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The University of Oklahoma, Ph.D., 1975
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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE EFFECT OF PERCEIVED PARENTAL INFLUENCE ON NEED ACHIEVEMENT OF WOMEN IN TRADITIONAL AND NONTRADITIONAL ACADEMIC MAJORS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

BY

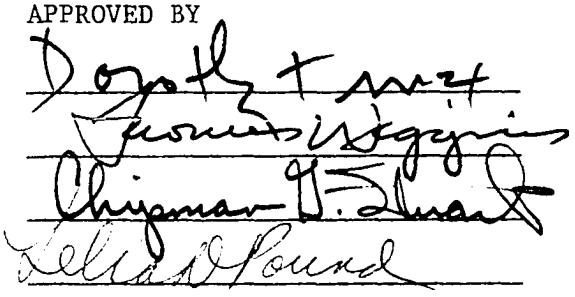
SABRA MARTIN

Norman, Oklahoma

1975

THE EFFECT OF PERCEIVED PARENTAL INFLUENCE ON NEED ACHIEVEMENT OF WOMEN IN TRADITIONAL AND NONTRADITIONAL ACADEMIC MAJORS

APPROVED BY



DISSERTATION COMMITTEE

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THE EFFECT OF PERCEIVED PARENTAL INFLUENCE ON NEED ACHIEVEMENT OF WOMEN IN TRADITIONAL AND NONTRADITIONAL ACADEMIC MAJORS

CHAPTER I

Introduction

Increasing concern has been voiced in recent times about the fact that, although opportunities for women are opening up in many traditionally male vocations, women are not responding in great numbers to seize these new careers and statuses. Bardwick (1971) states that academically talented girls are less likely to enter college and to complete the undergraduate degree than equally bright boys and are less likely to study for advanced degrees. In addition to this, girls underestimate their abilities and choose academic majors and jobs that are not challenging or fulfilling. (Opportunities for Women in Higher Education). Women are especially absent in the professions where prestige and financial rewards are greatest.

As a result of cultural conditioning, a substantial proportion of intellectual talent has been and is being lost to society as a result of cultural circumstances. The supply of superior intelligence is limited and today's demand for it is great. In 1970, the Report of the President's Commission on National Goals stated that "the fullest development of every individual is hindered by underestimating the potential of a majority--women." (Killian, 1965)

The concern for the situation of women in education has been greatly intensified, not only with the new concern for social justice, but also with the decline in the birthrate, the rise of the women's movement and the consequent development of the new attitudes about sexual roles. The national needs of the 1960's also refocused some additional attention on women with the demand for educated workers to meet technical needs (Mead & Kaplan 1965).

Until quite recent times - the middle of the nineteenth century - opportunities for women to participate in higher education were almost nonexistent. By 1970 though, forty-three percent of those receiving bachelor's degrees were women. However, even though the number of women in higher education nearly equals that of men, women are distributed very differently among the professions in the United States. (Opportunities for Women in Higher Education) Although the Bureau of Census lists more than two hundred-fifty occupations, half of all women workers were employed in only twenty-one of them in 1969. About one-fourth of them were in only five occupations. The limited kinds of jobs women have are, for the most part, extensions of the work women have done in the home. (Hedges, 1970) Thus, women are overwhelmingly predominant in education and nursing. (Opportunities for Women in Higher Education) Over seventy percent of the women in the work force are in these traditionally female occupations while only one percent of the engineers are women.

Two issues, meagre representation of women in the skilled trades, science, and engineering and the infrequency of women's advancement to management explain the problem facing educators who seek to expand career choices for women. Before moving into these areas girls must be trained

for them but most do not think of training for "men's" jobs. (Rossi, 1965)

The United States has relatively fewer women in these traditionally male occupations then many Western European countries and certainly less than Eastern European countries. Simon (1965) states, "It seems clear that the status of women scientists and engineers is higher in other countries than in the United States and that the rate of advancement of women is much slower in the United States. The evidence indicates that it is time in this country to re-examine the hypothesis that women cannot be expected to make significant contributions to science and engineering." (p. 113)

Rossi (1965), says that there are three major reasons women should enter these fields: individual personal satisfaction; the enlargement of the minority, women, represented in these fields because of a national interest in manpower utilization; and radical transformation of the relations between the sexes as part of an ideology of sex equality.

There is evidence that the proportion of women planning for careers is on the increase. This is perhaps indicative of changing attitudes toward the relative importance of marriage and careers. One college that administered a questionnaire each year to the freshman class reported that in 1964, sixty-five percent of the class said they would like to be housewives with one or more children. By 1971 the percentage had dropped to thirty-one. (Cross, 1972) An ACE follow-up survey of those who entered college in 1967 showed that only about one-fourth of the women indicated plans to be housewives. (Bayer, Royer and Webb, 1973) It is obvious that changes in attitudes toward the future are occuring among college women. If improvements in the status of women are to be made, they must arise from a good understanding of the realities of the social en-

vironment. To bring about the changes that will invite women to non-traditional careers changes must be made in career counseling. In the areas of math and engineering, studies have shown that there is an early tendency for girls to score higher on mathematical and spatial aptitude tests but this tendency disappears around the time of the onset of adolescence. (Astin, 1965; Grobman, 1964; Flanagan, 1964) The implication is that girls of the age when critical decisions are made about future career plans, for cultural reasons, don't plan on technical careers and therefore do not read in these areas nor do they continue to take relevant courses since they do not anticipate future needs for them.

