The President F. T. Shaw Administrative Evaluation and Academic Administration in the Miami School, Cleveland

APPROVED:

Graduate Committee:

[Signatures]

Dean of the School of Education

[Signature]

Dean of the Graduate School

[Signature]
THE RELATIONSHIP BETWEEN ACHIEVEMENT MOTIVATION AND ACADEMIC ACHIEVEMENT IN ELEMENTARY SCHOOL CHILDREN

DISSERTATION

Presented to the Graduate Council of the North Texas State University in Partial Fulfillment of the Requirements

For the Degree of

DOCTOR OF EDUCATION

By

Roy Thomas Harwell, M. Ed.

Denton, Texas
January, 1962
# TABLE OF CONTENTS

**LIST OF TABLES** ....................................................... iv

## Chapter

**I. INTRODUCTION.** .................................................. 1

* Background and Need for This Study
* Statement of the Problem
* Hypotheses
* Definition of Terms
* Limitations of the Study
* Basic Assumptions
* Method
* Procedure for Treating Data

**II. RELATED LITERATURE.** ....................................... 20

* College Grades
* High School Academic Criteria
* Sex Differences in n Achievement
* Characteristics of n Achievement
* Summary

**III. AN ANALYSIS OF THE RELATIONSHIP BETWEEN**

* ACHIEVEMENT MOTIVATION AND ACADEMIC
  ACHIEVEMENT. .................................................. 30

* n Achievement in Boys and Girls
* n Achievement Scores
* Hypothesis One
* Hypothesis Two
* Hypothesis Three
* Discussion of the Data

**IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS** ... 52

* Summary
* Conclusions
* Recommendations

**BIBLIOGRAPHY** ..................................................... 57
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. The Relationship between z Achievement and Sex</td>
<td>31</td>
</tr>
<tr>
<td>II. Frequency Distribution of z Achievement Scores</td>
<td>34</td>
</tr>
<tr>
<td>III. The Relationship between z Achievement and California Achievement Test Results</td>
<td>36</td>
</tr>
<tr>
<td>IV. The Relationship between z Achievement and Academic Achievement Based on Deviation from Anticipated Achievement</td>
<td>40</td>
</tr>
<tr>
<td>V. The Relationship between z Achievement in High Academic Aptitude Groups and in Heterogeneous Groups</td>
<td>44</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Background and Need for This Study

Motivation has come to be recognized as one of the important aspects of behavior. It has been studied by businessmen, politicians, social scientists, and educators. In the area of motivation there is a need for a reliable measure which can be used in predicting how an individual will behave in a specific situation, such as in the classroom or on a job or, in a general sense, relative to any achievement-oriented task. The most common approaches to measuring motivation involve self-rating, ratings by an outside observer, and measures of the behavioral responses of an individual or an animal to specific motivational forces such as hunger or anxiety. These various approaches have produced conflicting and inconclusive results. McClelland, Atkinson, et al. (1, 2, 12, 14) have made a fresh approach to the problem of measuring motivation. This McClelland method utilizes the projective technique of picture-stories and yields a score which indicates an individual's general motivation to achieve. Since this is a general measure of motivation rather than a specific measure, it is applicable to the study of human behavior in various situations. This
The technique has been used to study expectancy and goal attainment, risk-taking in children, perceptual sensitivity, aesthetic preference, self concept, conformity, child-rearing practices, and early learning experiences (2, 4, 9, 13, 14, 16).

The McClelland technique has another valuable use which involves its application to the study of specific kinds of motivation, such as the motivation to achieve academically. Some studies have related this general measure of achievement motivation to certain academic criteria for college and secondary students (2, 3, 9, 14, 13, 19, 20, 21), but no studies have been done which relate achievement motivation to academic criteria for elementary school children.

Theoretically, if the McClelland technique provides an indication of general achievement motivation, it should be related positively to the specific behavior of academic achievement as measured by a standardized achievement test. Further, this measure of motivation should be related to academic achievement with the effect of intelligence held constant. Also, the McClelland measure of achievement motivation should be related positively to the independent measure of motivation used by school personnel in selecting individuals for high academic aptitude groups. Although several studies have found sex to be related to achievement motivation at the secondary and college level on American
students (2, 28), Angelini (14) did not find this sex difference in Brazil. Margaret Mead (17) has advanced the theory that in the American culture, the female begins to place less value on achievement at about the time of adolescence because she realizes that when she does try to achieve, she comes into conflict with potential marriage partners. Atkinson (2, p. 611) has used Mead's theory to explain the differences in achievement motivation for males and females at the college level. However, in a population of sixth-grade elementary school students, achievement motivation should be independent of sex.

Statement of the Problem

This study was made to determine the relationship between $n$ Achievement, the McClelland technique measure of achievement motivation obtained from picture-story protocols, and academic achievement in elementary school children. The California Achievement Tests Battery (27) was used as the criterion for academic achievement.

Hypotheses

The following hypotheses were made in connection with the problem stated above:

1. There is a positive relationship between academic achievement as measured by the California Achievement Tests Battery and the need for achievement ($n$ Achievement) as
measured by McClelland's TAT technique in a population of sixth-grade students.

2. There is a positive relationship between the need for achievement (n Achievement) and overachievers, underachievers, and average achievers relative to anticipated achievement based on chronological age, mental age, actual grade placement, and obtained grade placement on the California Achievement Tests Battery.

3. There is a positive relationship between the need for achievement (n Achievement) and school placement relative to high academic aptitude groups versus heterogeneous groups.

Definition of Terms

motive. Atkinson's definition of a motive was used for the purpose of this study: "A motive, or need, is a disposition to strive for a particular kind of goal-state or aim, e.g., achievement" (2, p. 597).

n Achievement. n Achievement is the term which represents the number of achievement related responses found in scoring the protocols of the TAT-like stories and is used as a measure or an indication of general achievement motivation.

