been presented under two conditions of arousal, he defined as failure avoidant those subjects who wrote more competitive themes under neutral than achievement conditions. When the competition stories of these subjects were compared with those of subjects not classified as failure avoidant, those of the former were found less often to be successful in outcome, less frequently scored for problem-oriented activity and for a competitive reaction to failure, and less realistic in the acceptance of the competitive situation. This experiment provides further evidence that fear may lead to an avoidance of painful thematic content. It suggests the interesting possiblity that a projective measure of the strength of avoidance motives might be based upon a decline in the amount of relevant content under conditions when an increase in that content would be expected.

Two other studies conducted before Scott's have similar implications for n Achievement. Martire (27) collected data from subjects under neutral and aroused conditions and related the patterns of scores to measures of level of aspiration and performance. He

found that subjects with n Achievement scores both above the median in neutral conditions and below the median in achievement conditions set realistic and wishful levels of aspiration below those of other subjects. Furthermore, only for this group was the wishful level of aspiration below the task performance later attained. Martire interprets the behavior of these subjects as indicating a strong motive to achieve and also a strong motive to avoid failure. The aspirant behavior of this group is seen as an attempt to maintain self-esteem. In another study in which neutral and aroused n Achievement scores were available for the same subjects, Lowell (25) found that a large increase in n Achievement between neutral and aroused conditions was associated with high grades. Martire's and Lowell's results thus also suggest that a decline in content relevant to a given motive under experimental arousal may represent a strong avoidance motive.

In each of these several studies stiuational or picture cues of two different strengths have been employed. The conclusion repeatedly has been suggested that a decline in content relevant to a given motive when situation or picture cues are structured to arouse that motive may imply that defenses against anxiety have been operative. The investigators in experiments with this implication have formulated hypotheses and conceptualized results in terms of the Miller model for approach-avoidance conflicts. This model states that in an approach-avoidance conflict situation, both tendencies increase in strength as a function of the similarity of the situation to the situation in which approach was rewarded and avoidance reinforced or, analogously, as a function of the spatial distance from the goal or pain-producing stimulus. Experimental evidence (32) leads to the further statement that the gradient of stimulus generalization is steeper for avoidant tendencies than for the approach tendencies. Results in a later study suggest an interpretation for this finding.

In the experiments dealing with approach-avoidance conflicts, approach was motivated by the hunger drive and avoidance by fear. These drives differ not only in the abient-adient character, but in the nature of the stimuli eliciting them. Hunger motivation is dependent primarily upon physiological factors which change relatively little as a function of external stimulus conditions. Fear motivation, on the other hand, is elicited largely by external stimulation and by cues produced by the approach tendency. The results in the Miller and Murray (33) experiment imply that it is this difference rather than the approach-avoidance character per se which is the distinguishing characteristic between drives differing in the steepness for the gradient of stimulus generalization.

In an unpublished paper Atkinson (2) has generalized the Miller model to a consideration of the phenomenon of perceptual defense. If it were assumed that the approach tendency, as represented by the recognition of the stimulus, and the avoidant tendency, as represented by the non-recognition of the stimulus, are equally dependent upon the stimulus, there would be no reason to expect that the two tendencies would vary in strength as a function of stimulus conditions. If, however, the arousal of the approach motive itself is assumed to produce anxiety and thus avoidant behavior, the relative strength of avoidant tendencies would be expected to increase as a function of the similarity to the conditions in which the conflict was learned. This assumption is based on the notion that the conflict developed when the person was punished for making the response. Later on, thoughts about the response would in themselves be sufficient to elicit anxiety. For example, if sexual or aggressive behaviors had previously been punished, these behaviors, or their representation in thought, would in the future tend to cue off anxiety and avoidance. Similarly, attempts at successful achievement which ended in failure would lead to anxiety

when the individual was placed again in a situation in which standards of evaluation were appropriate. The avoidance gradient, then is steeper than the approach gradient because avoidant tendencies are themselves evoked by anxiety elicited by approach behavior. Thus the level of approach motivation must reach some minimum level before anxiety is sufficiently aroused to bring about avoidant behavior.

The Miller model has been further extended to a consideration of the projective measurement of motivation. For example, Clark's (13) finding that manifest sexual imagery decreased between a neutral and an aroused condition was interpreted as showing that the arousal of sexual motivation led to an increase in anxiety and guilt and to a resultant avoidance of sexual content. Scott (43) showed that a decline in war catastrophe or competitive themes when stimulus conditions were manipulated to make such themes more likely was evidential of strong avoidant motivation. His theoretical formulation was grounded in the Miller model and in Atkinson's extension of that model.

In the experiments thus far reported a major concern has been with relating a decline in motivation score under increased arousal conditions to indices of anxiety. Other evidence suggests directly that a low motive score may be ambiguous in meaning, implying not simply a relatively low level of that motive but strong fear.

Atkinson (1) presented twenty paper-and-pencil tasks to groups of subjects under relaxed, task, and achievement instructions. These tasks were constructed so that half could be completed in the time allowed and the remainder could not be completed by most subjects in that time period. After the tasks were performed, the n Achievement measure was administered, and finally, subjects were asked to recall the tasks they had been given. The results showed that under achievement conditions high n Achievement subjects recalled more incompleted tasks than did low n Achievement

subjects. When a three-way break in n Achievement was employed, mid n Achievement subjects were shown to recall fewer incompleted tasks than other subjects. Under relaxed conditions, an opposite trend was observed, with low n Achievement subjects recalling more incompleted tasks than high n Achievement subjects, and when a three-way break was employed, the mids recalling more incompleted tasks than the highs and lows combined. Some problem in interpretation results from the fact that the conditions of TAT arousal and task arousal varied simultaneously. However, Haber and Alpert (22) later found that when the n Achievement measure was administered to the same subjects under relaxed and achievement conditions, the scores are significantly correlated and the relationship only slightly lower than for a comparable correlation between two relaxed administrations. This implies that it is the difference in conditions of task administration rather than conditions of TAT administration that account for the reversal of results. Atkinson interprets his findings for the achievement conditions as indicating that subjects low or moderate in n Achievement are motivated to avoid failure, while subjects high in n Achievement are motivated to attain success. In his words:

> When the goal is to experience feelings of success and personal accomplishment, then persistence of the interrupted activities in recall . . . is instrumental to the attainment of that goal. When however, the goal is to avoid feelings of failure, non-recall of past failures . . . is instrumental to the avoidance of renewed feelings of failure [3, p. 38].

The lack of correspondence in results between the relaxed and achievement groups is seen to occur because in the former group the achievement motive was not engaged, and thus task completion was not perceived in terms of meeting standards of excellence. Preferences for completed and incompleted tasks were related to

n Achievement in a manner which was similar to their recall in two experiments. In a study of the effects of interruption and failure on the attractiveness of tasks, Cartwright (12) found that some subjects raised their ratings of attractiveness after interruption while others lowered them. He observed that subjects showing the increase in attractiveness response seemed to have anticipated success at the time of interruption, while those evidencing the decrease seemed to have anticipated failure. He suggested that for the former subjects one could speak of a need for success, and for the latter, a need to escape failure. Atkinson (3) employed an attractiveness measure and found, as expected, that high n Achievement subjects more often rated interrupted tasks attractive than did low n Achievement subjects.

Other experimental studies are similar in implication. McClelland and Liberman (31), combining ranks on the n Achievement measure with performance on an anagrams task with which n Achievement was correlated, found that subjects high on this measure had lower thresholds for positive achievement words than did other subjects, while mid n Achievement subjects had higher thresholds for failure-related words. In this study the n Achievement measure was presented under neutral conditions and the recognition of words defined as a test of perceptual acuity. Reitman (38, 39) compared subjects differing in n Achievement score in recall of material of various content. His results are in accord with Atkinson's and compatible with McClelland's and Liberman's. When recall was not presented as measuring intelligence, subjects in the middle group in n Achievement recalled failure material better than other subjects. When recall was presented as "closely related to intelligence," subjects in this same group recalled failure material less well than other subjects. Reitman concludes that subjects moderate in n Achievement are

strongly motivated to avoid failure. He drew a parallel between these experiments and studies in perceptual defense. Under non-threatening conditions, failure-avoidant subjects are sensitive to failure material. When the relevance of recall to intelligence is made explicit, the material is a reminder of potential failure and is avoided in recall.

A study by Blum (10) provides conclusions similar to Reitman's. Blum's hypotheses derived from the psychoanalytic notion that sexual and aggressive impulses denied conscious expression by the ego continue to seek an outlet in conscious behavior. When these impulses begin to reach awareness, the ego is alerted and acts to ward off impulses which, if recognized, would elicit anxiety. Thus selective vigilance is expected to operate at a level below conscious awareness, while perceptual defense is expected to occur when impulses begin to enter conscious awareness. Blum found, as predicted, that when stimuli were presented at a very rapid speed, subjects reported presumably traumatic stimuli as standing out more clearly than non-traumatic stimuli. When the slides were presented at a much slower rate and subjects were instructed to locate particular pictures, the critical stimulus was less often correctly identified than were the neutral stimuli. It is of interest to note the parallel between Blum's approach and that of investigators working from a Miller model of approach-avoidance conflict. In each case the "approach motive" is seen to be relatively strong under levels below consciousness or under conditions minimally suggestive of threat. The avoidance motive becomes relatively strong under increased awareness or under conditions maximally suggestive of threat because the avoidance motive is itself in part a product of the beginning of awareness or approach behavior. This view is more fully developed by Dollard and Miller in their discussion of approach-avoidance conflict (17).

Evidence in several studies that low or moderate n Achievement may be characteristic of persons highly motivated to avoid failure has led to a consideration of other differences that occur in

the n Achievement stories written by these and other subjects. There have also been several studies in which the n Achievement stories of subjects classified independently as failure avoidant and non-failure avoidant have been compared. In these studies differences in emphasis on positive and fear content have assumed central importance. The findings in these studies do not merit firm conclusions. In some cases failure-avoidant subjects have tended to write stories in which fear content was strongly present and positive content relatively absent. In others, the opposite trend has been observed. The crucial question of the conditions under which the projective itself may yield results indicating a defensive avoidance of fear content and a wish fulfilling emphasis on positive content have not been defined.

In the study mentioned above, McClelland and Liberman (31) found that subjects in the middle group on a combined index of n Achievement and performance had higher thresholds for the recognition of failure-related words than other subjects. This finding inspired a comparison in the frequency of anticipations of success (Ga+) and anticipations of failure (Ga-) occurring in the achievement stories of each group. The authors concluded that moderate n Achievement subjects wrote stories more negative in quality than other subjects. However, the tentative nature of this finding must be emphasized. The authors did not state why the Ga+ and Ga- categories were selected in preference to all categories clearly negative or positive in nature. Furthermore, an inspection of the table from which the conclusion is drawn suggests that the interpretation is questionable. The occurrence of Ga- categories increases as n Achievement increases, a result that would be expected for all categories. The number of subjects in the middle ranges for whom one or more anticipations of failure occur is greater than for the highs. But it is the <u>lows</u> who write stories in which the <u>relative</u> preponderance of positive over negative anticipations

is smallest. It appears that the evidence that moderate n Achievement is associated with negative content in n Achievement stories is limited.

Moulton (34), in an analysis of Atkinson's Zeigarnik data, developed a measure of the motive to avoid failure. In the scoring system resulting, the criteria for fear imagery included both statements of indications of poor performance or difficulty in achievement activity and also statements indicating that a character desired to leave a situation in which evaluation might take place. Additional subcategories, many of which derive from the negative categories in the n Achievement system, were scored in stories meeting one or more of the criteria. Moulton used as one measure of the motive to avoid failure low absolute recall of incompleted tasks. A second measure was a low ratio of recall of incompleted to completed tasks. He found both measures were related to low n Achievement and to high f Failure in the achievement condition. Failure-avoidant subjects, defined by the Zeigarnik measure, also wrote stories in which f Failure scores were high relative to Hope of Success score, an index composed of the positive categories of the n Achievement system, with the addition of the imagery, thema, and nurturant press categories. This investigation supports the idea that subjects motivated to avoid failure write stories in which direct fear statements appear frequently and positive categories occur relatively infrequently. Moulton remarks that since in developing the scoring system, he was aware of the recall pattern for his subjects. cross validation is necessary to permit firm conclusions.

Other investigations raise the question of whether or not the scoring system developed by Moulton yields under varying experimental conditions an ordering of subjects in the strength of the motive to avoid failure. Of particular interest is a study in which Moulton collaborated with Raphelson (37). These experimenters present the n

Achievement measure and the Mandler-Sarason Test Anxiety Questionnaire after task administrations which varied in the degree to which anxiety was aroused. In the relatively low anxiety situation, which is seen as comparable to the achievement condition employed in n Achievement research, the subject was provided with information which made it possible to know when an error was made. In the high anxiety situation there was no information concerning the correctness of a response. Raphelson and Moulton advanced the idea that the amount of anxiety in a situation is a negative function of the amount of information available. The most interesting finding from the point of view of this discussion is the reversal of relationship which occurred between conditions. In the low anxiety (normal-achievement) condition, Test Anxiety was negatively related to n Achievement and Hope of Success and positively related to f Failure. This result is similar in implication to the Moulton study, although a different measure of the motive to avoid failure was employed. In the high Anxiety group, on the other hand, Test Anxiety was unrelated to n Achievement and Hope of Success and negatively related to f Failure. If it can be assumed that Test Anxiety scores do not order individuals differently as conditions are altered, it follows that the relationship between Test Anxiety and the character of TAT content changes as a function of the conditions under which the projective is administered. The authors concluded that subjects customarily anxious about quality of performance (i.e., high in Test Anxiety) under highly stressful conditions become concerned with relief and as a result write stories in which a defensive emphasis on goal imagery and an avoidance of threatening content occur. Subjects low in Test Anxiety, on the other hand, are not anxious in a normal achievement condition but under extreme stress evidence anxiety which is directly expressed in a high concern with the avoidance of failure and little concern with positive achievement.

The Raphelson-Moulton (37) study is disturbing in its clear implication that the experimental conditions influence not only the general level of n Achievement score but also the ordering of subjects in n Achievement. It is, however, reassuring that under normal arousal procedures an independent measure of the motive to avoid failure is related positively to f Failure and negatively to n Achievement and Hope of Success. The implication is that defensive avoidance of failure material and emphasis on positive material occurs only when experimental conditions are highly stressful.

The findings in an experiment by Clark, Teevan, and Riccuiti (16), however, bring this conclusion into doubt. Although the n Achievement measure was administered under neutral conditions in this experiment, the results showed that failure-avoidant subjects, defined by level of aspiration measures, wrote stories relatively high in positive content and relatively low in negative content. The measure of level of aspiration was a composite score based upon a series of questions administered immediately before a final examination. A stronger concern with achieving success than avoiding failure was indicated if the subject, in order to avoid the examination, would not accept a grade much lower than the one he thought he could realistically expect, if the range of grades that could reasonably be expected was small, if the expected affect associated with the grade he would accept to avoid the examination was relatively high, and if the range in affect between the maximum grade he could expect and the grade he would "settle for" was small. Subjects were defined as hopeful of success, fearful of failure, or intermediate in terms of these questions. Subjects in the three groups were compared in total n Achievement score and in the number of positive and negative scores per achievement story. The n Achievement scores were significantly higher for the intermediate group than for the hope-of- success and fear-of-failure groups. This intermediate group also wrote stories in which negative categories occurred with relatively high frequency and positive categories with relatively low frequency. The

authors interpret their results in terms of McClelland's (38) treatment of the effects of the intensity of motivation on goal and deprivation imagery. In this view as the intensity of motivation increases, goal imagery first decreases and then again increases in a defense stage when reality becomes painful. Deprivation imagery, on the other hand, at first increases and then under extreme levels of motivation decreases as a means for reducing anxiety. Clark, Teevan, and Riccuiti argue that while the hope-of-success and fear-of-failure subjects wrote similar stories, i.e., stories low in n Achievement in which positive categories were emphasized and negative categories avoided, they are only phenotypically similar. The hope-of-success subjects are seen as high in a positive motive as the manifest scores would suggest. The fear-of-failure subjects, on the other hand, are considered to be exhibiting defensive behavior on the TAT, as the result of a high level of anxiety or fear.

Atkinson (4) suggests an interpretation alternative to that of the authors in terms of his risk-taking model. Prior research (24) had implied that persons for whom anxiety about failure was characteristic selected levels of aspiration either defensively low or unrealistically high. Subjects not considered anxious about failure, on the other hand, tended to set levels of aspiration in the middle ranges. Atkinson's (4) model develops a theory of goal-setting behavior which states that tasks of intermediate difficulty maximize both avoidant and approach motivation. Experimental support is given to this theorizing. The probability of success was manipulated by varying the number of persons competing to receive a monetary prize. As expected, the level of performance increased at first, reached a maximum at the intermediate probabilities, and then decreased. If level of performance is accepted as a measure of strength of motivation, it follows that motivation is greatest when the probability of success is in the intermediate ranges. Further evidence is offered by findings concerning probability preferences. In an experiment in which expected value was held constant (4), it was shown that high n Achievement subjects

more often preferred intermediate bets (4/6, 3/6, 2/6), while low n Achievement subjects more often preferred extreme bets (6/6, 5/6, 1/6). This is consistent with expectations since high n Achievement subjects are considered relatively high in approach motivation and low n Achievement subjects as relatively high in avoidant motivation. Tasks in the intermediate ranges are preferred by the former because it is for these tasks that positive motivation is at a maximum. These same tasks are avoided by the low n Achievement subjects, since avoidant motivation is maximized for tasks intermediate in difficulty.

Atkinson's interpretation of the Clark, Teevan, and Riccuiti results rests upon this model. The "intermediate group" in this experiment is composed of those subjects for whom the approach motive should be highest. This view is supported by the high n Achievement scores of these subjects. The model does not, however, explain why subjects in the intermediate ranges wrote stories in which many negative categories and few positive categories were scored. To interpret this result Atkinson argues that the character of the stories is of necessity a function of the character of the pictures employed. Since the pictures used were essentially negative in character, i.e., elicited more negative than positive categories for the entire group of subjects, it would be expected that high n Achievement would tend to be associated with high negativity. This is simply because elaboration of competitive themes to such pictures would force content relating to failure. The tenability of this argument cannot be evaluated without further experimentation in which pictures are varied along the positive-fear dimension. However, if the argument is valid, it follows that the motivational meaning of positive and negative emphasis may well change as a function of the pictures employed. The pictures customarily utilized in n Achievement research evoke more positive content than negative content. Thus any evidence that high n Achievement subjects wrote stories in which positive categories predominate over negative categories is open to criticism on the same grounds as the Clark, Teevan, and Riccuiti experiment.

While Scott's (43) fear-of-competition study was not directly concerned with the positive and negative character of stories written by subjects defined as failure avoidant or non-failure avoidant, some of his results are relevant to this problem. It may be remembered that in this study subjects who wrote more competition stories under neutral than under aroused conditions were classified as failure avoidant. Findings indicate, as predicted, that these subjects showed greater anxiety about competition than other subjects on a variety of projective indices. The only result directly related to the positive or negative emphasis in stories was that the competition stories of failure-avoidant subjects were less likely to terminate in success. This single result is in accord with that of Moulton in that failure-avoidant subjects show less positivity in their stories than non-failure-avoidant subjects. Another result in the Scott thesis is, however, contradictory to this position.

In order to test the hypothesis that failure-avoidant subjects would be less likely than other subjects to react competitively to failure, Scott had first scored all competition stories for the presence of failure at any point in the story. As Scott pointed out, temporary failure could appear in any story whatever the eventual outcome. The hypothesis that failure-avoidant subjects less often than other subjects react competitively to failure was upheld. Another finding, with which Scott did not deal, emerges from an inspection of the reported results (43, p. 53). Two separate sets of data analyzed by Scott in his fear-of-competition study were referred to as "Study A" and "Study B." The proportion of competition stories in which failure was introduced by the subject may be compared for failure-avoidant and non-failure-avoidant subjects in each study. In Study B, in 52 per cent of the avoiders' stories and in 47 per cent of the non-avoiders' stories, failure was introduced. The resultant

chi-square for this group has a probability of .80. In Study A, on the other hand, in 12 per cent of the avoiders' stories some mention was made of failure while the comparable figure for the non-avoiders was 46 per cent. For this group the significance level for the chi-square was between .05 and .02. Study A, in other words, showed that failure-avoidant subjects were less likely to introduce failure into competition stories than were non-failure-avoidant subjects. While this result occurs in only one of the two studies, Scott's results for Study B were generally inconclusive. The important consideration is that the significant result suggests that failure-avoidant subjects may avoid threatening material in the projective itself. This finding is compatible with Scott's theoretical position which states that the avoidance of a threatening event in fantasy will characterize individuals who are most fearful of that event. It is also consistent with the findings of Clark, Teevan, and Riccuiti if the extreme groups in level of aspiration are considered to be relatively fearful of failure. It was these subjects who wrote stories in which negative content was relatively low.

The research outlined in the preceding pages does not prove encouraging to those who prefer consistency and clarity in an area of investigation. The meaning of a low score in several measures of motivation remains ambiguous. With regard to n Achievement, which shall concern us in this paper, there is more confusion than with other motives, ironically, perhaps, because there has been more research. That low n Achievement cannot be considered merely indicative of an achievement motive of relatively low intensity appears quite likely, in the light of the studies of Atkinson (1), and Clark, Teeven, and Riccuiti (16). However, to consider a low score as reflecting a weak motive to avoid failure seems equally unsatisfactory. It is possible that low n Achievement score does not allow distinguishing between

persons with a relative lack of concern with excellence of performance and persons with a strong motive to avoid failure. A satisfactory answer to the problem is made more difficult by the fact that low positive achievement motivation and high fear motivation would be expected to relate in identical fashion to many behavioral indices, e.g., persistence and quality of performance. In a recent study Atkinson and Litwin (8) assumed n Achievement to be a measure of the approach motive and Mandler-Sarason Test Anxiety score, a measure of the avoidance motive. They predicted that subjects low in n Achievement and high in Test Anxiety would spend less time on the final examination, score lower on that same examination, and set either very high or very low levels of aspiration. These hypotheses were upheld. When subjects were simultaneously classified on both variables, predictions were in each case improved over those based on a single variable. These results do not, however, necessarily support the assumption that n Achievement score measures only the strength of a positive motive to achieve success. Precisely the same results would be expected if n Achievement were inversely related to a motive to avoid failure.

A possible solution to the problem of distinguishing between a strong motive to avoid failure and a weak motive to achieve success is suggested by the experiments deriving from the Miller model for dealing with approach-avoidance conflicts. These experiments and the model itself imply that a measure of the motive to avoid failure might be developed by examining the changes in thematic content that occur when situational or picture cues are manipulated. A decline in n Achievement scores between neutral and achievement conditions or a lower score for pictures of low cue value than of high cue value would be expected to be indicative of fear of failure. The validity of this proposition may most readily be tested by measuring the motive to avoid failure independently of the projective and

determining whether the predicted decline occurs for subjects classified as high in the motive to avoid failure.

The problem of the circumstances under which persons highly motivated to avoid failure will write stories in which content directly concerned with fear predominates and those under which they will write stories in which such content is relatively absent has not been solved. Findings in studies dealing with this problem are most clearly characterized by contradiction. In some studies subjects presumed to be failure avoidant appear to write stories in which negative content is higher and positive content lower than for other subjects. The contrary conclusion is suggested by other studies. Problems of interpretation are multiplied by the fact that the studies from which the conclusions are derived vary widely. The independent measures to avoid failure have differed from experiment to experiment as have the conditions of administration, the pictures employed to elicit the stories, and the projective indices themselves.

In this dissertation an attempt is made in two different studies to deal with the problems suggested by the present confusion. In the first study subjects were independently classified as high or low in the motive to avoid failure on the basis of four different indices similar or identical to those employed in the earlier studies. The n Achievement measure was presented under neutral and aroused conditions, with the same six picture measures employed in each case. These pictures, on the basis of other research (22) have been defined as high cue and low cue with regard to achievement. Several different projective indices which have been used in earlier studies were computed for each subject. The hypothesis suggested by the Miller model, that failure-avoidant subjects will evidence a decline in n Achievement and f Failure when situational and picture cues are made increasingly relevant to an evaluation of performance, was

tested. Furthermore, differences in content of stories under two conditions of arousal for subjects high and low in the motive to avoid failure were considered in order to determine the nature of the relationship and to test whether the relationship differs as a function of arousal conditions.

The second study was not initially intended to be included in this dissertation. It was suggested by the findings in the first study. The concern in this second study was with investigating the relationships obtaining between Mandler-Sarason Test Anxiety scores and several projective indices based on stories written under achievement conditions. In this second study verbal descriptions of persons in achievement, failure, and undefined conditions were the stimuli eliciting the stories. Evidence in the first study suggested that verbal cues might be employed in preference to picture cues when it was desired to vary systematically the quality of stimuli eliciting stories. In the second experiment relationships between Test Anxiety and projective scores derived from stories written in response to different kinds of verbal stimuli were investigated. The purpose in employing verbal cues of different quality was to determine whether thematic content of stories written by persons high and low in the motive to avoid failure differed as a function of the eliciting stimuli.

CHAPTER II

THE FIRST EXPERIMENT

The purpose of this experiment was to investigate the relationship between several independent measures of the motive to avoid failure and a number of projective scores derived from stories written in response to TAT-like pictures. In order to determine whether the nature of these relationships varied with the conditions under which the projective was administered, two experimental conditions were utilized for its presentation, the neutral and achievement conditions traditionally employed in this research (29). Attention was also directed toward a consideration of changes in projective scores occurring between conditions for subjects classified as high or low in the motive to avoid failure. The administration of the independent measures, unlike that of the n Achievement measure, was achievement-oriented for all subjects. Subjects for whom the n Achievement measure was presented under neutral and aroused conditions were assigned at random to each of the several achievement-oriented groups for the presentation of the independent measures.

The Subjects

Students in the first course in psychology are required to serve as experimental subjects. Since this task may be avoided only by writing a long paper, the very large majority of students do

in fact participate in the research program. For the present experiment ninety-nine psychology students were subjects. Because it was desirable to augment this number, volunteers from freshman NROTC classes were recruited. This recruitment was carried out with some reluctance in the light of evidence that volunteers are higher in n Achievement than unselected subjects (11). Thirty-six NROTC students participated. Of the total 135 subjects, 70 were assigned to the neutral group and 65 to the achievement-oriented group. The neutral group was composed of fifty-five psychology students and fifteen NROTC men, and the achievement group, of forty-six psychology students and nineteen NROTC men. All subjects were male.

The Administration of the N Achievement Measure

The n Achievement measure was administered in six different sessions, three of which were neutral in orientation and three, achievement-oriented. These orientations differed in two respects. In the neutral groups the measure was presented by a graduate student, while in the achievement groups it was administered by one of two faculty members.[1] In the achievement groups the TAT was preceded by a series of problems earlier employed by Riccuiti and Clark (40). In this test the subject is to find one or more simple figures embedded in each of twelve complex figures. Since it was thought that the intrinsic quality of the task would arouse achievement motivation even in the absence of test

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[1]The writer is indebted to Prof. J. W. Atkinson and Prof. R. W. Heyns for conducting the achievement groups and to Dr. W. R. Reitman for conducting the neutral groups.

instructions, it was not presented in the neutral groups. The statements preceding the task were similar to those employed by Atkinson (1) and were as follows:

> During the war years psychologists were called on to develop many different kinds of tests in order to select people with high executive capacity, intellectual alertness, the capacity for making quick decisions, and leadership. This afternoon (or evening) I am going to give you a test in order to compare your scores with those of other college students. First of all will you write your name, your code number, and your grade-point average at the University on the front sheet of the test. Do not open the test. Now read the instructions. (Pause.) Are there any questions? You will have ten minutes after I give the signal to complete the test. Your work will be interpreted as representing the full extent of your ability to do your best.

In the neutral groups, when the subjects were seated, and in the aroused groups, after the time given for the task had expired, a six-picture measure of n Achievement was administered. Each of six slides was projected upon the screen for twenty seconds. Immediately after the presentation of each slide the subjects wrote a story suggested to them by the picture. The instructions employed and the questions used to aid in structuring the stories were identical to those described in the Achievement Motive (29).

