San Fernando Valley State College

ACHIEVEMENT MOTIVATION AND LEARNING

thesis submitted in partial satisfaction of requirements for the masters degree in psychology

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Acknowledgements

My gratitude goes to Dr. Leo Pirojnikoff for his endless patience and prodding and to Dr. Helen Giedt and Dr. Louis Nidorf for their elucidating criticisms.
ABSTRACT

This study investigated the relationship between achievement motivation and learning in young children. The major hypotheses of the study are that children high in need achievement learn at a faster rate than those low and that the rate of learning is determined by an expectancy fostered during the child's initial experience with the task.

The results substantiated the hypotheses about the effects of expectation of success on rate of learning. The expected difference due to achievement motivation category was not found although the results were consistently in the expected direction. It is suggested that this was due to confounding of the need for achievement with the need to avoid failure. This confounding may have been due to the nature of the measuring instrument used or it may be in the nature of the characteristic in children of this age.

An interesting unexpected phenomena occurred. A significant number of children who were in the high N-achievement group failed to learn the task. These children were in the expectation groups hypothesized to do poorest. Explanations based on the stability of the
achievement motive and its relationship to fear of failure in children was suggested. Recommendations for future research based on these findings were given.
INTRODUCTION

A child's ability to learn is influenced by many factors, intellectual, motivational and situational. If he has a strong need to do well, to achieve success, to be highly regarded, he is as likely to do better in a learning situation than the child who is relatively weak in such needs, as he is to excel in any other competitive situation. It is in accord with our observations, both casual and experimental, that motivation is an important factor in success. What is not so obvious is the source of such motivation, the circumstances which elicit it and the other needs which compete with it. Such knowledge is essential to the planning of educational programs and to the understanding of children who have difficulty learning.

The theory of achievement motivation deals with such questions. Developing from a loose concept into a formal system based on experimental data, the theory is organized so that experimental hypotheses may be directly derived from it. The purpose of this paper is to discuss that development and to describe an experiment based on hypotheses derived from the formal theory.
The need to achieve was one of 20 needs which Murray suggested were needed to describe the directionality of a person's psychological activities (Murray, 1938). Murray conceived of a need as a hypothetical force which "...organizes perception, apperception, intellection, conation and action in such a way as to transform in a certain direction an existing unsatisfying situation" (1938, pp 123-124). The need for achievement was seen as a need to accomplish difficult tasks, to attain high standards, to excel, to overcome, to feel proud of oneself. Adopting the psychoanalytic hypotheses that needs are expressed in fantasy, Murray devised the Thematic Apperception Test (TAT) to assess the underlying needs of an individual. The needs were seen as relatively constant within an individual, their arousal being determined by environmental events which Murray called "presses".

McClelland in 1948 began research aimed at experimentally supporting the assumptions and hypotheses underlying use of the TAT. His intent was to show that manipulating needs would produce changes in fantasy and that the differences expressed in fantasy would be related to differences in behavior. He began with a simple need, hunger, because there was no question that it is a need state caused by food deprivation. He was able to show
that college students deprived of food gave food related responses to ambiguous stimuli (McClelland & Atkinson, 1948). Taking this as validation of the hypothesis that needs may be expressed in fantasy, he then tried to determine if a psychogenic need produced apperceptive changes similar to those resulting from a physiologic need.

He first evolved a method for assessing the TAT stories for achievement imagery. As a result of this method McClelland was able to define three categories of achievement imagery. The first is reference to success in competition with some standard of excellence. This may be competitive activity or concern with doing something well. Included in this category would be reference to winning or doing as well as or better than someone else, to affective concern with or instrumental activity to the achievement of success. He makes the important differentiation here between concern with the quality of the work and concern with the quantity of the work or with it as a means to some other end such as money or power. The second category of achievement imagery is those answers containing some reference to a unique accomplishment, such as an invention or doing something which has not been done before. The third is for long term involvement with the work. This would include such answers as the sustaining of interest in a field through a long training period or other manifestations of genuine long term involvement.
Combining these categories achievement imagery came to be defined as reflecting a need for success in competition with some standard of excellence.