Neutral situation. The term "neutral situation" refers to the type of atmosphere in which the n Achievement technique was administered and means that efforts were made to make the testing procedure as much like any other classroom
activity as possible. No efforts were made to try to make the students any more ego-involved in this activity than they would be in any academic task. The directions did not contain any references to the concepts of test, aptitude, intelligence, achievement, or any other terminology that might have made the students more ego-involved. In view of the fact that this technique is rather sensitive to the immediate environment and does reflect the set as well as things that have occurred just before testing and things that are anticipated, efforts were made to insure that testing was done on a typical school day. The date for n Achievement testing was carefully planned with the school principal so that no unusual activities were occurring at that time. All sixth-grade teachers in each school used in the study filled out a special report and described in detail the circumstances. Teachers were not informed of the nature or details of the testing and were requested not to discuss this activity with the students in advance of the actual testing.

Achievement subgroups. n Achievement scores do not have the mathematical characteristics required by most refined metric techniques; consequently, the population was divided into three groups on an equal percentage basis so that chi square could be used. The upper n Achievement group (raw score range from 4 to 19) was designated as "high n achievers"
or the "high \( n \) Achievement group." The middle \( n \) Achievement group (raw score range from 0 to 3) was designated as "medium \( n \) Achievers" or the "medium \( n \) Achievement group." Those students scoring at the lower end of the \( n \) Achievement distribution (raw score range from -4 to -1) were designated as "low \( n \) Achievers" or the "low \( n \) Achievement group."

**Anticipated achievement subgroups.** Students were divided into three different groups and classified as "over-achievers," "average achievers," and "underachievers" on the basis of their anticipated achievement. Anticipated achievement was computed from actual grade placement, chronological age, and mental age through the use of an Anticipated Achievement Calculator (25). The difference between anticipated achievement and obtained achievement was computed and those students achieving .8 grade placement or more above their anticipated achievement were classified as "overachievers" or the "overachieving group." Students achieving .8 grade placement or more below their anticipated achievement were classified as "underachievers" or the "underachieving group." All students not placed in the overachieving group or the underachieving group were classified as "average achievers" or the "average achieving group."

The choice of .8 grade placement deviation to indicate overachievers and underachievers was an arbitrary one.

Initially, one grade placement deviation was chosen to make
the division, but in this particular middle-class population this did not result in enough theoretical frequencies in two of the three chi square cells for the underachievers. The terms "overachiever" and "underachiever" were used because they are common to educational literature. However, it should be noted that these terms are defined in a somewhat different sense in this study than they are frequently defined in educational literature in that the designation is made in terms of chronological age, mental age, actual grade placement, and obtained grade placement instead of in terms of actual grade placement and obtained grade placement only.

**Actual achievement subgroups.** In order to test hypothesis one, scores obtained on the California Achievement Tests Battery were converted into percentile ranks through the use of the standardization norms (27). This standardization distribution was then divided into five equal parts on the basis of percentile ranks to form five groups designated as I, II, III, IV, and V. Group I indicated the highest achievement and group V the lowest achievement.

**High academic aptitude group (HAAG).** In each school there was one class in each grade designated as the "high academic aptitude group," composed of students who had been placed in this special class because of high academic aptitude, high academic achievement, and "known industry." Known industry is a vague term that is left for teachers
and administrators to define for themselves but generally means that an individual does at least all the assigned homework and classwork.

**Heterogeneous group.** All students not classified as being in the HAAG were considered to be in the "heterogeneous group."

**Limitations of the Study**

This study was limited to the study of sixth-grade children enrolled in schools in the Dallas Independent School District, Dallas, Texas. McClelland (2, p. 307) feels that research that has been done indicates that the achievement motive is formed between the ages of five and nine. Assuming this to be true, the achievement motive likely would not be completely formed before the sixth grade.

Further, this study was limited to the study of middle-class children. Several studies have shown that social class is an important factor in the determination of achievement (2, 6, 11, 19, 22, 23, 24). This study was limited to the social class where academic achievement is valued highly.

**Basic Assumptions**

Although it was recognized that the cue characteristics, not only of the pictures but also the situation, do play an
important part in the stories an individual tells in response to a picture, it was assumed that this is a "thought sample" which does contain an indication of his own needs and own motivation which he has projected onto the stimulus figures. It was further assumed that when an individual is tested for achievement in a school situation as a part of classroom work, he will bring to this situation approximately the same motivational set that he brings to his other classroom work. Also, it was assumed that the range of scores which this technique yielded (-4 to 19) is large enough to discriminate differences in achievement motivation to the extent that they can be formed into three groups relative to achievement motivation.

Method

Population

The population for this study was 359 sixth-grade students (boys, N = 164; girls, N = 195) enrolled in sixteen classes in four elementary schools in middle-class neighborhoods. It was possible to use both boys and girls in this sample because the chi square test of independence was used to determine that achievement was independent of sex in this population. A total of 466 students were tested, but it was necessary to exclude 107 from the study because of social class, inadequate information to determine social
class, incomplete achievement or intelligence test data, and for miscellaneous reasons such as illegible n Achievement protocols.

**Determination of Middle Class**

Middle-class status was determined from a questionnaire completed by the students immediately before n Achievement testing which gathered data on the education of the parents, the occupation of the father, and the area of town in which the pupil lived. The criteria used were not intended to give a precise or refined definition of social class such as that used by Warner and his associates (29), but were designed to select those students whose families had middle-class value orientation. Louvan's three criteria were used to determine middle-class occupations (2, p. 511). These criteria are concerned with the extent to which an individual's job involves interpersonal relationships, the amount and type of control an individual has over others in connection with his work, and whether or not effort on an individual's part will result in increased income.

Louvan's procedure—considering an occupation as middle class if at least two of the three criteria were met—was also used. If either parent was at least a high school graduate, the parent-education criterion was met. Schools were chosen which were in middle-class areas of town, i.e.,
average residential neighborhoods, no deterioration in the neighborhoods, and with medium-size houses in good condition. All students met the middle-class residential requirement. Students who did not meet two of the three criteria of parent occupation, parent education, and area of residence were excluded from the study. Some students did not know or would not report parent education and/or parent occupation; consequently, some students were excluded because of inadequate information to determine social class.