Looking at a practical aspect of the problem, the Bureau of Labor Statistics projects that for the years 1968 to 1980, the number of persons seeking to enter elementary and secondary school teaching during this period could be three-fourths above the projected requirements. Although the outlook for nursing is somewhat better, the profession could not absorb the increase in the expected number of women graduates to compensate for the leveling off in the demand for teachers. (Hedges, 1970) The long term outlook for scientists and engineers is for rapid growth. Requirements for engineers are expected to increase in demand by forty percent by 1980. In 1968 less than one percent of all engineers were women.

Some educators had hoped that the increased emphasis in recent years on science and math education would attract more girls, but as Poffenberger and Norton (1963) conclude, the incentives offered in the schools have appealed to boys and have had little influence on girls. They believe this to be consistent with evidence concerning achievement motivation of McClelland.

Background of the Problem

The counseling of women in career decision making is in its infancy. An obvious weakness in the existing vocational theories is the small amount of consideration that has been given to the career choice patterns of women. Most theorists do not mention women while others such as Super (1957) and Tiedeman (1959) state that theories developed for men can not be used to study the career development of women. Tiedeman explained the lack of research on women's vocational decision-making as due to the greater importance placed on the man's career in the American culture. He suggests that a separate theory is needed for women because of the cultural expectations which tell a woman that she should fit into a preconceived role: that there are women's jobs and men's jobs.

Tiedeman and O'Hara (1963) suggest that for the woman the resolution of her sex-role is of utmost importance in career decision-making. Strong (1943) states that many women enter jobs as stop gaps before marriage or simply because the jobs are available. If women chose occupations as men do, Strong believes they would be represented in different areas. Stefflre (1967) says, "A woman is more apt to select a job on the basis of accident or the general economic situation rather than her own psychological dynamics or her basic belief about the meaning of life" (p. 613). Most theorists would concur that more information is needed. Westervelt (1965) suggests that characteristics of successful women and the mother's influence on a girl's vocational pattern should be studied. Osipow (1968) says that a promising approach to the study of occupational psychology is the idea that personality

style influences occupational behavior. Motivational variables such as the achievement motive are suitable for study in regard to occupational behavior.

It is assumed that the motive to achieve is one of the major determinants of a person's striving to succeed. The origin of this motive is generally attributed to "independence training" and training for mastery in early childhood. Obviously, women underachieve in the professions, particularly those offering prestige and financial reward such as engineering, one of the most prestigious of American occupations. (Hodge, Siegel, and Rossi, 1963). A theoretically consistent body of data exists which enables the prediction of achievement motivation. Unfortunately, the literature on achievement motivation in women is sparse and has yielded conflicting results on how the motive relates to performance with women objects.

An important consideration in the application of motivation research to occupational-deicision-making for women is that in McClelland's (McClelland & Winter, 1969) extensive work in the study of entrepreneurship, there are indications that the motive to achieve can be developed.

Statement of the Problem

This study focused on a personality determinant of nontraditional, typically-male career choices in women. It was undertaken in an attempt to further the knowledge of the achievement motive in women and its possible relationship to career choice. Contemporary literature on occupational choice patterns of women is scarce as is that relating to the achievement motive in women. The motive to achieve is defined as a motive to be competent in a situation where there are standards of

excellence. This motive has been related to such behaviors as performance, levels of aspiration, patterns of risk-taking, and perception, making it important to the career decision process. Several researchers have studied the role of the achievement motive in occupational behavior (Mahone, 1960; Morris, 1960; Isaacson, 1964; Minor and Neel, 1958); however, all have dealt with male subjects. Two general questions were asked in this research: do women students studying for vocations in prestigious, and typically male-dominated fields score higher in need achievement than those in traditional female careers, and what perceived attitudes have influenced these differences?

Thus, it was hypothesized that:

1. There is no significant difference between the traditional and the nontraditional subjects' need achievement scores.

2. There is no significant difference in performance between the traditional and the nontraditional subjects.

3. There is no significant difference between the traditional and the nontraditional subjects' attitudes toward their fathers.

4. There is no significant difference between the traditional and the nontraditional subjects' attitudes toward their mothers.

CHAPTER II

REVIEW OF LITERATURE

Historical Background of Need Achievement Research

Finding the current methods of measuring human motives inadequate, McClelland and his colleagues began, in 1948, to combine the clinicians' belief that motivation is expressed in free-associative thought, with experimentalists' methods of manipulating the strength of motivation. They were guided generally by the conceptualization of personality of Murray (1938) and adapted his technique, the Thematic Apperception Test (TAT), an instrument designed to elicit imaginative stories in response to pictures, to the practical study of motivation.

Murray believed that a need could be aroused from within by internal visceral processes or externally by the effect on the individual of his immediate environment. A need would be overtly manifested in:

1. A typical behavioral trend or effect...
2. A typical mode (of action).
3. The search for, avoidance or selection of attention and response to one or a few types of press...
4. The exhibition of a characteristic emotion or feeling.
5. The manifestation of satisfaction with the achievement of a certain effect (or with a gratuity), or the manifestation of dissatisfaction when there is failure to achieve a certain effect. (Murray, 1938, p. 124)

The Thematic Apperception Test was originally constructed to assess the underlying needs of an individual with a scoring system designed to analyze the content of the stories. McClelland saw that a scarcity of evidence was in existence that supported the interpretations made of the content of the TAT and other projective techniques widely used as clinical tools. Until his initial attempts, individual differences in human motivation had not been measured in a systematic and conceptual context. (Atkinson, 1964). For McClelland, the early uses of projective methods did not reflect awareness of the scientific method which had been followed in advancing the seemingly more objective tests of individual differences. (McClelland, Atkinson, Clark, & Lowell, 1949)