The imagery elicited was shown to be independent of objective cues in specific TAT pictures. It was shown to be stable and relatively general by being constant over varying environmental conditions used in studying it and by being reliably measured over time (McClelland, 1953).

The next step was to see if differences in scores obtained by individuals in the same situation predicted differences in performance at an unrelated task. McClelland (1953) describes numerous studies which verified the hypothesis that such differences in performance would occur.

The theory of Achievement Motive evolved by McClelland and his co-workers attempts to account for the determinants of the direction, magnitude and persistence of behavior when the individual knows that his performance will be evaluated in terms of some standard of excellence. It is a theory of achievement oriented performance.

As was the case with Murray, the general theory is a 2-factor one maintaining that achievement oriented behavior is a function of a personality characteristic and environmental variables.

The need to achieve (n-ach) is a general and relatively stable characteristic of personality. It is
thought that this need evolves from early childhood training. Winterbottom (1958) showed that ten-year old boys with high n-ach scores had mothers who stressed independence, mastery and accomplishment earlier than boys with low n-ach scores. These mothers were also more affectionate to their children and were prone to rewarding independence and accomplishment with warmth and affection. Thus it is believed that the person high in n-ach has grown up feeling pride in personal accomplishment and that accomplishment enhances his self image. Other studies, i.e., McClelland (1958) have demonstrated the existence of the motive in young children. The motive to achieve will be aroused in performance when certain conditions occur: the individual must be responsible for the outcome of the performance; there must be knowledge of the results so that he will know if he has succeeded; there must be some degree of risk concerning the possibility of success. Given such a situation, the person high in the need to achieve behaves in a manner which will maximize the likelihood of achieving success. This means setting realistic goals and avoiding situations with too great an element of chance in them. McClelland (1958) studied children in a peg-throwing game and found that those high in n-ach chose an intermediate position to throw from. They avoided the greater distances as too difficult and they avoided the closer distances as too
un challeng ing to constitute a true success. High school students high in n-ach select occupational goals consistent with their intellectual abilities, while those low in n-ach are prone to under-aspire or over-aspire, thus not facing a situation in which they can be realistically judged (Mahone, 1960).

Thus the need for achievement leads the person to seek situations with only a moderate degree of unpredictability. In such a situation the person has a good likelihood of achieving a success, which will enhance his self-image and produce feelings of satisfaction.

Expectation of success is one of the environmental variables postulated by McClelland. It follows from the preceding discussion that a person's subjective expectation of achieving success in the activity will influence his performance. Atkinson (1953) found that persons classified as high in n-ach showed a significant increase in recall of interrupted tasks (Zeigarnik effect) when instructions which emphasized the importance of success were given. The author interprets this as meaning that the expectancy of pride in accomplishment led the Ss to work hard and to be concerned about interruption. Performance is not related to n-ach level when situational cues do not suggest that pride in accomplishment will ensue (Atkinson, above; French, 1955).

The relationship between expectancy and performance
is a curvilinear one. Atkinson (1958) demonstrated this in a study where subjects performed a task in competition for a monetary prize, believing that they had different probabilities of winning the prize. Those whose expectation of winning was in the moderate range performed at a significantly higher rate than the others. This reinforces what was stated above, that perception of a situation as challenging and realistically attainable is essential to arousal of the achievement motive.

Atkinson has extended the theory (Atkinson, 1958, 1964) inductively adding variables based on experimentation, and proposing a formal statement of the theory from which hypotheses may be deduced. He regards expectation as a subjective probability of success which may be manipulated experimentally and he proposes a second environmental variable, the incentive value of success.