**Sampling Technique**

As has already been explained, only four middle-class schools were used in the study. These schools were selected at random from all the middle-class schools in the Dallas Independent School District. All sections or classes of the sixth grade in each school were used because grouping procedures are used in the Dallas Independent School District and this insured that all types of students enrolled in these schools were included.

**Instruments Used**

**California Short Form Test of Mental Maturity.**—The California Short Form Test of Mental Maturity (26) is routinely administered to all sixth-grade students at various times during the school year by group-testing technicians from the Research Department of the Dallas Independent School
District. California Test of Mental Maturity results were used to obtain anticipated achievement grade placements which served as a basis for classifying students as over-achievers, average achievers, and underachievers to test hypothesis two.

The California Achievement Tests Battery.--The California Achievement Tests Battery (27) is routinely administered by all sixth-grade classroom teachers during the spring semester of each year. The total grade placement score was used in connection with anticipated achievement to determine overachievers, average achievers, and underachievers to test hypothesis two and was the basis for forming groups I, II, III, IV, and V to test hypothesis one.

n Achievement.--The need for achievement or the achievement motive was measured by the McClelland picture-story technique. This technique has been used with various age groups with certain adaptations but has been used most extensively with college-age groups. The original n Achievement series of pictures were used in this study. These pictures are identified by numbers taken from McClelland's catalog of pictures and are described as follows:

Card 2. Two men ("Inventors") in a shop working at a machine (2, p. 332).


Although no studies are reported using this particular series of pictures with elementary school children, it was not necessary to make any major changes in procedure. Minor changes were made in the instructions used by Ricciuti, Clark, and Sadacca in a neutral situation (2, p. 837). These changes involved the addition of a few sentences to make it clear to these sixth-grade students they were to write a story by answering the four questions:

1. What is happening? Who are the persons?
2. What has led up to this situation? That is, what has happened in the past?
3. What is being thought? What is wanted? By whom?
4. What will happen? What will be done? (2, p. 837).

Many students wanted to ask questions while the instructions were being given. All questions were answered after the formal directions were given. Most of the questions were answered in terms of the directions themselves. Many students did not understand that they were to answer all four questions about each picture. It was necessary to define the word "situation" for some students and this was defined as "what is happening now in the picture." In the few cases where the students did ask, they were told that the results would not affect their grades. All questions
about the nature or purpose of the task were referred until after the stories had been written, at which time they were told that this was a "test of imagination."

The pictures were on 2" x 2" positive slides and were projected to an entire class in the regular classroom on a shadow-box screen for twenty seconds, then removed. Four minutes were allowed to write each story. At the end of each minute, the examiner indicated, "It is about time to go on to the next question even though you have not finished this one." Also, the examiner gave a thirty-second warning by saying, "Will you try to finish up in about thirty seconds?"

The picture-story protocols were scored according to the scoring manual developed by McClelland, et al. (2, p. 179). The scorer was trained to use this technique through practice materials developed by Smith and Feld (21, p. 636). This scoring system classifies stories into the three main categories of achievement imagery (AI), doubtful or task-related imagery (TI), and unrelated imagery (HI). Unrelated imagery is scored as -1, task-related imagery is scored as 0, and achievement imagery as +1. There are twelve subcategories based on the behavioral sequence which involves an individual's behavior and feelings from the time he experiences a need until his goal is achieved or his attempts to reach his goal have been blocked. Subcategories are scored only
If achievement imagery (AI) is scored and are assigned a value of \( A \). The possible range of scores for each picture is -1 to 11; consequently, the possible range of scores on the four pictures used in this study was from -4 to 44. The following criteria for scoring achievement imagery (AI) were used:

2. Unique accomplishment (2, p. 183).

Some special scoring problems were encountered in this study. It was especially difficult to determine whether some protocols involved achievement imagery or whether the primary concern was to avoid punishment. For example, many students wrote stories with themes of unique accomplishments and long-term involvement but indicated that the stimulus figures were doing this only to avoid punishment from parents or other important adults. This type of story was a rather common response to the stimulus of the adolescent boy with the open book. There did seem to be a considerable amount of imagery which could be classified in the categories of fear of failure and hope of success (5, 7).

Procedure for Treating Data

The mean and standard deviation of the \( n \) Achievement scores were computed and the scores arranged in a frequency distribution according to the Lindquist method (3). The
A chi square test of independence was used to determine whether or not n Achievement was independent of sex for this population. Since the null hypothesis was retained, it was possible to use the total population to test the hypotheses of this study instead of doing separate statistical tests for boys and girls. A three-by-five chi square table was used to test hypothesis one, the relationship between n Achievement and academic achievement. Hypothesis two, the relationship between n Achievement groups and anticipated achievement groups, was tested through the use of a three-by-three chi square table. Hypothesis three, the relationship between n Achievement and school placement in heterogeneous or high academic aptitude groups, was tested by a two-by-three chi square table. The Yates correction was used in three cells which had theoretical frequencies of less than ten.
CHAPTER BIBLIOGRAPHY


CHAPTER II

RELATED LITERATURE

The literature related to this particular study is complicated by the fact that n Achievement is a technique for measuring motivation rather than a specific instrument. This technique has been used in various ways and under various conditions. Many of the studies that have been done have used different pictures than were used in the present study, which makes any comparison somewhat questionable. Other variables which have not been kept constant have been the number of pictures in a series, the order of presentation of the pictures, the type of atmosphere fostered by the directions, the length of time for writing stories, and the statistical treatment employed. There is some question as to whether or not the n Achievement scores met the basic assumptions of the statistical techniques employed in some studies. There is also the question of the scoring manual used. At least four different scoring manuals have been developed (9, p. 4), which is another factor that must be considered in comparing n Achievement studies. Many of these studies are reported only in brief abstracts, summaries, and references in journal articles or books on motivation.
which do not give enough information to determine on what basis a valid comparison can be made between these studies and the present study. One further complicating factor is the fact that many of these studies are reported in books or reviews by persons who seem to have either a favorable or an unfavorable orientation toward the n Achievement technique, and the results of some studies have been interpreted by different reviewers to mean different things.