The pictures employed and their order of presentation were identical for all groups. A description of each slide, together with the identification number from Motives in Action, Fantasy, and Society (6) is given below:

1. "Cub reporter scene": older man (standing) handing papers to a younger man. (4)
2. Two men ("inventors") in a shop working at a machine. (2).

3. Boy watching large airliner. (25)
4. A pioneer chopping down a tree for a cabin. (98)
5. A foot-racer on his mark preparing to start. (96)
6. Boy in checked shirt at a desk, an open book in front of him. (8)

In order to test several hypotheses in this experiment, it was necessary to select three pictures independently judged to be highly cued for achievement motivation and three judged to be of low cue value.

The pictures were selected from those which Haber and Alpert (22) had rated as high or low cue in terms of three criteria. High cue pictures elicited stories scored for achievement imagery from at least 75 per cent of the subjects. Low cue pictures elicited achievement stories from between 25 per cent and 50 per cent of the subjects. Different subjects made ratings of pictures. In a series of paired comparisons judges selected the picture more suggestive of the motive described in the scoring definition of n Achievement. Pictures classified as high or low cue by all judges satisfied the second criterion. In a second rating task, judges were asked to decide with what goal the persons pictured were most likely to be concerned. Seventeen "concerns," of which seven were related to achievement, were presented. Only those pictures for which the three concerns judged most appropriate were achievement-related were accepted as either high cue or low cue. For the present study three of Haber and Alpert's high cue pictures and three of their low cue pictures were selected. Three pictures had been used extensively in n Achievement research and were chosen for this study in order to provide direct comparisons with other research. The remaining pictures were selected so that they did not duplicate the specific content in the others, e.g., only one athletic event and one scientific situation appeared. Pictures presented in ordinal positions one, four, and six

are the low cue pictures, while those in positions two, three, and five are high cue pictures.

The Administration of the Task-Attractiveness Measure

One measure of the motive to avoid failure, which will be discussed later, was the change in task attractiveness before and after the tasks were performed. In order to establish pre-task attractiveness judgments, at the end of the first hour the writer was introduced by the experimenters as "the experimenter in another study in which many of you will participate." Booklets containing the tasks were distributed. The subjects were instructed to look through the problems, and without solving them, to indicate which five tasks they would most enjoy working on and which five they would least enjoy working on.

The Scoring of the Projective Measure

While several projective scores were computed, only two required independent coding. These were n Achievement and f Failure. In the scoring for both motives, stories for each picture in both the neutral and achievement groups were randomized. The protocols were scored for n Achievement by the writer, whose reliability using the system had been established. Stories were coded for f Failure by the author of that system.[1] Other indices which had been used in earlier research were computed. Two parallel scores were the

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[1]The writer wishes to thank Dr. R. W. Moulton for scoring the protocols.

number of "goal imagery" categories (successful instrumental activity, anticipations of success, and positive affect associated with success) occurring for each n Achievement story and the number of "deprivation categories" (unsuccessful instrumental activities, anticipations of failure, negative affect associated with failure, and blocks within the individual or in the environment which impede goal attainment) occurring for each n Achievement story. These indices were employed by Clark, Teevan, and Riccuiti (16) in the study discussed earlier. Another index was the proportion that the positive categories formed of the positive and negative categories combined. This score was a measure of the relative positive quality of the stories.

Additional scores were based upon both the n Achievement and f Failure scoring systems. A Hope of Success score, composed of the "goal imagery" categories, the imagery category itself and nurturant press and thema, was computed. This measure was defined by Moulton (34) as a refined measure of positive motivation. A net Hope score consisting of Hope of Success score minus f Failure score was also computed. These scores were used by Moulton (34) and by Raphelson and Moulton (37) in their research.

In summary, three indices of content concerned primarily with positive statements were employed (n Achievement, Hope of Success, number of positive categores for each n Achievement story), together with two indices of failure content (f Failure and number of negative categories for each achivement story), and two indices of relative positive emphasis (positive categories divided by the positive plus the negative categories and net Hope).

The Administration of the Independent Measures

The four independent measures of the motive to avoid failure were administered several days after the n Achievement measure. Subjects for whom the TAT administration had been neutral and those for whom it had been achievement-oriented were assigned to each of the eight different experimental hours. The procedure was identical in each of the groups. Since the testing of hypotheses required that scores on the independent measures be comparable for subjects tested in both the initial neutral and aroused group, it was necessary that differences in the first experimental hour not carry over into the second. An attempt therefore was made to dissociate the two administrations and to create the impression that there were two separate experiments. To this end the writer served as experimenter in the second hour. It may be recalled that she had been introduced at the close of the TAT administration as "the experimenter in another study in which you will participate." It was also for the purpose of dissociating the two testing sessions that an interval of several days separated the two parts of the experiment. The administration of the independent measures was achievement-oriented, since a successful arousal was required for two of the independent measures. The instructions employed are reproduced below:

> You are undoubtedly aware that an area of considerable interest to psychologists is the measurement of intelligence. Tests of intelligence are used extensively at present to select students for college and for graduate and professional training. They are also used in the armed services and in business organizations in order to select men who will be likely to succeed in high-level positions. That these tests have value is demonstrated by the fact that persons scoring high in tests of

intelligence are likely to perform better in a variety of academic and professional activities than are persons scoring low on the same tests. Although the usefulness of present tests has been established, the attempt to develop better ones continues. With the increased number of university applicants, it becomes increasingly important to devise tests that will differentiate between persons who are qualified for college training and those who are not. This afternoon (or evening) I am going to give you a series of tests which may be similar to tests you have taken earlier. I will distribute the test material. First of all, without unclipping the tests, will you write on the top blank sheet your name and your code number. Then indicate your grade-point average at Michigan and if you know your I.Q., please indicate that as well. There will be several different tasks. Please be sure that your name and code number are written on each of these separate tests when we come to them. The purpose in giving these tests is to compare your scores with those of other college students. Your work will be considered as representing your best efforts, so do as well as you can.

Let me mention a few ground rules. Do not turn a page backward or forward until you have been instructed to do so. Do not communicate with anyone else. We want a measure of your individual performance. Do not ask questions while the tests are going on. Follow instructions as best you can.

(The test material and pencils were distributed.)

The first task is a test of memory, of your ability to remember. Memory is closely related to intelligence, as is evident from the importance of this ability to perform on such I.Q. tests as the Stanford-Binet. Doing well on this memory test requires both creative and organizing ability. Your score will be considered a valid and full indication of your ability.

I will read two short stories, one immediately following the other. Your task is to remember both these stories as well as you can so that you can recall them in about thirty minutes.

(The stories were read aloud by the experimenter.)

Turn to the next task which concerns gambling preferences. Read the instructions to yourself and then make your choices.

(The betting preference measure was administered.)

The next measure in your folder includes a series of tasks, each of which will be timed. I will keep time and tell you when it is time to go on to the next problem. Remember,

do not turn backward or forward. Work as rapidly and accurately as you can. Both of these factors are equally important in determining your final score.

(Sixteen of the tasks employed by Atkinson (1) were presented. One minute and fifteen seconds was allowed for each task. At the end of this time period for each task the signal was given to "go on to the next page.")

About thirty minutes ago I read two stories which you were asked to recall. Now you are asked to demonstrate your ability to recall these stories. You will have two minutes to recall what you can of the first story. At the end of two minutes, you will have an additional two minutes to recall all you can of the second. When I give the signal begin to write the first story on the first blank sheet provided. (After two minutes had elapsed.) Now write all you can remember of the second story on the second blank sheet. (After two minutes.) Stop writing.

Now please take the short booklet of tasks. Now that you have worked on these tasks I would like to know which ones you like best and dislike most. Write "L" or "like" on the five tasks you most prefer and "D" or "dislike" on the five tasks you least prefer.

Finally please take the folder entitled "Questionnaire about Attitudes toward Tests." First read the instructions and then answer Part III of the questionnaire—that part which concerns attitudes toward taking a course examination.

(Subjects were thanked for participating in the experiment, and test materials were collected.)

Selection and Scoring of Independent Measures

In selecting independent measures of the motive to avoid failure to represent the theoretical variable, one must assume that these measures are themselves valid. Unfortunately measures in which faith can be absolute or even confident do not exist. Therefore, the task of selection is reduced to choosing those measures which, on the basis of empirical findings, seem most satisfactory. We chose to employ four measures.

It was the hope that these measures would themselves be related and that a composite score based on several would yield a score which would be more reliable and more valid than any single one. A review of the literature revealed several measures which might be seen as concerned with the motive to avoid failure. Of the possible alternatives four were selected. The empirical validity of all of the scores is in part based upon relationships to n Achievement. This in itself was unfortunate in that the hypotheses themselves include several concerning n Achievement. However, each measure employed, on theoretical grounds, would be expected to relate to the motive to avoid failure. The rationale for the choice of each measure and the scoring method employed is reported.

The Reitman memory measure

This measure is based upon the differential recall of failure-relevant and control material when recall is presented to subjects as measuring intelligence. Reitman (38, 39) found that subjects falling in the middle ranges in n Achievement recalled failure material significantly less well than other subjects when recall for the material was introduced as an ability test. When the stated purpose was to demonstrate changes in recall that occur over time, the moderate n Achievement subjects recalled more of the failure material. For material irrelevant to achievement there was no relationship between memory score and n Achievement. The interpretation offered by Reitman is analagous to that for perceptual defense. Under conditions minimizing threat, threatening stimuli will tend to be readily perceived by anxious subjects. When, however, threat is maximized, defenses are alerted and perception of stimuli relevant to threat impeded for anxious subjects. In the present study Retiman's measure has been utilized. At his suggestion

one story irrelevant to achievement and a second concerned with disastrous failure were employed and were presented under achievement conditions. Recalling less failure material than control material is taken to reflect motivation to avoid failure.

The stories selected for the recall measure were among those used by Reitman in his experiments, and his scoring method was utilized. Each story was scored twice, first for "verbatim recall," the recall of words and exact details of the original text, and second for "gist recall," the recall of the major thematic units. A total score for each story was computed by scoring each "verbatim" unit one point and each "gist" unit two points. The writer first scored material which Reitman had coded and discussed disagreements with him. Scoring for the present study was done by the writer. Two weeks later the stories of thirty subjects were selected at random for each story and recoded. Rank-order correlations indicated a reliability of .92 for the failure story and .90 for the control story. Scores for each story were standardized and difference scores representing relative preferential recall for failure material computed. Subjects recalling relatively more control material were considered to be high in the motive to avoid failure and subjects recalling relatively more failure material, low in the motive to avoid failure.

Task attractiveness measure

A series of sixteen tasks, half of which were usually completed in the allotted time period and half of which were not, were presented under achievement conditions. The motive to avoid failure was defined as the assignment of relatively higher attractiveness ratings to tasks which had been completed than to tasks which

were not. The selection of this measure derived from experimental findings of Cartwright (12) and Atkinson (3). In the Cartwright experiment ego-involvement was induced, and some of the tasks presented were interrupted before completion. After interruption, while some subjects lowered ratings of attractiveness for incompleted tasks, others raised ratings for incompleted tasks. Interviews with subjects at the close of the experiment suggested that an increase in the liking of incompleted tasks characterized persons who had anticipated a successful solving of the tasks, while a decrease was characteristic of persons who had anticipated failure. Cartwright concluded that a theory of failure must account for both increases and decreases in attractiveness.

Atkinson's experiment suggests that individual differences in the strength of the achievement motive may result in these different modes of reaction. After the subjects had worked on twenty paper-and-pencil tasks under achievement instruction, they were asked to select the five tasks which they liked best. The results showed that more high n Achievement than low n Achievement subjects preferred more incompleted than completed tasks.

These results are compatible with Atkinson's other finding that more incompleted tasks are recalled by subjects high in n Achievement than subjects low in n Achievement. Atkinson reviewed the early Zeigarnik studies and research dealing with the recall of completed and incompleted tasks, reinterpreting the findings to show that preferential recall of incompleted tasks is instrumental to feelings of success, and preferential recall of completed tasks is instrumental to the avoidance of feelings of failure. This argument and the results from which it was derived led to selecting, as one

measure of the motive to avoid failure, the comparative attractiveness ratings for completed and incompleted tasks.

It was the intention to base a scoring definition for this variable on the change in attractiveness occurring for incompleted and completed tasks before and after the tasks were performed. To this end, at the close of the first hour of the experiment, subjects were asked to leaf through a booklet in which the tasks were presented, and without performing the tasks, to select the five tasks they liked best and the five they disliked most. In this booklet all tasks were presented in their short form, in order that ratings not be influenced by differences in the difficulty. These initial ratings were made so that the effects of interruption on ratings of task attraciveness could be determined for each subject. Eight of the sixteen tasks were to be presented in a long form and the remaining eight in a short form. This procedure was employed so that each subject would complete about half of the problems. The measure of the motive to avoid failure involved differential change in attractiveness in the pre- and post-administration ratings.

In order to make movement in either direction approximately equal for incompleted and completed tasks, we wished that the intrinsic attractiveness of tasks to be completed and interrupted be similar. To accomplish this the pre-performance task attractiveness measures were considered for those subjects tested on the first day. Tasks were rank ordered in the preponderance of "like" judgments over "dislike" judgments and the mean rank order of preference equated for tasks later to appear in the long and short form. In the administration of these tasks four different serial orders were determined at random with the single restriction that,

for each serial position, two of the tasks would be long and two short. This method was used in order that as each subject failed to complete a task, he would observe others succeeding.

A change in attractiveness score was computed for each subject who completed between six and ten tasks. The measure of relative attractiveness for incompleted tasks was

$$\left(\frac{\text{Number interrupted tasks preferred}}{\text{Number interrupted tasks}} + \frac{\text{Number completed tasks disliked}}{\text{Number completed tasks}}\right) - \left(\frac{\text{Number interrupted tasks disliked}}{\text{Number interrupted tasks}} + \frac{\text{Number completed tasks liked}}{\text{Number completed tasks}}\right)$$

This index was computed for each subject for ratings made before and after performance. The change measure subtracted the post-task score from the pre-task score. A negative score meant that interrupted tasks declined in attractiveness after the subject actually worked on the problems. Unfortunately there was a general tendency for tasks which were not completed to decline in attractiveness relative to completed tasks. In this comparison, as in all other analysis of data, NROTC subjects have been excluded for reasons which will be explained in the next section. For the seventy-seven psychology students who completed the required number of tasks and for whom data was complete, this pattern of change occurred for 74 per cent of the subjects with 9 per cent showing no change and the remaining 17 per cent, an increase in relative attractiveness for incompleted tasks. It had been intended to define as failure avoidant those subjects for whom the relative attractiveness

of incompleted tasks declined after the problems were administered. However, the small proportion of subjects raising the attractiveness ratings of interrupted tasks rendered this unfeasible. Alternatively it was decided to divide change scores at the median and to define as failure avoidant those subjects for whom the relative decline in attractiveness of incompleted tasks was greatest. Initial ratings and the amount of change were strongly associated. In the ratings preceding performance, subjects had selected from the sixteen tasks the five most liked and the five least liked. These initial ratings restricted the possibility of change. For example, if a subject has "liked" five tasks which he later failed to complete, these tasks could not increase in attractiveness. If, on the other hand, he had "disliked" five tasks which he failed to complete, these tasks could not decrease in attractiveness. Since degree of change was strongly associated with ratings of intrinsic attractiveness, the relative change measure was also reluctantly abandoned and the post-performance score substituted. It is obvious that these ratings are also contaminated by individual preferences based on the intrinsic qualities of the task. However, it seemed wiser to adopt this solution than arbitrarily to devise a change measure which would be no less suspect. Relatively higher attractiveness ratings for completed than for incompleted tasks was taken to define a strong motive to avoid failure.

The betting preference measure

The third measure of the motive to avoid failure is based upon individual differences in preferences for risks varying in the probability of winning and identical in expected value. Atkinson (4) presents a theoretical model from which he deduces that risks with intermediate probabilities of winning should be preferred by persons for whom the motive to achieve success is stronger than the motive

to avoid failure while risks with very high or very low probabilities of a win would be preferred by persons for whom the motive to avoid failure is relatively stronger.

In the model the strength of motivation to perform an act is a multiplicative function of the strength of an individual's motive, the expectancy (subjective probability) that the act will result in the attainment of the incentive and the perceived value of the incentive. For achievement motivation, expectancy is defined as the subjective probability of success. Incentive is assumed to be a positive linear function of difficulty, i.e., the more difficult the task, the more satisfaction is experienced when it is successfully performed. The degree of aroused achievement motivation for a given individual is greatest when the product of expectancy and incentive is at a maximum, i.e., when the subjective probability of success is .5.

For the motive to avoid failure, expectancy is defined as the difficulty of the task or the subjective probability of failure. The negative incentive value of failure is assumed to be a negative function of difficulty, i.e., the easier the task the more pain is experienced when it is not performed successfully. Aroused motivation to avoid failure is greatest when the product of the expectancy and the incentive is at a maximum, i.e., when the subjective probability of success is .5.

The implication of the model as Atkinson develops it is that aroused motivation to achieve and aroused motivation to avoid failure are strongest when the subjective probability of success is .5. It follows that expended effort will be greater for tasks of intermediate difficulty than for tasks of greater or lesser difficulty, whether an individual's motive to achieve or motive to avoid failure is the stronger. It also follows that when individuals for whom the achievement motive is stronger than the motive to avoid failure are permitted

to choose between tasks varying in difficulty they will tend to select tasks in the intermediate ranges. When persons for whom the motive to avoid failure is of greater relative strength, it is the tasks of intermediate difficulty that will be avoided. They will select instead very difficult or very easy tasks. These implications of the model have been given empirical support. When task difficulty was manipulated by varying the number of persons with whom a subject was competing for a monetary prize, performance was found to reach its height when probability of success was about .5 and to decline when probability of success increased or declined (4). Moreover subjects high in n Achievement, considered to be more strongly motivated to achieve than to avoid failure, selected tasks of intermediate difficulty more often than subjects low in n Achievement who are considered to be relatively high in the motive to avoid failure (8).

Preferences between tasks of varying difficulty are shown to generalize to preferences between risks identical in expected value but varying in the probability of a win. A number of alternative risks were presented in paired comparisons. In each case the subject was instructed to select the one he preferred, e.g., 3/6 chance to win $.30 and 3/6 chance to lose $.30 versus 5/6 chance to win $.36 and 1/6 chance to lose $1.80. The results showed (4) that persons high in n Achievement were more likely to prefer intermediate probabilities than were subjects low in n Achievement. Atkinson inferred that incentive values of winning and losing developed in connection with achievement activities generalize to gambling situations which are themselves not contingent upon skill.

In the present experiment two sets of fifteen paired comparisons were presented, the first with a maximum loss or gain of

$1.80 and the second with a maximum loss or gain of $1800. Subjects who selected one of the intermediate risks (2/6, 3/6, 4/6) more frequently than either extreme choice (5/6 or 1/6) were classified as preferring intermediate risks and presumed to be relatively stronger in the motive to achieve than in the motive to avoid failure. Those selecting one of the extreme choices over any of the intermediate choices were classified as preferring extreme risks and presumed to be stronger in the motive to avoid failure than in the motive to achieve success. Those for whom a clear choice for one of the bets could not be specified were not classified on this measure. Because Atkinson[1] found that the relationship between probability preference and n Achievement held only for small bets, in the present experiment only the data for small bets were analyzed. Subjects preferring extreme risks were classified high in the motive to avoid failure and those preferring intermediate risks, low in the motive to avoid failure.

The Mandler-Sarason Test Anxiety Questionnaire

The final measure of the motive to avoid failure was the Mandler-Sarason Test Anxiety Questionnaire. This questionnaire is a self-report measure concerning the amount of anxiety, defined by physiological reactions, experienced in a test stiuation. Since time was limited, only that part of the scale dealing with reactions to course examinations was utilized. The validity of the Test Anxiety measure is supported by several studies. In one experiment (26)

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[1]Personal communication, Prof. J. W. Atkinson.

subjects were rated in overt manifestations of anxiety shown during a course examination. Comparisons between subjects at the extremes of the Test Anxiety scale indicated that the Highs were rated higher in anxiety displayed than the Lows. The Test Anxiety Questionnaire is considered to measure the number of task-irrelevant responses which occur in a test situation. These responses are believed to interfere with performance for most tasks under ego-involved instructions. Support is given to this hypothesis by evidence indicating that high anxiety subjects perform more poorly under ego-involved than under non-ego-involved instructions (41).

The method for scoring the questionnaire is the same as one employed by Atkinson and Litwin (8). The distribution of scores for the subjects in the experiment was divided into quarters for each question. A number of four was assigned to that quarter of responses which showed the highest anxiety, and three, two, or one points assigned as the reported anxiety diminished. Scores over the eleven items were summed for each subject and final scores assigned.

The Preconditions

Before proceeding to an analysis of data it was first necessary to determine whether several necessary assumptions were satisfied. Much of the analysis concerned relationships between independent and projective indices of the motive to avoid failure when the n Achievement measure was administered under neutral conditions in the one case and under achievement conditions in the other. Predictions concerning changes between conditions in projective content occurring for subjects high and low in the motive to avoid failure as defined by independent assessment were also to

be tested. This analysis required that the arousal procedure for the projective be demonstrably successful, concretely that the n Achievement score for subjects tested in the achievement conditions significantly exceed the n Achievement score for subjects for whom the TAT administration was neutral. A second concern of equal importance was that the independent measures be presented in a test situation for subjects from both the initially neutral and aroused groups. The validity of the preference and memory measures of the motive to avoid failure requires that they be administered in a test situation. The avoidance of failure material in preference or recall in a non-test situation cannot be considered as characteristic of failure-avoidant subjects (1, 38). Finally, in order for scores for subjects drawn from the different TAT orientation groups to be considered comparable, it is necessary that the scores for these groups not differ. To test whether each of the necessary preconditions is met, an attempt was made to test the assumptions in turn.

N Achievement scores obtained in neutral and achievement groups

Stories written in response to each picture were randomized and scored for n Achievement by the writer without prior knowledge of the experimental conditions in which they were written. The scores obtained in the neutral and aroused conditions are reported in Table 1.

That the first requirement is satisfied is demonstrated by a significantly higher mean n Achievement score occurring in the achievement than in the neutral group. Because the subjects were

TABLE 1

DIFFERENCES IN N ACHIEVEMENT BETWEEN THE ACHIEVEMENT AND NEUTRAL CONDITIONS

Condition	N	Mean n Achievement Score
Achievement	62	19.50
Neutral	65	17.23
Difference		2.27
σ difference		1.09
t		2.09
p		< .05

drawn from two sources, one of psychology students required to participate, and the other, NROTC volunteers, it was necessary to evaluate arousal procedures separately for psychology and NROTC students. In Table 2 the results are reported for the psychology students.

The n Achievement score differences occurring for psychology students from the achievement and neutral groups show the predicted higher scores for the former. For these subjects, then the first requirement is satisfied. Results obtained for the NROTC students are reported in Table 3.

For the NROTC subjects, there is no evidence that experimental attempts to arouse achievement motivation were successful. The cause of this apparent failure is not immediately clear. One

TABLE 2

DIFFERENCES IN N ACHIEVEMENT BETWEEN THE ACHIEVEMENT AND NEUTRAL CONDITIONS: PSYCHOLOGY STUDENTS

Condition	N	Mean n Achievement Score
Achievement	42	19.64
Neutral	50	16.56
Difference		3.08
σ difference		1.33
t		2.32
p		< .02

TABLE 3

DIFFERENCES IN N ACHIEVEMENT BETWEEN THE ACHIEVEMENT AND NEUTRAL CONDITIONS: NROTC STUDENTS

Condition	N	Mean n Achievement Score
Achievement	20	19.20
Neutral	15	19.47
Difference		-.27
σ difference		1.80
t		.15
p		n.s.

possibility is that the recruitment procedure was itself achievement-orienting. The instructor in the naval classes had requested participation in an eloquent plea that science and the navy be served. It is possible that this method defeated the later attempt to put the neutral group in a non-achievement situation. The other possibility, which must be given some credence in the light of Burdick's (11) finding that volunteers are higher in n Achievement than non-volunteers, is that the NROTC subjects differed systematically from the psychology students in the strength of achievement motive. Whether either of these explanations or some other is correct, the fact remains that n Achievement scores for the NROTC students were not higher in the achievement than in the neutral condition. The failure for this critical assumption to be met required that the NROTC students be excluded from further analysis.

Differences in n Achievement within the neutral and achievement-oriented groups

The n Achievement measure was administered to different groups of subjects three times under neutral conditions and three times under achievement conditions. Because in the analysis data for all subjects from a given experimental condition were to be combined, it was necessary to show that the n Achievement scores did not vary within conditions as a function of the hour the TAT slides were presented or of some unknown factor. In Tables 4 and 5 analyses of variance for differences in n Achievement scores within the neutral and achievemement-oriented groups are reported. Results reported in Tables 4 and 5 show that n Achievement scores between the three neutral or the three achievement groups may be considered comparable.

TABLE 4

ANALYSIS OF VARIANCE FOR N ACHIEVEMENT SCORES WITHIN NEUTRAL GROUP

Source of Variation	Sum of Squares	D.F.	Mean Square	F
Between groups	112.24	2	56.12	1.27
Within groups	2,084.08	47	44.34	n.s.

TABLE 5

ANALYSIS OF VARIANCE FOR N ACHIEVEMENT SCORES WITHIN ACHIEVEMENT GROUP

Source of Variation	Sum of Squares	D.F.	Mean Square	F
Between groups	13.39	2	6.70	.18
Within groups	1,432.25	39	36.72	n.s.

Achievement arousal for the administration of the independent measures

In order that the independent measures of the motive to avoid failure be presented in achievement or test conditions, arousal instructions initiated the second hour of the experiment. Preference for completed over incompleted tasks and a higher recall of control than failure material were to be defined as indicating a strong motive to avoid failure. Since the experimental results of

Atkinson (1) and Reitman (38, 39) showed that these definitions were valid only if the conditions of administration were ego-involved, it was necessary to provide evidence for successful arousal. The TAT administration had been neutral for some subjects and achievement-oriented for others. As a result there was some concern that these different treatments would carry over into the presentation of the other measures, even though subjects from both the neutral and achievement groups were assigned at random to each of the second experimental hours.

To determine whether arousal attempts were successful for the second hour, subjects originating in the neutral and achievement TAT conditions were separately considered. An experiment by Sarason, Mandler, and Craighill (41) provides findings that permit testing the success of the arousal in the second hour. In that experiment Test Anxiety was related to performance under two degrees of experimental arousal. Results indicated that high Anxiety subjects completed a stylus maze less rapidly than low Anxiety subjects under ego-involved instructions, while a slight trend in the opposite direction occurred under non-ego involving instructions. This finding permits defining an ego-involved situation as one in which low Test Anxiety subjects perform a task more rapidly than high Anxiety subjects. In the present experiment the performance measure is the number of Zeigarnik tasks completed in the allotted time rather than the time required to finish a stylus maze. However, similar findings would be expected for solving problems in general. In Tables 6 and 7 the mean number of tasks completed by high and low Anxiety subjects in the original neutral and achievement groups are reported. The number of subjects is reduced from those for the TAT scores. Several subjects failed to arrive the second hour, and in one of the second-hour groups

TABLE 6

NUMBER OF ZEIGARNIK TASKS COMPLETED BY SUBJECTS HIGH AND LOW IN TEST ANXIETY: ACHIEVEMENT-ORIENTED GROUP

Condition	N	Mean Tasks Completed
Low Test Anxiety	17	8.24
High Test Anxiety	18	6.78
Difference		1.46
σ difference		.48
t		3.08
p		< .01

TABLE 7

NUMBER OF ZEIGARNIK TASKS COMPLETED BY SUBJECTS HIGH AND LOW IN TEST ANXIETY: NEUTRAL GROUP

Condition	N	Mean Tasks Completed
Low Test Anxiety	19	7.63
High Test Anxiety	20	7.75
Difference		-.12
σ difference		.59
t		.20
p		n.s.

several late arrivals delayed the start and necessitated that the Test Anxiety measure not be administered.