McClelland and his associates found the treatment of the motivational theory of the 1940's limited also, as generally it tended to define motivation in terms of deprivation with much research using laboratory animals. The animal model, they thought, could not be directly applied to measuring motivation at the human level. (McClelland, 1962)

Influenced by Freud's conceptions of unconscious processes and their effects on human behavior and by Murray's assessment of unconscious motivation in reported fantasy, they began to develop a theory of human motivation. Believing that making inferences about motivational strength on the basis of fantasy material was not entirely justifiable, McClelland began his research with a study of animal experimentation which demonstrated that motives could be experimentally aroused and their intensity controlled by manipulating the arousal conditions. The next problem facing the researchers was to seek principles which might govern the relationship between the strength of the need and its expression in perception and to see whether the results of the perceptual studies could

apply to a projective measure such as the TAT. Earlier researchers had not attempted to control the intensity of this variable, which would have allowed one to make empirically based assumptions about the characteristics of fantasy which reflect the presence and intensities of various motives. (Atkinson & McClelland, 1948; McClelland, et. al., 1953)

They began their research by investigating the effect of hunger, generally accepted as a motive, on thematic apperceptive stories in order to delineate the strength of motivation. It was assumed by the researchers that the measure of the intensity of the motivation would be the algebraic sum of certain characteristics within the subject's stories which decreased or increased in frequency with an increasing number of hours of food deprivation.

The subjects for the study were naval personnel attending a submarine training school. Their schedules were arranged so that subjects were tested after one, four, and sixteen hours without food. They were unaware of the fact that they were participants in an experiment dealing with the effects of hunger. They were asked to record their perceptions of what they saw on a blank or smudged screen. Their stories showed increasing concern with instrumental objects related to eating as the length of their deprivation time increased. It was concluded that fantasy could reflect the intensity of motivation.

In a second study (McClelland & Atkinsin, 1948) Murray's TAT was modified so that the pictures could be presented to a group with stories written rather than given verbally to an examiner. Pictures were selected from the TAT and from magazines depicting food-seeking or eating. The subjects were again deprived of food for one, four, and sixteen hours. Each picture was shown to the subjects for twenty seconds before they were

given four minutes to write about it. Analysis of the stories indicated that hunger influenced the frequency of certain categories of imaginative response. The categories finally chosen after exhaustive analysis corresponded to features of typical goal-directed sequences of actions already identified in studies of overt goal-seeking behavior. The subjects had attributed to the characters in their stories, needs, instrumental acts, positive and negative feelings in relation to goal progress, and anticipation of the goal or frustration in goal-directed activity.

The result of this study was the conclusion that themative apperceptive content was sensitive to motivational influence. Another important conclusion was that the amount of need deprivation and instrumental activity in the stories is a better indicator of the strength of a need than is the amount of goal activity. The suggestion was made that apperceptive behavior should be treated as functioning like any other type of behavior rather than merely as defensive projection. (p. 657)

After the completion of their preliminary research, McClelland and his associates began to research the "need to achieve." As McClelland et al. (1949) stated, "No one is particularly interested in diagnosing hunger from projective responses. The point is, do the same kinds of shifts occur for an experimentally controlled psychogenic need...?" (p. 242)

The next experiment was designed to answer this question. "Need achievement", a need presumably aroused by experimentally inducing ego involvement using a standard technique of personality psychologists, was chosen in order to see whether it produced perceptive and apperceptive changes similar to those already found for hunger. At this time it was not known whether there was a "n achievement" which could be satisfied by

by food and aroused by deprivation from food. However, they chose to investigate whether perceptive and apperceptive changes already found for hunger could be produced. If manipulations of the conditions of ego involvement produced the same kinds of effects on projection as manipulation of hours of food deprivation, there would be reason to consider the psychogenic state aroused as a need in view of its functioning as a physiological need.

In the next experiment, using male college students as subjects, McClelland and associates (McClelland et al., 1949) varied the experiences of success and failure in achievement-related tasks. The assumption was that the need for achievement could be manipulated experimentally in the same way as could hunger. The researchers thought that the degree of arousal would be a direct positive function of failure (deprivation) and a negative function of success. The analogy of hunger and achievement was not fruitful, however. The researchers concluded that their notion of the nature of the achievement motive was wrong since the method of arousing the motive was not correct.

Their next experiment included six different conditions. The first three; Relaxed, Neutral, and Achievement-Oriented represented different points on an achievement arousal continuum. The next three; Success, Failure, and Success-Failure related to three possible outcomes for aroused motives having an effect on the degree of arousal but not producing it. Male college students were divided into six groups and wrote imaginative stories to four TAT pictures.

In the Relaxed condition, the experimenter was introduced as a graduate student. Instructional cues were minimized and the suggestion

was made that the experimenter was merely interested in the characteristics of the tests and not in how well the subjects performed.

In the Neutral condition, nothing was done to experimentally manipulate the motivation level of the subjects. Its purpose was to assess the level of motivation attributable to the cues of the classroom. The tests were given under the guise of developing norms for a thesis. The subjects were asked to do their best but were not given information about what was being measured.

The Achievement-Oriented condition was the first in which achievement related cues were used. The subjects were told that they were taking tests which indicated general intelligence.

Achievement-Related instructions were also given in the Success, Failure, and Success-Failure conditions. Added to these conditions were attempts to give subjects feelings of success or failure.