In this chapter, the presentation has been made in terms of the findings and conclusions that are reported by the individuals doing the research. More detailed discussion of the relationship between the present study and related literature has been made in Chapter III.

College Grades

The n Achievement technique was developed in a university atmosphere and its first application to academic criteria was to college grades. On a sample of thirty Wesleyan male students, McClelland (3, p. 237) reported a correlation of .51 between grades and n Achievement and a correlation of .39 between grades and n Achievement combined with Scholastic Aptitude Test scores.

However, McClelland (3, p. 237) used data from Lowell's experiment at Trinity College and found a correlation of .05 between grade-point average and n Achievement ($N = 40$).
McClelland felt that the differences between the Wesleyan group and the Trinity group could be accounted for in differences in pictures used to test n Achievement, the selective factors in forming the two groups and in the fact that the "Wesleyan correlation involved predicting grades, whereas the Trinity one involved largely postdicting them" (2, p. 239). McClelland suggested that n Achievement is more closely related to future grades than past grades, but this hypothesis was not confirmed in a study done by Bondiz (2) on 110 male psychology students at the University of Pittsburgh.

Among 180 freshman students in an eastern college, Ricciuti found no relationship between n Achievement and grade-point average for the freshman year (7, p. 10). Ricciuti did use special pictures and special scoring categories for this study.

An earlier study by Morgan (4) used an approach similar to the one used in the present study and found a significant difference between the mean n Achievement scores of "achievers" and "nonachievers" at the University of Minnesota.

High School Academic Criteria

Studies relating n Achievement to high school grades have indicated that the n Achievement technique is a somewhat better predictor of high school grades than it is of college grades. In a study of junior boys in academic and
vocational high schools, Morgan concluded that this technique "holds some promise as a predictive instrument for forecasting achievement" (5, p. 292). He found that the correlation between school grades and n Achievement tends to be somewhat less when the effect of intelligence is partialled out.

In a study using 147 eleventh-grade high school students, Ricciuti found what he termed "moderate positive correlations" (r's ranging from .25 to .35) between semester grades and n Achievement and "significant positive correlations" (r's ranging from .16 to .29) between these two factors when the effect of intelligence was accounted for (7, p. 3). Ricciuti and Sadacca (8) took eighteen of the pictures from this early study to make two different forms of n picture series (Forms X and Y) and administered them to a different group of eleventh-grade students and obtained positive correlations ranging from .19 to .29 for Form X and .32 to .36 for Form Y. These studies used a testing procedure which allowed only two and one-half minutes for writing each story; consequently, they obtained almost as high a correlation between word count and grades as between n Achievement and grades.

In a study done with secondary students, Rosen concluded, "The data show that subjects with high motivation scores are proportionately more likely to achieve grades of 'B' or better than are adolescents with low motivation scores"
He also found that n Achievement is not significantly higher in individuals who say they plan to go to college and those who say they do not plan to go to college.

A positive significant difference was found between the n Achievement means of "low achievers" and "high achievers" for tenth-grade boys but not for twelfth-grade boys in the Quincy Youth Development Project (6). The four scoring categories of need, affect, anticipation of success, and instrumental activity were combined to get an "involvement" score. It was found that "high achievers" are more likely "to become self-engaged in achievement tasks" than are "low achievers" (6, p. 22).

Sex Differences in n Achievement

The n Achievement technique has been used most frequently with boys because early studies found significantly higher scores in boys than in girls (1, 3, 10). Pierce found no significant difference in n Achievement for "high-achieving girls" and "low-achieving girls" (6, p. 23). Both McClelland (2) and Atkinson (1) noted the differences in n Achievement scores for girls and boys of high school and college age. This sex difference was not found in a study done in Brazil (1, p. 13) which suggests that it may be a product of the American culture.
Characteristics of \( n \) Achievement

The \( n \) Achievement measure has resulted in a distribution somewhat skewed to the right in college populations and in one elementary school population. Atkinson reported the following descriptive statistics on college students at the University of Michigan: "\( N = 207, \) Mean = 6.10, SD = 4.81, Median = 6.08, Range = -2 to 128." In Atkinson's distribution the upper 25 per cent made a raw score of ten or above and the lower 25 per cent made a raw score of two or below. Rosen obtained a similar distribution on boys of ages 3 to 14 (1, p. 335).

Significantly higher scores have been reported using achievement-oriented instructions instead of neutral instructions (1, 3). Haber and Alpert (1) found that the cue characteristics of pictures are an important factor in determining whether or not there is an increase in \( n \) Achievement when achievement-oriented conditions are used instead of a neutral situation. There is a significant increase in achievement-related responses on "high-cue" pictures when achievement-oriented instructions are given, but this increase is not significant on "low-cue" pictures (1, p. 657).

Summary

In 1953 McClelland summarized the work done in relating \( n \) Achievement to academic criteria by stating:
The plain fact of the matter is that this whole area needs much more carefully planned research than we have conducted. Our interest has always been primarily in other problems and the relationships reported here have been incidental to other findings (5, p. 241).

However, McClelland felt that there were enough positive incidental findings to warrant further study in the area (5, p. 242).

Several years after McClelland had made the statement about the need for more research in this area, Atkinson reviewed the literature and commented that "a high grade-point average in school or college is an accomplishment requiring performances which undoubtedly are overdetermined in the sense of involving more than one of the individual's motives" (1, p. 605). Further, Atkinson suggested that investigators should attempt to "assess the expectations of particular individuals regarding the consequences of their working to get good grades" (1, p. 605).