It seems self evident that if motivation is a factor in performance, then the value of the object would have to be considered. Incentive interacts with expectancy to determine the attractiveness of attaining the goal—the more difficult something is to attain the more attractive we find it. This was demonstrated by Atkinson in the experiment described above (1958). Thus a person who is seeking success will work hardest for the goal which
combines a maximum of incentive with the maximum expectation of achieving success. This is in accord with the previous observation that the goal which is too difficult or too easy to attain does not have as much appeal for the achievement oriented person as the goal which is a moderate, realistic challenge.

The inverse relationship between expectancy and incentive allows Atkinson to put forth a more explicit theoretical model of the effect of the achievement motive on performance. He assumes that the incentive value of success is equal to one minus the probability of success. This is an assumption which is reasonable in light of Atkinson's experimental findings and which will be judged in terms of its testable implications.

The variables can now be put together in a statement from which hypotheses may be derived and predictions made. The motive to achieve success (Ms), a relatively stable personality characteristic, combines with the situational cues of probability of success (Ps) and incentive value of success (Is) in producing the tendency to approach success (Ts) which is manifested in achievement-oriented behavior. Putting numbers into the formula, the curvilinear relationship between performance and expectation, when the Ms is held constant may be seen. The following chart is taken from Atkinson (1964, pg. 242):
Tendency to achieve success (Ts as a joint function of Motive to achieve (Ms), Expectancy of success (Ps), and Incentive value of success (Is) for individuals in whom Ms=1 and Ms=8. It is assumed that Is=1-Ps.

\[
(Ts = Ms \times Ps \times Is)
\]

<table>
<thead>
<tr>
<th>Task</th>
<th>Ps</th>
<th>Is</th>
<th>When Ms=1</th>
<th>When Ms=8</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.90</td>
<td>.10</td>
<td>.09</td>
<td>.72</td>
</tr>
<tr>
<td>B</td>
<td>.70</td>
<td>.30</td>
<td>.21</td>
<td>1.68</td>
</tr>
<tr>
<td>C</td>
<td>.50</td>
<td>.50</td>
<td>.25</td>
<td>2.00</td>
</tr>
<tr>
<td>D</td>
<td>.30</td>
<td>.70</td>
<td>.21</td>
<td>1.68</td>
</tr>
<tr>
<td>E</td>
<td>.10</td>
<td>.90</td>
<td>.09</td>
<td>.72</td>
</tr>
</tbody>
</table>

Atkinson extends the theory to include the observation in studies employing the Test Anxiety Questionnaire and the Manifest Anxiety Scale, that threat or fear of failure has a detrimental effect on some persons' performance. Achievement oriented behavior can be better understood if a conflicting need, the need to avoid failure is also considered. This need is the converse of the need to achieve success. It is characterized as a capacity for reacting with shame and embarrassment when the outcome of one's behavior is failure. This disposition is aroused when the person is in a situation in which he is likely to be judged and failure to be a possible outcome. The motive to avoid failure is a negative disposition which always inhibits
performance. This differs from the theoretical conception in studies which suggested it. They propose that anxiety might act as a performance arousing drive. For Atkinson, the motive to avoid failure always leads the person to avoid situations in which he could realistically be expected to succeed and instead, when required to perform, to seek out situations where the probability of success is either very low or very high. When the Ps is very low, failure is unlikely and when the Ps is very high he cannot be expected to succeed and there is little stigma attached to failure. Thus this person can be expected to behave in a manner opposite to that expected of the person motivated to achieve success. The curvilinear relation between performance and expectation appear, but avoidance behavior will be greatest when the expectation of failure is relatively moderate. This can be seen in the following chart.

Atkinson, 1964, pg. 244):

Tendency to avoid failure ($T_f$) as a joint function of Motive to avoid failure ($M_{af}$), Expectancy of failure ($P_f$), and negative Incentive value of failure ($I_f$) for individuals in whom $M_{af}=1$ and $M_{af}=3$. It is assumed that $I_f=1-P_s$. 
This theoretical conception which was suggested by experiments, has been borne out by further experiments.