If the criterion for defining a successfully aroused group is that the low Test Anxiety subjects exceed the Highs in performance, it follows that the arousal attempts were successful for the subjects for whom the TAT administration was achievement-oriented, not for those for whom it was neutral. The implication is that the effects of the treatment during the first hour did carry over into the second.

Another finding in the Sarason, Mandler, Craighill (41) experiment is relevant to a related question: Was the situationally aroused anxiety stronger among one of the initial groups than the other? In the digit-symbol experiment already cited, high Anxiety subjects were shown to perform better under non-ego-involved instructions, while an insignificant trend in the opposite direction occurred for low Anxiety subjects. In another experiment, situational anxiety was minimized by informing the subjects that since no one could complete the task, they should not be concerned by their own failure to do so. Anxiety was aroused in a second group by the statement that the average student should find completion fairly simple. No subject in either situation did in fact finish the problems in the time allowed. Results indicated that high Anxiety subjects completed more tasks under the low anxiety conditions than under the high anxiety conditions, while low Anxiety subjects completed more problems under the high anxiety conditions than the low. This finding suggests that one situation may be considered more anxiety producing than the other if performance scores are higher for low Anxiety subjects and lower for high Anxiety subjects than in the other situation. In Tables 8 and 9 between condition differences in preformance on the Zeigarnik tasks are reported for subjects high and low in Test Anxiety, respectively.

TABLE 8

NUMBER OF ZEIGARNIK TASKS COMPLETED FOR THE INITIALLY NEUTRAL AND ACHIEVEMENT-ORIENTED GROUPS: HIGH ANXIETY SUBJECTS

Condition	N	Mean Tasks Completed
Achievement	20	6.78
Neutral	18	7.75
Difference		-.97
σ difference		.53
t		1.85
p		.10–.05

TABLE 9

NUMBER OF ZEIGARNIK TASKS COMPLETED FOR THE INITIALLY NEUTRAL AND ACHIEVEMENT-ORIENTED GROUPS: LOW ANXIETY SUBJECTS

Condition	N	Mean Tasks Completed
Achievement	17	8.24
Neutral	19	7.63
Difference		.61
σ difference		.56
t		1.09
p		.3–.2

Although neither difference reaches statistical significance, there is a near-significant tendency for the high Anxiety subjects from the initially neutral groups to complete more tasks than the high Anxiety subjects from the initially achievement-oriented groups. Conversely, among low Anxiety subjects, those originating in the achievement-oriented group perform more tasks. The inference implied from these findings in the light of the Sarason, Mandler, and Craighill experiment is that the administration of the independent measures was not comparable for subjects for whom the TAT conditions differed. The experimentally induced anxiety appears to have been stronger for those subjects originally tested in an achievement condition than for those originally tested in a neutral condition.

Differences between the initially neutral and achievement-oriented groups on the independent measures of the motive to avoid failure

Two indications that the desired comparability for the independent measures was not attained have appeared. In the first case, the failure of high Test Anxiety to relate to poor performance, for subjects given the n Achievement measure under neutral conditions, suggests that successful arousal did not occur during the second hour. High and low Anxiety subjects drawn from the achievement-oriented group, on the other hand, did show the predicted differences. Evidence that the administration of the independent measures was relatively higher in situationally induced anxiety for the initially achievement-oriented group is suggested by the between-condition differences in performance for subjects high and low in Test Anxiety. Further information with regard to between-group comparability may be obtained by comparing the initially neutral and aroused subjects on each of the independent measures.

In Table 10 differences in Test Anxiety for the two groups are reported. There is some indication that subjects from the achievement-oriented group have higher scores in Test Anxiety, but the difference is not significant.

In Table 11 a parallel comparison is made for preferential recall of control over failure material. The figures shown are differences in standard scores between control and failure material. White's test of differences in ranks has been employed in lieu of the inapplicable "t" test. The original neutral and achievement-oriented groups do not differ in motivation to avoid failure as measured by the memory measure.

Differences between the groups in preferences for completed and incompleted tasks are reported in Table 12. In this analysis the preference measure described earlier was employed. Positive scores occur for subjects who preferred incompleted tasks to completed tasks and negative scores for those preferring completed tasks to incompleted tasks. The White test is again employed.

TABLE 10

DIFFERENCE IN TEST ANXIETY SCORES FOR SUBJECTS DRAWN FROM ORIGINAL NEUTRAL AND ACHIEVEMENT-ORIENTED GROUPS

n Achievement Orientation	N	Mean Test Anxiety
Achievement	35	29.49
Neutral	40	27.23
Difference		2.26
t		1.43
p		.16

TABLE 11

DIFFERENCE IN RECALL OF CONTROL AND FAILURE MATERIAL: ORIGINAL NEUTRAL AND ACHIEVEMENT-ORIENTED GROUPS

n Achievement Orientation	N	Median Score
Achievement	41	-.25
Neutral	49	+.11
z		.75
p		.45

TABLE 12

DIFFERENCE IN PREFERENCE FOR INCOMPLETED AND COMPLETED TASKS: ORIGINAL NEUTRAL AND ACHIEVEMENT-ORIENTED GROUPS

n Achievement Orientation	N	Median Score
Achievement	37	-.75
Neutral	40	-.53
z		2.56
p		< .01

For the preference measure, subjects from the achievement-oriented group show significantly higher attractiveness ratings for completed over incompleted tasks than subjects from the neutral group. The interpretation of this finding is by no means clear. One possibility is that the selection of subjects for the two groups was not random. This seems unlikely since assignment to groups was made solely by reference to time schedules. Another interpretation is suggested by the extensive literature concerning the "Zeigarnik effect." This phenomenon refers to the tendency for recall of incompleted tasks to be greater than for completed tasks. In the present study it is the relative attractiveness of incompleted and completed tasks that is considered. However, especially in the light of the Atkinson (1) and Cartwright (12) studies concerning preference for completed and incompleted tasks, it does not seem unreasonable to assume that relatively high recall of completed tasks and relatively higher attractiveness ratings for completed tasks are similar in representing avoidance of threatening material. Accepting this parallel, experiments in which differences in the Zeigarnik effect occurring as a function of conditions become relevant. Although Atkinson's primary concern in his study was to explain differences in preferential recall in terms of individual differences in motive, he considered the conflicting results of several investigators in terms of the experimental conditions in which they were obtained. In three studies in which "draftees" rather than "volunteers" served as subjects, the group as a whole showed a decline in recall of incompleted tasks when the situational cues were made more relevant to achievement. An analagous finding for preferences differentiates the initially achievement-oriented and neutral groups in the present study. If the equivalence of recall and preference measures is accepted, this result implies that in

the group for which the TAT was aroused, the creation of a test situation was more successful than in the group for which the TAT administration was neutral.

Considering the twenty-eight subjects in the achievement group and the thirty-seven subjects in the neutral group who clearly preferred either intermediate or extreme risks, there are no differences. In each case 43 per cent preferred the intermediate risks while the remainder selected risks at the extremes.

The preconditions: an evaluation

The satisfaction of several preconditions was necessary for the analysis of the data. Some of these requirements were met, while others were not. A significantly higher mean n Achievement score in the achievement condition than in the neutral condition was taken as indicating that arousal attempts were successful. However, when psychology "draftees" and NROTC volunteers were considered separately, it became abundantly clear that only for the psychology students was the requirement met. An insignificant tendency for the naval students to score lower in n Achievement under aroused than under neutral conditions necessitated their exclusion from further analysis. A second necessary condition was that a test situation be created for the administration of the independent measures and that the independent measures yield scores comparable in meaning for subjects drawn from the initially achievement and neutral groups. Three results make this inference extremely doubtful. These findings are summarized below.

1. High Test Anxiety subjects performed fewer tasks than did low Test Anxiety subjects when only those subjects from the aroused group were considered. There was no relationship between Test Anxiety and performance in the neutral group.

2. Of the high Anxiety subjects, those from the initially neutral group completed more tasks than those from the initially aroused group ($p = .10–.05$). Low Anxiety subjects from the initially aroused group completed more tasks than low Anxiety subjects from the initially neutral group ($p = .3–.2$).
3. Subjects drawn from the achievement group showed greater relative preference for completed tasks than did subjects drawn from the neutral group.

Each of these three results implies a common conclusion: the neutral administration of the TAT defeated attempts to create later an achievement situation. The acceptance of this inference is unhappily most damaging to the testing of the experimental hypotheses. If we could assume that an increase in achievement-related cues would simply result in increased motivation to avoid failure and in generally higher scores on the measures, the hypotheses could be tested as planned. However, this assumption is clearly not warranted. Atkinson and Reitman (1, 38, 39) have shown that the selective recall of failure material varies not only as a function of motive differences but situational differences as well. Preferential recall of failure material tends to characterize failure-avoidant subjects when conditions of task administration are neutral and non-failure-avoidant subjects when the conditions are aroused.

In this experiment it was the intent to classify subjects as high or low in a motive to avoid failure on the basis of the independent measures and then to test hypotheses regarding projective scores in each of two conditions for subjects differently classified. It was further desired to examine changes occurring in projective scores between conditions for these subjects. The rather weighty evidence that arousal was not successful for the neutral group in the second hour leads to severe misgivings about employing the preference and memory measures as acceptable measures of a

motive to avoid failure. The same doubts are not held for the Test Anxiety and Risk Taking measures since there is no reason to believe that a difference in conditions would result in a different ordering of subjects. The results do appear to have several implications. First, hypotheses for relationships involving the preference and memory measures which concern the neutral group may be made with great hesitation. Second, the breaks on each of the independent measures should be made within the neutral and achievement groups rather than for the total sample; and finally, predictions concerning interrelationships between these measures should be made separately for the two groups.

Results

The analysis of the experiment falls into three areas: (1) the interrelationships between the various measures of the motive to avoid failure, (3) the between-conditions changes in projective scores for subjects classified as high and low in the motive to avoid failure, and (3) differences between subjects high and low in the motive to avoid failure in projective scores under neutral and achievement conditions. Each hypothesis will be stated together with the findings.

Interrelationships between independent measures

Hypothesis 1: There is a positive relationship between the independent measures of the motive to avoid failure.

This hypothesis derives from the notion that measures purporting to refer to a common attribute should be positively associated. In the testing of this hypothesis, the initially neutral and achievement-oriented groups are separately considered for the

reasons stated in the preceding section. Median breaks were made individually for the two groups and the results for the achievement-oriented group reported in Table 13 and for the neutral group in Table 14. In each case "high" in the tables refers to high in the specified measure of the motive to avoid failure and "low" to low on that measure.

The results indicate that in the initially achievement-oriented group, each of the measures is related in the predicted direction to the other three. The associations among the memory, preference, and test anxiety measures fall short of statistical significance. The risk taking measure is in each case not clearly related to the others. For the neutral group, on the other hand, there is little support for the hypothesis that a common attribute is measured by the four indices. Three of the relationships are in the direction predicted, and the remaining three, opposite to prediction. The neutral group results may be interpreted as weakening the confidence of the findings for the achievement-oriented group.

An alternative explanation, however, has some justification. The data suggest the failure of the attempt to create a test situation in the second hour for subjects tested initially in a neutral condition. Since the validity of the memory and preference indices requires that they be administered under arousal, the meaning of these scores for the neutral group is not clear. It seems to the writer that the differences in relationship between the independent measures obtained for two groups is instructive, not only because of the generally negative findings in the neutral group but also by reason of the particular relationships which differ in the two groups. The Test Anxiety Questionnaire and the risk taking measure are considered to

TABLE 13

INTERRELATIONSHIPS BETWEEN THE FOUR INDEPENDENT MEASURES OF THE MOTIVE TO AVOID FAILURE: ACHIEVEMENT GROUP[a]

		Preference Measure		
		High	Low	
Test Anxiety	High	67	33 (15)	χ^2 = 2.64
	Low	37	63 (16)	p = .10–.20
		Memory Measure		
		High	Low	
Test Anxiety	High	67	33 (18)	χ^2 = **3.44**
	Low	35	65 (17)	p = **.10–.05**
		Risk Taking		
		High	Low	
Test Anxiety	High	50	50 (12)	χ^2 = 1.25
	Low	27	73 (11)	p = .20–.30
		Memory Measure		
		High	Low	
Preference Measure	High	61	39 (18)	χ^2 = 1.78
	Low	39	61 (18)	p = .10–.20
		Risk Taking		
		High	Low	
Preference Measure	High	47	53 (15)	χ^2 = .28
	Low	36	64 (11)	p = .50–.70
		Risk Taking		
		High	Low	
Memory Measure	High	44	56 (16)	χ^2 = .01
	Low	42	58 (12)	p = .90–1.00

[a]Scores are given in per cents.

TABLE 14

INTERRELATIONSHIPS BETWEEN THE FOUR INDEPENDENT MEASURES OF THE MOTIVE TO AVOID FAILURE: NEUTRAL GROUP[a]

		Preference Measure		
		High	Low	
Test Anxiety	High	50	50 (18)	χ^2 = .04[b]
	Low	53	47 (15)	p = .90–.80
		Memory Measure		
		High	Low	
Test Anxiety	High	43	57 (21)	χ^2 = .02[b]
	Low	58	42 (19)	p = .50–.30
		Risk Taking		
		High	Low	
Test Anxiety	High	56	44 (18)	χ^2 = 1.63
	Low	33	67 (15)	p = .20–.30
		Memory Measure		
		High	Low	
Preference Measure	High	60	40 (20)	χ^2 = 1.60
	Low	40	60 (20)	p = .20–.30
		Risk Taking		
		High	Low	
Preference Measure	High	47	53 (15)	χ^2 = .74
	Low	31	69 (13)	p = .30–.50
		Risk Taking		
		High	Low	
Memory Measure	High	42	68 (19)	χ^2 = .02[a]
	Low	44	56 (18)	p = .90–.80

[a]Scores are given in per cents.

[b]Direction of relationship opposite to that predicted.

differ from the memory and preference measures in an important respect. For the former measures there are no theoretical or empirical reasons to believe that the ordering of subjects or the meaning of a score will be affected by the conditions under which they are presented. For the latter there is evidence (1, 38, 39) that a "defensive" avoidance of failure material will characterize failure-avoidant subjects only when the measures are administered in a test stiuation. In a non-test situation, failure-avoidant subjects actually may recall more failure material than other subjects. This difference between the measures implies that the relationships between Test Anxiety and Risk Taking and between the memory and preference measures would not change as a function of the conditions of administration. It also implies, however, that relationships between Test Anxiety or Risk Taking and recall or preference patterns would differ as a function of the conditions. The pattern of results obtained here is consistent with earlier evidence that a test-like situation was not created for the initially neutral group. For both the achievement and neutral groups Risk Taking and Test Anxiety on the one hand and memory and preference measures on the other are positively associated to a similar degree. The pattern is different, however, when we consider the findings for Test Anxiety and the defensive measures in the two groups. In the initially achievement-oriented groups, Test Anxiety is associated with higher preference for completed tasks and with relatively high recall of control material. In the neutral group, on the other hand, each of these relationships is opposite in direction, although the magnitude of the association implies a lack of relationship.

This pattern of findings, together with the results reported in the section on preconditions, renders the use of the memory and

preference measures suspect for the neutral group. It is the writer's belief that the amount and consistency of results leading to this same conclusion require that memory and preference scores as measures of the motive to avoid failure be abandoned for the neutral group. The testing of hypotheses quite clearly demands faith in the validity of the independent measures. When such faith is not indicated, the most tenable solution appears to be to exclude these scores from further analysis.

Changes in projective scores between neutral and achievement-oriented conditions for subjects high and low in the motive to avoid failure

The second group of hypotheses follows from extensions of the Miller approach-avoidance conflict theory (33), described at some length in the first chapter. In two experiments TAT-like pictures were presented under two conditions of arousal, and subjects who evidenced a decline in content relevant to a given motive when an increase would be expected were shown to be more anxious or fearful than other persons (27, 43). Whether a decline in n Achievement or f Failure between neutral and achievement conditions characterizes persons high in the motive to avoid failure is open to question. The hypothesis has not been tested for f Failure. For n Achievement some evidence suggests that subjects showing this pattern of decline set lower levels of aspiration (43) and perform more poorly in course examinations (25) than other subjects. However, no systematic attempt has been made to classify subjects high and low in the motive to avoid failure and to investigate the changes in projective scores that occurred between conditions for each group. The intention in the present study was precisely that: to

measure the motive to avoid failure independently by the projective and to test several hypotheses following from the Miller model with regard to changes in scores under arousal. Unfortunately methodological problems intervened and required that only two of the four independent measures, Test Anxiety and Risk Taking preference, be employed. The expectation was that subjects low in the motive to avoid failure as defined by these measures would increase in n Achievement and f Failure between neutral and aroused conditions. Subjects high in the motive to avoid failure, on the other hand, were expected to decline in n Achievement and f Failure under achievement conditions. Whatever results were obtained could be considered applicable only for the specific experimental conditions. Further generalizations would require employing several different degrees of arousal. Another limitation is placed on these hypotheses. Six pictures were used in the n Achievement measure. Three had been defined as "high cue" and three as "low cue" in an earlier study (22). The prediction of a decline in both scores for persons high in the motive to avoid failure refers only to the high cue pictures. The low cue pictures were utilized only for exploratory purposes. Low cue pictures and neutral conditions both represent greater "distance" or greater dissimilarity to the threatening conditions than do high cue pictures and achievement conditions. It seemed useful to explore the possibility that failure-avoidant subjects would evidence the predicted decline on the high cue picture alone. If this proved to be the case, it might be inferred that low cue pictures more successfully circumvent defenses against anxiety than do high cue pictures.

In the testing of hypotheses, high Test Anxiety and preference for extreme risks were defined as indicating a strong motive to avoid failure. The memory and preference measures were excluded for the reasons previously outlined. In the analysis White's (18) test of differences between ranks has been employed in preference to the "t" test. Several of the projective indices used in the

final results section are ratio scores for which the t-test is inapplicable, and the White test was therefore selected in order to maintain consistency.

Hypothesis 2: Subjects low in the motive to avoid failure will show an increase in n Achievement between neutral and achievement conditions on high cue pictures (see Table 15).

Hypothesis 3: Subjects high in the motive to avoid failure will show a decrease in n Achievement between neutral and achievement conditions on high cue pictures (see Table 16).

Hypothesis 4: Subjects low in the motive to avoid failure will show an increase in n Achievement between neutral and achievement conditions on low cue pictures (see Table 17).

Hypothesis 5: Subjects high in the motive to avoid failure will change in n Achievement between neutral and achievement conditions for low cue pictures (see Table 18).

TABLE 15

DIFFERENCES IN N ACHIEVEMENT BETWEEN NEUTRAL AND ACHIEVEMENT CONDITIONS FOR HIGH CUE PICTURES: NON-FAILURE-AVOIDANT SUBJECTS

Criterion	Conditions	Median	N	Z	p
Test Anxiety	Achievement	12.83	17	+1.06	.30
	Neutral	11.13	19		
Risk Taking	Achievement	13.00	16	+1.08	.28
	Neutral	11.75	19		

TABLE 16

DIFFERENCES IN N ACHIEVEMENT BETWEEN NEUTRAL AND ACHIEVEMENT CONDITIONS FOR HIGH CUE PICTURES: FAILURE-AVOIDANT SUBJECTS

Criterion	Conditions	Median	N	Z	p
Test Anxiety	Achievement	12.00	17	+.74	.46[a]
	Neutral	11.00	18		
Risk Taking	Achievement	10.00	12	-.56	.58
	Neutral	12.67	15		

[a]Direction of relationship opposite to that predicted.

There is little indication in the data that changes in n Achievement score between neutral and achievement conditions relate to individual differences in the motive to avoid failure. Subjects classified as low in the motive to avoid failure obtain higher n Achievement scores under achievement than under neutral conditions on high cue pictures although this difference is not statistically significant. On the same pictures, n Achievement scores do not change for failure-avoidant subjects between conditions. As Tables 17 and 18 indicate, n Achievement scores derived from stories written to low cue pictures tend to increase between neutral and achievement conditions for subjects in general.

TABLE 17

DIFFERENCES IN N ACHIEVEMENT BETWEEN NEUTRAL AND ACHIEVEMENT CONDITIONS FOR LOW CUE PICTURES: NON-FAILURE-AVOIDANT SUBJECTS

Criterion	Conditions	Median	N	Z	p
Test Anxiety	Achievement	7.00	17	+1.33	.18
	Neutral	5.92	19		
Risk Taking	Achievement	8.00	16	+1.75	.08
	Neutral	5.88	19		

TABLE 18

DIFFERENCES IN N ACHIEVEMENT BETWEEN NEUTRAL AND ACHIEVEMENT CONDITIONS FOR LOW CUE PICTURES: FAILURE-AVOIDANT SUBJECTS

Criterion	Conditions	Median	N	Z	p
Test Anxiety	Achievement	7.25	17	+1.47	.14
	Neutral	4.50	18		
Risk Taking	Achievement	8.50	12	+1.22	.22
	Neutral	5.75	15		

TABLE 19

DIFFERENCES IN F FAILURE BETWEEN NEUTRAL AND ACHIEVEMENT CONDITIONS FOR HIGH CUE PICTURES: NON-FAILURE-AVOIDANT SUBJECTS

Criterion	Conditions	Median	N	Z	p
Test Anxiety	Achievement	3.62	17	+.08	.94
	Neutral	2.80	19		
Risk Taking	Achievement	1.30	16	-1.99	.05[a]
	Neutral	2.75	19		

[a]Direction of result opposite to that predicted.

Hypothesis 6: Subjects low in the motive to avoid failure will show an increase in f Failure between neutral and achievement conditions on high cue pictures (see Table 19).

Hypothesis 7: Subjects high in the motive to avoid failure will show a decrease in f Failure between neutral and achievement conditions on high cue pictures (see Table 20).

Hypothesis 8: Subjects low in the motive to avoid failure will show an increase in f Failure between neutral and achievement conditions on low cue pictures (see Table 21).

Hypothesis 9: Subjects high in the motive to avoid failure will change in f Failure between neutral and achievement conditions on low cue pictures (see Table 22).

The data do not support the expectation that changes in f Failure scores between conditions are a function of individual differences in the motive to avoid failure. Scores are generally similar in magnitude in achievement and neutral conditions for both high cue and low cue pictures. One significant difference at variance with predictions occurs. On high cue pictures subjects preferring intermediate risks scored higher under neutral than under aroused conditions.

TABLE 20

DIFFERENCES IN F FAILURE BETWEEN NEUTRAL AND ACHIEVEMENT CONDITIONS FOR HIGH CUE PICTURES: FAILURE-AVOIDANT SUBJECTS

Criterion	Conditions	Median	N	Z	p
Test Anxiety	Achievement	2.00	17	-1.43	.16
	Neutral	3.83	18		
Risk Taking	Achievement	2.17	12	+.12	.91[a]
	Neutral	2.20	15		

[a]Direction of result opposite to that predicted.

TABLE 21

DIFFERENCES IN F FAILURE BETWEEN NEUTRAL AND ACHIEVEMENT CONDITIONS FOR LOW CUE PICTURES: NON-FAILURE-AVOIDANT SUBJECTS

Criterion	Conditions	Median	N	Z	p
Test Anxiety	Aroused	4.87	17	-.60	.55[a]
	Neutral	5.33	19		
Risk Taking	Aroused	4.83	16	+.79	.44
	Neutral	5.25	19		

[a]Direction of result opposite to that predicted.

TABLE 22

DIFFERENCES IN F FAILURE BETWEEN NEUTRAL AND ACHIEVEMENT CONDITIONS FOR LOW CUE PICTURES: FAILURE-AVOIDANT SUBJECTS

Criterion	Conditions	Median	N	Z	p
Test Anxiety	Aroused	5.25	17	+.15	.88
	Neutral	5.50	18		
Risk Taking	Aroused	5.50	12	+.46	.65
	Neutral	5.75	15		

The results indicate that n Achievement increases under achievement conditions for subjects classified as high or low in the motive to avoid failure. The single exception for this finding concerns failure-avoidant subjects defined by preference for extreme risks. For these subjects there is an insignificant decline in n Achievement for the high cue pictures. Fear Failure, on the other hand, tends to remain the same in both conditions, as Moulton (34) found in his original study. The decrease in f Failure on high cue pictures both for subjects high in Test Anxiety and for subjects preferring intermediate risks is difficult to interpret. The result for high Anxiety subjects is in the predicted direction, but that for subjects selecting intermediate risks is opposite to prediction. In

the absence of any reasonable explanation it seems best to report the result without comment.

Relationships between independent measures of motivation to avoid failure and projective scores

The remainder of the analysis is concerned with the relationships between each of the independent measures and several projective indices utilized in earlier research. For the neutral group only the Risk Taking and Test Anxiety measures are used because of the questionable validity of the preference and memory measures for this group. In the achievement group each of the four measures is considered. Additionally for this group a combined index based upon the three related indices was formed in which subjects scoring above the median on the measures for memory, preference, and Test Anxiety, or on any two of these, were classified as failure avoidant, and subjects scoring below the median on two or three of these measures, as non-failure-avoidant. The projective scores, based on all six pictures, include two scores reflecting positive content, n Achievement, and the number of positive categories scored for each n Achievement story. While the n Achievement system includes some failure content, the fact that the correlation between n Achievement and Hope of Success, which excludes the negative categories of that system, is .92 for the aroused group and .95 for the neutral group, justifies considering n Achievement a positive score at least for the pictures employed. A second pair of projective scores, f Failure and the number of negative categories scored for each achievement story are seen as reflecting content directly relevant to failure. Net Hope Score, the difference between Hope of Success and f Failure, and the proportion that positive categories form of the combined positive and

negative categories indicate the relative preponderance of positive over fear-oriented content. The analysis in this section is exploratory. Its purpose is to investigate differences in the content of TAT stories written by subjects high and low on measures of the motive to avoid failure. While a considerable amount of evidence implies that the motive to avoid failure will be reflected by low n Achievement scores and high f Failure scores (34, 37), contradictory findings exist. Of particular importance are studies in which subjects considered to be failure avoidant are shown to avoid negative or failure content and to emphasize positive content (16, 37). These findings shed doubt on the idea that persons high in the motive to avoid failure will tend under all conditions to write stories in which anticipations of failure, negative affect contingent upon failure, and unsuccessful instrumental activities predominate. Similarly, the data do not warrant defining the success-motivated person as one whose stories are of polar character. In an attempt to bring some order out of confusion, scores on the independent measures are related to the several projective scores.

The achievement-oriented group.—The results for the achievement-oriented and neutral groups are reported separately.

Hypothesis 10. Subjects high in the motive to avoid failure on the memory measure will differ from subjects low in the motive to avoid failure in projective scores (see Table 23).

On each of the six projective indices subjects showing the failure-avoidant pattern of recalling more control than failure material write stories relatively high in positive content, relatively low in fear content, and relatively higher in positive than in fear content.

TABLE 23

MEDIAN PROJECTIVE SCORES FOR SUBJECTS HIGH AND LOW IN MOTIVE TO AVOID FAILURE ON THE MEMORY MEASURE: ACHIEVEMENT-ORIENTED GROUP

Score	High Fear Group Median[a]	Low Fear Group Median[b]	Z	p
n Achievement	19.17	17.50	+ .70	.48
No. of positive categories per n Achievement story	.82	.64	+1.26	.21
f Failure	8.50	9.50	-1.18	.24
No. of negative categories per n Achievement story	.00	.67	-2.15	.03
Net Hope	2.75	1.00	+1.60	.11
No. of positive categories divided by positive and negative categories	.78	.44	+2.78	.005

[a]N = 20. [b]N = 20.

Hypothesis 11: Subjects high in the motive to avoid failure on the preference measure will differ from subjects low in the motive to avoid failure in projective scores (see Table 24).