Most of the related studies have used correlational techniques and have found a low-to-moderate relationship between n Achievement and academic criteria. n Achievement scores are generally higher for college students than for high school students, but the relationship between n Achievement and grades is generally higher for high school students than for college students. Some studies have used the n Achievement technique with elementary school children, but
no studies have been reported which relate n Achievement to academic criteria for elementary school children.
CHAPTER BIBLIOGRAPHY


CHAPTER III

AN ANALYSIS OF THE RELATIONSHIP BETWEEN ACHIEVEMENT MOTIVATION AND ACADEMIC ACHIEVEMENT

\( n \) Achievement in Boys and Girls

Since previous studies have found that achievement motivation is related to sex at the high school and college level, the chi square test of independence was used to test this relationship at the elementary age level. Table I shows that \( n \) Achievement is independent of sex in this population of elementary school children. This finding is different from those reported by Veroff (16), Atkinson (3), McClelland (9) and Pierce (11) with high school and college age female subjects. These previous studies have found significant differences in \( n \) Achievement for males and females. However, Angelini (5, p. 12) did not find this sex difference in Brazil. Atkinson has hypothesized that this difference in achievement motivation in males and females is a product of the American culture (3, p. 611). The present data confirmed that hypothesis.

In view of the fact that there is a significant difference between \( n \) Achievement in boys and girls of high school age but \( n \) Achievement is independent of sex at the sixth grade level, there probably is either a decrease in
TABLE I
THE RELATIONSHIP BETWEEN \textit{n} ACHIEVEMENT AND \textit{SEX}

<table>
<thead>
<tr>
<th>Sex</th>
<th>\textit{n} Achievement Subgroups</th>
<th>\textit{n} Achievers</th>
<th>\textit{n} Achievers</th>
<th>\textit{n} Achievers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Low</td>
<td>52 (53.55)</td>
<td>53 (57.57)</td>
<td>59 (53.45)</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Girls</td>
<td>Low</td>
<td>64 (63.01)</td>
<td>73 (68.44)</td>
<td>58 (63.52)</td>
<td>195</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>116</td>
<td>126</td>
<td>117</td>
<td>359</td>
</tr>
</tbody>
</table>

\textit{chi square} = 1.66

\( P \) not significant

achievement motivation for females or an increase in achievement motivation for males which takes place during early or middle adolescence. Apparently, American adult females do not value achievement goals as highly as do American adult males. Field (9, p. 60) has found that the achievement motive can be aroused in adult American females when achievement is defined in terms of social success or social failure. The present data indicated that sixth-grade girls have not yet learned this adult female value and are still thinking of achievement goals in approximately the same way that boys think of them. However, there is still some question whether
or not sixth-grade boys are thinking of achievement goals in the same way that adult males think of them.

This implication that the American culture does have an important role in causing a different motivational pattern to develop in men and women relative to achievement suggests that the developmental culture may have an important function in the formation of all motives. This has been recognized in theory for some time and there has been some research to support this hypothesis. The present problem of relating n Achievement to academic achievement was complicated by the finding that n Achievement is lower for high school and college females than for males, although they continue to achieve at approximately the same relative academic level as they did in elementary school when n Achievement was independent of sex. Pierce (11) has advanced the hypothesis or rationale that girls achieve academically because of conformity to cultural demands rather than because of achievement motivation. Some important changes take place in achievement motivation in either boys or girls shortly after adolescence. The present data are not definitive at this point. n Achievement may remain relatively constant for boys and decrease for girls, or it may remain constant for girls and increase for boys. It is very possible that conformity is also more important in producing academic achievement in preadolescent boys than in achievement
motivation. This hypothesis gets some support from the thematic content of the \( n \) Achievement protocols, which indicate that many boys are concerned with achievement goals chiefly because authority figures are demanding this concern.

\( n \) Achievement Scores

In this population of 359 middle-class sixth grade students, \( n \) Achievement was uneven and did not follow the form of a normal distribution. This can be seen in the frequency distribution in Table II, which shows that the distribution is skewed to the right with the majority of scores at the lower end of the score range. The skewness of the distribution and the presence of minus scores help to account for the low mean and standard deviation (\( \bar{x} = 2.30, \ SD = 3.71 \)). The mean was lower than the standard deviation because of the large number of minus scores in this distribution.

Several factors could account for the form of the present distribution of scores. First of all, this \( n \) Achievement measure was obtained in a neutral situation for reasons already discussed. It has been demonstrated in several studies that \( n \) Achievement scores are significantly higher when they are obtained under achievement-oriented conditions than when they are obtained under neutral conditions (3, 4, 7, 3, 9). This helps to account for the low mean and low standard deviation of the present distribution, but it does
### TABLE II

**FREQUENCY DISTRIBUTION OF n ACHIEVEMENT SCORES**

<table>
<thead>
<tr>
<th>Scores</th>
<th>Frequency</th>
<th>Cumulative Frequency</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-19</td>
<td>2</td>
<td>359</td>
<td>100.00</td>
</tr>
<tr>
<td>16-17</td>
<td>0</td>
<td>357</td>
<td>99.44</td>
</tr>
<tr>
<td>14-15</td>
<td>2</td>
<td>357</td>
<td>99.44</td>
</tr>
<tr>
<td>12-13</td>
<td>6</td>
<td>355</td>
<td>98.39</td>
</tr>
<tr>
<td>10-11</td>
<td>12</td>
<td>349</td>
<td>97.21</td>
</tr>
<tr>
<td>8-9</td>
<td>23</td>
<td>337</td>
<td>92.20</td>
</tr>
<tr>
<td>6-7</td>
<td>24</td>
<td>314</td>
<td>87.47</td>
</tr>
<tr>
<td>4-5</td>
<td>48</td>
<td>90</td>
<td>80.74</td>
</tr>
<tr>
<td>2-3</td>
<td>57</td>
<td>242</td>
<td>67.41</td>
</tr>
<tr>
<td>0-1</td>
<td>67</td>
<td>185</td>
<td>51.53</td>
</tr>
<tr>
<td>-2 to -1</td>
<td>112</td>
<td>113</td>
<td>33.14</td>
</tr>
<tr>
<td>-4 to -3</td>
<td>6</td>
<td>6</td>
<td>1.70</td>
</tr>
</tbody>
</table>

\[ m = 2.30, \text{ SD } = 3.71 \]

not account for all of the skewness of the distribution.