Atkinson and Litwin (1960) showed that persons higher in test anxiety than in N-ach are more likely to select tasks at which the Ps is very high or very low. Van der Meer (1960) showed that persons low in achievement motivation were more likely to take greater risks than those high. Mahone (1960) found that college students who were low in achievement motivation and high in test anxiety tended to select occupational goals which were considered unrealistic for their abilities. This unrealistic aspiration usually took the form of overaspiring. A similar phenomena was found in high school boys by Atkinson and O'Connor (1963).

It is assumed that both motivations exist to some degree in all persons and that achievement oriented behavior is the result of their combined strength - \( Ts = Ms - M_{af} \).
The research reported in this paper uses the theoretical model described above as the basis for a study in complex learning in which the subject's experience of ease or difficulty with the task is manipulated. The expectancy concept has been left somewhat loose by theorists pending further research. Defining expectation of success is considered by Atkinson to be the "...most critical problem in contemporary research on achievement-related motivation" (1960, pg. 266). It is assumed that a person's subjective expectancy of success is at least partially a result of personality factors possibly interacting with environmental variables. The studies of level of aspiration or risk taking have assumed that when a wide range of tasks is given, the point at which the probability of success equals 50% for all subjects will fall somewhere in the intermediate range of difficulty. Other studies have simply told the Ss that the task would be difficult or easy. One study (Zeskin, 1966) showed that persons high in n-achievement perceived unfamiliar tasks as being of moderate difficulty while persons lower in n-achievement and high in test anxiety perceived the same tasks as very easy or very difficult. Thus it is reasonable to hypothesize that a person brings a subjective expectation of success with him to a performance situation. This study hypothesizes that the child's early...
experience with a learning task will determine his expectation of success and affect his later learning in a manner predicted by the theory. This is important for understanding the variation in children's school performance. If failure on a task lowers the child's expectation of succeeding in a subsequent task or increases his anxiety about failure, his performance on the subsequent task is likely to be inhibited, leading to "underachievement".

The two major working hypotheses of the study are:

1. Children's experience of difficulty or ease in the critical phase of learning a new task will determine their subjective expectation of success in that task.
2. Children higher in need to achieve than in need to avoid failure will learn at a faster rate than children low in resultant achievement motivation regardless of their initial experiences.

Specific experimental hypotheses with operational definitions will follow a description of the method.

METHOD

(1) Subjects for the experiment were 5th and 6th grade boys in three public schools in a suburban community. All of the schools draw from a socially homogeneous
middle-class neighborhood and all of the subjects were Caucasian.

(2) The French Test of Insight was administered to 262 boys. The French test (French, 1958) is a measure of achievement motivation which uses statements describing some characteristic of a person. The subject is asked to write a short paragraph telling what the subject thinks that person is like. The instructions, which were read aloud to the children are shown in appendix.

Scoring for the test is very similar to that which McClelland uses for his TAT analysis. French gives 13 categories into which answers may be fit. Six of them are positive items which would indicate need for achievement and seven are negative counterparts, indicating concern with the possibility of failure. See appendix 2 for the scoring categories.

This test was selected for two reasons. First, it was felt that children of this age in a large group would respond better to being asked, "what is a person who would do this thing like?" than being shown a picture and told to write a story. Also the time for administration was very limited, and this test could be easily completed within 30 minutes. The second reason it was used is that the scoring system allowed a measure of the motive to avoid failure. Subtracting the negative responses from the positive gives a
measure of the resultant motivation. This method was used as it was not possible to administer a separate measure of test anxiety.