With the exception of f Failure, the trend for the story content of subjects high in the avoidance motive on the preference measure is the same as for the memory measure: the avoidance of fear-related material on the independent measure is associated on the

TABLE 24

MEDIAN PROJECTIVE SCORES FOR SUBJECTS HIGH AND LOW IN MOTIVE TO AVOID FAILURE ON THE PREFERENCE MEASURE: ACHIEVEMENT-ORIENTED GROUP

Score	High Fear Group Median[a]	Low Fear Group Median[b]	Z	p
n Achievement	20.00	17.00	+1.03	.30
No. of positive categories per n Achievement story	1.00	.67	+ .87	.38
f Failure	9.17	8.50	+ .70	.48
No. of negative categories per n Achievement story	.23	.64	-1.59	.11
Net Hope	2.88	2.00	+ .28	.77
No. of positive categories divided by positive and negative categories	.79	.57	+1.87	.06

[a] N = 18. [b] N = 18.

projective with the avoidance of fear content, together with an accentuation of positive content.

Hypothesis 12: Subjects high in Test Anxiety will differ from subjects low in Test Anxiety on projective measures (see Table 24).

There is little consistency between Test Anxiety and any of the projective indices, although with the exception of the number of positive categories for each achievement story, in each case

TABLE 25

MEDIAN PROJECTIVE SCORES FOR SUBJECTS HIGH AND LOW IN TEST ANXIETY: ACHIEVEMENT-ORIENTED GROUP

Score	High Anxiety Group Median[a]	Low Anxiety Group Median[b]	Z	p
n Achievement	18.75	17.25	+ .03	.97
No. of positive categories per n Achievement story	.67	.75	- .46	.65
f Failure	8.00	8.75	- .22	.77
No. of negative categories per n Achievement story	.50	.50	- .72	.47
Net Hope	2.25	1.80	+ .57	.57
No. of positive categories divided by positive and negative categories	.68	.60	+ .13	.89

[a] N = 17. [b] N = 17.

high Anxiety subjects write stories high in positive and low in negative content.

Hypothesis 13: Subjects preferring intermediate bets will differ from subjects preferring extreme risks on the projective measures (see Table 26).

TABLE 26

MEDIAN PROJECTIVE SCORES FOR SUBJECTS PREFERRING INTERMEDIATE AND EXTREME RISKS: ACHIEVEMENT-ORIENTED GROUP

Score	Extreme Risks Median[a]	Intermediate Risks Median[b]	Z	p
n Achievement	16.00	20.50	-1.16	.25
No. of positive categories per n Achievement story	.75	.90	- .37	.71
f Failure	8.50	7.50	+ .67	.50
No. of negative categories per n Achievement story	.45	.35	+ .09	.53
Net Hope	2.00	2.50	- .56	.56
No. of positive categories divided by positive and negative categories	.64	.78	- .44	.66

[a]N = 12. [b]N = 16.

For the betting preference measure, intermediate risk taking is associated in each case with the writing of stories with more positive and less negative content. The fact that none of the results is close to significant suggests that the differences would not prove reliable.

Hypothesis 14: Subjects classified as failure avoidant on at least two of the three independent measures of the motive to avoid failure will differ from those subjects classified as non-failure avoidant on at least two of the three measures of the motive to avoid failure (see Table 27).

In the achievement-oriented group high Test Anxiety, higher relative recall of control than failure material, and higher attractiveness ratings given to completed than incompleted tasks were found

TABLE 27

MEDIAN PROJECTIVE SCORES FOR SUBJECTS HIGH AND LOW ON COMPOSITE MEASURE: ACHIEVEMENT-ORIENTED GROUP

Score	High Fear Median[a]	Low Fear Median[b]	Z	p
n Achievement	20.00	16.50	+1.61	.11
No. of positive categories per n Achievement story	.90	.68	+1.12	.26
f Failure	7.17	8.83	-1.40	.16
No. of negative categories per n Achievement story	.00	.67	-2.29	.02
Net Hope	20.17	18.67	+2.18	.03
No. of positive categories divided by positive and negative categories	100.00	59.00	+2.36	.02

[a]N = 14. [b]N = 20.

to be inter-related to a near-significant degree. The Risk Taking measure, on the other hand, gave little indication of measuring an attribute in common with the other measures. In order to arrive at an index that might be more reliable, an index of the motive to avoid failure was based upon scores on the three related measures.

When the combined measure is employed, in each case subjects high in the motive to avoid failure write stories scored higher in the positive scores and lower in the fear scores.

The neutral group.—In the neutral group subjects could be classified only on the Test Anxiety and Risk Taking measures since the defense measures were believed to be of indeterminate meaning for these subjects.

Hypothesis 15: Subjects high in Test Anxiety will differ from subjects low in Test Anxiety on the projective indices (see Table 28).

Test Anxiety appears to be unrelated to any of the projective indices when the TAT-like pictures are administered under neutral conditions.

Hypothesis 16: Subjects preferring intermediate bets will differ from subjects preferring extreme bets on the projective indices (see Table 29).

No results approaching significance appear in comparisons on projective indices and for subjects differing in risk-taking preferences.

TABLE 28

MEDIAN PROJECTIVE SCORES FOR SUBJECTS HIGH AND LOW IN TEST ANXIETY: NEUTRAL GROUP

Score	High Anxiety Median[a]	Low Anxiety Median[b]	Z	p
n Achievement	16.50	16.75	-.05	.96
No. of positive categories per n Achievement story	1.00	.50	+1.27	.20
f Failure	10.50	8.00	+.76	.45
No. of negative categories per n Achievement story	.67	.50	+.67	.50
Net Hope	-1.75	1.75	-.05	.96
No. of positive categories divided by positive and negative categories	.67	.60	+1.19	.23

[a] N = 18.

[b] N = 19.

TABLE 29

MEDIAN PROJECTIVE SCORES FOR SUBJECTS PREFERRING INTERMEDIATE AND EXTREME RISKS: NEUTRAL GROUP

Score	Extreme Risks Median[a]	Intermediate Risks Median[b]	Z	p
n Achievement	18.63	17.00	+.25	.80
No of positive categories per n Achievement story	1.00	.75	-1.30	.19
f Failure	8.25	9.25	-1.11	.27
No. of negative categories per n Achievement story	.80	.50	+.04	.97
Net Hope	.00	-2.00	-1.10	.27
No. of positive categories divided by positive and negative categories	.55	.67	-.18	.85

[a] N = 15.

[b] N = 19.

Additional analysis

The approach-avoidance formulation suggests that the pattern of writing stories relatively higher in n Achievement and f Failure on low cue than on high cue pictures would characterize subjects high in the motive to avoid failure. To test this hypothesis, n Achievement scores were determined for the three high cue and three low cue pictures. The criterion for the avoidant response was the writing of stories above the median for low cue pictures and below the median for high cue pictures. All other score combinations were considered to be non-failure-avoidant.

Hypothesis 17: Subjects classified as failure avoidant on the independent measures of the motive to avoid failure will be more likely to score high in n Achievement on the low cue pictures and low on the high cue pictures than will other subjects (see Tables 30 and 31).

There is no support for the hypothesis that subjects high in the motive to avoid failure, however defined, will be more likely than other subjects to show the avoidant response in n Achievement for high and low cue pictures.

Hypothesis 18: Subjects classified as failure-avoidant on the independent measures of the motive to avoid failure will be more likely than other subjects to score high in f Failure on the low cue pictures and low on the high cue pictures (see Tables 32 and 33).

For the achievement group, in each case the direction of the relationship is predicted, although only for the memory measure is the result statistically significant. In the neutral group, for which only two measures were used, support is absent.

While there is at least limited support for the hypothesis in the achievement-oriented group, the data reveal information which

TABLE 30

RELATIONSHIP BETWEEN MEASURES OF THE MOTIVE TO AVOID FAILURE AND THE AVOIDANT PATTERN AS DEFINED BY N ACHIEVEMENT SCORES ON HIGH AND LOW CUE PICTURES: ACHIEVEMENT GROUP

Measure		Avoidant Response (pct.)	Other (pct.)	χ^2	p
Memory	High	25	75 (20)	.14	n.s.
	Low	20	80 (20)		
Preference	High	17	83 (18)	.64[a]	n.s.
	Low	28	72 (18)		
Test Anxiety	High	24	76 (17)	.18	n.s.
	Low	18	82 (17)		
Risk Taking	High	25	75 (12)	.16	n.s.
	Low	19	81 (16)		
Combined measure	High	21	79 (14)	.01	n.s.
	Low	20	80 (20)		

[a]Direction of relationship opposite to that predicted.

TABLE 31

RELATIONSHIP BETWEEN MEASURES OF THE MOTIVE TO AVOID FAILURE AND THE AVOIDANT PATTERN AS DEFINED BY N ACHIEVEMENT SCORES ON HIGH AND LOW CUE PICTURES: NEUTRAL GROUP

Measure		Avoidant Response (pct.)	Other (pct.)	χ^2	p
Test Anxiety	High	24	76 (17)	.18	n.s.
	Low	18	82 (17)		
Risk Taking	High	25	75 (12)	.16	n.s.
	Low	19	81 (16)		

TABLE 32

RELATIONSHIP BETWEEN MEASURES OF THE MOTIVE TO AVOID FAILURE AND THE AVOIDANT PATTERN AS DEFINED BY F FAILURE SCORES ON HIGH AND LOW CUE PICTURES: ACHIEVEMENT-ORIENTED GROUP

Measure		Avoidant Response (pct.)	Other (pct.)	χ^2	p
Memory	High	35	65 (20)	4.34	<.05
	Low	10	90 (20)		
Preference	High	33	67 (18)	1.32	.20–.30
	Low	17	83 (18)		
Test Anxiety	High	29	71 (17)	1.55	.20–.30
	Low	12	88 (17)		
Risk Taking	High	33	67 (12)	.28	.50–.70
	Low	25	75 (16)		
Combined measure . .	High	36	64 (14)	1.96	.10–.20
	Low	15	85 (20)		

TABLE 33

RELATIONSHIP BETWEEN MEASURES OF THE MOTIVE TO AVOID FAILURE AND THE AVOIDANT PATTERN AS DEFINED BY F FAILURE SCORES ON HIGH AND LOW CUE PICTURES: NEUTRAL GROUP

Measure		Avoidant Response (pct.)	Other (pct.)	χ^2	p
Test Anxiety	High	11	89 (18)	1.39[a]	.20–.30
	Low	26	74 (19)		
Risk Taking	High	33	67 (15)	.65	.30–.50
	Low	21	79 (19)		

[a]Direction of relationship opposite to that predicted.

appears to the writer to render the hypothesis untestable. In their study concerning the role of picture and situation cues in the measurement of the achievement motive, Haber and Alpert (22) defined the cue value of pictures in terms of independent ratings and percentage of stories scored for achievement imagery. For the present study pictures were selected from those used by these investigators. In the absence of a systematic study of pictures for the motive to avoid failure, the writer believed that the Haber and Alpert ratings would suffice in the selection of pictures to be considered suggestive of a competitive situation in a more general sense. This assumption was justified by Jacobs' (23) earlier finding that when a group of pictures was rank ordered in terms of the degree to which the persons shown were likely to be concerned about (1) the attainment of achievement, and (2) the avoidance of failure, pictures ranked high for relevance to achievement were also rated high for relevance to the avoidance of failure. The present data show quite clearly the error of our assumption if mean n Achievement and mean f Failure scores may be taken as a proper index of the cue value of the pictures for each of the motives. In Tables 34 and 35 the differences in n Achievement and f Failure for those pictures selected as "high cue" and "low cue" are reported for the neutral and achievement-oriented groups.

The results for n Achievement in both groups are consistent with Haber and Alpert's. High cue pictures do produce stories higher in n Achievement than do low cue pictures. A similar comparison may be made for f Failure (see Table 35).

It is quite clear that high and low cue pictures differ in the power to evoke f Failure stories, the high cue pictures eliciting lower f Failure scores than the low cue pictures. Whether or not similar differences would extend generally to pictures defined by

TABLE 34

MEAN N ACHIEVEMENT SCORES FOR HIGH CUE AND LOW CUE PICTURES: NEUTRAL AND ACHIEVEMENT-ORIENTED GROUPS

Score	Neutral Group[a]	Achievement Oriented Group[b]
High cue	11.02	12.09
Low cue	5.54	7.55
Difference	5.48	4.54
σ difference	.75	.85
t	7.31	5.34
p	<.001	<.001

[a]N = 50. [b]N = 42.

TABLE 35

MEAN F FAILURE SCORES FOR HIGH CUE AND LOW CUE PICTURES: NEUTRAL AND ACHIEVEMENT-ORIENTED GROUPS

Score	Neutral Group[a]	Achievement Oriented Group[b]
High cue	3.32	3.07
Low cue	5.72	5.88
Difference	-2.40	-2.81
σ difference	.48	.63
t	5.00	4.46
p	<.001	<.001

[a]N = 50. [b]N = 42.

Haber and Alpert's method, is obviously not possible to determine. However, even if they are specific to the pictures used in this study, they are damaging to the testing of hypotheses concerning picture cues. In the plan of the experiment, variability in cue strength was considered tantamount to variability in threat with regard to competition with standards of evaluation. The testing of hypotheses derived from the approach-avoidance formulation required this equivalence. The results, unhappily, appear to deny that this is the case. The argument might well be advanced that the high f Failure scores evoked by the so-called "low-cue" pictures indicate a high degree of threat suggested in the pictures. For the present data, it seems unwarranted to make inferences from results concerning picture cues.

Discussion

Methodological problems have intervened in the present study to render the testing of many hypotheses indefensible. The report of the study, in large part, has been a running self-critique, and by implication a warning to others of some of the pitfalls that may be encountered when exploring the same area. In the second experiment described in this paper an attempt had been made to profit from the errors. For the present it is perhaps best to focus attention on the few results which can be accepted with any confidence.

One interesting and consistent trend emerges in the results for the achievement-oriented group. Subjects classified as failure-avoidant on the memory, preference, and Test Anxiety measures, and on a composite score of the three, tend to write stories in which positive content is emphasized and negative content de-emphasized. This trend is apparent on each of the positive, negative, and

comparison scores used. It is most striking for the composite measure and least apparent for the Test Anxiety measure. The risk taking measure is unrelated to any of the projective indices in either group, and the Test Anxiety measure in the neutral group shows a similar lack of relationship. The two defense scores and the composite scores could not be employed in the neutral group, and as a result, our findings for these measures are limited to the achievement-oriented group.

While the results implying that persons motivated to avoid failure write stories in which negative content is relatively lacking and positive content somewhat emphasized are reasonably clear, they are in direct conflict with some of the earlier findings. There is a tendency in our data for failure-avoidant subjects to write stories relatively high in n Achievement. While this result is in no case statistically significant, it is provocative in the light of the conceptualization of low n Achievement as indicating a strong motive to avoid failure. In the Moulton (34) analysis of Atkinson's Zeigarnik data, higher recall of incompleted than completed tasks, and high recall of incompleted tasks were related to high n Achievement, low f Failure and high net Hope, when both the projective and the task measures were administered under achievement conditions. These were the conditions for which diametrically opposite results occur in the present study. It is appropriate to consider differences between the two experiments in order to arrive at some tentative explanation of the divergency of findings.

The pictures employed

Of the four pictures used by Atkinson and the six in the present study, only two were the same. In order to investigate whether or not the difference in pictures could account for the

conflicting findings, results for the two common pictures may be considered. For this purpose it is necessary to select for the present study the independent measure most nearly comparable to the Atkinson measure. The Reitman memory measure, yielding scores showing the recall of failure material relative to control material, is most similar to the preferential recall of incompleted over completed tasks. For the Moulton (34) study, subjects were rank ordered in the number of incompleted tasks recalled minus the number of completed tasks recalled and the resulting scores divided at the median. For the present study the difference in recall between failure and control material was utilized, employing a median break. Two projective scores were computed, f Failure to represent negative content, and Hope of Success to represent positive content. White's (18) test of differences in rank order was used for analysis (see Table 36).

While none of the findings are statistically significant, each is consistent with the general results of the study from which it is drawn. There is no indication that the divergent results can be explained by the differences in pictures employed.

Conditions of TAT administration

In both studies the n Achievement measure was preceded by the administration of tasks described as measures of intelligence. The tasks were different, however. In the Atkinson experiment the Zeigarnik tasks were themselves used for purposes of arousal, while in the present experiment the problem was to find simple figures embedded in more complex figures. It should be mentioned that in the Atkinson experiment n Achievement scores did not significantly increase between relaxed and neutral conditions, while for the present study such a difference did occur. It might be

TABLE 36

DIFFERENCES IN F FAILURE AND HOPE OF SUCCESS FOR SUBJECTS CLASSIFIED AS HIGH AND LOW IN MOTIVE TO AVOID FAILURE

Item	N	Median	Z	p
Moulton—F Failure				
Favor completed	10	6.00	+1.38	.17
Favor incompleted	14	4.30		
O'Connor—F Failure				
Favor control	20	4.17	-.10	.92
Favor failure	20	4.50		
Moulton—Hope of Success				
Favor completed	10	2.50	-1.02	.31
Favor incompleted	14	4.15		
O'Connor—Hope of Success				
Favor control	20	3.50	+.98	.33
Favor failure	20	2.17		

suggested that the level of situationally induced achievement motivation was higher in the present experiment than in the other study. This possibility, considered in the light of an experiment by Raphelson and Moulton (37), gains importance. These investigators found that under "normal aroused conditions," Test Anxiety was related to high f Failure and low Hope of Success, while under arousal conditions designed to elicit strong anxiety, Test Anxiety was related to low f Failure and unrelated to Hope of Success. These results are not directly relevant to the present discussion because the measure of the motive to avoid failure is not the same and because neither of the arousal conditions is identical to the achievement-oriented condition traditionally employed in n Achievement research. However, it is interesting that the results for the "normal aroused" group are similar to Atkinson's, and those for the "high aroused" group similar to our own. The implication is that the quality of stories may vary as a function of the conditions under which the projective was administered. Raphelson and Moulton interpret their results as showing that failure-avoidant subjects will in a normal achievement situation write stories which manifestly reflect their anxiety. When situational anxiety is further increased, they will defensively avoid threatening content and emphasize positive content as a kind of "wish fulfillment." In the absence of a comparison between Atkinson and O'Connor experiments in degree of situationally induced motivation, one can only speculate that conditional differences may account for the divergency of findings.

While in both the Atkinson study and the present experiment, the motive to avoid failure was measured by the relative preponderance in recall of failure as compared with non-failure material, the two measures are by no means equivalent. At the time of the completion of this experiment, although the differences were

recognized, they did not suggest a means of reconciling the results. An interpretation did arise when the data for the second experiment were analyzed. Because this interpretation cannot be stated satisfactorily without reference to the later experiment, it will not be offered here but will instead be advanced in the final chapter.

Summary

In order to investigate the relationship between independent and projective indices of the motive to avoid failure, an experiment was carried out in which 135 college students served as subjects. The n Achievement measure was administered to some subjects under neutral conditions and to the remainder under achievement-oriented conditions. Several days later four measures of the motive to avoid failure were presented under test conditions to subjects from each of the original orientation groups. These measures were the Mandler-Sarason Test Anxiety scale, a measure of the recall of control and failure material, a measure of relative preference for completed over incompleted tasks, and an index for preference for extremely safe or extremely risky bets over those in the intermediate ranges.

Numerous and serious methodological problems prevented testing the hypotheses with confidence. Most devastating to this purpose were the indications that subjects originally given the n Achievement measure under neutral conditions were not successfully achievement-oriented for the administration of the independent measure. Since the memory and preference measures require a test administration, they could not be used for the neutral group. Thus

analysis within the neutral group and comparisons between the neutral and achievement-oriented group were sharply curtailed.

One set of hypotheses involved a predicted positive relationship between the independent measures of the motive to avoid failure. Tests were made for the neutral and achievement-oriented groups separately. Chi-square analysis in the achievement-oriented groups showed near-significant relationships among Test Anxiety, the memory measure, and the preference measure. The risk taking measure was related to the others in the predicted direction, but none of the obtained relationships approached statistical significance. In the neutral group, positive findings were lacking. The argument was advanced that since achievement arousal for the neutral group was not successful, negative findings did not weaken the conclusions implied for the achievement-oriented group.

Other predictions stated that individuals highly motivated to avoid failure would score lower in n Achievement and f Failure when the conditions were achievement oriented rather than neutral, at least for high cue pictures. Subjects low in the motive to avoid failure, on the other hand, were expected to evidence an increase in n Achievement and f Failure under achievement conditions in response to all pictures. Comparisons could be made only on the basis of the Test Anxiety and risk taking measures. The results indicated that n Achievement tended to increase between neutral and achievement conditions for subjects classified as high or low in the motive to avoid failure. F Failure, on the other hand, remained relatively constant between conditions. On the high cue pictures subjects preferring intermediate risks tended to decline in f Failure between neutral and achievement conditions. The same was true for subjects high in Test Anxiety. These results, opposite in implication, are difficult to interpret.

A further problem was introduced by the finding that "low cue" pictures and "high cue" pictures differed not only in the power of the latter to evoke more achievement content in the stories but in the tendency for the former to evoke more fear content. This fact was disturbing to the assumption that "high cue" pictures were more anxiety-eliciting and thus would be more likely to lead to the avoidant response—i.e., not writing about competition. For this reason the prediction that failure-avoidant subjects would be more likely than others to show the avoidance response—i.e., to write stories high in n Achievement or f Failure to low cue and not to high cue pictures—became untestable.

The relationships between the independent measures of the motive to avoid failure and several projective indices were investigated. There was little indication that probability preference in risk taking was related to any of the projective indices. In the neutral group Test Anxiety was not related to projective scores. For the reasons stated above, the memory and preference measures were not considered in the neutral group. One consistent trend did, however, emerge in the achievement-oriented group. Subjects classified as failure avoidant on the basis of the memory, preference, and Test Anxiety measures, or on a combined index based on the three scores, tended to write stories in which positive content was relatively high and negative content relatively low. This finding, in direct contradiction to the results in Atkinson's (1) and Moulton's (34) studies, tends to shed doubt on the belief that a positive relationship exists between the motive to avoid failure and fear content and between the motive to achieve success and positive content. It suggests that the projective may itself be subject to the same defensive forces that influence other behaviors. This hypothesis will be investigated further in the study which follows.

CHAPTER III

THE SECOND EXPERIMENT

The results of the first experiment reported in this dissertation suggest that the motive to avoid failure, defined operationally as lower recall of or preference for failure than non-failure material, is related to the writing of stories high in positive achievement content and low in content concerning poor performance. These findings, obtained when the projective and the independent measures were administered under aroused conditions, suggest that the motive to avoid failure may be expressed by a defensive avoidance of threatening material and a "wish-fulfilling" emphasis on success content.

While this general conclusion is consistent with findings in some studies, it is directly conflicting with those in others. For example, persons who, on the basis of other evidence, were presumed to be highly failure avoidant, in one study wrote stories characterized by high fear content and low positive content (34), and in another by low fear content and high positive content (16). In one investigation (37) the characteristic content for failure-avoidant subjects was a function of the conditions under which the projective was administered. In evaluating these puzzling results, it must be recognized that no study directly replicated another. The conditions for the administration of the projective have been neutral or aroused. The independent measures have varied, as

have the pictures from which the scores were derived. Even when results from closely similar studies are compared, however, there is a lack of consistency. For example, our first experiment resembled Atkinson's (1) Zeigarnik study. In each case higher recall of control than failure material was the measure of the motive to avoid failure, and for both, the n Achievement administration was aroused. The results, however, were conflicting. Moulton's (34) re-analysis of the Atkinson data showed failure-avoidant subjects wrote stories high in fear content and low in positive content. Our results, on the other hand, indicated that failure-avoidant subjects wrote stories low in fear content and high in positive content. In order to determine whether the use of different pictures was responsible for the conflicting results, subjects high and low in scores defining the motive to avoid failure were compared on projective scores derived from the two common pictures. The results in each case were consistent with those in the study as a whole.

In an experiment by Raphelson and Moulton (37) and in our first experiment, Test Anxiety was related to projective scores based on stories written under aroused conditions. The former investigators found Test Anxiety to be associated with low n Achievement and high f Failure. In our study, although neither relationship was statistically significant, the directions of relationship were opposite to those of Raphelson and Moulton.

On the basis of present findings, no conclusion may properly be drawn as to the manner in which the motive to avoid failure is expressed in stories written in response to TAT pictures. In the first study reported here an attempt was made to reconcile conflicting findings by varying several factors which might be expected to produce different results. The projective was administered under neutral and aroused conditions, and pictures differing in cue strength

were employed. Four different measures of the motive to avoid failure were utilized. Methodological problems assumed such proportions that the intent was defeated. As a result the study which followed was narrowed in scope to investigate a single question: How will the motive to avoid failure be expressed in stories written under aroused conditions? The aroused condition was selected in preference to the neutral, because the directly conflicting findings are based upon data collected under that condition.

The single measure selected for the motive to avoid failure was the Mandler-Sarason Test Anxiety Questionnaire. The choice was made in part as a result of the problems encountered in using the defense measures in the first experiment. The partial failure to create the required test situation for the administration of the independent measures necessitated discarding the scores for subjects who had taken the n Achievement measure under neutral conditions. As a result the analysis was sharply curtailed and the experiment seriously affected. The danger in using measures which require the successful creation of a test situation has been amply demonstrated. It seems far better, at least in this preliminary investigation, to employ a measure which can be used without the necessity for a successful experimental manipulation. The Mandler-Sarason Test Anxiety Questionnaire, customarily administered without prior arousal, meets this criterion. Furthermore, the validity of this measure has been established. A comparison (26) between subjects at the extremes of the Test Anxiety distribution showed that high Anxiety subjects evidenced more overt manifestations of anxiety in a test situation than did low Anxiety subjects. When stress-producing instructions were employed, opposite effects on performance were observed. Low Anxiety subjects showed a performance increment over the low stress situation, while high Anxiety

subjects suffered a performance decrement (41). These studies attest to the validity of the Test Anxiety Questionnaire and suggest that it is the measure in which the most confidence is justified.

Difficulties arising in the first experiment with regard to picture cues suggest that varying picture cues in one dimension may lead to an undesired simultaneous varying along another dimension. The confounding of cue value with respect to n Achievement and f Failure for the pictures employed rendered hypotheses concerning cue value untestable. While it is quite possible that a similar problem would not have arisen had different pictures been employed, it appears that varying pictures along a single dimension is very difficult. Verbal cues afford a more satisfactory means of control. For example, situations differing in a single word, e.g., the presence of a block, could be employed. In the present study, subjects differing in Test Anxiety will be compared in projective scores derived from each of three types of verbal leads.

Procedure

Fifty-two students for whom participation in a psychological experiment was a course requirement were subjects in this study. Two subjects for whom TAT protocols were incomplete were lost to analysis. Students were assigned to one of two groups by reference to their time schedules. The procedure was identical for each group.[1] The section of the Test Anxiety Questionnaire concerning reactions to taking a group intelligence test was first presented without prior arousal. Following this, the arithmetic task devised

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[1]The writer wishes to thank Mr. Charles P. Smith for serving as experimenter in both groups.

by Wendt (48) was given under standard aroused conditions (1) for the purpose of creating an achievement condition for the administration of the projective measure which followed. This measure consisted of six verbal statements typed on slides and projected one by one upon a screen under the standard instructions for the administration of the n Achievement measure (29). These verbal leads written for this study described three kinds of situations: two were achievement situations in which no specific mention of difficulty was made, two were situations in which performance would be evaluated and additionally some difficulty was suggested, and two were situattions which were left open in suggested theme and in which no reference to achievement or failure was made. The achievement leads would themselves be scored for n Achievement, though not for f Failure. The failure leads would be scored for f Failure and the neutral leads for neither motive. It is recognized that this method of defining cue value is less desirable than a systematic study employing ratings of several judges. However, the criteria employed are at least clearly defined. The leads are reproduced below in the order of presentation used.