In the Success condition the subjects were allowed to score their tests after being given norms sufficiently low that nearly all would feel that they had done well. The subjects were told that the preliminary tests were indicators of a person's intelligence and leadership ability and were used to select administrative personnel in Washington. Following this initial period of success, another experimenter administered the thematic apperceptive measure.

The Failure condition was identical to the Success condition but the norms quoted were so high that most subjects experienced failure. In the Success-Failure condition the norms given for the initial test were very low leading the subjects to expect success while the final scores given for all the tests were so high that most subjects failed them.

The effect of these varying conditions on imaginative stories were assumed to differentiate intensities of need achievement. To measure these intensities an adaptation of the scoring system used for measuring hunger-oriented content was employed.

The results of this study indicated that stories written in the Achievement-Oriented condition contained more characters concerned with the performance of tasks in competition with standards of excellence than did those written under the relaxed condition.

The major outcome of this study was the indication that the categories differentiating Relaxed and Achievement-Oriented conditions were valid and were acceptable as indicators of achievement motivation. Since the original study was completed, many other researchers have replicated the heightened state of motivation produced by Achievement-Oriented instruction. (Haber & Alpert, 1958) (Martin, 1956) (French, 1956)

McClelland's (McClelland et al., 1953) classification of various types of behavior, such as needs attributed to the characters in the stories, demonstrated that the descriptions developed by other researchers could be used in this conceptual scheme. The measuring system for achievement motivation was similar to the system employed in animal experimentation in analyzing problem solving sequences.

These behavioral sequences were seen as beginning with the individual's sensing a state of need or a motive (N). Successful attainment of a goal (Ga) could be expected or conversely, failure (Ga-). If activities instrumental (I) to the attainment of the goal were initiated, the goal could be reached (I+) or not (I-). If the goal activity is blocked (B) the block could be located in the work-at-large (Bw) or be the result of a personal failing (Bp). The individual could experience

strong positive affect (G+) in goal attainment or negative affect (G-) with failure. Sometimes the individual would receive help in reaching his goal (Nup).

The content of the stories written in the original study were studied for imagery relating to "success in competition with some standard of excellence," (McClelland et al., 1953, p. 110), the definition of need achievement. A single score was obtained for each subject by counting the frequency of these achievement related responses in the stories. This score is called the need Achievement score (Atkinson, 1964).

The researchers suggested that the value of this objective scoring method was illustrated by the fact that their studies indicated that fantasy does not always serve the purpose of wish fulfillment or substitute gratification. Instead, they assume imaginative behavior is governed by the same general principles which govern any behavior. (McClelland et al., 1949, p. 253) Their studies on the effect on thematic apperception of experimentally induced motivation had shown that the content of imaginative behavior is sensitive to motivational influences.

Relation of Need Achievement Score to Behavior

> From the very beginning of our research we have recognized that if the measure of motivation that we were developing did not relate to anything of importance, we would be spending our time in an interesting but scientifically unprofitable manner. (McClelland et al., 1953, p. 174)

Following the earliest demonstrations of the sensitivity of thematic apperception to experimentally induced motivation, many studies have been undertaken to discover how individual differences in need Achievement are related to other behaviors. Studies have shown relationships between need Achievement scores and such variables as performance, level of aspiration, and perception and memory.

If the need achievement score is an index of the strength of achievement motivation, persons with high need Achievement scores should show evidence of better learning and performance (McClelland, 1962). Studies of the effect of individual differences in need Achievement on achievement-oriented performance have borne out this hypothesis. The strength of the tendency to achieve expressed in the performance of a task appears to be determined by the motive to achieve and by immediate environmental influences.

The first study to indicate that need Achievement was a valid measure of individual differences in strength of the motive to achieve was done by Lowell, 1952 (cited in McClelland, 1962). He found that individuals with high need Achievement scores performed better on both arithmetic and verbal tasks than those with low scores. Other studies have consistently agreed. (Atkinson & Reitman, 1956) Need Achievement scores have also been related to level of aspiration (Mahone, 1958), risk-taking behavior (Atkinson, 1957), perception and memory (McClelland & Liberman, 1949), and occupational behavior (Mahone, 1960; Isaacson, 1964; Minor & Neel, 1958; Wish & Hasazi, 1973).

Origins of Achievement Motivation

McClelland (1962) originally hypothesized that achievement motivation develops out of parents' concern that children "stand on their own feet" early in life and learn to take care of themselves. He states,

> If a family does not set high standards of excellence, or if it does not permit the child to compete or strive to meet them on his own, then he could not be expected to have had the affective experiences connected with meeting or failing to meet achievement standards which cumulatively produce an achievement motive. (McClelland, et al., 1953, p. 275)

The origin of the need to achieve, then, was in the pleasant feelings that a child experienced when he first attempted independent mastery and when he first attempted to do something a little better than he had done before. McClelland assumed that these self-demands came naturally to children but that a strong need to achieve required standards of excellence and demands of performance set by parents and other members of the culture. McClelland, Atkinson, Clark, and Lowell, (1953), and Crandall, Preston, and Robson, (1960), place the major emphasis for the development of a strong need to achieve on the rewards, demands, and punishments of parents and other adults. They posit that if a child is going to learn to value achievement activities as potential sources of satisfaction, directo social reinforcement is additionally necessary.

One of the first studies on the origin of the need to achieve was made by Winterbottom, (1958), who was interested in discovering how parents produced a strong achievement interest in their sons. She first obtained need Achievement scores on a group of eight-year-old boys and then conducted parental interviews to determine if the mothers of sons with high need Achievement scores had different attitudes toward bringing up children than did the mothers of sons with low scores.