(3) The French Test was scored for Achievement Imagery by two judges whose results correlated .88. The answers given by the children were very sparse, and some answered none or only a few of the items. French states that in her samples the average response is 25 words in length. Her subjects were not children. In this sample responses above 10 words were unusual. The range of subject matter covered in the responses was equally limited. Most answers dealt either with concern about school or about having friends and belonging to groups. Since the answers which indicated involvement with school work were usually considered achievement imagery, the judges felt that they were scoring most items which were legible, relevant and not dealing with friendship. Baumler (1967) has noted a correlation between n-ach score on the TAT and number of words in the protocol. A similar tendency was observed here. This tendency also leads to the suggestion that high scores were going to the children with greater verbal ability. Intelligence has been found to correlate with achievement motivation (Bruckman, 1964). Unfortunately I.Q. scores were not available for these children.
A further problem with the test was that subjects who
had high positive scores also tended to have high negative
scores and low positive scores tended to go with low negative
scores so that taking the difference between them meant that
almost all (98%) of the scores fell between -1 and +1. This
is clearly not an adequate range for selecting subjects.

It was decided that the data from this test did not
allow for adequate measurement of both the need for success
and the need to avoid failure. Thus only the positive answers
were scored, yielding a range from 0 to 12.

(4) Subjects for the experiment were selected from
the high and low extreme scores. 160 boys, 80 high and 80
low participated in the learning experiment. These children
came individually to the experimental room for sessions which
lasted 10 to 15 minutes each.

(5) The experimental apparatus consists of a box in
two section. The lower part on the side facing the child has
4 square buttons. They light up two at a time. The child
presses one. If his choice is correct, a reinforcement, in
this case pennies, is delivered from a spout on the upper
section of the box. If he is incorrect, nothing happens.
On the back section of the box, facing the experimenter, is
the mechanism enabling one to determine which of the pos-
sible six pairs of lights come on and which of the pairs is
correct.
Expectation of success or failure was established by varying the children's initial experiences with the task. Four pairs of lights were used. They appeared in a predetermined order selected at random. Reinforcement on the first ten trials was independent of the subject's choice of buttons. By varying the rate of reinforcement during these first ten trials, the subjects were led to different beliefs about the difficulty of the task they were engaged in. For each level of achievement motivation there were three experimental and one control group. Ss were assigned at random to the groups. The experimental groups received either 10%, 50%, or 90% reinforcement on the first ten trials. Beginning with the 11th trial there was a right and wrong button for each pair. For example when lights A and B appear together A is always correct; when A and C appear, C is always correct. The pairs appear at random and the child's task is to learn which member of the pair is correct. Pressing the correct button produced the reinforcement. The children were not told that the first 10 trials differed from the others and there was no reason to think that they were aware of the change.

The reinforcement was pennies dispensed by the machine. The children were told that the idea was to learn all the correct buttons so that they got a penny every time. Then they could trade their pennies in on a prize.
The prizes were small toys in conspicuously displayed bags labeled first, second and third prize. Actually the contents of the bags were similar and all children who learned the pattern successfully were granted first prizes. The others won second prizes. The instructions to the children appear in appendix II.

(8) Learning was said to occur when 7 consecutive correct choices were made (P = .008). A pilot experiment on 15 children was run using all 6 combinations. This was too difficult for the children, many being unable to learn it after 144 trials. It was decided to use only 4 combinations and this proved satisfactory.

(9) The trials were terminated if the child had not learned the task after 144 trials.
EXPERIMENTAL HYPOTHESES

1. Children who score high in need achievement will learn at a faster rate than children who score low.

2. Within each level of need achievement, the group reinforced on 50% of the pre-test trials will learn most rapidly.

3. Children in the high need achievement, 50% group will have the most rapid learning rate.

4. Within each level of need achievement, the groups reinforced on 10% and 90% of the pre-test trials will learn at the same rate.
RESULTS

Individual scores were based on the total number of trials required to meet the criterion of learning.