1. The gun went off for the 100-yard dash in the Olympic Games. Fred's heart pounded and he found himself running. (Achievement)
2. Going into the final George's grade was a low D. His instructor handed him the exam. (Failure)
3. Tom and his father are deeply engrossed in conversation. They are trying to reach an important decision. (Neutral)
4. After two years' work, Mike finally felt sure of success in his experiment in atomic research. But then he found another scientist had already solved the same problem. (Failure)
5. Five executives of the Random House publishing firm were gathered around the conference table. Tom Barton rose to speak. (Neutral)

6. Ever since he could remember, Harry had never doubted he would become a famous surgeon. This semester he is taking two pre-med courses. (Achievement)

Hypotheses

In the hypotheses two emphases are found. The first hypotheses concern the relationships between Test Anxiety and n Achievement, Hope of Success, and f Failure. With respect to these variables, conflicting findings negate the possibility of forming unidirectional hypotheses. The results of Raphelson and Moulton (37) suggest that high Anxiety subjects are low in n Achievement and Hope of Success and high in f Failure. The results of the first experiment reported here were opposite in implication, although clear differences were not found between high and low Anxiety subjects. In the analysis, total n Achievement scores were considered as were scores derived from each type of verbal lead. Atkinson (16) has suggested that the positive or negative emphasis in a story will be affected by the stimuli employed. A picture strongly suggestive of failure may evoke much negative content from persons high in the approach motive, simply because in writing an achievement story, some negative content will be forced by the stimulus. Basing comparisons on each type of verbal lead makes possible an exploratory investigation into the question of the effects of stimuli in eliciting stories of specified content from subjects differing in the strength of the motive to avoid failure.

The other hypotheses derive from Scott's (43) study concerning the avoidant response in fantasy. His "avoiders," subjects writing more stories concerning the evaluation of performance under neutral than aroused conditions, were shown to exceed other subjects on several projective indices of fear. The present measure

of the motive to avoid failure is a self-report questionnaire in which anxiety is defined in terms of the subject's judgment of his own experience in a test situation. Scott's measure, based on the avoidance of threatening material under aroused conditions, involves, on the other hand, a defense concept. It is hypothesized that Test Anxiety will be related to the projective indices of anxiety in the same fashion as Scott's. The results of this analysis are relevant to the problem of the effect of different measures of the motive on obtained findings. The hypotheses are stated as follows:

1. High Anxiety subjects differ from low Anxiety subjects in n Achievement.
2. High Anxiety subjects differ from low Anxiety subjects in Hope of Success.
3. High Anxiety subjects differ from low Anxiety subjects in f Failure.
4. Subjects high in Test Anxiety write fewer competition stories with successful outcomes than do low Anxiety subjects.
5. Subjects high in Test Anxiety show fewer competitive reactions to failure than do subjects low in Test Anxiety.
6. Subjects low in Test Anxiety show more problem-oriented thinking or activity than do high Anxiety subjects.
7. Subjects low in Test Anxiety introduce conflict into achievement stories more often than subjects high in Test Anxiety.

In testing the final four hypotheses, we shall take advantage of the better controls provided by the verbal stimuli. While traditionally the ambiguity of the stimuli in projective tests is considered a primary virtue, in the testing of some hypotheses it may be a flaw. For example, if a stimulus is ambiguous the subject must first define the situation in achievement or non-achievement terms. He then elaborates the situation selected. When comparisons are made in "success or failure of outcome," these outcomes

refer to different situations. Insofar as a motive determines the selection of the situation as well as the method of resolving the problem defined, an indeterminacy results. In Scott's study, for example, subjects were defined as "avoidant," if in the war-catastrophe study they wrote a story with a war-catastrophe theme to at least one of the low cue pictures and not to the high cue picture. All other subjects were combined as non-avoidant. As a result the comparisons in outcome, problem-oriented activity, et cetera, were based in part on stories written to different pictures. Insofar as the pictures themselves varied in their suggestiveness of successful or unsuccessful outcome, et cetera, a bias was introduced into the results. For example, if the single high cue picture suggested an eventual positive outcome, while the low cue picture in general did not, the finding that non-avoidant subjects wrote more war-catastrophe stories with successful outcomes than did other subjects would hardly be informative. The point in raising this question is not to criticize the Scott experiment. There is no evidence indicating that the high cue picture did in fact differ from the low cue pictures along other dimensions. However, to this writer there appear to be advantages to comparing response differences when the eliciting stimuli do not systematically vary.

In testing the fourth hypothesis which concerns outcome, all stories written in response to the achievement and failure slides were scored, while those written in response to the neutral slides were not. Since it was expected that the neutral slides would elicit achievement or failure stories from only a few—and presumably atypical—subjects, it was decided not to consider these verbal leads. For the analysis for the fifth hypothesis only the stories written to the failure leads were scored in order that the reaction of all subjects to a common failure situation be determined. In testing the sixth hypothesis problem-oriented activity was scored

only for stories in which behavior directed toward a positive achievement goal was indicated by the fact that the stories had been scored for achievement imagery. This restriction was made in order to avoid scoring instrumental activities for which the goal was the avoidance of failure. Finally for the seventh hypothesis only those stories written to the achievement leads were scored for the introduction of conflict. Conflict is introduced into the failure leads themselves, and the neutral leads were not scored for reasons identical to those for the fourth hypothesis.

Scoring

The Test Anxiety Questionnaire was scored as it had been by Atkinson and Litwin (8). For each item the subject checked the point on a line representing the extent to which he had experienced certain manifestations of anxiety in taking a group intelligence test. Scores for each item were divided at each quartile and a number from one to four assigned. Total scores were computed by summing scores for all items. In analysis scores were treated in two different ways. For one analysis they were divided at the median to provide two groups. The second analysis divided the scores into three groups. One was composed of subjects falling in the upper quarter of the distribution, another of subjects falling in the lower quarter, and the third, of those falling in the second and third quartiles. The first analysis was employed because in n Achievement research the total groups had been considered. The second was used because the validity of the Test Anxiety Questionnaire was established through research in which comparisons involved subjects at the extremes of the distribution.

The stories were scored for n Achievement by the writer, whose scoring had satisfied reliability requirements. She also scored the stories for f Failure. Her reliability, based on a rank-order correlation with Moulton's (34) scoring of Atkinson's aroused group, was .81, and total agreement on scoring for imagery

$$\left(\frac{2 \times \text{number of agreements}}{\text{number scored by first coder} + \text{number scored by second coder}} \right)$$

was .93. Reliability checks were made for other coding. These will be specified.

Results

The results of analysis will be reported for each hypothesis in turn. In each case analysis was first based upon a two-way break and second on a three-way break. Initially it had been intended in this latter analysis to consider only those subjects at the extremes of the Test Anxiety distribution. However, when the data for the first hypothesis were analyzed it became clear that the middle group differed from the two extreme groups. For this reason, throughout the remainder of the analysis both the extreme and middle groups were considered.

Hypothesis 1: Subjects high in Test Anxiety differ from subjects low in Test Anxiety in n Achievement (see Tables 37, 38, 39, and 40).

The results based on a median break fail to indicate that Test Anxiety and n Achievement are related. In Tables 38, 39, and 40 similar comparisons are made among the high, mid, and low Test Anxiety groups. Several interesting findings are indicated in the latter three tables. Perhaps the most striking of these findings shows that moderate Test Anxiety subjects exceed both extreme groups in n Achievement. This difference holds in all comparisons, although some are not statistically significant.

TABLE 37

DIFFERENCES IN N ACHIEVEMENT FOR SUBJECTS ABOVE AND BELOW THE MEDIAN IN TEST ANXIETY

Score	N	Total Score	Achievement Leads	Failure Leads	Neutral Leads
High	26	21.73	10.50	8.35	2.88
Low	24	22.25	9.67	9.08	3.50
Difference		-.52	.83	-.73	-.62
σ difference		1.74	.72	.91	.88
t		.30	.80	1.15	.70
p		n.s.	n.s.	n.s.	n.s.

TABLE 38

DIFFERENCES IN N ACHIEVEMENT FOR SUBJECTS IN HIGHEST QUARTILE AND LOWEST QUARTILE IN TEST ANXIETY

Score	N	Total Score	Achievement Leads	Failure Leads	Neutral Leads
High	12	19.26	10.17	6.67	2.42
Low	12	19.92	8.17	8.83	2.92
Difference		-.66	2.00	-2.16	-.50
σ difference		2.52	1.05	1.25	1.15
t		.27	1.92	1.73	.43
p		n.s.	.1–.05	.1–.05	n.s.

TABLE 39

DIFFERENCES IN N ACHIEVEMENT FOR SUBJECTS IN HIGHEST QUARTILE AND MIDDLE QUARTILES IN TEST ANXIETY

Score	N	Total Score	Achievement Leads	Failure Leads	Neutral Leads
High	12	19.26	10.17	6.67	2.42
Mid	26	24.19	10.96	9.58	3.65
Difference		-4.93	-.79	-2.91	-1.23
σ difference		1.81	.77	.99	1.13
t		2.69	1.03	2.94	1.09
p		<.01	n.s.	<.01	n.s.

TABLE 40

DIFFERENCES IN N ACHIEVEMENT FOR SUBJECTS IN LOWEST QUARTILE AND MIDDLE QUARTILES IN TEST ANXIETY

Score	N	Total Score	Achievement Leads	Failure Leads	Neutral Leads
Mid	26	24.19	10.96	9.58	3.65
Low	12	19.92	8.17	8.83	2.92
Difference		4.27	2.79	.75	.73
σ difference		2.08	.80	1.12	1.10
t		2.05	3.49	.67	.66
p		.05–.02	<.01	n.s.	n.s.

Studies of Test Anxiety have shown that high Anxiety is associated with poor performance under test conditions and that high Anxiety subjects show a performance decrement when the level of situationally induced anxiety is increased (41). Because comparisons have generally been based upon subjects falling at the extremes, information concerning the middle groups is not available. In the absence of evidence to the contrary, it would be assumed that scores on the Test Anxiety Questionnaire measure in linear fashion the extent to which anxiety is experienced in a test situation. Our findings suggest that something more is involved. The finding that moderate Test Anxiety subjects exceed the highs in n Achievement is consistent with the Raphelson and Moulton experiment in which Test Anxiety and n Achievement were found to be negatively correlated. It is also consistent with the notion that high Test Anxiety reflects a relatively low positive motive. The low n Achievement scores of the low Test Anxiety subjects are, however, less easily explained. These subjects are viewed as task-oriented persons relatively low in anxiety. Our results suggest, rather, that they are also low in the achievement motive, and that extremely low Anxiety scores may reveal not only "low anxiety" but also a lack of concern with performance.

Comparisons between the two extreme groups also provide interesting results. While these groups do not differ in total n Achievement scores, they do differ in n Achievement scores derived from stories written in response to verbal leads of different kinds. For the slides in which an achievement situation is structured, but no difficulty explicitly introduced, the high Anxiety subjects exceed the Lows to a near-significant degree. On those slides in which problems in an achievement situation are stated in the verbal leads, the Lows exceed the Highs. These results are

consistent with the position that the motive to avoid failure will be expressed in fantasy by the avoidance of threatening material and the accentuation of positive content. This conclusion is also suggested when each of the extreme groups is compared with the middle group. Moderate Test Anxiety subjects exceed the Lows to a significant extent only on the achievement leads and the Highs, only on the failure leads. The inference may be drawn that low n Achievement score is likely to characterize persons high in the motive to avoid failure when stimuli strongly suggestive of failure are employed, but not when stimuli without this implication are used. The possibility that the composition of the group of subjects tested could also influence the results suggests itself. For example, the Raphelson-Moulton finding that Test Anxiety and n Achievement are negatively correlated is not supported in the present data. If, however, there were relatively few subjects in their sample who were low in Test Anxiety, a negative correlation would be expected to occur. Because Test Anxiety scores are determined on the basis of the specific sample used, i.e., scores are based on an individual's responses relative to those of other subjects in the same group, it is not possible to test the tenability of this idea.

Hypothesis 2: Subjects high in Test Anxiety differ from subjects low in Test Anxiety in Hope of Success (see Tables 41, 42, 43, and 44).

Test Anxiety is not related to Hope of Success, at least when a median break on the former measure is employed. Analysis for a three-way comparison on Test Anxiety is provided in Tables 42, 43, and 44.

The Hope of Success score, which is composed of achievement imagery, thema, successful instrumental acts, anticipations of success, and affect associated with success, provides little

TABLE 41

DIFFERENCES IN HOPE OF SUCCESS FOR SUBJECTS ABOVE AND BELOW THE MEDIAN IN TEST ANXIETY

Score	N	Total Score	Achievement Leads	Failure Leads	Neutral Leads
High	26	9.73	5.15	3.58	1.00
Low	24	9.46	4.54	3.63	1.25
Difference		.27	.61	-.05	-.25
σ difference		1.16	.52	.59	.54
t		.23	1.17	.09	.46
p		n.s.	n.s.	n.s.	n.s.

TABLE 42

DIFFERENCES IN HOPE OF SUCCESS FOR SUBJECTS IN HIGHEST AND LOWEST QUARTILES IN TEST ANXIETY

Score	N	Total Score	Achievement Leads	Failure Slides	Neutral Slides
High	12	8.33	5.17	2.33	.83
Low	12	8.00	3.67	3.42	.92
Difference		.33	1.50	-1.09	-.09
σ difference		1.48	.66	.65	.71
t		.23	2.27	1.68	.57
p		n.s.	.05–.02	.2–.1	n.s.

TABLE 43

DIFFERENCES IN HOPE OF SUCCESS FOR SUBJECTS IN HIGHEST QUARTILE AND MIDDLE QUARTILES IN TEST ANXIETY

Score	N	Total Score	Achievement Slides	Failure Slides	Neutral Slides
High	12	8.33	5.17	2.33	.83
Mid	26	10.92	5.27	4.31	1.35
Difference		-2.59	1.10	-1.98	-.52
σ difference		1.29	.60	.61	.70
t		2.00	.17	3.25	.74
p		< .05	n.s.	< .01	n.s.

TABLE 44

DIFFERENCES IN HOPE OF SUCCESS FOR SUBJECTS IN LOWEST QUARTILE AND MIDDLE QUARTILES IN TEST ANXIETY

Score	N	Total Score	Achievement Slides	Failure Slides	Neutral Slides
Mid	26	10.92	5.27	4.31	1.35
Low	12	8.00	3.67	3.42	.92
Difference		2.92	1.60	.89	.43
σ difference		1.35	.57	.68	.63
t		2.16	2.81	1.31	.67
p		< .05	< .01	n.s.	n.s.

information not implied by the total n Achievement score. Subjects in the middle quartiles exceed both the Lows and the Highs in Hope of Success in total score and in scores based on the different kinds of verbal leads. The Highs do not differ from the Lows, on the other hand, in Hope of Success. On the achievement slides the Highs exceed the Lows, and on the failure slides, the Lows exceed the Highs. For the extreme groups, then, Hope of Success score is a function of the stimuli employed. When achievement leads do not suggest failure, high Anxiety subjects write scores relatively high in Hope of Success. When difficulties are suggested, these same subjects write stories low in Hope of Success.

Hypothesis 3: Subjects high in Test Anxiety differ from subjects low in Test Anxiety in f Failure (see Tables 45, 46, 47, 48).

The results reported in Table 45 indicate that subjects high in Test Anxiety score lower in f Failure than do subjects low in Test Anxiety, although only for the failure leads is the result significant.

TABLE 45

DIFFERENCES IN F FAILURE FOR SUBJECTS ABOVE AND BELOW THE MEDIAN IN TEST ANXIETY

Score	N	Total Score	Achievement Slides	Failure Slides	Neutral Slides
High	26	8.89	1.77	4.35	2.77
Low	24	10.82	2.12	5.75	2.95
Difference		-1.93	-.35	-1.40	-.14
σ difference		1.08	.43	.60	.59
t		1.79	.81	2.33	.25
p		.1–.05	n.s.	.02	n.s.

It will be remembered that when the n Achievement measure was presented under aroused conditions, conflicting results were obtained in different studies with regard to the relationship between measures of the motive to avoid failure. Moulton (34) employed a measure in which higher recall of control than failure material was defined as indicating a strong motive to avoid failure. Raphelson and Moulton (37) utilized the Mandler-Sarason Test Anxiety Questionnaire for the same purpose. In both investigations, scores indicating a strong motive to avoid failure were related to a high f Failure score. In the first experiment reported in this thesis preferential recall of control over failure material and higher attractiveness ratings for completed than incompleted tasks defined the motive to avoid failure. Both measures were related to a relative absence of negative content. The Test Anxiety Questionnaire also employed, produced similar results, although they were very far from being statistically significant. The present findings are consistent with those in our first experiment and inconsistent with those of Moulton and Raphelson. The conclusion is that the motive to avoid failure may lead to a defensive avoidance of failure material in fantasy. In the light of present findings, it does not appear justified to consider a high f Failure score as indicative of a strong motive to avoid failure.

In the analysis based on a three-way comparison, findings are similar to those obtained with a median break. High Test Anxiety subjects score lower in f Failure then do the Lows. This finding is most clearly evidenced on the failure verbal leads. Comparisons concerning the Mids show them to resemble the Highs closely, although there is a general tendency for them to exceed the Highs in f Failure. On the failure slides the Lows exceed the Mids in

TABLE 46

DIFFERENCES IN F FAILURE FOR SUBJECTS IN HIGHEST AND LOWEST QUARTILES IN TEST ANXIETY

Score	N	Total Score	Achievement Slides	Failure Slides	Neutral Slides
High	12	8.42	1.92	4.17	2.33
Low	12	11.83	2.33	6.58	2.92
Difference		-3.41	-.41	-2.41	-.56
σ difference		1.46	.64	.54	.55
t		2.33	.64	4.46	1.02
p		.05–.02	n.s.	< .01	n.s.

TABLE 47

DIFFERENCES IN F FAILURE FOR SUBJECTS IN HIGHEST QUARTILE AND MIDDLE QUARTILES IN TEST ANXIETY

Score	N	Total Score	Achievement Slides	Failure Slides	Neutral Slides
High	12	8.42	1.92	4.17	2.33
Mid	26	9.54	1.77	4.69	3.08
Difference		-1.12	.15	-.52	-.75
σ difference		1.33	.54	.66	.71
t		.84	.24	.79	1.06
p		n.s.	n.s.	n.s.	n.s.

TABLE 48

DIFFERENCES IN F FAILURE FOR SUBJECTS IN LOWEST QUARTILE AND MIDDLE QUARTILES IN TEST ANXIETY

Score	N	Total Score	Achievement Slides	Failure Slides	Neutral Slides
Mid	26	9.54	1.77	4.69	3.08
Low	12	11.83	2.33	6.58	2.92
Difference		-2.29	-.56	-1.89	-.16
σ difference		1.32	.55	.63	.75
t		1.74	1.02	3.00	.21
p		.10–.05	n.s.	<.01	n.s.

f Failure to a significant degree and exceed them to a near-significant extent in total score as well.

These results imply that high f Failure scores characterize subjects who on the Test Anxiety scale are defined as low in the motive to avoid failure. It is difficult to avoid the inference that persons highly motivated to avoid failure avoid threatening content in thematic apperception. Content reflecting a manifest emphasis on failure experiences apparently does not indicate a strong motive to avoid failure if the Test Anxiety Scale is accepted as a valid measure of that motive. The findings suggest, rather, that a strong motive to avoid failure is expressed in fantasy by a lack of emphasis on difficulties encountered in achievement situations.

When findings concerning n Achievement, Hope of Success, and f Failure are considered as a whole, a possible interpretation

arises which is somewhat speculative. This suggestion is that on both the Test Anxiety measure and the n Achievement measure, a confounding between a low positive motive and a strong motive to avoid failure occurs. A low score in n Achievement is characteristic of subjects at both extremes of the Test Anxiety scale. A low score in itself, in other words, is characteristic of persons who are both highly failure avoidant and minimally failure avoidant. The evidence that low n Achievement persons are fearful of failure (1, 34) apparently is applicable only to some persons who are low in n Achievement. This inference is supported by the differences in n Achievement scores derived from achievement and failure verbal leads indicated by persons at the extremes in Test Anxiety. It is also indicated by differences in f Failure scores shown by the two groups. High Anxiety subjects obtain low n Achievement scores when threatening stimuli are employed and high Achievement scores when stimuli which, while suggestive of an achievement situation, do not explicitly introduce a threatening element. These same subjects score low in f Failure.

The low Anxiety subjects show a diametrically opposite pattern. Scoring low in n Achievement on the achievement slides, they score high on the failure slides. Similarly, they obtain very high f Failure scores. The results for the Highs support the position that subjects high in the motive to avoid failure will tend to avoid threatening content in fantasy. This position is consistent with Scott's (43) and with the view taken in the first experiment reported here. The findings for the Lows, on the other hand, are less amenable to confident interpretation, especially if a low Anxiety score is taken to indicate only a relative lack of debilitating anxiety experienced in a test situation. An alternative conception of a low Anxiety score is that it represents, or at the least is

confounded with, an achievement motive of low strength. The low n Achievement scores obtained by this group suggests this interpretation. Further support is indirectly implied if one considers the nature of the f Failure scoring system. The criteria for scoring in this system are far more inclusive than for n Achievement. Fear Imagery is scored when any indication of poor performance is given, whether or not the character in the story is concerned about the quality of performance. Furthermore, preference for other activities expressed in an achievement situation and the desire to be out of the competitive situation are scored as evidence of fear. It seems to this writer that all of these criteria equally define the thoughts that would be expected to characterize persons highly failure avoidant or persons who are weak in the achievement motive, tend to perform poorly, and are simply bored or angered by being forced to compete. A lack of concern with successful achievement, together with a lack of anxiety in an achievement situation might, in this view, explain the low n Achievement scores and high f Failure scores obtained by these subjects. This position implies that low Test Anxiety could characterize subjects low in anxiety, low in the achievement motive, or both. Low n Achievement, on the other hand, would characterize subjects low in the achievement motive, high in the motive to avoid failure, or both.

This interpretation is not inconsistent with findings relevant to either measure. Low n Achievement, whether descriptive of persons low in the positive motive or high in the fear motive, would be expected to relate to poor performance in an achievement situation. Low Test Anxiety, interpreted as indicating a low motive to avoid failure and possibly a low motive to achieve success as well, would be expected to relate to a performance increment under test conditions as compared with non-test conditions.

Hypothesis 4: Subjects high in Test Anxiety write fewer competition stories with totally successful outcomes than subjects low in Test Anxiety (see Tables 49 and 50).

In the testing of this hypothesis, as has been stated above, all stories written in response to the achievement and failure leads were scored. "Competition" stories have been defined in terms of the situation described in the lead itself, rather than in terms of the situation described by the subject. This definition of "competition stories" differs from that of Scott, who scored the outcome of stories in which a competitive theme was delineated by the subject. In the scoring of "outcome," conclusions in which success was complete and unqualified were contrasted with all others. This was the method employed by Scott.

While the results are hardly impressive in terms of significance levels, they clearly do not support the stated hypothesis. For each verbal lead, high Anxiety subjects are more likely to provide a successful outcome to the stories than are low Anxiety subjects. A parallel analysis for the three group comparisons is reported in Table 50.

When the three-way break in Test Anxiety is employed, the results provide no support for the hypothesis. Comparisons may be made between the three subgroups. In this analysis the Mids exceed the Lows in the total number of successful outcomes ($\chi^2 = 6.80$; $p < .01$) and the Highs as well ($\chi^2 = 2.73$; $p < .10$). The Highs conclude more stories in success than the Lows, but the result is well within the realm of chance ($\chi^2 = .68$; $p = .50–.30$). In this analysis subjects moderate in Test Anxiety clearly differ from the other subjects.

TABLE 49

DIFFERENCES BETWEEN SUBJECTS ABOVE AND BELOW THE MEDIAN IN TEST ANXIETY: PROPORTION OF STORIES RESULTING IN SUCCESS[a]

Verbal Lead	Test Anxiety Score	Per Cent Success	Per Cent Other	χ^2
Olympic racer	High	46	54	$\chi^2 = .38$
	Low	38	62	$p = .70–.50$
Examination	High	42	58	$\chi^2 = .43$
	Low	33	67	$p = .70–.50$
Scientist	High	31	69	$\chi^2 = 2.43$
	Low	18	82	$p = .20–.10$
Surgeon	High	73	27	$\chi^2 = 1.94$
	Low	58	42	$p = .30–.20$
Combined	High	65[b]	35[c]	$\chi^2 = .61$
	Low	54[b]	46[c]	$p = .50–.30$

[a]High N = 26; Low N = 24.

[b]2–4 successes.

[c]0–1 successes.

TABLE 50

DIFFERENCES IN PROPORTION OF COMPETITIVE STORIES RESULTING IN SUCCESS FOR SUBJECTS HIGH, MIDDLE, AND LOW IN TEST ANXIETY[a]

Verbal Lead	Test Anxiety Score	Per Cent Success	Per Cent Other	χ^2
Olympic racer	High	33	67	$\chi^2 = .74$
	Mid	50	50	$p = .70–.50$
	Low	33	67	
Examination	High	25	75	$\chi^2 = 3.31$
	Mid	50	50	$p = .20–.10$
	Low	25	75	
Scientist	High	25	75	$\chi^2 = 4.74$
	Mid	31	69	$p = .10–.05$
	Low	00	100	
Surgeon	High	67	33	$\chi^2 = 3.20$
	Mid	73	27	$p = .30–.20$
	Low	42	58	
Combined	High	50[b]	50[c]	$\chi^2 = 7.13$
	Mid	77[b]	23[c]	$p = .15–.02$
	Low	33[b]	67[c]	

[a]High N = 12; Mid N = 26; Low N = 12.

[b]2–4 successes.

[c]0–1 successes.

Hypothesis 5: Subjects high in Test Anxiety show fewer competitive reactions to failure than do subjects low in Test Anxiety (see Tables 51 and 52).

In testing this hypothesis, we have considered the manner in which the character in the story dealt with the block presented in the two failure slides. The scoring definition was similar to Scott's. A competitive reaction to failure was defined as "an instrumental act directed toward an achievement goal and occurring in time after the introduction of the block." Non-competitive reactions to failure included wish fulfillment, resignation and despair, resignation and placidity, escape, and unclassified. Instrumental acts directed toward highly unrealistic goals were by convention included in the wish fulfillment category, e.g., "When he found out the other scientist had solved his problem, he quit the field and became a brilliant composer." A reliability check was made of the scoring for the competitive reaction as opposed to all other categories. Stories were scored by the writer and by a second person who had extensive coding experience.[1] Using the percentage-agreement index,

$$\left(\frac{2 \times \text{number of agreements}}{\text{number scored by first coder} + \text{number scored by second coder}} \right)$$

the reliability was 82 per cent for the Examination lead and 92 per cent for the Scientist lead. Disagreements were discussed and final decisions made.

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[1]The writer wishes to thank Miss Sandra Cohan for coding the stories.

TABLE 51

PROPORTION OF SUBJECTS ABOVE AND BELOW MEDIAN IN TEST ANXIETY SHOWING A COMPETITIVE REACTION TO FAILURE[a]

Test Anxiety Score	Per Cent Competitive Reaction	Per Cent Other	χ^2
	Examination Lead		
High	35	65	$\chi^2 = .10$
Low	33	67	$p = .95–.90$
	Scientist Lead		
High	81	19	$\chi^2 = 6.61$
Low	46	54	$p = .02–.01$

[a]Highs N = 26; Lows N = 24.

A significant difference opposite to prediction occurs for the scientist slide, and no difference is evidenced on the examination lead. In Table 52 a comparable analysis is made for the three groups.

In this analysis no support is provided for the hypothesis. For the scientist slide low Anxiety subjects are less likely to respond to achievement difficulties with a competitive reaction than are either of the other groups. This is consistent with the notion that low Anxiety subjects may be low not only in the motive to

TABLE 52

PROPORTION OF SUBJECTS HIGH, MIDDLE, AND LOW IN TEST ANXIETY SHOWING A COMPETITIVE REACTION TO FAILURE[a]

Test Anxiety Score	Per Cent Competitive Reaction	Per Cent Other	χ^2
	Examination Lead[b]		
High	25	75	
Mid	42	58	$\chi^2 = 1.67$ $p = .50–.30$
Low	25	75	
	Scientist Lead[c]		
High	83	17	
Mid	81	19	$\chi^2 = 21.25$ $p < .01$
Low	8	92	

[a]High N = 12; Mids N = 26; Lows N = 12.