She found that the mothers of high scorers expected their sons to master earlier such activities as trying to do difficult tasks for themselves, knowing their way around town, making their own friends, and doing well in competition. Mothers of low scorers reported more restrictions, wanted their sons to play with approved friends, and did not want them to make important decisions by themselves.

The mothers of the high scoring boys set higher standards in general for their sons and expected self-reliance and materty at an earlier

age. Her findings were consistent with the earlier studies of McClelland and others, supporting the theory that the achievement motive was learned from a wide range of mastery experiences along with positive affect.

Attempts have been made to generalize the initial reportings of Winterbottom through cross-cultural studies of child-rearing practices and through testing groups of mothers and sons drawn from different countries and from different social classes. Studies of the achievement imagery in the folk tales from a variety of cultures did not confirm earlier work shwoing the importance of self-reliance for the development of the achievement motive. Rather, it was found that positive training for achievement is associated with the formation of the need to achieve. (Child, Storm, and Veroff, 1958)

Child, et al., found, as in the Winterbottom study, restrictiveness was associated with low need Achievement. The cultures which were more rigid or punitive produced less achievement imagery. Additionally, they found that the greater the stress placed on achievement training the higher was the achievement imagery.

McClelland (1961) in a later statement summarized: early independence training does promote high need Achievement with the provision that it is not the reflection of authoritarianism, generalized restrictiveness, or rejection by parents. The expectation that a child learns to make decisions for himself may indicate a genuine interest in self-reliance and mastery but it could be a push to have the child look after himself to ease the parents' burden. He then suggests that a child can be put on his own too early, as in predominantly lower-class families, or too late as often happens in middle-class families. Stress

is needed on meeting certain achievement standards somewhere between the ages of six and eight; neither too early for developed abilities nor too late for the child to internalize the standards as his own.

Winterbottom (1958) did not distinguish between demands for achievement and demands for independence. Smith (1969) states that in studies using separate scales to measure achievement motivation and independence very little correlation was found for the two scales. This he thought indicative of the fact that the two types of demands do not appear to be as closely related as the previous research had postulated.

Veroff (1965) says that the motive to achieve begins development in early childhood with four and five being the critical years. At this time the child is unable to distinguish which behaviors have lead to rewards of praise and affection, therefore general types of behavior would be seen by him as leading to rewards. When parents press too soon for mastery and achievement the child will feel frustration and will later have a more general disposition to avoid tasks that require mastery and independence. If they wait beyond the optimal time, the child can determine which behaviors led to the rewards and he will concentrate on achieving in these specific areas. Since the need to achieve is a more generalized tendency, the highly motivated person extends his efforts in many areas.

Veroff (1969) also suggests that the achievement motive is developed quite independently from parental approval. More important he believes, are the child's successes in mastering his environment. He states:

> Achievement gratification as pride of accomplishment is not a primordial experience. Rather, it evolves from the child's more primitive feelings of effectiveness in attempted autonomy. Mastery emerges out of exploring and coping with the environment as an individual organism. (p. 48)

Winterbottom had found, however, that mothers of sons with high need for achievement responded more often with affection in reacting to their sons accomplishments than did mothers of sons low in need for achievement.

McClelland (1962) in a study important to this research, correlated the need Achievement scores of male college students with their own ratings of their parent's behavior toward them on several dimensions: democratic-autocratic, acceptant-rejectant, and indulgence-casualness. The higher the need Achievement score, the more these male students tended to rate their parents, particularly their fathers, rejectant. McClelland suggests that the boy was either forced to stand on his own two feet, or thought he was and therefore felt "rejected."

These subjects also rated their parents on several different personality characteristics including: friendly, helpful, domineering, selfish, successful, clever, and self-confident. The subjects who rated their parents as unfriendly, unhelpful, and unsuccessful tended to have the higher need Achievement scores.

This evidence was taken to further verify McClelland's general conclusion: "need Achievement is significantly related to severity of independence training in childhood." (1962, p. 102)

Sex Differences in Need Achievement Among Children

The fact that adults show sex differences on measures of need Achievement is evident. Many studies with young children as subjects show these differences to begin at quite an early age. Crandall and Rabson (1960) and McClelland (1958) report finding individual differences in the frequency and persistence with which preschool children attempt

to get recognition for achieving. These studies indicate that differences in the need to achieve have developed by this time.

Crandall and Rabson (1960) studied children three to five and six to eight years of age and found that the sexes differed on all variables except achievement efforts, but the girls lacked confidence in their work and looked for approval and help from adults. Boys tended to return to tasks at which they had failed, but the girls tended to withdraw from the possibility of repeating failure. Veroff (1965) suggests that while interpersonal rewards become important for girls, internalized criteria of personal satisfaction become important for boys.

Crandall, Katkovsky and Preston (1962) found no sex differences in achievement motives but also found that the girls lacked confidence and expected to fail whereas the boys expected to succeed. The girls in their study took blame for their failures while the boys projected it. The girls, however, valued their intellectual accomplishments more than the boys did. Tyler, Rafferty, and Tyler (1962) found that girls in nursery school who tried to get recognition for achievment also made attempts to get affection. The girls in elementary school who tried hardest to achieve were also seen as more eager to get approval and used achievement as a means of getting this approval from others.

Several studies (Crandall and Rabson, 1960; Veroff, 1969) have indicated that throughout the elementary years, boys appear more highly motivated than girls to work at and to master challenging tasks without the reward of social approval. Boys are more likely to choose new, more difficult, and challenging tasks than to redo tasks already accomplished. Girls, on the other hand, have a greater tendency to choose tasks with more promise of success or none at all.