The data consists of 8 groups with the following means and standard deviations:

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low N-ach</td>
<td>52</td>
<td>40</td>
<td>55</td>
<td>46</td>
</tr>
<tr>
<td>High N-ach</td>
<td>61</td>
<td>33</td>
<td>70</td>
<td>38</td>
</tr>
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</table>

STANDARD DEVIATIONS

<table>
<thead>
<tr>
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<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low N-ach</td>
<td>32.4</td>
<td>28.4</td>
<td>33.4</td>
<td>28.1</td>
</tr>
<tr>
<td>High N-ach</td>
<td>52.8</td>
<td>25.9</td>
<td>51.1</td>
<td>29.5</td>
</tr>
</tbody>
</table>

Graphically the obtained means are shown in figure 1.

An analysis of variance was performed over all of the data. The results are summarized in table 1. Variation due to (B), the different expectation categories produced an F significant at the .01 level of confidence. The achievement motivation category (A), did not yield a significant F.

Comparisons were made to determine the areas within the B category which had produced the significant F. Trend components for the three expectancy categories were analyzed.
The F for the quadratic component was significant at the \(0.01\) level and accounted for 86% of the variance. The means of groups 1, 2 and 3 were individually compared with the mean of group 4, the control group. Groups 1 and 3 differed significantly from the control group. Group 2 did not differ. The means of group 1 and 3 were found not to differ. Table 2 summarizes these comparisons.

The two control group means were analyzed by a T test to determine if the achievement motivation groups differed in the absence of any experimental effect. No significant difference was found. See table 3.

An unexpected finding was that an apparently disproportionate number of persons in groups 1 and 3 of the high N-achievers had failed to learn the task altogether. A Chi-Square analysis shown in table 4, was performed to determine the statistical significance of this observation. The number not learning was significant above the 5% level of confidence.
FIGURE 1

Mean Number of trials to learning for 6 experimental and 2 control groups

Low N-ach control group

High n-ach control group

Low n-achievement

High n-achievement
TABLE 1  
SUMMARY OF ANALYSIS OF VARIANCE

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Achievement Motivation</td>
<td>127.80</td>
<td>1</td>
<td>127.80</td>
<td>.09</td>
</tr>
<tr>
<td>B - Expectation Category</td>
<td>18,806.01</td>
<td>3</td>
<td>6,268.67</td>
<td>4.68**</td>
</tr>
<tr>
<td>AB</td>
<td>4,144.58</td>
<td>3</td>
<td>1,381.53</td>
<td>1.03</td>
</tr>
<tr>
<td>Within Cell</td>
<td>203,443.55</td>
<td>152</td>
<td>1,338.44</td>
<td></td>
</tr>
</tbody>
</table>

**significant at .001 level of confidence
### TABLE 2
TREND COMPONENTS FOR B FACTOR

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSlinear</td>
<td>696.2</td>
</tr>
<tr>
<td>SSquad</td>
<td>15,232.43**</td>
</tr>
</tbody>
</table>

### TABLE 3
Comparison of Group Means

- Group 1 is 10% reinforcement
- Group 2 is 50% reinforcement
- Group 3 is 90% reinforcement
- Group 4 is control

- Group 1 vs Group 4: \( t = 2.52^* \)
- Group 2 vs Group 4: \( t = 1.13 \)
- Group 3 vs Group 4: \( t = 3.57^{**} \)
- Group 1 vs Group 3: \( t = 1.04 \)

Low n-ach control group vs high n-ach control group:
\[ t = 0.878 \]

* *significant at .05 level of confidence
** **significant at .01 level of confidence
TABLE 4

ANALYSIS OF Ss FAILING TO LEARN TASK

<table>
<thead>
<tr>
<th></th>
<th>Don't Learn</th>
<th>Learn</th>
</tr>
</thead>
<tbody>
<tr>
<td>High n-ach</td>
<td>11</td>
<td>69</td>
</tr>
<tr>
<td>Low n-ach</td>
<td>2</td>
<td>78</td>
</tr>
</tbody>
</table>