[b]Highs and Mids: $\chi^2 = 1.17$; $p = .30–.20$; Highs and Lows: $\chi^2 = .00$; $p = 1.00$; Mids and Lows: $\chi^2 = 1.17$; $p = .30–.25$.

[c]Highs and Mids $\chi^2 = .07$; $p = .80–.70$; Highs and Lows: $\chi^2 = 13.59$; $p < .01$; Mids and Lows: $\chi^2 = 17.60$; $p < .01$.

avoid failure but the motive to achieve as well. The lack of a similar finding for the examination lead is difficult to explain in the light of the magnitude of the relationship for the scientist slide. One possible explanation does suggest itself. When a student is facing a final examination with a grade of D, further striving is necessary to avoid failing a course or being placed on probation. Remaining in college has advantages other than those relevant to achievement, e.g., the social advantages and the avoiding of working for a living. For this reason, persons with widely differing motives might be expected to react competitively to a low grade.

Hypothesis 6: Subjects low in Test Anxiety show more problem-oriented activity and thinking than subjects high in Test Anxiety (see Tables 53 and 54).

When testing this hypothesis, only those stories scored for Achievement Imagery were considered. The instrumental activity categories in the n Achievement system was considered to be an acceptable definition of "problem-oriented activity and thinking" for the testing of this hypothesis.

The hypothesis that low Anxiety subjects will show more problem-oriented activity than will high Anxiety subjects is not supported by the data (see Table 53).

When a three-way break is employed in analysis, moderate Test Anxiety subjects are observed to write achievement stories in which problem-oriented activity occurs more frequently than other subjects. The hypothesis stated is not supported.

Hypothesis 7: Subjects low in Test Anxiety introduce conflict into competition stories more often than do subjects high in Test Anxiety (see Tables 55 and 56).

In testing this hypothesis, conflict was scored for stories written in response to the two achievement leads. The other stories

TABLE 53

DIFFERENCES BETWEEN SUBJECTS ABOVE AND BELOW THE MEDIAN IN PROPORTION OF N ACHIEVEMENT STORIES SCORED FOR INSTRUMENTAL ACTIVITY[a]

		Proportion of n Achievement Stories Scored for Instrumental Activity		
		High	Low	
Test Anxiety	High	50	50	$\chi^2 = .38$
	Low	42	58	$p = .70—.50$

[a]High = 26; Low = 24.

TABLE 54

DIFFERENCES BETWEEN SUBJECTS HIGH, MIDDLE, AND LOW IN TEST ANXIETY IN PROPORTION OF N ACHIEVEMENT STORIES SCORED FOR INSTRUMENTAL ACTIVITY[a]

		Proportion of n Achievement Stories Scored for Instrumental Activity[b]		
		High	Low	
Test Anxiety	High	25	75	$\chi^2 = 5.43$
	Mid	62	38	$p = .10—.05$
	Low	33	67	

[a]High = 12; Mid = 26; Low = 12.

[b]Highs and Mids: $\chi^2 = 4.39$; $p = .05—.02$; Highs and Lows: $\chi^2 = .20$; $p = .70—.50$; Mids and Lows: $\chi^2 = 2.62$; $p = .20—.10$.

TABLE 55

INTRODUCTION OF CONFLICT INTO COMPETITION STORIES FOR SUBJECTS ABOVE AND BELOW THE MEDIAN IN TEST ANXIETY[a]

Test Anxiety Score	Per Cent Conflict	Per Cent No Conflict	χ^2
	Olympic Racer Slide		
High	65	35	$\chi^2 = .27$
Low	58	42	$p = .70–.50$
	Surgeon Slide		
High	62	38	$\chi^2 = 1.85$
Low	79	21	$p = .10–.20$

[a]Highs N = 26; Lows N = 24

were not scored for reasons stated above. The scoring criteria for conflict were "any mention in the story of failure, any doubts on the part of anyone in the story that success will occur, any block in the achievement sequence within the person or external to him, any negative affect associated with poor performance." These criteria for scoring conflict are very similar to Moulton's (34) for scoring f Failure. Preferences for other activities and escape were, however, not scored for this analysis. This omission was made deliberately in order to restrict the definition of conflict to direct statements concerning difficulties encountered in the achievement

situation. A percentage agreement index was computed for the scoring by the writer and another scorer.[1] The resultant figure for the Olympic Racer slide was 82 per cent and for the Surgeon slide 87 per cent. Disagreements were reconciled for the final coding.

For stories written in response to the surgeon lead, low Anxiety subjects are more likely to introduce conflict, as predicted. Stories for the Olympic Racer lead do not show this difference (see Table 55).

When a three-way break is employed, the results for stories elicited by the two achievement slides are not consistent. For the Olympic Racer the introduction of conflict is not associated with Test Anxiety. For the Surgeon lead, on the other hand, conflict is introduced with increasing frequency as Test Anxiety scores decline. This finding supports the hypothesis. It also supports the position that a motive to avoid failure of high strength may be expressed by the avoidance of content suggestive of failure in an achievement situation.

A consistent trend emerging in the data was the tendency for subjects moderate in Test Anxiety to obtain scores on the projective which would be expected to occur for subjects high in the motive to achieve, i.e., these subjects scored high in n Achievement, concluded competitive stories successfully, showed competitive reactions to failure, and evidenced more problem-oriented activity in their stories. These results were not predicted, nor can they readily be explained. Since the validity of the Mandler-Sarason Test Questionnaire has been established through research on subjects falling at the extremes of the continuum, the middle group is, in a sense, undefined. For this reason it was of interest to compare subjects on a stable performance measure with the expectation that the mid Test Anxiety subjects would perform better than the

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[1]Miss Sandra Cohan.

TABLE 56

INTRODUCTION OF CONFLICT INTO COMPETITION STORIES FOR SUBJECTS HIGH, MIDDLE, AND LOW IN TEST ANXIETY[a]

Test Anxiety Score	Per Cent Conflict	Per Cent No Conflict	χ^2
	Olympic Racer Slide		
High	75	25	
Mid	58	42	$\chi^2 = 1.13$ p = .50–.70
Low	58	42	
	Surgeon Slide[b]		
High	42	58	
Mid	73	27	$\chi^2 = 7.39$ p = .05–.02
Low	92	8	

[a]Highs N = 12; Mids N = 26; Lows N = 12.

[b]Highs and Mids: $\chi^2 = 3.45$; p = .10–.05; Highs and Lows: $\chi^2 = 4.63$; p = .05–.02; Mids and Lows: $\chi^2 = 1.71$; p = .20–.10.

subjects at the extremes. The most acceptable performance measure available for most subjects was their grade-point average thus far at the University. Five subjects for whom grade-point averages did not exist—four first-semester freshmen and a transfer student—were lost in this analysis (see Tables 57 and 58).

TABLE 57

GRADE-POINT AVERAGES AT THE UNIVERSITY FOR SUBJECTS ABOVE AND BELOW THE MEDIAN IN TEST ANXIETY[a]

Score	Grade-Point Average
High	2.40
Low	2.36
Difference	.04
difference	.19
t	.21
p	n.s.

[a]High = 25; Low = 20.

Analysis based on a median break shows no difference in grade-point average between subjects high and low in Test Anxiety (see Table 57).

The analysis for Test Anxiety and grade-point average indicates that subjects moderate in Test Anxiety have academic records superior to those of either extreme group. This finding is especially interesting in view of the reported result that the moderate Test Anxiety subjects are also high in n Achievement (see Table 58).

TABLE 58

GRADE-POINT AVERAGES FOR SUBJECTS HIGH, MIDDLE, AND LOW IN TEST ANXIETY[a]

Score		Score		Score	
High	2.09	High	2.09	Mid	2.60
Low	2.31	Mid	2.60	Low	2.31
Difference	-.22	Difference	-.51	Difference	.29
difference	.20	difference	.19	difference	.18
t	1.10	t	2.72	t	1.61
p	.2–.3	p	.01	p	.1–.2

[a]High = 12; Mid = 22; Low = 11.

Discussion

In general, expectations that the motive to avoid failure as measured by the Mandler-Sarason Test Anxiety Questionnaire would be related to the content of TAT stories were not upheld when a median break in Test Anxiety was the basis of analysis. However, when the data were analyzed, employing a three-way break on this variable, striking differences emerged. The results discussed in this section refer to this latter analysis. Reported differences are significant at the .05 level or better unless a lower level is specified.

Since the validity of the Mandler-Sarason Questionnaire has been established through predicted behavioral differences occurring

for subjects at the extremes of this measure, comparisons between persons with extreme scores permit the firmest conclusions. The findings for these subjects may be briefly summarized.

1. Subjects high and low in Test Anxiety did not differ in total n Achievement or Hope of Success score. There were indications that the level of both scores was a function of the stimuli eliciting the stories. When the verbal leads specified an achievement situation without reference to difficulties encountered, the Highs obtained higher n Achievement scores ($p = .10–.05$) and higher Hope of Success scores. When a failure situation was described, the opposite trend occurred, the Lows exceeding the Highs in n Achievement ($p = .1–.05$) and in Hope of Success ($p = .2–.1$).
2. Subjects low in Test Anxiety obtained higher f Failure scores than subjects high in Test Anxiety. When scores on the different types of verbal leads were separately considered, this difference was significant only for the failure slides.
3. For one of the two achievement leads, subjects low in Test Anxiety were more likely to introduce conflict than were subjects high in Test Anxiety.
4. For one of the two failure slides, high Anxiety subjects were more likely to supply a competitive reaction to failure.
5. There was no difference in the proportion of competition stories ending in success, in the number of n Achievement stories scored for instrumental activity or in grade-point average.

The clearest differences between subjects high and low in Test Anxiety occur for the emphasis on fear-related content. If we accept the validity of the Test Anxiety Questionnaire as a measure of the motive to avoid failure, it follows that this motive is expressed in fantasy by the avoidance of content which implies the threat of failure. This is suggested not only by the low f Failure scores and the tendency to avoid the introduction of conflict but also by the

tendency of high Anxiety subjects to score lower in n Achievement when the stimuli employed are threatening in character. For the other indices, with one exception, significant differences do not occur. With respect to this single exception, results are in opposition to expectations, i.e., high Anxiety subjects are more likely in one story to react competitively to failure than are low Anxiety subjects.

Faith in the reliability of the results is somewhat tempered by the findings in the Raphelson-Moulton (37) experiment in which the correlations between Test Anxiety and n Achievement, Hope of Success, and f Failure were determined. In this experiment these relationships were investigated in two conditions, one of which may be termed "normal aroused" and the other "high aroused." The results for this analysis are reported in Table 59.

TABLE 59

PRODUCT-MOMENT CORRELATIONS BETWEEN TEST ANXIETY AND SCORES FOR ACHIEVEMENT, HOPE OF SUCCESS, AND F FAILURE[a]

Score	Normal Aroused	High Aroused
n Achievement	-.43	.09
Hope of Success	-.55	.00
f Failure	.25	-.38

[a]Normal aroused N = 24; High aroused N = 25. An r of .40 is significant at the .05 level for 23 degrees of freedom and an r of .39 at the same level for 24 degrees of freedom.

Correlations between the same variables in the aroused conditions in the first study and for the second study in this paper are reported in Table 60.

It is interesting to observe that the correlations reported by Raphelson and Moulton in their high aroused condition are strikingly similar to those in the second study in this thesis. In each case Test Anxiety is negatively associated with f Failure and unrelated to n Achievement and Hope of Success. In the first study reported here there is a tendency for Test Anxiety to be related to low f Failure, although the correlation is not significant.

In the Raphelson-Moulton study the "normal-aroused" condition was considered to be similar to the achievement condition for n Achievement research generally and thus for both aroused conditions reported in Table 60. However, the experimental

TABLE 60

PRODUCT-MOMENT CORRELATIONS BETWEEN TEST ANXIETY AND SCORES FOR N ACHIEVEMENT, HOPE OF SUCCESS, AND F FAILURE[a]

Score	First Experiment	Second Experiment
n Achievement	-.02	-.16
Hope of Success	-.06	.00
f Failure	-.14	-.30

[a]First experiment N = 34; second experiment N = 50. An r of .35 is significant at the .05 level for 30 degrees of freedom and an r of .27 at the same level for 50 degrees of freedom.

manipulations employed did in fact differ. In n Achievement research the achievement or test condition has been created by administering a series of problems, which have been described as measures of intelligence, prior to the administration of the projective. In the Raphelson-Moulton study, on the other hand, a different method was employed. In individual testing sessions subjects performed the task of controlling through the use of a hand lever the position of a moving light. The problem was to keep the light within the limits of a ring placed in the center of a screen. In the "normal-aroused" condition the subject was made aware of errors by the continuing presence of the ring on the screen and by the flashing of a red light when an error occurred. In the "high-aroused" condition, the ring was removed from the screen at the end of the instruction period, and the red light did not signal errors. The experimental manipulations were considered to produce different degrees of situationally induced anxiety. The authors had defined uncertainty as the characteristic of the situation which was anxiety producing. The "high-aroused" condition was considered to be more evocative of anxiety than the "normal-aroused" condition because for the former, information concerning performance was sharply reduced. Other differences between the Raphelson and Moulton conditions and those commonly employed are apparent. The stories were written while the subjects were connected to equipment used to record physiological changes, and they were tested individually rather than in a group. Furthermore, while the task was described as "a series of reasoning problems," it was not introduced as a measure of intelligence. Since the experimental manipulations were not comparable, it is unwarranted to assume that the "normal-aroused" condition is equivalent to the achievement conditions

utilized in n Achievement research and in the experiments reported in this thesis.

If it is possible that the curious findings in the "normal-aroused" conditions are specific to a particular kind of arousal, it is also possible that they occurred simply by chance and that they would not be supported if the experiment were replicated. While directly relevant data have not been collected, there is some indication that this is the case. The authors concluded from their results that under normal test conditions, the content of TAT stories reflects directly the motives of the writer. Subjects high in Test Anxiety under these conditions thus write stories relatively high in f Failure. When anxiety is induced at a very high level, these same subjects will avoid the report of failure content as a defense against threat and write stories low in f Failure. The view implies that if the projective were administered under neutral conditions, which are less evocative of conflict than the "normal aroused," the correlations between Test Anxiety and the projective indices would be similar to those under a "normal aroused" condition. If differences did occur, they would be expected to be more pronounced for the neutral conditions and in the same direction. This expectation is not supported in the data. In two studies the relationship between Test Anxiety and projective scores from a neutral condition was tested. In the neutral condition for the first experiment in this thesis, the product-moment correlation between Test Anxiety and n Achievement was +.06; that between Test Anxiety and Hope of Success, +.14, and that between Test Anxiety and f Failure was +.02. In a study by Atkinson and Litwin (8) the rho between Test Anxiety and n Achievement was .15. The other projective scores were not considered in that study.

In two aroused conditions and two neutral conditions, Test Anxiety and n Achievement have failed to show the negative

association that the Raphelson-Moulton study would lead one to expect. Similarly, in two aroused conditions and one neutral conditions the proposed positive relationship between Test Anxiety and f Failure has failed to occur. On the basis of this evidence the reliability of the findings for the "normal-aroused" conditions becomes open to question. The most tenable conclusion from results concerning Test Anxiety and projective indices is that Test Anxiety and n Achievement are unrelated and that high Test Anxiety leads to the avoidance of threatening content, at least under aroused conditions.

When the present study was designed, it had been intended to test hypotheses by comparing subjects above and below the median in Test Anxiety and further to analyze data for those subjects with extreme scores on this measure. This second analysis was planned because the validity of the scale had been established through comparisons between subjects with extreme scores. Moderate scorers have been excluded in analysis. In the absence of data with conflicting implications, one would assume that subjects moderate in Test Anxiety would be less motivated to avoid failure than high scorers and more failure avoidant than low scorers. The results in the present experiment are difficult to reconcile with this apparently reasonable assumption.

The obtained results for subjects high and moderate in Test Anxiety are summarized below. Again, findings which are short of significance at the .05 level are indicated.

1. Subjects moderate in Test Anxiety exceeded high Anxiety subjects in n Achievement and Hope of Success. These results are statistically significant in total score and on scores derived from stories written to the failure slides.
2. There were no significant differences in f Failure scores, although there was a tendency for the Mids to exceed the Highs.

3. For one of the achievement slides, the Mids were more likely to introduce conflict than were the Highs ($p = .10–.05$).
4. There were no differences in the proportion of failure leads to which a competitive reaction occurred.
5. Subjects moderate in Test Anxiety concluded more competition stories in success than did the Highs ($p = .10$).
6. The Achievement stories of moderate Test Anxiety subjects were more likely to be scored for instrumental activity.
7. The grade-point averages of the moderate Anxiety group were higher than those of the high Anxiety group.

If the Test Anxiety scores are linearly related to the motive to avoid failure, it would be expected that the comparisons between the Highs and the Mids would yield results similar to those for the Highs and the Lows. There is some indication that this is the case, i.e., the Highs are more likely than the Mids to avoid threatening content in their stories. There are, however, several trends in the data which did not occur when extreme scorers were compared. These differences occur primarily with reference to content relating to approach behavior in an achievement situation, e.g., instrumental activity, successful outcome, and high n Achievement score. Scott (43) considered that problem-oriented activity, successful outcome, and competitive reaction to failure occurring in competition stories indicate relatively low anxiety and their absence, high anxiety. It was in terms of this conception that we hypothesized that each of these content categories would occur more frequently as the level of Test Anxiety declined. For the comparison between High and Moderate Test Anxiety subjects, two of these expectations are upheld. However, they were not supported when the Highs and Lows were considered. Furthermore, the Mids exceeded the Highs

in n Achievement score and in grade-point average, although analagous results did not occur for the extreme scorers. These differences in projective scores occurring between subjects high and moderate in Test Anxiety and not occurring for the Highs and the Lows are difficult to reconcile with the notion that the Test Anxiety Questionnaire measures in linear fashion the motive to avoid failure.

Additional information is provided by comparisons between subjects moderate and low in Test Anxiety. The results obtained for these groups may be summarized.

1. Subjects moderate in Test Anxiety obtained higher n Achievement scores and higher Hope of Success scores than the Lows. The differences are significant for the achievement verbal leads, not for the failure or neutral leads.
2. Subjects moderate in Test Anxiety scored lower in f Failure than did subjects low in Test Anxiety ($p = .10–.05$). The differences are significant for the failure leads, not for the achievement or neutral leads.
3. Subjects moderate in Test Anxiety were less likely to introduce conflict into one of the two stories written in response to an achievement slide ($p = .20–.10$).
4. As compared with the Lows, the Mids were more likely to indicate a competitive reaction to failure for one of the two failure stimuli. They concluded more competitive stories in success than the Lows and were more likely to write n Achievement stories in which instrumental activity was scored ($p = .20–.10$).
5. Subjects moderate in Test Anxiety obtained higher grade-point averages than did subjects low in Test Anxiety ($p = .1–.2$).

The inference that as Test Anxiety increases, the avoidance of failure-related content will be increasingly characteristic is supported in the comparison between the Mids and the Lows. This one conclusion has been suggested in each case that comparisons have

been made between subjects differing in Test Anxiety. When a median break is employed, when the Highs are compared with the Mids or the Lows or the latter groups are themselves contrasted, the trend is the same: subjects scoring higher in Test Anxiety are more likely to avoid threatening content.

However, there are results which are difficult to reconcile with the idea that Test Anxiety scores measure only the strength of the motive to avoid failure. Particularly provocative are the results which show that moderate Test Anxiety subjects differ from both the Highs and the Lows in several scores. Moderate Test Anxiety subjects scored higher in n Achievement than subjects at either extreme and additionally scored higher on several indices which Scott had defined as indicative of low anxiety, i.e., as compared with the lows they concluded more competitive stories with success, reported more competitive reactions to failure, and were more likely to write n Achievement stories in which instrumental activity was scored; as compared with the Highs they were more likely to conclude competitive stories in success and to write n Achievement stories scored for instrumental activity. Moreover, their academic record was superior to subjects at either extreme in Test Anxiety.

The rather striking tendency for moderate Test Anxiety subjects to differ from the Highs and the Lows is difficult to interpret. It appears to this writer that the reasonable inference is that low Test Anxiety subjects are not merely low in the motive to avoid failure but in the motive to achieve success as well. The validity of the n Achievement score as a measure of the motive to achieve success has been established in a number of experiments (29), and it does not seem unreasonable to infer that the low n Achievement score of low Anxiety subjects indicate a relatively weak motive to

achieve. The low scores on several of Scott's indices may be similar in implication. While he had defined these scores as evidencing the strength of anxiety, alternatively they may be seen as relative to the strength of the achievement motive. While a competitive reaction to failure, problem-oriented activity and successful outcomes would be expected to characterize the fantasy behavior of persons relatively low in the motive to avoid failure, they would also be expected to characterize the fantasy behavior of persons relatively high in the motive to achieve success. This latter possibility appears more likely for the low Anxiety subjects, if the validity of the Mandler-Sarason questionnaire is accepted as a measure to avoid failure.

It is interesting that while the authors of the Test Anxiety Questionnaire have not been directly concerned with measuring the motive to achieve, the conception of low Anxiety subjects as lacking a strong achievement motive is not foreign to them. Sarason and Mandler (42) suggest that since academic performance is instrumental to career goals for persons in the lower middle class, and other behaviors more clearly serve this function for persons in the upper middle and upper classes, persons drawn from the lower middle class would be expected to score higher in Test Anxiety than those of a higher social class. When this prediction was upheld, they concluded that their results "lend credence to the hypothesis that Test Anxiety in the test situation is related to a strong need for intellectual achievement."

There is a suggestion in our data that the Test Anxiety score may be a function of the strength of both fear and approach motives at all levels of the scale. Of particular interest in this regard is the finding that high Anxiety subjects score relatively high in n Achievement scores when achievement stimuli without specific reference to failure are employed. It may be inferred that these subjects are strongly motivated to attain success and to avoid failure. Low n Achievement scores obtained for these subjects result not

from a weak motive to achieve success, but from a strong motive to avoid failure, which leads to an avoidance of threatening material. That low n Achievement may characterize persons who are highly failure avoidant has been suggested by previous studies (1). Our own results support this contention. They also imply that persons low in the motive to avoid failure, and low in the motive to achieve success, obtain low n Achievement scores.

In a recent experiment Atkinson and Litwin (8) state that the n Achievement measure and the Mandler-Sarason Test Anxiety Questionnaire are not measures of the same variable. They assume, rather, that the n Achievement scores measure the strength of a motive to approach success, while Test Anxiety scores indicate the strength of a motive to avoid failure. The data for the present experiment do not support this assumption. Low n Achievement characterizes persons in the upper and lower quartiles on the Test Anxiety measure. The result for the Highs seems to the writer to imply that low n Achievement may result from the defensive avoidance of content relating to the evaluation of performance. In this view n Achievement scores are not merely measures of the approach motive, but of the avoidance motive as well. Conversely, the low n Achievement scores of the low Anxiety subjects cannot be explained if low Test Anxiety is considered to measure only the strength of the avoidance motive. The alternative position that low Test Anxiety characterizes persons low in both the appraoch and avoidant motive provides a more satisfactory explanation of results.

The position is taken here that neither the n Achievement nor the Test Anxiety measures indicate the strength of approach or avoidant motives independent of the other. Low Test Anxiety may indicate a weak motive to avoid failure or a weak motive to achieve success, or both. Low n Achievement may indicate a weak motive

to achieve success or a strong motive to avoid failure, or both. The problem of arriving at methods to measure independently these two motives appears crucial in terms of our results. A tentative suggestion for its solution arises from comparisons in the content of stories written in response to verbal stimuli of varying character.

It is of considerable interest that when verbal stimuli in which an achievement situation was structured without an attendant reference to blocks or failure, high Anxiety subjects wrote stories in which n Achievement and Hope of Success scores were higher than those for the Lows and not significantly different from the Mids. When the stimuli explicitly referred to failure in an achievement situation, these same subjects scored lower than Highs and Mids in n Achievement and Hope of Success. While it is unwise to argue strongly from limited data, one might infer that if stimuli in which threat is strongly reduced are employed, n Achievement scores may measure the strength of the approach motive without the effects of the avoidant motive. Similarly n Achievement stories elicited by threatening stimuli may more clearly reflect the strength of the avoidant motive, i.e., low n Achievement stories written in response to these stimuli would be expected to characterize failure-avoidant subjects. It follows that the meaning of a low n Achievement score may be clarified through a consideration of the stimuli eliciting content.

A comment may be made with regard to the obtained results for the "neutral slides." These stimuli are in other terms "low cue," i.e., the stimuli themselves would be scored for neither n Achievement nor f Failure. While specific predictions were not made with regard to these stimuli, the approach-avoidance formulation would suggest that since these stimuli do not describe a competitive situation, they are relatively lacking in threat. It follows

that for these stimuli, the avoidant response should be less likely to occur than for stimuli in which an achievement or failure situation was described. As a result, it is for these stimuli that one would expect subjects presumed to be highly motivated to avoid failure to write relatively more achievement-related stories than other subjects. This expectation is not upheld. While there are no significant differences, the Lows score higher in n Achievement and Hope of Success on these slides than the Highs. This finding, considered together with those for the other verbal stimuli suggest that the essential characteristic determining the avoidance response on the part of failure-avoidant subjects is the presence or absence of direct threat in the stimulus. One further point must be made with regard to these neutral or low cue slides. While evoking low scores in both n Achievement and f Failure, the affective tone of these pictures is relatively negative, i.e., like the failure slides and unlike the achievement slides, they evoke higher f Failure scores than Hope of Success scores.

The issues suggested by the results obtained for different verbal stimuli can hardly be settled by this single experiment in which the cue definition left much to be desired. However, our results do suggest that a decline in n Achievement between stimuli without direct threat and those in which threat is introduced indicate a motive to avoid failure of high strength.

A final very tentative conclusion is suggested by our data. When considering the relationship between the motive to achieve success and the motive to avoid failure, the position has been taken that the two motives are negatively associated (37) or unrelated (8). The data in the present experiment implies that the negative or insignificant correlations between Test Anxiety and n Achievement scores do not permit the inference that the avoidant and approach

motives they are presumed to measure are negatively associated or uncorrelated. Our data suggest, rather, that persons strongly motivated to achieve success are likely also to be strongly motivated to avoid failure. This inference is most clearly suggested by comparisons between subjects low and moderate in Test Anxiety. It will be recalled that the Mids exceed the Lows in n Achievement, thus suggesting that as Anxiety increases, the strength of the positive motive also increases. Results are less clear for the Mids and the Highs. The finding that n Achievement scores were higher for the former suggests that they are more strongly motivated to achieve success. However, the fact that significant differences occur only when stimuli suggest threat directly implies that n Achievement score is depressed by a strong motive to avoid failure. When this threat is removed, high Anxiety subjects do not score significantly lower than the Mids. These results suggest that the high Anxiety subjects are in conflict, strongly motivated to achieve and to avoid failure.

Summary

In this experiment the Mandler-Sarason Test Anxiety Questionnaire was administered to a group of fifty-two college men. A series of arithmetic tasks were then presented under test conditions, and finally a n Achievement measure composed of six verbal stimuli was administered. The relationship between Test Anxiety scores and several projective indices was tested.

The data for fifty subjects were analyzed in two ways; first with a median break in Test Anxiety, and second, with a comparison in which subjects falling in the upper quartile were classified as

high in Anxiety, those in the lower quartile as low in Anxiety, and those in the middle quartiles as moderate in anxiety.

The data indicate that a strong motive to avoid failure, as measured by the Mandler-Sarason Questionnaire is associated with the avoidance in fantasy of threatening content relevant to the evaluation of performance. This inference was supported in comparison at all levels of the scale.

The results further suggest that the Test Anxiety scores do not measure the strength of the motive to avoid failure independent of the motive to achieve success. A low score on this measure is interpreted to indicate low anxiety, a weak motive to achieve, or both. The low n Achievement scores of this group as compared with scores of the mid group, together with low scores on several other indices which may be presumed to relate to the strength of the positive motive, suggest that the lack of anxiety experienced in the test situation is in part a function of a lack of concern with excellence of performance. The finding that low n Achievement characterizes high Anxiety subjects only when stories are written in response to threatening stimuli suggests that for these subjects the avoidance of threatening material may lead to a low n Achievement score.