A study made by Daber and Alpert (7, p. 657) did find a significant difference in neutral and achievement-oriented conditions in that "low-cue" pictures are not likely to produce higher scores under achievement-oriented conditions,
while "high-cue" pictures will do so. The cue characteristics of the present set of pictures could have caused some of the skewness in the distribution. These pictures have been used extensively with college groups, but they may have different cue characteristics for elementary school children.

Another factor which might help to explain the form of the present distribution is the developmental nature of \( n \) Achievement. Although it was assumed that \( n \) Achievement is formed between the ages of five and nine (3, p. 307), there is the possibility that this is not the case. It could be that this distribution was skewed to the right because the achievement motive had developed fully only in the more mature of these eleven- and twelve-year-olds.

The simplest and most obvious explanation for the skewness in this distribution was the possibility that the achievement motive or achievement motivation was actually distributed in a skewed manner. Previous studies (2, 9) have consistently shown some skewness to the right.

**Hypothesis One**

Hypothesis one states that there is a positive relationship between academic achievement as measured by the California Achievement Tests battery and the need for achievement (\( n \) Achievement) in a population of sixth-grade students.
The data confirmed this hypothesis. This is shown in Table III, in which are presented the results of the chi square test of independence. The chi square which was obtained (chi square = 27.48 with eight degrees of freedom) made it possible to reject the null hypothesis at greater than the .001 level of significance.

<table>
<thead>
<tr>
<th>Table III</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE RELATIONSHIP BETWEEN <strong>N</strong> ACHIEVEMENT AND CALIFORNIA ACHIEVEMENT TEST RESULTS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>N</strong> Achievement Subgroups</th>
<th>California Achievement Test Subgroups*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V</td>
</tr>
<tr>
<td>High <strong>N</strong> Achievers</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>(13.04)</td>
</tr>
<tr>
<td>Median <strong>N</strong> Achievers</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>(14.04)</td>
</tr>
<tr>
<td>Low <strong>N</strong> Achievers</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>(12.92)</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
</tr>
</tbody>
</table>

*Equal division of achievement score distribution with Group I indicating the highest achievement and Group V the lowest.

**Yates correction.

chi square = 27.36

P = .001
The California Achievement Test subgroups shown in Table III were formed by dividing the achievement score distribution into five equal parts. Group I is the highest level of achievement and Group V is the lowest level. The achievement subgroups were also formed on an equal percentage basis.

An analysis of Table III reveals that the most pronounced trend of the high \( n \) Achievers was their tendency to achieve in the highest group academically. Also, the high \( n \) Achiever was more likely to function above average academically or below average academically than at the average level (Group II). However, the data suggest that the high \( n \) Achiever was rather unlikely to function at the lowest level academically (Group V).

As hypothesized, it is shown in Table III that low \( n \) Achievers have characteristics which are almost opposite the traits or characteristics of high \( n \) Achievers. The low \( n \) Achiever is most likely to achieve at the lowest level academically (Group V) and is very unlikely to achieve at the highest level academically (Group I). However, there were no other trends evident in the data for the remaining low \( n \) Achievers relative to level of academic achievement as there seemed to be for high \( n \) Achievers.

Further analysis of the data seems to indicate that \( n \) Achievement has no predictive value for median \( n \) Achievers.
relative to level of academic functioning. This is an important finding because n Achievement has been studied most frequently by dividing the distribution in half and designating one group as "high" and the other group as "low."

The present findings suggest that there is a middle group for whom this measure is not predictive who may be canceling out the predictive indications of the high and low scores when the experimental design makes provision for only two n Achievement groups. This does seem to be related to some of Atkinson's findings when he was studying memory for completed and incompletely tasks (1). McClelland (9, p. 410) has interpreted these findings of Atkinson to mean that moderate or median n Achievers are more fearful than either low or high n Achievers and are oriented toward "avoiding failure." Keltman (12) found some support for this interpretation in a study made with college freshmen. There was some suggestion in the present data that this may also be the case relative to academic achievement in sixth grade children, but there were no trends which are statistically significant.

These findings concerning the relationship between n Achievement and academic achievement in elementary school children were much like the findings of Morgan (10) with college students and Rosen (15) with high school students. Although McClelland (9, p. 237), who studied college students,
and Ricciuti (15, 14), who studied high school students, used correlation techniques and their studies cannot be compared directly with the present study, the implication of all these studies was that n Achievement is positively related to academic achievement criteria. The one thing that seemed to be added by the present data was the implication that high n Achievers tend to avoid average or mediocre academic performance.

Hypothesis Two

Hypothesis two states that there is a positive relationship between the need for achievement (n Achievement) and overachievers, underachievers, and average achievers relative to anticipated achievement based on chronological age, mental age, actual grade placement, and obtained grade placement on the California Achievement Tests Battery. The present data did not support this hypothesis. The results of the chi square test of independence which was used to test this hypothesis are shown in Table IV*. The chi square which was obtained (chi square = 5.92 with four degrees of freedom) makes it necessary to retain the null hypothesis because differences of this magnitude could be obtained thirty times out of a hundred on the basis of chance.

The anticipated achievement subgroups have the general effect of holding the factor of intelligence constant or
TABLE IV
THE RELATIONSHIP BETWEEN n ACHIEVEMENT AND ACADEMIC
ACHIEVEMENT BASED ON DEVIATION FROM
ANTICIPATED ACHIEVEMENT

<table>
<thead>
<tr>
<th>Anticipated Achievement Subgroups</th>
<th>n Achievement Subgroups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low Achievers</td>
</tr>
<tr>
<td>Oversachievers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>38 (37.43)</td>
</tr>
<tr>
<td>Average achievers</td>
<td>63 (69.15)</td>
</tr>
<tr>
<td>Undersachievers</td>
<td>10 (3.87)*</td>
</tr>
<tr>
<td>Total</td>
<td>116</td>
</tr>
</tbody>
</table>

*Yates correction.

chi square = 5.82
P not significant

eliminating its effect on academic achievement. The groups
designated as oversachievers, average achievers, and unders-
achievers were formed on the basis of .8 grade placement
development of obtained grade placement from anticipated
achievement on the California Achievement Tests Battery.
Anticipated achievement was computed from actual grade placement, mental age, and chronological age.
The present finding that $n$ Achievement is not significantly related to academic achievement for sixth grade students when the effect of intelligence has been held constant was different from the findings reported in the related literature. Several studies have reported a significant positive relationship between $n$ Achievement and intelligence ($r$'s reported range from .23 to .42) (6, p. 67). In the studies which have related $n$ Achievement to academic achievement (grades) for high school and college groups, the correlations have been less when an adjustment has been made for intelligence, but the relationship still has been statistically significant (9, 13, 14) except in studies made by Lowell (9) and Ricciuti (13), where the relationship was not significant even without considering intelligence.