These studies demonstrate that girls' achievement behavior appears to be motivated by a desire to please rather than a desire for independent mastery. Hoffman (1972) says that this does not mean that immediately academic performance is lower for girls since it is somewhat compatible with the affiliative motive. In elementary school and even in high school excellence is rewarded with love, affection, and popularity. However, in college and in professional pursuits, affection does not reward top performance.

There seems to be general agreement about the previously mentioned differences concerning their origins. Girls, it is thought, do not always have the opportunity to stand on their own feet and to develop those "pleasant feelings" that go with the development of autonomy and independence. Bronfenbrenner (1961) suggests that young girls in this country are over-socialized and are given too much support.

Veroff (1969) states that a somewhat rejecting attitude of the mother is necessary for the development of achievement motives in girls. Crandall et al., (1964) studied elementary school girls and found that the high achievers had mothers who were less nurturant. Tangri (1972) in her study of role innovative women found that these high achievers feel that their mothers do not understand them and perceived themselves more like their fathers than their mothers. Plank and Plank, cited in Tangri (1972) suggest that there has been a cross-sex parental identification among women who become mathematicians.

Hoffman (1972) cautions about generalizing when speaking of variables such as parent behavior or parent-child relationships. One can not tell whether actual maternal behavior is different for high achieving boys and girls. Girls are generally subject to more over-

protection than boys; therefore, a similar amount of protective behavior may be low for a girl but average or high for a boy. One must be especially aware of the relativity problem in a culture such as ours which sets vastly different standards for mental health, intellectual development, and behavior for its males and females. (Broverman, Broverman, Clarkson, Rosenkrantz, & Vogel, 1970)

In summary, the qualities needed for top performance in the adult American society do not become a typical part of a girl's make-up. Girls work hard and overachieve in school but are less involved in their tasks and less highly motivated in striving for excellence. Considering achievement motivation as competition with a standard of excellence, girls fall short. (Hoffman, 1972)

While boys are exploring, developing independence, learning to cope with their environments, and developing trust in their abilities, girls learn how to use their affective relationships.

Achievement Motivation and Occupational Choice

Osipow (1968) suggests that the study of the influence of personality style on occupational behavior is important at this time. This approach would presume that persons engage in modes of behavior which are characteristic, regardless of the nature of the task. One kind of personality variable is of course, motivational, i.e. the achievement motive.

Several researchers have studied the role of the achievement motive in vocational behavior. Atkinson (1957) studied the risk-taking aspect of motivation. Since motivation is the function of a specific motive, the expectancy of success, and the incentive value of that success, and since risk-taking is an aspect of motivation, Atkinson assumed that manipulation of one of the variables should have an effect on a subject's risk-taking

behavior. Atkinson proposed that people with strong motives to avoid failure set defensively high or low goals for themselves while those directed more by the achievement motive are more likely to aspire to moderate and more attainable goals. Since occupational achievement is a vehicle for social advancement, it presents, therefore, an ideal situation for the study of risk-taking in conjunction with achievement motivation according to Osipow.

Mahone (1960) thought that since people with a high fear of failure are likely to avoid even consideration of information high in achievement content they are unlikely to examine achievement-oriented occupational information. The fearful person then would not have proper information regarding his abilities and their relationships to possible occupations. Mahone studied the interests and motivational attributes of one-hundred thrity-five male college students in order to determine the degrees to which his subjects over or under-aspired. He used measures of both achievement motivation and achievement-related anxiety and found that subjects fearful of failure avoided competitive behavior, while subjects with low fear of failure were more realistic in their career decisions.

Burnstein (1963) studied the relationships between the achievement motive, fear of failure, and aspiration to enter prestigious occupations. Thematic Apperception Test scores were used to assess achievement motivation and test anxiety scores to measure fear of failure. The subjects were divided into four groups putting various combinations of high and low fear of failure with high and low achievement need. This study revealed that fear of failure was a strong factor in the selection and avoidance of occupational goals, exerting an influence other than that of interest and talent, more commonly studied factors. As fear of failure increased, the subjects were increasingly interested in less prestigious occupations.

Isaacson (1964) assumed that test anxiety scores would represent the strength of the motive to avoid failure. He thought that subjects with high test anxiety scores would choose either very easy tasks in order to avoid failure, or very difficult tasks where failure would be less humiliating. Subjects high in achievement need were expected to make choices of intermediate difficulty. The hypothesis that high test anxiety scores are related to the choice of extremely easy or extremely difficult fields was supported.

Morris (1966) asked ninety-four male high-school seniors to choose an occupation from each of ten lists. Each list represented a Kuder vocation interest category and was made up of jobs which ranged from very easy to very difficult. The choices were studied in the categories in which the subjects viewed their probability of success as highest and lowest. Subjects high in achievement-related motivation choose occupations requiring an intermediate degree of risk while those low in achievement-related motivation choose as if they were avoiding this intermediate area of risk.

Tseng and Carter (1970) studied male high school students and found that subjects with high resultant motivation scores, have higher occupational aspirations, choose more prestigious professions, and have more accurate perceptions of the prestige of various vocations, than those low in resultant motivation.

Wish and Hasazi (1973) studied the relationship of achievement-related motivational variables and the subjective probability of success to actual, rather than hypothetical curricular choice. Their subjects were one-hundred forty-two male college students representing six different majors within a school of management. It was predicted that the

subjects with positive resultant motivation (indicating that the need for achievement is greater than the fear of failure) scores would select majors wherein the probability of success was intermediate, and that the subjects with negative resultant motivation scores would choose majors in which they perceived their probability of success as either high or low. They found that when the fear of failure was greater than the need for achievement, the subjects had chosen majors with either a high or low probability of success. When the need for achievement was the greater motive, subjects chose majors with an intermediate probability of success when others were used as the standard. The researchers state that these results seemed to indicate that students might choose their majors in a way consistent with Atkinson's (1957) theory.