It is concluded that neither the n Achievement measure nor the Test Anxiety measure reflects the strength of a single motive. Low n Achievement, characterizing persons at both extremes of the Test Anxiety scale, may indicate a weak fear motive, a strong approach motive, or both. Low Test Anxiety, on the other hand, may characterize persons low in either the approach or the avoidant motive, or both. It is tentatively suggested that individual differences in n Achievement scores for stimuli varying in amount of threat may permit distinguishing between persons low in

the strength of the achievement motive and persons high in the motive to avoid failure.

CHAPTER IV

THE PROJECTIVE MEASUREMENT OF THE MOTIVE TO ACHIEVE SUCCESS AND THE MOTIVE TO AVOID FAILURE: AN OVERVIEW

It is now appropriate to attempt to integrate the extensive evidence concerning the representation in thematic apperception of the motive to avoid failure. The discussion will also focus upon the manner in which the motive to achieve success is expressed in fantasy. The interpretation advanced derives from Atkinson's (1) statement that individuals may be differentiated with regard to the strength of two motives. The first is an achievement motive directed toward the goal of maximizing satisfactions contingent upon success and represented in behavior by active strivings toward the attainment of these satisfactions. The second is a motive to avoid failure which has as its goal the minimizing of pain contingent upon failure, and as its behavioral correlate, the avoidance of situations in which performance is likely to be evaluated.

In a recent paper Atkinson and Litwin (8) take the position that the measure of n Achievement obtained from thematic apperception and the measure of Test Anxiety obtained from the Mandler-Sarason questionnaire are not measures of the same variable. It is assumed, rather, that the measure of n Achievement indicates the strength of the motive to approach success, while Test Anxiety scores represent the strength of a motive to avoid failure. The

results in our second experiment lead to a questioning of this basic assumption. They suggest that scores obtained on both measures are a joint function of the motive to achieve success and the motive to avoid failure. Specifically they imply that low n Achievement scores may indicate a weak motive to achieve success or a strong motive to avoid failure, and that low Test Anxiety scores may reflect a weak motive to avoid failure, a weak motive to attain success, or both.

It is of considerable interest that earlier research results for both the n Achievement measure and the Test Anxiety scale have led to the same inference. In his Zeigarnik study Atkinson (1) found that as the experimental conditions became increasingly arousing, high n Achievement subjects tended to recall relatively more incompleted than completed tasks. A parallel comparison for low n Achievement subjects showed an increase in recall of completed as compared with interrupted tasks. The different recall patterns of subjects varying in n Achievement were viewed as instrumental behaviors directed toward two different goals. In Atkinson's words:

> When the goal is to experience feelings of success and personal accomplishment, the persistence of the interrupted tasks in recall . . . is instrumental to the attainment of that goal. When, however, the goal is to avoid feelings of failure, non-recall of past failures is instrumental to the avoidance of feelings of failure.

It was concluded from the findings that low n Achievement may represent not only an achievement motive of weak strength but also a strong motive to avoid failure.

Sarason and Mandler (41) found that subjects high in Test Anxiety were likely to be drawn from the lower middle class, while subjects low in Test Anxiety tended to be drawn from the upper middle or upper class. They concluded that since academic

performance is more related to career goals for lower middle-class persons, these results suggest that Test Anxiety in a test situation is related to a strong need for intellectual achievement.

The results in our second experiment support the inferences of both Atkinson and Sarason and Mandler. That low n Achievement may represent a strong motive to avoid failure is suggested by the low n Achievement scores obtained by high Anxiety subjects as compared with mid Anxiety subjects. The results further suggest that low Test Anxiety may measure not only a small amount of anxiety experienced in the test situation but also a weak motive to achieve. The latter inference is suggested by the low n Achievement scores obtained by these subjects and by low scores on several other indices which may be viewed as relating to the strength of the approach motive.

The notion that measures purporting to measure either the strength of the achievement motive or the strength of the motive to avoid failure may be extended to a consideration of the recall measures employed by Atkinson and by the writer in the first experiment. It is our contention that relatively high recall of incompleted as compared with completed tasks is a joint function of both the motive to achieve success and the motive to avoid failure. Relatively high recall of incompleted tasks may, in this view, characterize persons high in the motive to achieve success or low in the motive to avoid failure. Conversely, relatively high recall of completed tasks may characterize persons low in the motive to attain success or high in the motive to avoid failure. Recall score is thus a joint function of the strength of both motives. This view is clearly implied by Atkinson's interpretation of his data.

It is our further contention that the obtained score for the recall of incompleted tasks relative to completed tasks is a function of

the state of aroused motivation at the time the recall measure is taken. If, for a given individual, aroused achievement motivation is stronger than aroused fear motivation, the recall of incompleted tasks will exceed that for completed tasks. If aroused fear motivation exceeds aroused achievement motivation, the recall of completed tasks will exceed that for incompleted tasks. In this view, if individuals differed only in the strength of the achievement motive, under any test condition, persons high in that motive would exceed persons low in that motive in recall of incompleted tasks. Alternatively, if individuals differed only in the strength of the motive to avoid failure, persons strong in the motive to avoid failure would recall relatively fewer incompleted tasks. If, however, as is assumed, individuals differ in the strength of both motives, relative recall will be a joint function of the motive to avoid failure and of the motive to achieve success.

The argument that the strength of both motives determines the recall pattern has serious implications if we accept inferences derived from the Miller model for approach-avoidance conflicts. This model implies that tendencies to approach reach a maximum in the presence of the goal object, while tendencies to avoid reach a maximum in the presence of the threatening object. It is further assumed that the threat gradient is steeper than the goal gradient so that tendencies to avoid increase more rapidly than tendencies to approach. Extensions of the model assume that stimulus similarity is equivalent to proximity to the goal or threat object. As the conditions in which the response is measured tend increasingly to resemble conditions in which the strength of the approach and avoidant tendencies are maximized, the level of arousal of both motives increases, and the relative strength of fear motivation increases more rapidly. This formulation permits the inference

that a given individual may, under relatively low arousal conditions, evidence approach tendencies and, under relatively high arousal conditions, show avoidant tendencies. Specifically, under relatively low arousal conditions a person strong both in the motive to achieve success and in the motive to avoid failure would tend to show the approach response in the form of recalling relatively more incompleted than completed tasks. Under high arousal conditions, the same individual would tend to recall relatively more completed tasks than interrupted tasks. If we accept the comparability between relative recall for incompleted and completed tasks and relative recall for failure and control material, it would be expected that persons high in both motives would tend under low arousal to recall more failure material and under high arousal to recall more control material. Some support to the suggestion that recall will vary as a function of the conditions under which the memory measure is administered is given by Reitman's (38, 39) experiments. He found that when the memory measure was presented as a demonstration of changes in memory over time, subjects moderate in n Achievement recalled more failure material than other subjects. When the same measure was introduced as a test of intelligence, moderate n Achievement subjects recalled less failure material than other subjects. Earlier evidence that moderate n Achievement characterized persons highly motivated to avoid failure permitted the inference that defensively low recall of threatening material described the behavior of failure-avoidant persons only when the recall measure is presented in terms of performance standards.

This line of argument has been developed to provide a means of reconciling the results of Atkinson's (1) and Moulton's (34) experiments with those in our first experiment. It will be remembered

that in the Atkinson-Moulton study relatively high recall of completed tasks was related to low n Achievement, low Hope of Success, and high f Failure. In our study, diametrically opposite results were obtained. Higher recall of control than failure material was associated with high n Achievement and Hope of Success and with low f Failure. It is our belief that the conflicting findings can best be explained by differences occurring between the administration of the recall measures in the two experiments. Specifically, it is our contention that the level of aroused motivation was higher in our experiment than in Atkinson's, and that the level of fear motivation aroused in our experiment was relatively higher than the level of approach motivation as compared with the Atkinson experiment.

The argument that the level of aroused motivation was higher in our experiment derives from three considerations. First, Atkinson had collected data under three different conditions of arousal: relaxed, neutral, and aroused. Yet there were no significant between-condition differences in n Achievement for these groups. This result in itself sheds doubt on the success of the attempt to arouse experimentally the achievement motive in the aroused group. Two differences between the recall administrations may also be considered. In the Atkinson experiment the Zeigarnik tasks were presented and were followed in turn by the administration of the projective and the recall measure, while in our experiment the projective was administered several days before the recall measure. Feshbach (22) found that when fantasy activity followed the experimental arousal of aggression, less aggression was expressed in later ratings of the experimenter than when a non-fantasy activity intervened. If his conclusion that fantasy has a drive reducing function has generality, anxiety concerning failure

might be expected to be reduced by the administration of the n Achievement measure. If this is the case, the level of aroused motivation would be less strong in the Atkinson experiment than in our own.

The final difference between the experiments lies in the orientation employed when the recall measure was administered. In the Atkinson experiment subjects were asked to recall as many of the tasks as possible, but the number of tasks recalled was not presented as being related to intelligence. In our experiment, on the other hand, the recall of the presented stories was described as relating to intelligence both at the time the material was read and at the time the test of recall was administered. This difference in administration of the recall measures suggests that the level of achievement motivation and fear motivation was relatively higher for our first experiment than for Atkinson's. If this argument is accepted an attempt to explain the divergent results may be made.

The direction of the argument is indicated by the results in our second experiment pertaining to differences in projective scores between persons high and low in Test Anxiety. Rank order correlations between n Achievement and Hope of Success were .96 for the Atkinson-Moulton experiment and .93 for our first experiment The high positive correlations between n Achievement score and the positive system are taken to indicate that pictures of relatively positive affective tone were employed. They appear to be similar in affective tone to the achievement verbal leads in our second study. Thus the most relevant findings in the second experiment for the purposes of this discussion concern differences between subjects high and low in Test Anxiety in projective scores derived from stories written in response to the achievement verbal leads. Scores derived from these stories showed that low Anxiety subjects were

low in n Achievement and high in f Failure. High Anxiety subjects were high in n Achievement and low in f Failure. The scores obtained by subjects in Atkinson's experiment who recalled more completed than incompleted tasks were similar to those of low Anxiety subjects. Scores obtained by subjects recalling more control than failure material in our first experiment were similar to those of high Anxiety subjects. It is our contention that low Anxiety subjects are weak in the motive to achieve success, while high Anxiety subjects are strong in the motive to avoid failure. If these tentative statements are accepted, it follows that subjects obtaining n Achievement and f Failure scores characteristic of subjects low in the motive to achieve, recalled more completed than incompleted tasks in Atkinson's experiment and that subjects obtaining n Achievement and f Failure scores characteristic of persons highly motivated to avoid failure recalled more control material in the first experiment reported in this thesis. These results imply that apparently similar patterns of recall were determined in the two experiments by different motives. In the Atkinson experiment the strength of the motive to achieve determined the pattern of recall. In our first experiment the strength of the motive to avoid failure was the primary determinant.

An interpretation is suggested if the argument that the level of aroused motivation was higher in our first experiment than in Atkinson's experiment is accepted and if it is further accepted that as situationally aroused motivation increases, the relative strength of fear motivation over approach motivation increases. This argument suggests that under relatively low arousal individual differences in the strength of the motive to achieve are the primary determinants of recall pattern, while under high arousal individual differences in the motive to avoid failure are the primary

determinants of recall pattern. In the Atkinson experiment more completed than incompleted tasks were recalled by subjects whose projective scores suggest they are low in the motive to achieve success. In our first experiment more control than failure material was recalled by subjects whose projective scores suggest they are strongly motivated to avoid failure.

In our first experiment, the results showed that persons high in the motive to avoid failure wrote stories high in n Achievement and Hope of Success. Results in the second experiment imply limitations on this inference. Of particular interest is the evidence that suggests that the level of n Achievement score and Hope of Success score is a function of the pictures employed. High n Achievement and Hope of Success scores were obtained for high Anxiety subjects, presumed to be strong in the motive to avoid failure, only when the eliciting stimuli presented achievement situations in which threat was not introduced. When threatening verbal cues were employed, high Anxiety subjects tended to score low in n Achievement and Hope of Success. These results are interesting in the light of the Clark, Teevan, and Riccuiti experiment (16). In this study pictures which were highly negative in affective tone were employed. Subjects with very low or very high levels of aspiration, considered by Atkinson to be highly motivated to avoid failure (4), wrote low n Achievement stories in which positive imagery was emphasized and deprivation imagery de-emphasized. The results for the Clark, Teevan, and Riccuiti experiment are consistent with our results for the failure verbal leads. The results generally indicate that the level of n Achievement score for persons highly motivated to avoid failure is influenced by the character of eliciting stimuli. If threatening stimuli are employed, these subjects score low in n Achievement. When non-threatening stimuli are employed, the same subjects score high in n Achievement.

If, as the data indicate, failure-avoidant subjects tend to write higher n Achievement stories to pictures positive in affective tone than to pictures negative in affective tone, it is not surprising, as some evidence suggests, that their stories tend to be liberally scored for positive content and scored relatively infrequently for negative content. Essentially the comparisons between subjects in goal imagery and deprivation imagery may have been based on n Achievement stories which were written in response to different pictures. Failure-avoidant subjects may score high in positive content because achievement stories tend to be written by them primarily when the stimulus does not suggest threat.

This discussion leads to the conclusion that the motive to avoid failure will be represented in thematic apperception by the avoidance of failure-related content. It also suggests that the motive to achieve success will be represented in fantasy by content scored in the n Achievement scoring system. It is difficult to avoid the further inference that when stimuli suggestive of failure are employed, the n Achievement score will be depressed for subjects who are high not only in the motive to achieve success but also in the motive to avoid failure. The implication is that the strength of the achievement motive may best be measured by employing stimuli in which threat is minimized. For such stimuli n Achievement score will permit the most satisfactory measure of the strength of the achievement motive without the contaminating influence of the motive to avoid failure. The motive to avoid failure will be best measured by a low f Failure score. It may also be represented by a decline in n Achievement scores when scores for stimuli introducing threat are compared with those in which threat is not introduced.

Résumé

The purpose of the experiments in this study is to investigate the manner in which the motive to avoid failure is expressed in

thematic apperception. These studies were given impetus by findings suggesting that scores based on manifest content analysis are a joint function of motive strength and the strength of defenses. In different studies it had been concluded that the motive to avoid failure is associated with an emphasis on failure-related content and with an avoidance of that content.

In the first experiment ninety-two subjects wrote stories to six pictures presented in either the neutral or achievement-oriented condition employed by McClelland in studies of the achievement motive. Four independent measures of the motive to avoid failure were employed.

It was the specific purpose of the study to determine whether the four scores measured a common attribute and to investigate relationships between the measures and projective indices. Methodological problems prevented testing hypotheses for the neutral group. Results for the achievement-oriented group indicated positive associations between the independent measures, although none were statistically significant. High scores on the Mandler-Sarason Test Anxiety Questionnaire, higher recall of control than failure material, and stronger preference for completed than interrupted tasks were interrelated to a near-significant degree.

Findings indicated that persons high in the motive to avoid failure as defined by each of these scores, and by a composite score based on all three, wrote stories in which content relevant to failure was avoided and content related to success emphasized.

In the second study the Test Anxiety Questionnaire was presented to fifty subjects prior to the administration of verbal stimuli under achievement-oriented conditions. Stories were scored for need Achievement, a system purporting to measure the strength of the motive to achieve success, and fear Failure, a system in which content manifestly describing the avoidance of failure is scored.

The results indicated that Test Anxiety was negatively associated with fear Failure. Subjects in the extreme quartiles did not differ in total need Achievement score. When the eliciting stimuli described achievement situations without reference to failure, the Highs exceeded the Lows in need Achievement. Directly opposite results were obtained when stimuli described failure situations.

Puzzling findings emerged in comparisons between subjects moderate in Test Anxiety and those at the extremes. The Mids scored higher in need Achievement than either the Highs or the Lows. Compared with the Lows, the Mids were more likely to end competitive stories in success and to write stories in which competitive reactions to failure occurred. College grades of the Mids were superior to those of the Lows.

The findings in both studies suggest that the motive to avoid failure is expressed in thematic apperception by the avoidance of failure-related content. Findings in the second study imply that the character of eliciting stimuli influences the level of need Achievement score for subjects differing in the motive to avoid failure. When direct threat of failure is implied by stimuli, need Achievement score is depressed for failure-avoidant subjects. When threat is absent, need Achievement score is less likely to be influenced by defenses against anxiety.

It was tentatively concluded that scores in Test Anxiety and need Achievement are a joint function of the strength of a motive to achieve success and a motive to avoid failure. The data encouraged the inference that low Test Anxiety may reflect a weak motive to avoid failure or a weak motive to achieve success. They also suggested that low need Achievement may reflect a weak motive to achieve success or a strong motive to avoid failure.

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APPENDIX A

DATA FOR FIRST EXPERIMENT

REITMAN MEMORY MEASURE

Story 1: Failure

Two astronomers are cautiously fashioning the vital part of the new invention. They look worried. The need for a new product has led to a questionable idea which is now being tried out. These hesitant men now see the dubious result.

They have all the necessary mirrors and lenses. These men are anxious to revolutionize the making of telescopes. They have spent months, even years, working out this new invention—first on paper, later practically.

Each waits with bated breath for the final part to be finished so they can put together the telescope—they want honor and financial reimbursement.

The invention will fail miserably. Discouraged and financially bankrupt, one will commit suicide; the other will give up and go to Alaska to try his hand at farming.

Story 2—Control

This chap is doing some heavy meditating. He is a sophomore and has reached a crisis at home. He cannot make up his mind. He is troubled, worried.

He is trying to reconcile his respect for his parents and love for his girl—he is young, just eighteen. He is trying not to hurt his parents' feelings and feels the weight of the world on his shoulders.

He wants to clear things up, to settle the conflict, to satisfy his parents and to gain the girl for his wife.

He will mess himself up royally. Too inexperienced and immature, he has tackled too great a problem. Finally he will appeal to his parents, who realize that he really loves the girl, and who consent to the marriage.

ATKINSON RISK TAKING MEASURE

Code Number ____ ____ ____

Sex _____

Imagine that we had installed a room for shooting craps and that you were to have an evening of play.

As you doubtless know, a die has six sides. You have a chance to throw the die (with or without body English) after first accepting one of two bets with the benevolent house. Will you imagine yourself in the setting—friends shouting their encouragement! Which of the alternatives would you accept in each of these pairs of bets? Circle the one you would accept.

Example:

A		B
2/6 to win $900 and 4/6 to lose $450	vs.	5/6 to win $360 and 1/6 to lose $1800

Bet A means, if you roll 1 or 2, you win $900, if you roll anything else you lose $450.

Bet B means, if you roll 1, 2, 3, 4, or 5, you win $360, if you roll a six you lose $1800.

2/6 to win $.90 and 4/6 to lose $.45	vs.	5/6 to win $.36 and 1/6 to lose $1.80
3/6 to win $.60 and 3/6 to lose $.60	vs.	no matter what you play you neither win nor lose
4/6 to win $.45 and 2/6 to lose $.90	vs.	1/6 to win $1.80 and 5/6 to lose $.36
no matter what you play you neither win nor lose	vs.	2/6 to win $.90 and 4/6 to lose $.36
1/6 to win $1.80 and 5/6 to lose $.36	vs.	5/6 to win $.36 and 1/6 to lose $1.80
4/6 to win $.45 and 2/6 to lose $.90	vs.	3/6 to win $.60 and 3/6 to lose $.60
1/6 to win $1.80 and 5/6 to lose $.36	vs.	no matter what you play you neither win nor lose
3/6 to win $.60 and 3/6 to lose $.60	vs.	2/6 to win $.90 and 4/6 to lose $.45
5/6 to win $.36 and 1/6 to lose $1.80	vs.	4/6 to win $.45 and 2/6 to lose $.90
2/6 to win $.90 and 4/6 to lose $.45	vs.	1/6 to win $1.80 and 5/6 to lose $.36
3/6 to win $.60 and 3/6 to lose $.60	vs.	5/6 to win $.36 and 1/6 to lose $1.80
4/6 to win $.45 and 2/6 to lose $.90	vs.	no matter what you play you neither win nor lose
2/6 to win $.90 and 4/6 to lose $.45	vs.	4/6 to win $.45 and 2/6 to lose $.90
1/6 to win $1.80 and 5/6 to lose $.36	vs.	3/6 to win $.60 and 3/6 to lose $.60
no matter what you play you neither win nor lose	vs.	5/6 to win $.36 and 1/6 to lose $1.80

TABLE 61

N ACHIEVEMENT SCORES FOR SUBJECTS IN NEUTRAL GROUP

Subject	Picture						Total	No. Positive Categories	No. Negative Categories
	1	2	3	4	5	6			
2	0	1	5	1	5	5	17	2	1
7	1	1	0	1	5	1	9	2	0
9	5	1	6	6	6	1	25	4	3
13	1	1	5	1	7	1	16	4	1
15	1	1	4	1	6	1	14	1	2
23	1	3	5	1	5	5	20	4	1
25	6	6	0	0	1	1	14	1	5
27	1	1	4	5	4	1	16	2	0
31	0	5	0	0	1	1	7	0	2
35	1	6	5	1	7	0	20	2	2
39	1	1	5	1	4	1	13	2	0
54	1	8	4	4	6	2	25	6	4
58	1	1	1	1	7	1	12	0	3
60	5	5	3	6	6	1	26	6	4
64	0	0	1	0	6	0	7	0	3
67	7	7	3	1	7	0	25	3	6
71	1	1	5	1	6	6	20	5	2
135	7	7	1	7	9	7	38	8	9
78	7	7	1	1	8	1	25	6	5
82	1	6	1	1	6	1	16	2	3
84	4	1	0	1	4	1	11	1	1
88	6	1	1	1	3	5	17	3	1
90	1	6	3	1	8	1	20	5	2
92	4	4	2	1	7	1	19	3	1
93	1	1	0	1	5	0	8	1	0
96	1	4	4	6	5	1	21	4	0
99	1	4	0	1	5	0	11	1	3
100	1	1	1	1	6	1	11	0	1
101	4	5	3	1	7	1	21	1	4
103	1	5	1	1	6	1	15	1	3
106	1	7	4	1	5	1	19	1	3

TABLE 61 (Continued)

Subject	Picture						Total	No. Positive Categories	No. Positive Categories
	1	2	3	4	5	6			
107	1	1	0	0	1	5	8	0	2
108	1	5	4	1	7	1	19	3	3
109	1	4	3	4	6	1	19	2	1
110	1	1	3	1	6	0	12	0	1
111	5	5	5	1	5	1	22	3	0
113	1	1	1	6	1	3	13	3	0
114	0	1	0	0	1	0	2	0	0
115	1	1	3	5	7	1	18	3	1
118	1	1	4	1	7	1	15	2	1
120	6	6	4	1	6	1	24	5	2
122	4	7	3	5	7	1	27	6	4
124	0	1	1	4	3	1	10	2	0
125	1	6	0	0	1	0	8	1	1
126	1	1	4	2	6	5	19	2	1
127	0	1	0	1	5	1	8	1	0
128	1	5	4	1	5	1	17	2	1
129	6	8	1	1	4	1	21	3	2
131	0	5	3	5	5	1	19	3	1
133	1	1	1	1	4	1	9	1	0

TABLE 62

HOPE OF SUCCESS SCORES FOR EACH PICTURE AND TOTAL SCORE: NEUTRAL GROUP

Subject	Picture						Total
	1	2	3	4	5	6	
2	0	0	2	0	4	1	7
7	0	0	0	0	3	0	3
9	2	0	4	3	3	0	12
13	0	0	3	0	5	0	8
15	0	0	2	0	2	0	4
23	0	2	3	0	3	2	10
25	3	2	0	0	0	0	5
27	0	0	2	4	2	0	8
31	0	2	0	0	0	0	2
35	0	3	2	0	3	0	8
39	0	0	3	0	2	0	5
54	0	4	3	3	4	1	15
58	0	0	0	0	2	0	2
60	2	4	2	4	3	0	15
64	0	0	0	0	1	0	1
67	2	3	1	0	4	0	10
71	0	0	3	0	5	3	11
135	3	4	0	4	5	2	18
78	2	5	0	0	4	0	11
82	0	4	0	0	2	0	6
84	3	0	0	0	1	0	4
88	4	0	0	0	2	2	8
90	0	3	2	0	5	0	10
92	3	3	1	0	3	0	10
93	0	0	0	0	3	0	3
96	0	2	3	5	3	0	13
99	0	2	0	0	2	0	4
100	0	0	0	0	2	0	2
101	3	2	1	0	2	0	8
103	0	2	0	0	3	0	5
106	0	2	2	0	3	0	7
107	0	0	0	0	0	1	1
108	0	3	3	0	3	0	9

TABLE 62 (Continued)

Subject	Picture						Total
	1	2	3	4	5	6	
109	0	2	1	3	3	0	9
110	0	0	1	0	2	0	3
111	2	3	3	0	3	0	11
113	0	0	0	5	0	1	6
114	0	0	0	0	0	0	0
115	0	0	1	3	4	0	8
118	0	0	2	0	3	0	5
120	2	5	2	0	4	0	13
122	2	4	1	2	5	0	14
124	0	0	0	3	1	0	4
125	0	3	0	0	0	0	3
126	0	0	2	1	3	3	9
127	0	0	0	0	3	0	3
128	0	4	2	0	2	0	8
129	3	5	0	0	2	0	10
131	0	3	2	3	2	0	10
133	0	0	0	0	2	0	2

TABLE 63

F FAILURE SCORES FOR EACH PICTURE AND TOTAL SCORE: NEUTRAL GROUP

Subject	Picture						Total
	1	2	3	4	5	6	
2	0	0	0	1	1	5	7
7	0	3	0	1	1	5	10
9	3	1	1	1	1	1	8
13	4	4	0	0	0	5	13
15	1	1	0	0	1	4	7
23	5	1	0	0	0	4	10
25	3	3	0	0	0	1	7
27	0	4	0	0	1	6	11
31	1	5	0	1	1	3	11
35	4	3	1	0	3	0	11
39	4	3	1	3	0	3	14
54	1	1	0	0	0	1	3
58	3	5	0	0	3	7	18
60	4	0	0	0	3	3	10
64	3	0	0	0	3	0	6
67	3	3	1	0	1	0	8
71	0	5	0	0	0	6	11
135	3	1	0	1	3	6	14
78	4	1	0	0	1	5	11
82	6	1	0	0	1	1	9
84	0	1	0	0	1	3	5
88	1	3	0	0	0	4	8
90	1	2	0	0	1	2	6
92	0	0	0	0	1	3	4
93	0	0	0	0	0	0	0
96	0	0	0	0	0	1	1
99	1	5	0	1	3	0	10
100	5	1	0	0	1	1	8
101	0	3	0	1	3	3	10
103	0	2	0	0	2	2	6
106	6	3	0	1	1	5	16
107	0	0	0	4	0	1	5
108	3	1	0	0	1	3	8

TABLE 63 (Continued)

Subject	Picture						Total
	1	2	3	4	5	6	
109	0	0	0	1	3	4	8
110	0	5	0	1	3	6	15
111	1	1	1	0	0	3	6
113	1	1	0	1	0	1	4
114	0	3	6	4	0	0	13
115	1	1	0	1	0	5	8
118	3	6	0	0	3	4	16
120	4	1	0	0	0	4	9
122	1	3	0	3	0	4	11
124	0	0	0	0	0	0	0
125	1	1	0	0	0	1	3
126	1	1	0	0	0	2	4
127	0	1	0	3	0	6	10
128	7	0	0	0	3	3	13
129	3	3	0	3	3	3	15
131	3	1	0	1	1	5	11
133	5	5	1	1	1	5	18

TABLE 64

SCORES ON MEASURES OF MOTIVE TO AVOID FAILURE: NEUTRAL GROUP[a]

Subject	Memory	Preference	Test Anxiety	Betting Preference
2	H	H	L	L
7	L	L	L	—
9	H	L	—	—
13	H	—	L	H
15	H	H	L	L
20	L	H	—	—
23	H	H	L	L
25	L	H	L	—
27	H	L	H	—
31	L	H	H	—
37	L	H	H	H
39	L	H	H	H
58	H	—	L	L
60	L	—	L	H
64	H	L	L	—
67	H	L	L	L
71	H	H	H	L
135	H	H	H	H
78	L	L	—	H
82	L	L	—	L
84	L	L	L	H
88	L	H	H	L
92	L	L	H	L
96	H	H	H	H
98	L	L	H	L
100	L	—	H	H
101	L	L	L	L
106	H	L	H	H
107	L	H	L	L
108	H	—	H	H

[a]H refers to high score on measure of motive to avoid failure. L refers to low score on measure of motive to avoid failure.