There are several possibilities which may help to explain why there is a significant relationship between $n$ Achievement and academic achievement but no significant relationship when an adjustment has been made for intelligence. Bronfenbrenner has suggested that $n$ Achievement is multidimensional, i.e., it measures other things besides achievement motivation (6, p. 67). The present data indicated that the $n$ Achievement technique is measuring some intellectual factors at the sixth grade level, which helps to account for its ability to predict academic achievement.
n Achievement and intelligence may be higher for elementary school children than it is for secondary and college students. This may be a reflection of the scoring system for n Achievement which rewards the highly verbal individual who is able to incorporate in his stories as many aspects of the behavioral sequence as possible. It is possible that the task of writing the n Achievement stories is more difficult for elementary school children than it is for college and high school groups and is more an indication of intelligence at the elementary school level.

It is possible that the use of a three-by-five table to test hypothesis one and the use of a three-by-three chi square table to test hypothesis two may have resulted in some differences. Some of the differences which were found with the larger table could have been obscured by the smaller table. However, it seems that the research design reflects the differences between these two groups rather than accounting for the differences. An analysis of Table III and Table IV reveals that the population became so homogeneous when intelligence was taken into account that there would not have been enough theoretical frequencies to have used a three-by-five table.

The present findings cannot be compared directly with previous studies because the academic criteria are different. Grade-point averages have been used as the criterion for
academic progress in previous studies, but the present study used the results of the California Achievement Tests Battery as the criterion. Some differences may have resulted from the use of these different criteria because the correlation between intelligence and achievement test scores are generally somewhat higher than the correlation between intelligence and grades. Perhaps a teacher's grades are influenced by how hard the child appears to be trying, so this may account for the significant relationship between \( n \) Achievement and grades.

**hypothesis three**

Hypothesis three states that there is a positive significant relationship between the need for achievement (\( n \) Achievement) and school placement relative to high academic aptitude versus heterogeneous groups. The data confirmed this hypothesis. The significance of this relationship is shown in Table V. The chi square which was obtained (chi square = 36.18 with two degrees of freedom) makes it possible to reject the null hypothesis at greater than the .001 level of significance.

Further analysis of Table V reveals that the high \( n \) Achievers were placed in the high academic aptitude group more frequently than were the low \( n \) Achievers. Also, the low \( n \) Achievers were more likely to be placed in the heterogeneous group than were the high \( n \) Achievers. This shows
TABLE V

THE RELATIONSHIP BETWEEN \( n \) ACHIEVEMENT IN HIGH ACADEMIC APTITUDE GROUPS AND IN HETEROGENEOUS GROUPS

<table>
<thead>
<tr>
<th>School Placement Group</th>
<th>( n ) Achievement Subgroups</th>
<th>Low ( n ) Achievers</th>
<th>Median ( n ) Achievers</th>
<th>High ( n ) Achievers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>High academic aptitude</td>
<td></td>
<td>13 (34.57)</td>
<td>36 (37.55)</td>
<td>53 (34.87)</td>
<td>107</td>
</tr>
<tr>
<td>Heterogeneous</td>
<td></td>
<td>93 (31.43)</td>
<td>90 (63.18)</td>
<td>64 (32.12)</td>
<td>252</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>116</td>
<td>126</td>
<td>117</td>
<td>359</td>
</tr>
</tbody>
</table>

chi square = 36.18

\( P = .001 \)

more validity for the \( n \) achievement technique by establishing that it is positively related to a different technique of identifying highly motivated students. This hypothesis used the criterion group method. In each school, teachers and administrators select the top students on the basis of academic aptitude and "known industry" and place these students in a special class which is known as the high academic aptitude group. All of the elements in the vague category of "known industry" and a history of academic achievement provide a kind of academic achievement motivation criterion.
that is independent of achievement. The fact that these two different indications of achievement motivation are related does not really establish that either one of them is actually measuring achievement motivation, but it does provide some empirical evidence in this direction.

Theoretically, these data provide considerable support for the validity of the achievement technique. However, their significance has been diminished somewhat by the finding that intelligence may be an important part of the achievement measure at the sixth-grade level. In the present research design, there was no way of determining just what role intelligence plays in determining placement in high academic aptitude classes and what specific role achievement motivation plays in determining such placement.

From one point of view, the fact that the achievement technique is related to intelligence is not really significant to the individual using the technique, because it does not make it any less effective in predicting behavior or in understanding individuals or groups. McClelland contends that intelligence tests also measure motivational factors because they measure past learning and "past learning (if current learning theory is correct) is a function of motivational factors" (9, p. 236). It does not invalidate either the measure of motivation or the measure of intelligence to establish that there is a relationship between the two
measures. The critical question is whether or not there are enough differences in the two measures and in the results that they yield to warrant the existence of both. The present study did answer this question except in the area of predicting academic achievement for sixth grade students, and even in this area it was not completely definitive. These data did provide evidence to indicate that n Achievement does not yield enough information in addition to intellectual factors to warrant the existence of both n Achievement and intelligence test data for the purpose of predicting academic achievement. The multidimensionality of the n Achievement technique does point out the need for more refinement in the technique itself or at least for more definitiveness of its relationship to other variables such as intelligence.

There is one other factor which may be related to this hypothesis about high academic aptitude groups and heterogeneous groups. Part of the significance of the relationship which has been established could be a reflection of the similarity of n Achievement and the informal criteria that the teachers and administrators used in selecting individuals for the high academic aptitude group. The teachers may be classifying as "known industry" some of the same things that n Achievement measures. The possibility of this occurring is not very great since n Achievement deals with fantasy
instead of behavior patterns, but such materials could be obtained from compositions and conversations.