In another study designed to investigate the relationship between the achievement motive and occupational preference, Minor and Neel (1958) measured the achievement motive of fifty veterans who had requested vocational counseling from the Veteran's Administration. Each subject also ranked twenty occupations from a pre-ranked list. It was concluded that there was a significant positive relationship between achievement motivation and level of occupational preference, there was no difference in the rankings of occupations among subjects with high, moderate, or low need Achievement scores, but that subjects with moderate or very low need Achievement scores are more realistic in their occupational preference than those very high in need Achievement.

Research Related to the Achievement Motive in Women

Aside from inconsistencies in findings on achievement motivation in women there is also a scarcity of studies based on female subjects.

Researchers apparently have been less interested in female than in male achievement motivation; perhaps discouraged by the early contradictory findings of the original researchers.

According to an early study by Field (cited in Alper, 1974) achievement motivation in women is related to the need for social acceptability. The manipulation of this need was found to raise the need for achievement score in women. McClelland et al., (1953) suggested that this indicated that for women the achievement motive is less important than the affiliative motive.

Starting with the early studies by McClelland, Atkinson, Clark and Lowell (1953) achievement motivation research based on male subjects has yielded significant and replicable findings and has produced an internally consistent body of data which has contributed to a theory of achievement motivation in men. (Atkinson, 1958). This has not been the case when female subjects have been used since the few studies utilizing female subjects show results somewhat different from those using males.

The first problem which arose relative to sex differences in achievement motivation was the failure of women to show increases in thematic apperception need Achievement imagery when presented with conditions of achievement motivation stressing intellectual leadership ability. For males, achievement-oriented instructions with an emphasis on leadership and intelligence increase the need achievement score while neutral or relaxed instructions depress it. (McClelland et al., 1953). Shifts such as these are not often found when women are the subjects. Both achievement-oriented and neutral instructions tend to evoke similar need achievement scores in women in response to male figures. (Alper

and Greenberger, 1967). This failure of women to show expected increases under arousal conditions was discussed by McClelland et al., (1953) who summarized the evidence of that time as follows:

> 1) Women get higher n Achievement scores than men under neutral conditions;
>
> 2) Women do not show an increase in n Achievement scores as a result of achievement involving instructions;
>
> 3) Women's n Achievement scores seem as valid as men's in that they relate to performance in the same way;
>
> 4) The failure to find an increase in n Achievement scores from arousal is probably not due to the fact that scores are already at a maximum. (p. 178)

McClelland says that two possible explanations for the failure of women's scores to increase under arousal have been eliminated. These are invalidity of the scoring for women and the possibility that the scores are already too high to go higher.

Angelini (cited in Atkinson, 1958) reported increases in the need Achievement scores of Brazilian women tested under achievement arousal conditions stressing intellectual and leadership ability. This atypical result was explained by the fact that in Brazil only highly intellectually competitive girls would be in a university. Lesser et al., (1963) postulated that the failure to find an increase in need Achievement scores for American women under achievement arousal conditions was probably due to the fact that these subjects were concerned with social acceptance rather than standards of excellence in intellectual achievement. Field (cited in Atkinson, 1958) had shown previously that achievement in women is linked to the need for social acceptability and that by manipulating this need the achievement score could be raised for women but not for men. They used Mead's (1949) argument that high achievers do not accept the cultural

stereotype that achievement behavior, considered aggressive, is not appropriate for women. In the Lesser et al. study conducted at a very competitive school for girls, it was found that the scores of high achievers did increase when the subjects were responding to female pictures. The scores of the underachievers were higher when they responded to male pictures. It was concluded that the high achievers did see the achievement goals as sex-appropriate for themselves while the underachievers saw intellectual goals as appropriate for the male.

French and Lesser (1964) had discovered that the interaction between the arousal condition and the sex of the stimulus figure is the significant factor in determining the strength of motive response with all subjects showing greater response to male figures under intellectual arousal conditions and to female figures under women's role conditions. It was concluded that girls see intellectual attainment as desirable for males. The researchers used a role orientation value measure and found that woman's-role-oriented college women scored higher on need for achievement when responding to statements about women engaged in domestic activities while intellectually oriented women scored higher when responding to an intellectual cue.

Other discrepancies have occurred to further confuse the study of the achievement motive in women. Field (cited in McClelland et al., 1953) found that achievement responses of women increased when arousal was in terms of social acceptance rather than the leadership and intelligence arousal conditions. Veroff, Feld, and Crockett (1966) hypothesized that thematic apperceptive cues closely related to the subject's own occupation would be less effective in arousing achievement imagery than unrelated cues. This was true for male but not for female subjects.

Veroff, et al. (1953) using male and female subjects, found that both scored higher in need Achievement when responding to male thematic apperception stimuli. This was said to be a culturally determined result. Intellectual achievement is not seen as an appropriate role orientation for females. This conclusion was in keeping with the research of Mead (1949) who stated that achievement in women in our culture is considered aggressive behavior and therefore inappropriate. The researchers questioned whether achievement-related responses of girls are evidence of the motive to achieve or simply reflect awareness of the cultural definition of male and female roles.