TABLE 64 (Continued)

Subject	Memory	Preference	Test Anxiety	Betting Preference
109	L	L	L	—
110	H	L	L	L
111	L	L	H	L
112	H	L	H	L
113	H	H	H	H
114	L	H	H	L
115	H	H	L	L
118	H	L	H	L
120	L	—	—	L
122	H	H	—	—
124	H	H	—	—
125	L	—	H	H
126	H	H	L	H
127	L	L	—	—
128	L	—	L	L
129	L	L	H	—
131	H	H	L	H
133	H	—	—	L
99	L	L	H	H

TABLE 65

NUMBER OF ZEIGARNIK TASKS COMPLETED: NEUTRAL GROUP

Subject	Number of Tasks	Subject	Number of Tasks
2	10	98	10
7	9	100	11
9	9	101	7
13	4	106	7
15	8	107	7
20	10	108	—
23	9	109	7
25	10	110	7
27	8	111	7
31	6	112	10
37	10	113	6
39	6	114	9
58	5	115	7
60	11	118	7
64	8	120	5
67	7	122	7
71	9	124	8
135	9	125	4
78	9	126	10
82	8	127	6
84	6	128	5
88	7	129	7
92	8	131	8
96	6	133	12
		99	8

TABLE 66

N ACHIEVEMENT SCORES FOR SUBJECTS IN ACHIEVEMENT GROUP

Subject	Picture						Total	No. Positive Categories	No. Negative Categories
	1	2	3	4	5	6			
1	1	1	7	6	6	0	21	6	1
4	5	1	0	1	7	1	15	3	2
6	6	1	0	3	5	1	16	2	1
8	7	5	5	4	5	1	27	6	2
10	1	1	3	6	6	1	18	2	2
12	1	6	0	5	5	5	22	3	0
14	6	6	6	1	7	4	30	3	5
16	1	5	3	1	5	8	23	4	2
17	1	1	0	1	5	1	9	1	0
22	1	1	2	1	6	1	12	0	3
24	1	5	4	1	5	1	17	1	0
18	0	5	0	7	7	5	24	4	7
32	1	8	0	1	3	3	16	3	4
33	1	1	1	1	6	1	11	0	1
36	5	7	0	1	7	5	25	7	2
40	1	4	1	1	5	1	13	1	1
46	7	7	4	6	6	6	36	5	6
51	6	8	0	0	5	1	20	5	2
52	1	5	5	4	4	6	25	3	0
55	5	4	0	5	1	1	16	2	2
56	1	3	1	1	8	1	15	3	2
59	1	4	4	1	5	1	16	2	0
61	1	1	4	5	7	1	19	4	1
62	5	5	4	4	6	0	24	1	3
63	5	7	4	1	5	1	23	5	0
65	4	6	4	5	6	1	26	4	3
68	1	6	5	1	5	1	19	3	0
72	1	0	2	1	6	1	11	0	1
74	8	6	4	4	6	1	29	6	4

TABLE 66 (Continued)

Subject	Picture						Total	No. Positive Categories	No. Negative Categories
	1	2	3	4	5	6			
75	1	8	0	1	7	1	18	1	5
77	1	0	0	7	6	1	15	1	4
79	4	5	0	5	1	1	16	1	2
80	7	6	4	1	8	6	32	4	6
81	1	6	4	1	5	1	18	2	0
85	1	5	3	3	1	1	14	2	0
89	5	4	1	1	7	5	23	7	0
94	1	1	5	5	6	1	19	3	0
119	3	6	3	5	5	1	23	4	1
121	1	1	0	6	7	1	16	1	3
123	0	7	7	1	1	5	21	4	3
132	1	4	3	1	5	1	15	0	0
134	2	3	5	1	5	1	17	0	1

TABLE 67

HOPE OF SUCCESS SCORE FOR EACH PICTURE AND TOTAL SCORE: ACHIEVEMENT GROUP

Subject	Picture						Total
	1	2	3	4	5	6	
1	0	0	3	5	4	0	12
4	3	0	0	0	4	0	7
6	2	0	0	2	3	0	7
8	4	3	4	3	2	0	16
10	0	0	1	2	4	0	7
12	0	4	0	2	3	3	12
14	4	4	2	0	2	1	13
16	0	4	1	0	2	4	11
17	0	0	0	0	3	0	3
18	0	4	0	3	3	1	11
22	0	0	1	0	2	0	3
32	0	4	0	0	2	1	7
33	0	0	0	0	2	0	2
40	0	1	0	0	3	0	4
36	4	5	0	0	4	3	16
46	4	4	2	2	3	3	18
51	3	5	0	0	3	0	11
52	0	2	2	3	2	4	13
55	3	2	0	3	0	0	8
56	0	1	0	0	5	0	6
59	0	2	2	0	3	0	7
61	0	0	3	3	4	0	10
62	3	3	1	1	2	0	10
63	2	5	2	0	3	0	12
65	2	2	2	3	4	0	13
68	0	4	3	0	2	0	9
72	0	0	1	0	2	0	3
74	2	4	3	2	4	0	15
75	0	2	0	0	3	0	5
77	0	0	0	3	2	0	5

TABLE 67 (Continued)

Subject	Picture						Total
	1	2	3	4	5	6	
79	3	3	0	4	0	0	10
80	2	4	2	0	3	3	14
81	0	4	2	0	2	0	8
85	0	3	1	2	0	0	6
89	4	3	0	0	5	3	15
94	0	0	3	3	3	0	9
119	1	4	1	3	2	0	11
121	0	0	0	3	2	0	5
123	0	2	5	0	0	3	10
132	0	2	2	0	2	0	6
134	1	1	2	0	2	0	6
24	0	4	2	0	2	0	8

TABLE 68

F FAILURE SCORE FOR EACH PICTURE AND TOTAL SCORE: ACHIEVEMENT GROUP

Subject	Picture						Total
	1	2	3	4	5	6	
1	5	1	4	0	0	0	10
4	3	1	0	0	1	3	8
6	0	1	0	0	1	3	5
8	3	0	1	0	1	6	11
10	4	1	1	1	1	4	12
12	0	0	0	0	0	3	3
14	1	0	3	0	1	5	10
16	3	0	0	0	0	1	4
17	3	0	0	0	0	1	4
22	1	4	0	0	5	1	11
24	1	0	0	0	1	4	6
18	5	1	0	3	3	4	16
32	1	4	0	4	1	5	15
33	3	4	0	1	3	4	15
36	0	0	0	0	1	3	4
40	4	3	1	4	0	0	12
46	3	1	0	3	1	3	11
51	3	3	0	1	1	1	9
52	5	1	1	1	0	1	9
56	2	4	8	0	1	4	19
59	3	0	0	0	0	1	4
61	0	4	0	0	1	3	8
62	0	0	1	0	4	0	5
63	0	1	0	1	1	6	9
65	3	3	1	0	0	4	11
68	5	0	1	0	0	5	11
74	7	1	0	0	0	3	11
75	1	3	0	0	1	4	9
77	4	0	0	3	1	6	14

TABLE 68 (Continued)

Subject	Picture						Total
	1	2	3	4	5	6	
79	0	3	0	1	1	3	8
81	1	0	0	0	0	1	2
85	1	0	0	0	1	1	3
89	1	0	0	0	0	3	4
94	1	0	0	0	1	7	9
119	1	1	0	1	1	3	7
121	1	1	0	1	3	3	9
123	1	5	0	0	0	1	7
132	1	1	1	0	0	1	4
134	3	6	1	1	1	5	17
55	1	0	0	1	3	3	8
72	3	0	0	1	2	1	7
80	7	0	0	0	3	4	14

TABLE 69

SCORES ON MEASURES OF MOTIVE TO AVOID FAILURE: ACHIEVEMENT GROUP

Subject	Memory	Pref-erence	Test Anxiety	Betting Pref-erence
1	L	L	L	—
4	H	L	L	L
6	H	—	L	H
8	H	L	—	H
10	H	H	H	—
12	H	H	L	L
14	L	L	L	—
16	L	L	L	L
17	L	H	L	H
22	L	L	L	L
24	L	H	L	L
18	L	H	—	L
32	H	H	H	H
33	L	—	H	—
36	L	H	H	L
40	—	—	—	—
46	H	H	—	H
51	L	L	—	—
52	H	H	H	H
55	L	L	—	H
56	L	H	L	H
59	H	L	L	L
61	H	L	L	—
62	L	—	H	—
63	H	H	H	H
65	L	L	L	—
68	H	H	H	L
72	L	L	H	H
74	L	H	L	L

[a]H refers to high score on measure of motive to avoid failure. L refers to low score on measure of motive to avoid failure.

TABLE 69 (Continued)

Subject	Memory	Preference	Test Anxiety	Betting Preference
75	L	L	L	L
77	L	L	H	—
79	L	L	H	H
80	H	—	—	L
81	—	—	—	—
85	H	H	H	H
89	H	L	H	L
94	H	H	H	L
119	H	H	H	L
121	H	L	L	—
123	H	H	H	—
130	H	—	H	—
132	H	L	H	L
134	L	H	L	—

TABLE 70

NUMBER OF ZEIGARNIK TASKS COMPLETED: ACHIEVEMENT GROUP

Subject	Number of Tasks	Subject	Number of Tasks
1	8	59	6
4	8	61	9
6	11	62	5
8	7	63	7
10	6	65	6
12	8	68	6
14	8	72	6
16	8	74	9
17	6	75	8
22	8	77	8
24	10	79	7
18	10	80	11
32	7	81	—
33	5	85	7
36	7	89	8
40	—	94	8
46	10	119	3
51	9	121	8
52	7	123	7
55	8	130	9
56	9	132	9
		134	10

APPENDIX B

DATA FOR SECOND EXPERIMENT

TABLE 71

NUMBER OF INSTRUMENTAL ACTIVITY CATEGORIES SCORED PER N ACHIEVEMENT STORY FOR SUBJECTS DIFFERING IN TEST ANXIETY

Subject	Test Anxiety Score	No. n Achievement Stories	No. Instrumental Activity Categories
JE 8	56	4	3
WJ 14	54	3	3
AM 21	52	2	2
MH 9	52	3	2
MK 12	51	3	2
FM 30	50	3	2
GM 6	49	5	4
JL 5	48	3	0
RH 6	48	3	2
EA 18	47	4	3
JE 20	47	3	2
FH 1	45	4	4
PL 21	43	3	1
SS 10	43	5	5
ME 4	42	3	3
BE 5	41	3	0
CD 7	41	5	5
SM 22	40	5	5
AL 7	39	4	4
FN 23	38	3	3
HW 8	38	5	2
HM 9	37	5	4
HI 15	37	3	3
IL 24	37	3	2
JA 8	37	3	3

TABLE 71 (Continued)

Subject	Test Anxiety Score	No. n Achievement Stories	No. Instrumental Activity Categories
AF 26	36	2	1
LL 25	36	4	3
WD 4	36	3	2
GM 829	35	4	4
VF 2	35	4	4
FF 9	34	4	3
GA 30	33	3	3
JD 3	33	6	4
NS 3	33	5	4
OF 27	33	5	4
GA 2	32	4	4
HM 13	32	4	4
AM 26	30	3	2
JN 12	30	5	4
JA 18	29	3	1
PA 31	29	1	0
SB 27	29	2	2
BL 13	28	5	4
JM 1	28	4	3
JL 23	26	2	1
MR 28	26	4	3
AI 1	24	3	1
DS 15	24	3	0
HS 2	24	4	4

TABLE 72

HOPE SUCCESS SCORES OBTAINED BY SUBJECTS DIFFERING IN TEST ANXIETY

Subject	Test Anxiety Score	Hope Success Score for Verbal Stimulus						Total Hope Success Score
		1	2	3	4	5	6	
JE 8	56	3	0	0	2	0	3	8
WJ 14	54	3	3	0	3	0	0	9
AM 21	52	1	0	0	3	0	0	4
MH 9	52	2	0	0	1	0	3	6
MK 12	51	2	0	0	1	0	2	5
FM 30	50	2	0	0	2	0	4	8
GM 6	49	4	0	2	4	4	3	17
JL 5	48	2	0	0	2	0	3	7
RH 6	48	4	0	0	2	0	2	8
EA 18	47	3	0	0	1	4	4	12
JE 20	47	3	0	0	2	0	3	8
WJ 16	47	3	0	0	2	0	3	8
FH 1	45	3	0	0	3	2	4	12
PL 21	43	2	0	0	3	0	2	7
SS 10	43	4	4	5	5	0	4	22
ME 4	42	0	3	0	3	0	3	9
BE 5	41	3	0	0	4	0	3	10
CD 7	41	3	3	0	3	3	3	15
SM 22	40	2	2	0	2	2	2	10
AL 7	39	3	3	0	3	0	3	12
FN 23	38	2	0	0	2	0	2	6
HW 8	38	3	3	0	4	1	2	13
HM 9	37	2	4	0	3	1	5	15
HI 15	37	2	0	0	2	0	2	6
IL 24	37	3	0	0	4	0	2	9
JA 8	37	3	0	0	2	2	0	7

TABLE 72 (Continued)

Subject	Test Anxiety Score	Hope Success Score for Verbal Stimulus						Total Hope Success Score
		1	2	3	4	5	6	
AF 26	36	2	0	0	0	0	3	5
LL 25	36	5	3	0	2	0	3	13
WD 4	36	3	0	0	3	0	3	9
GM 829	35	3	4	0	3	3	0	13
VF 2	35	3	2	0	4	0	3	12
FF 9	34	3	2	0	3	0	4	12
GA 30	33	2	0	0	3	0	3	8
JD 3	33	3	3	3	2	0	5	16
NS 3	33	3	0	3	3	3	3	15
OF 27	33	0	2	4	3	3	2	14
GA 2	32	3	0	0	3	0	4	10
HM 13	32	2	0	0	2	0	0	4
AM 26	30	2	0	0	2	0	2	6
JN 12	30	3	2	3	3	0	2	13
JA 18	29	4	0	0	3	0	2	9
PA 31	29	2	0	0	0	0	0	2
SB 27	29	1	0	0	1	0	0	2
BL 13	28	3	3	0	2	4	3	15
JM 1	28	2	0	0	2	2	2	8
JL 23	26	0	0	0	3	0	2	5
MR 28	26	2	2	0	4	0	2	10
AI 1	24	3	1	0	4	0	0	8
DS 15	24	2	0	0	3	0	2	7
HS 2	24	0	3	0	3	2	3	11

TABLE 73

FEAR FAILURE SCORES OBTAINED BY SUBJECTS DIFFERING IN TEST ANXIETY

Subject	Test Anxiety Score	F Failure Score for Verbal Stimulus						Total f Failure Score
		1	2	3	4	5	6	
JE 8	56	1	5	0	1	1	0	8
WJ 14	54	1	4	1	1	4	2	13
AM 21	52	1	6	4	1	1	3	16
MH 9	52	0	3	0	0	1	0	4
MK 12	51	1	4	0	0	1	1	7
FM 30	50	0	1	4	1	0	0	6
GM 6	49	1	4	3	1	1	1	11
JL 5	48	1	1	1	1	0	1	5
RH 6	48	0	4	1	1	1	4	11
EA 18	47	3	4	0	0	1	0	8
JE 20	47	1	3	1	1	1	1	8
WJ 16	47	0	3	0	0	1	0	4
FH 1	45	0	4	1	1	1	0	7
PL 21	43	1	5	1	0	0	3	10
SS 10	43	0	1	1	0	1	0	3
ME 4	42	0	1	4	1	4	4	14
BE 5	41	0	5	3	3	3	0	14
CD 7	41	0	3	0	1	2	0	6
SM 22	40	1	5	0	3	4	1	14
AL 7	39	1	3	1	0	0	0	5
FN 23	38	1	2	1	1	3	1	9
HW 8	38	0	3	3	3	4	1	14
HM 9	37	3	1	5	1	0	0	10
HI 15	37	0	5	0	0	1	4	10
IL 24	37	0	5	0	1	0	0	6
JA 8	37	1	4	0	1	1	1	8

TABLE 73 (Continued)

Subject	Test Anxiety Score	F Failure Score for Verbal Stimulus						Total f Failure Score
		1	2	3	4	5	6	
AF 26	36	0	4	0	0	3	1	8
LL 25	36	0	4	0	1	3	1	9
WD 4	36	0	4	1	4	1	3	13
GM 829	35	3	3	1	3	3	0	13
VF 2	35	1	3	0	0	4	1	9
FF 9	34	0	3	0	0	0	1	4
GA 30	33	1	5	0	1	3	0	10
JD 3	33	1	3	1	1	4	4	14
NS 3	33	0	5	1	1	3	0	10
OF 27	33	1	4	1	3	5	3	17
GA 2	32	0	1	0	0	0	0	1
HM 13	32	1	3	1	3	1	1	10
AM 26	30	1	5	3	1	1	1	12
JN 12	30	1	5	1	3	1	3	14
JA 18	29	3	5	0	3	1	0	12
PA 31	29	0	4	0	1	1	0	6
SB 27	29	1	4	0	1	1	0	7
BL 13	28	0	5	0	1	1	1	8
JM 1	28	0	3	1	4	0	3	11
JL 23	26	0	4	0	3	3	5	15
MR 28	26	3	3	4	3	1	0	14
AI 1	24	1	3	4	4	0	3	15
DS 15	24	0	5	0	1	5	0	11
HS 2	24	1	5	3	3	4	1	17

TABLE 74

NEED ACHIEVEMENT SCORES OBTAINED BY SUBJECTS DIFFERING IN TEST ANXIETY

Subject	Test Anxiety Score	N Achievement Score for Verbal Stimulus						Total n Achievement Score
		1	2	3	4	5	6	
JE 8	56	7	1	0	5	2	6	21
WJ 14	54	7	6	1	6	1	1	22
AM 21	52	3	1	1	6	1	1	13
MH 9	52	5	1	0	3	0	5	14
MK 12	51	4	1	0	3	1	6	15
FM 30	50	3	1	0	6	1	6	17
GM 6	49	7	1	5	8	6	5	32
JL 5	48	5	1	1	4	0	5	16
RH 6	48	6	1	1	7	0	6	21
EA 18	47	7	1	0	3	5	5	21
JE 20	47	7	1	1	6	1	5	21
WJ 16	47	5	1	0	6	1	5	18
FH 1	45	6	1	1	7	6	6	27
PL 21	43	4	1	0	7	1	7	20
SS 10	43	6	6	7	7	1	6	33
ME 4	42	1	4	1	7	0	7	20
BE 5	41	6	1	0	8	0	5	20
CD 7	41	6	5	0	6	4	5	26
SM 22	40	6	5	0	6	5	5	27
AL 7	39	6	6	1	5	1	5	24
FN 23	38	6	1	1	7	0	7	22
HW 8	38	5	6	1	8	5	5	30
HM 9	37	6	6	1	8	4	6	31
HI 15	37	6	1	0	4	1	7	19
IL 24	37	5	1	0	6	1	4	17
JA 8	37	6	1	0	6	4	1	18

TABLE 74 (Continued)

Subject	Test Anxiety Score	N Achievement Score for Verbal Stimulus						Total n Achievement Score
		1	2	3	4	5	6	
AF 26	36	5	1	0	1	1	6	14
LL 25	36	7	5	0	6	1	6	25
WD 4	36	6	1	1	7	1	7	23
GM 829	35	8	6	1	6	5	1	27
VF 2	35	6	5	0	8	1	6	26
FF 9	34	9	5	0	6	1	7	28
GA 30	33	7	1	0	6	1	5	20
JD 3	33	5	6	6	7	2	7	33
NS 3	33	6	1	6	6	6	5	30
OF 27	33	1	6	5	7	6	6	31
GA 2	32	6	1	0	7	3	5	22
HM 13	32	6	1	1	6	1	1	16
AM 26	30	6	1	1	7	1	6	22
JN 12	30	6	6	6	9	1	5	33
JA 18	29	6	1	0	6	0	4	17
PA 31	29	4	1	0	1	1	1	8
SB 27	29	3	1	0	5	1	1	11
BL 13	28	5	5	1	4	5	5	25
JM 1	28	4	1	1	6	3	6	21
JL 23	26	0	1	0	7	1	6	15
MR 28	26	5	6	1	6	1	5	24
AI 1	24	5	4	1	7	1	1	19
DS 15	24	3	1	0	6	1	5	16
HS 2	24	1	7	1	7	7	5	28

TABLE 75

SUCCESS AND NON-SUCCESS OF OUTCOME FOR STORIES WRITTEN IN RESPONSE TO VERBAL LEADS 1, 2, 4, AND 6[a]

Subject	Verbal Lead				No. Success
	1	2	4	6	
High Test Anxiety					
JE 8	0	0	0	S	1
WJ 14	S	S	S	0	3
AM 21	0	S	S	0	2
MH 9	S	0	0	S	2
MK 12	0	0	0	0	0
FM 30	S	0	0	S	2
GM 6	0	S	S	S	3
JL 5	0	0	0	S	1
RH 6	S	0	0	S	2
EA 18	0	0	0	S	1
JE 20	0	0	0	S	1
WJ 16	0	0	0	0	0
High Mid Test Anxiety					
FH 1	0	0	0	S	1
PL 21	0	0	0	0	0
SS 10	S	S	S	S	4
ME 4	S	S	S	S	4
BE 5	S	0	0	S	2
CD 7	0	S	S	S	3
SM 22	0	S	0	S	2
AL 7	S	S	S	S	4
FN 23	0	S	0	S	2
HW 8	S	S	S	0	3
HM 9	0	S	0	S	2

[a]S refers to totally successful outcomes; 0 refers to all other outcomes.

TABLE 75 (Continued)

Subject	Verbal Lead				No. Success
	1	2	4	6	
HI 15	0	0	0	S	1
IL 24	S	0	0	S	2
JA 8	S	0	0	0	1
Low Mid Test Anxiety					
AF 26	0	0	0	0	0
LL 25	S	S	0	S	3
WD 4	S	0	0	S	2
GM 829	0	S	0	S	2
VF 2	S	0	S	S	3
FF 9	0	0	0	0	0
GA 30	0	S	0	S	2
JD 3	0	S	0	S	2
NS 3	S	S	S	S	4
OF 27	0	0	S	0	1
GA 2	S	S	0	S	3
HM 13	S	S	0	0	2
Low Test Anxiety					
AM 26	0	0	0	0	0
JN 12	S	S	0	0	2
JA 18	0	0	0	S	1
PA 31	0	0	0	0	0
SB 27	0	0	0	0	0
BL 13	S	S	0	S	3
JM 1	S	0	0	S	2
JL 23	0	0	0	0	0
MR 28	0	0	0	S	1
AI 1	S	0	0	0	1
DS 15	0	0	0	0	0
HS 2	0	S	0	S	2

TABLE 76

INTRODUCTION OF CONFLICT IN STORIES WRITTEN IN RESPONSE TO ACHIEVEMENT LEADS[a]

Subject	Racer	Surgeon
	High Test Anxiety	
JE 8	C	N
WJ 14	C	C
AM 21	C	C
MH 9	C	N
MK 12	C	C
FM 30	N	N
GM 6	C	N
JL 5	C	C
RH 6	N	C
EA 18	C	N
JE 20	C	N
WJ 16	N	N
	High Mid Test Anxiety	
FH 1	C	N
PL 21	C	C
SS 10	N	N
ME 4	N	C
BE 5	N	C
CD 7	C	C
SM 22	N	C
AL 7	C	N
FN 23	C	C
HW 8	N	C
HM 9	C	N
HI 15	C	C
IL 24	N	N
JA 8	C	C

[a]C = conflict introduced. N = conflict not introduced.

TABLE 76 (Continued)

Subject	Racer	Surgeon
	Low Mid Test Anxiety	
AF 26	N	C
LL 25	N	C
WD 4	C	C
GM 829	C	C
VF 2	C	C
FF 9	N	C
GA 30	C	N
JD 3	C	C
NS 3	N	N
OF 27	C	C
GA 2	N	C
HM 13	C	C
	Low Test Anxiety	
AM 26	C	C
JN 12	C	C
JA 18	C	N
PA 31	N	C
SB 27	C	C
BL 13	C	C
JM 1	N	C
JL 23	N	C
MK 20	N	C
AI 1	C	C
DS 15	N	C
HS 2	C	C

TABLE 77

COMPETITIVE REACTION TO FAILURE INTRODUCED IN FAILURE SLIDES[a]

Subject	Student	Scientist
	High Test Anxiety	
JE 8	o	x
WJ 14	x	x
AM 21	x	x
MH 9	o	x
MK 12	o	x
FM 30	o	x
GM 6	x	x
SL 5	o	o
RH 6	o	x
EA 18	o	o
JE 20	o	x
WJ 16	o	x
	High Mid Test Anxiety	
FH 1	o	x
PL 21	o	o
SS 10	x	x
ME 4	x	x
BE 5	o	o
CD 7	x	x
SM 22	o	x
AL 7	x	x
FN 23	x	x
HW 8	x	x
HM 9	x	x
HI 15	o	x
IL 24	o	o
JA 8	o	x

[a] x = competitive reaction occurs; o = competitive reaction does not occur.

TABLE 77 (Continued)

Subject	Student	Scientist
	Low Mid Test Anxiety	
AF 26	x	o
LL 25	x	x
WD 4	o	x
GM 829	x	o
VF 2	x	x
FF 9	o	x
GA 30	o	x
JD 3	o	x
NS 3	o	x
OF 27	x	x
GA 2	o	x
HM 13	o	x
	Low Test Anxiety	
AM 26	o	o
JN 12	o	o
JA 18	o	o
PA 31	o	o
SB 27	o	o
BL 13	x	x
JM 1	o	o
JL 23	o	o
MR 28	x	o
AI 1	o	o
DS 15	o	o
HS 2	x	o

TABLE 78

GRADE-POINT AVERAGES AT UNIVERSITY OF MICHIGAN FOR SUBJECTS DIFFERING IN TEST ANXIETY

Subject	Test Anxiety Score	Grade Point Average
JE 8	56	2.0
WJ 14	54	1.7
AM 21	52	2.7
MH 9	52	2.4
MK 12	51	2.0
FM 30	50	2.0
GM 6	49	1.8
JL 5	48	2.3
RH 6	48	2.7
EA 18	47	2.3
JE 20	47	1.9
WJ 16	47	1.3
FH 1	45	3.0
PL 21	43	3.6
SS 10	43	3.3
ME 4	42	—
BE 5	41	2.8
CD 7	41	2.4
SM 22	40	2.5
AL 7	39	3.1
FN 23	38	2.7
HW 8	38	2.2
HM 9	37	2.8
HI 15	37	1.5
IL 24	37	2.5
JA 8	37	2.6

TABLE 78 (Continued)

Subject	Test Anxiety Score	Grade Point Average
AF 26	36	2.6
LL 25	36	—
WD 4	36	—
GM 829	35	2.0
VF 2	35	3.0
FF 9	34	2.5
GA 30	33	2.9
JD 3	33	2.5
NS 3	33	2.2
OF 27	32	2.0
GA 2	32	—
HM 13	32	2.0
AM 26	30	2.4
JN 12	30	1.2
JA 18	29	2.0
PA 31	29	—
SB 27	29	2.3
BL 13	28	2.0
JM 1	28	2.3
JL 23	26	2.3
MR 28	26	2.2
AI 1	24	3.5
DS 15	24	2.7
HS 2	24	2.5