Chi Square = 5.36*

* Significant at .05 level of confidence
DISCUSSION OF RESULTS

The results dealing with the expectancy categories verify the hypotheses. If the achievement motivation categorization is disregarded, there is a significant trend for the group whose initial experience with the task suggested that it would be of moderate difficulty, to learn at a faster rate than the groups expecting a very difficult or a very easy task. They behave as the expectancy theory would predict. It might be argued that this finding is the result of a reaction to the change from the 90% and 10% reinforcement to the 50% reinforcement which would be expected by chance before learning had occurred. This argument can be discounted in advance, since it would not predict that the two groups would then learn at the same rate. It would most likely predict that the group which changed from 90% reinforcement to 50% would suffer some decrement in performance. This was not the case judging from the total number of trials to learning, nor does the shape of their learning curve appear to differ. It is reasonable to assume that experience in the initial phase of the task established the subjective expectancy of success.

The hypothesis that the high need-achievers would learn at a faster rate than the low need-achievers was not borne out. The differences were consistently in the direction
predicted but they were not significant. It is believed that this is attributable to difficulty in using the French test with children. As was discussed earlier, the answers given on the test were extremely limited, both in quantity and range of content. While there was adequate reliability between the judges, they felt that they were scoring the child's verbal facility as well as or more than his achievement imagery.

A further problem noted in using the French test raised some theoretical questions. There was found to be a very high relationship between the need to achieve success and the need to avoid failure responses. Studies which use the McClelland TAT method of measuring N-ach normally use the Test Anxiety Questionnaire for the need to avoid failure measure. These measures do not correlate when administered under neutral conditions (Atkinson & Litwin, 1960) but do correlate when administered under achievement oriented conditions (Raphelson, 1957). Two explanations for the apparent correlation of achievement and anxiety responses within the French Test come to mind. One is the possibility that the fact that the test was administered in school was sufficient to evoke anxiety over succeeding in these children or that the situation was not as neutral as the experimenter believed. The other is that ach mot and anxiety about achievement are more closely related in children than in adults.
Although the achievement motive has been measured in children of this age group there has been no normative data published and no comparison of children's scores with those of adults. There have also been no studies of test-retest reliability of children's scores. Bruckman (1964) studied achievement motivation in children age nine to eleven and found it to be less in the younger children. Krumholtz (1957) found correlation of .26 on a test-retest study at 9 week intervals with adults. This was significant at the .01 level of confidence but is so low a correlation as to make the stability of the need questionable. There have been no studies investigating the origins of the need to avoid failure nor the age at which it is manifested. Since children's experiences with success and failure are limited, their needs might be more variable than those of adults. The child concerned with achievement might feel this concern as both approach and avoidance, whereas the adults' needs would be expected to be more stable. This could explain the results found on the French Test where the child high in n-achievement shows concern with both achieving success and avoiding failure. As he has more experience with success and failure and as his personality matures, one or the other motive will become dominant. However, while the needs are so unstable and fluctuating, it might not be valid to
assume that the difference between them reflects the resultant motivation as it does in adults. In this experiment subjects were selected by counting only those responses meeting the criteria of achievement imagery. Responses reflecting failure-oriented imagery were discounted. This criteria may have produced a serious bias in the results. In studies with adults it is assumed that if the need to avoid failure is unmeasured, it is distributed equally between the groups since it is uncorrelated with the criterion. If it is true that with children the measures are correlated, then more subjects in the high n-ach group would be expected to be anxious about failure and this would detract from their performance, bringing the scores for the high and low n-achievement groups closer together.