Bronfenbrenner (6) has suggested that n Achievement may be a response tendency. It is possible that people who have achieved in the past tell more stories involving achievement because of their past experiences rather than achievement motivation. If Bronfenbrenner is correct, students in the high academic aptitude group may have high n Achievement because they have had numerous success experiences.

Discussion of the Data

This study demonstrated that the n Achievement technique can be used with elementary school children. The mean and standard deviation were lower than those reported for high school and college populations, and the distribution was skewed somewhat more to the right. Reasons for this type of distribution have already been discussed in some detail. It is not likely that n Achievement is distributed in the form of a normal distribution. The low mean and low standard deviation probably are the result of this particular research design which used a neutral situation rather than an achievement-oriented situation. It is also possible that n Achievement scores are lower for elementary students than they are for high school and college students.

n Achievement in elementary school children is related to academic achievement in much the same way that previous
studies have shown that $n$ Achievement is related to academic achievement in high school and college students (9, 10, 11, 13, 14, 15). Sixth-grade students who are high in $n$ Achievement are most likely to achieve at the highest level academically and be placed in high academic aptitude groups. Sixth-grade students who are low in $n$ Achievement are most likely to achieve at the lowest level academically and be placed in heterogeneous groups.

In this population, the relationship between academic achievement and $n$ Achievement was not significant when intelligence was taken into account. Previous studies have consistently shown a significant relationship between $n$ Achievement and grades for high school groups (9, 11, 13, 14, 15) and have frequently shown such a relationship for college students (9, 9, 10). This particular population may have been atypical because there were very few individuals who were not achieving at an over-all level commensurate with their ability or above what might be expected in view of their intellectual ability. Atkinson (3) has suggested that academic achievement is the result of several motives. The statistical analysis of the present data indicates that $n$ Achievement is not the only motivational factor which is producing academic achievement in this sixth grade population. There were enough thematic references in the content of the $n$ Achievement protocols to suggest that the following factors
may also be important in producing academic achievement: fear of punishment from important adults, desire to please important adults, sublimated aggression, the need to prove self-adequacy, and the need to make money.

One other major difference between these sixth-grade children and high school and college students was that achievement is independent of sex at the sixth-grade level. This finding supported the hypothesis that the American culture fosters the achievement motive in males but discourages it in females. The present data did not define whether there is an increase in achievement motivation of males during early adolescence or whether there is a decrease in achievement motivation of females. This is an important point because the studies which have been done with young boys have assumed that achievement is formed during late childhood (14).
CHAPTER BIBLIOGRAPHY


CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The main purpose of this study was to determine if a relationship exists between \( n \) Achievement, the McClelland technique measure of achievement motivation, and academic achievement as measured by the California Achievement Tests Battery. The original \( n \) Achievement series of pictures was administered to 359 sixth grade students from four middle-class schools in the Dallas Independent School District, Dallas, Texas. It was possible to treat the 164 boys and 195 girls as one population because a chi-square test of independence indicated that \( n \) Achievement is independent of sex for this population. A neutral situation was used for the \( n \) Achievement testing, based upon the assumption that these students would bring approximately the same motivational set to this task as they do to their other school tasks. The story protocols were scored according to procedures developed by McClelland and his associates (1, p. 179). This resulted in a distribution of scores skewed to the right (\( \bar{x} = 2.30, S.D. = 3.71, \text{range} = -4 \text{ to } 19 \)), which was divided into three groups on an equal percentage basis. These groups were designated as high \( n \) Achievers, median \( n \) Achievers, and
Five hypotheses were tested through the use of chi square, which resulted in the following findings:

1. There was a significant positive relationship (P = .001) between academic achievement as measured by the California Achievement Tests Battery and n Achievement in this population of sixth-grade students.

2. The relationship between n Achievement and academic achievement was not statistically significant (P = .50) in this population of sixth-grade students when the effect of intelligence and chronological age had been taken into consideration.

3. There was a significant positive relationship between n Achievement and placement in high academic versus heterogeneous groups (P = .001) in this sixth-grade population.

Conclusions

The following conclusions may be drawn from the present study:

1. There is a significant positive relationship between n Achievement and academic achievement in sixth-grade school children, but this relationship is not significant when intelligence has been taken into consideration.

2. Since n Achievement is not significantly related to academic achievement in sixth-grade students when the effect of intelligence has been considered, there is some question
whether its value as a predictive instrument is worth the expenditure in time and money required by the administration of this technique.

3. Further study needs to be done with the \( n \) Achievement on elementary school children to determine if and how this technique can be used in the prediction of academic achievement.

Recommendations

1. Attempts should be made to adapt this technique by changing the pictures and modifying the scoring criteria to obtain a specific measure of academic achievement motivation to supplement the general measure of achievement motivation (\( n \) Achievement).

2. Further research should be done, using this technique. Considerable research is needed to develop or to determine if it is possible to develop a specific measure of academic achievement motivation. More study is needed with different methods and conditions of administration. Further study is needed to determine the relationship between \( n \) Achievement and other variables, such as intelligence. More study is needed to define some of the developmental aspects of \( n \) Achievement in both boys and girls.

3. Research studies with elementary school children should make provision to partial out or take intelligence into consideration in some way.
4. Whenever possible, at least three achievement groups should be used instead of two.

5. Further study should be done to identify and measure other motivational factors such as the need to please authority figures, sublimated aggression, and the need to make money, and to relate these factors to academic achievement.
BIBLIOGRAPHY

Books


BIBLIOGRAPHY—Continued

Mead, Margaret, Male and Female, New York, William Morrow, 1949.


Articles


BIBLIOGRAPHY—Continued


Reports


Unpublished Materials

Glass, Harvey L., "The Effect of Fantasy Achievement Motivation Based on 'Fear of Failure' and 'Hope of Success'," Dissertation Abstracts, XVIII (1958), 645.

Test Manuals and Charts