The likelihood that such a bias occurred is enhanced by the fact that 25% of children in the high n-ach group who were assigned to the 10% and 90% reinforcement groups were unable to learn the task at all after 144 trials. If these subjects were children who were also high in the need to avoid failure, they might be expected to do less well than their counterparts in the low achievement motivation group. The fact that they were completely unable to learn the task requires more explanation than if they had merely taken significantly longer. This was a rather easy task which the other children in their groups learned in 33 and 45 trials,
on the average. That they went on for 144 trials without learning suggests that they were doing something other than trying to reason out the correct response. For example, some of these children were asked casually after the experiment was over which buttons they thought had been right. The usual answer involved some irrelevant relationship between the trials (i.e., "if these two buttons come on then next time this one will be right"). If this type of behavior was characteristic of all the children who did not learn, it suggests the rather interesting hypothesis that irrelevant and perseverative avoidance behavior may be associated with achievement motivation or fear of failure under certain circumstances. Whether the relevant circumstances are the subjective probability of success itself or the particular experimental situation of change in experience of success which occurred here cannot be determined.

An area for future research is suggested by this finding. There are many children who are consistently unable to perform school work within a normal range despite the lack of any apparent organic deficit. It is possible that ambivalence about their need for success and their fear of failure renders these children unable to respond to normal environmental stimulation and leads to their avoiding competitive learning situations.
Another research area suggested by this finding is a study of the relationship between the need to avoid failure and the need to achieve success in children. This relationship appears to be more complex than it is in adults.
### Appendix I

**SCORING CATEGORIES FOR THE TEST OF INSIGHT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Desire for goal (A⁺)</td>
<td>&quot;He is determined he will succeed in everything he does.&quot;</td>
</tr>
<tr>
<td>2. Goal Directed Activity (I⁺)</td>
<td>&quot;He does it to make the 'other fellow' like him.&quot;</td>
</tr>
<tr>
<td>3. Personal qualifications for goal attainment (Q⁺)</td>
<td>&quot;He has leadership ability.&quot;</td>
</tr>
<tr>
<td>4. Expectation of goal attainment (Ga⁺)</td>
<td>&quot;He will make a name for himself.&quot;</td>
</tr>
<tr>
<td>5. Goal attainment (G⁺)</td>
<td>&quot;He has lots of friends.&quot;</td>
</tr>
<tr>
<td>6. Positive affect to goal attainment (P)</td>
<td>&quot;He has a feeling of satisfaction about a job well done.&quot;</td>
</tr>
<tr>
<td>7. Desire to avoid failure (A⁻)</td>
<td>&quot;He hates to do anything wrong.&quot;</td>
</tr>
<tr>
<td>8. Activity directed toward avoiding failure (I⁻)</td>
<td>&quot;He lets the 'other fellow' win so he won't get mad.&quot;</td>
</tr>
<tr>
<td>9. Lack of qualifications for, or possession of qualification preventing goal attainment (Q⁻)</td>
<td>&quot;He hasn't enough ambition.&quot; &quot;He is disagreeable.&quot;</td>
</tr>
<tr>
<td>10. Expectation of failure (Ga⁻)</td>
<td>&quot;He will never profit much.&quot;</td>
</tr>
<tr>
<td>11. Defensive statements or rationalization (D)</td>
<td>&quot;He pretends he doesn't care because he knows he can't.&quot;</td>
</tr>
<tr>
<td>12. Failure to attain goal (G⁻)</td>
<td>&quot;He is an outcast.&quot;</td>
</tr>
<tr>
<td>13. Negative affect to failure (N)</td>
<td>&quot;He is upset because he didn't pass.&quot;</td>
</tr>
</tbody>
</table>
APPENDIX II

INSTRUCTIONS TO CHILDREN FOR LEARNING TASK

This is a sort of learning game. The idea is for you to learn to push the right button when you see the lights come on. If you push the right one a penny comes out. If you push the wrong one nothing happens. Watch me do it (demonstrate). You see the two lights. Now if I push this one, nothing happens. Now there are the same two lights and if I push this one I get a penny. There will always be two lights and one is always right and one always wrong. Your job is to learn to get the right one every time. Then when you have learned them all you can trade your pennies in on a prize from one of these bags. There's a 1st, 2nd and 3rd prize, depending on how fast you learn them. (sic)
REFERENCES