However, Morrison (1954) in earlier research had discovered that female pictures with achievement cues evoked as much achievement imagery under arousal conditions as did male pictures. He tested females elected by their peers to positions of leadership and found their need for achievement scores to be higher than those of non-office holders. Morrison concluded that his findings were consistent with Field's earlier proposal. He assumed that females who seek office are more concerned with peer acceptance than are others. This study did point out the importance of content of the cue as well as the sex of the stimulus figure.

Alper (1957) reported somewhat similar results when using male stimulus figures. At this time, however, the relationship between peer acceptability and the idea that achievement was more appropriate for males than females had not been determined. She found that female subjects who valued social acceptance less and who were tested under task-oriented conditions produced more achievement imagery to female rather than to male cues. Those valuing social acceptance produced higher need Achievement scores when responding to male rather than female figures.

The research of French and Lesser (1964) supports these findings somewhat. Using a role orientation value measure they found that regardless of role value orientation, under intellectual arousal, women got higher need Achievement scores when responding to male stimulus figures. When responding to pictures about domestic and social activities, the scores were higher when female pictures were used.

In another attempt to study sex role orientation and its relationship to achievement motivation, Lipinski (1965) gave the subjects in her study the need Achievement test in a classroom with both males and females tested together. They were tested under both neutral and achievement oriented conditions with half of the cues male, and half female in each condition. Both groups showed an increase in scores from the neutral to the achievement oriented conditions. But the male pictures elicited greater increases than did female pictures. After dividing her subjects by the use of two measures of sex role orientation, Lipinski thought that the more masculinely-oriented subjects would show a greater increase in need Achievement scores than would the other groups when tested under achievement oriented conditions. These subjects did score higher in the neutral conditions but showed a decreased scores when tested in achievement-arousal condition.

In the discussion of male and female achievement motivation data, another problem emerges regarding achievement motivation. The relationship between performance and achievement motivation seems to indicate performance for males but has been inconsistent for females.

Lipinski (1965) hypothesized that subjects who showed high shift scores from neutral to achievement-oriented conditions would perform better on the anagram test in an achievement-oriented condition than those

with lower scores. However, the subjects with the lower scores performed significantly better at this task.

French and Lesser (1964) found that the optimum prediction of performance from the achievement motivation scores of female subjects was obtained by the use of female figures in the thematic apperceptive measure even though women's scores are higher using male pictures for the intellectual arousal. They indicate that the achievement motivation level predicts performance only if the goal is valued for the particular subject. For subjects who valued both women's and the intellectual roles, male pictures were the better predictors. Another problem arose in this study to complicate the data further. Need Achievement scores did predict performance for subjects who were low in intellectual orientation and high in woman's role orientation when it was assumed that these goals were not seen as desirable.

Horner (1968) states that with the unclear results from research into female response to achievement measures, to account for the lack of achievement-motivation-performance relationships in female data in terms of a differential perception of their social role is premature. She says that the questions concerning women can not be resolved without extensions of analysis in achievement oriented situations. (p. 14)

Horner (1968) introduced a new concept in her achievement motivation research that anxiety about competitiveness and aggression underlies the major differences and male and female achievement motivation scores. She states that it is clear that achievement oriented situations at once offer chances to succeed or fail, arousing both the motive to achieve and the motive to avoid failure. Females consistently score higher on anxiety measures than do men and this anxiety is typically seen as motivation

to avoid failure, aroused by the expectancy of negative consequences. Horner posited that for women there are negative consequences. Horner posited that for women there are negative consequences, not only with failure, but also with success in competitive achievement situations. Her study introduced another motive; the motive to avoid success. In keeping with Mead's (1949) suggestion that intellectual striving can be viewed as competitively aggressive behavior, Horner posited that a woman would be threatened by success in intellectual areas for it would be equated with a loss of feminity. She therefore proposed that under achievement-oriented conditions, the expression of achievement motivation aroused in women is inhibited by the concurrent arousal of fear of success. Her findings indicate that at this level at least women still find female achievement incompatible with some of our cultural values. Over sixty-five per cent of the women in her study tole avoidance of success stories while ninety per cent of the men told success stories.

Alper (1974) and her associates at Wellesley College have been studying the motivational patterns of their students for several years. They are beginning a search for antecedents of differing achievement motivation patterns. In one projective measure they have found that high achievers see the parent figure in TAT type pictures as supportive and nurturant while the lower achievers see the figure as derogating or punitive. In the stories written by the higher achievers, the child ends up an achiever while in the other group performance typically does not improve. The suggestion is made that the cultural expectation that women should not achieve may be reversing.

Clearly, more definitive research is needed in the area of achievement motivation in women. In reviewing the literature the spotty attention

given to variables such as personality factors and age is evident. Also, using the male model as the mode for measurement might well be inappropriate.

Theoretical Background

> The theory of achievement motivation attempts to account for the determinants of the direction, magnitude, and persistence of behavior in a limited but important domain of human activities. It applies only when an individual knows that his performance will be evaluated (by himself or by others) in terms of some standard of excellence and that the consequence of his actions will be either a favorable evaluation (success) or an unfavorable evaluation (failure). It is, in other words, a theory of achievement-oriented performance. (Atkinson, 1964, p. 240)

Need achievement scores obtained from thematic apperception are assumed to be indices of individual differences in the strength of the motive to achieve. This motive is seen as a stable disposition to strive for achievement or success and is presumed to be latent until aroused by situational cues which indicate that performance will be instrumental to achievement. The strength of the aroused motivation shown in performance is a function of the strength of the motive and the expectancy of success may be strong, weak, or moderate as a result of his past experiences.

The motive to achieve success (M_s) is viewed as a latent and stable personality characteristic acquired in childhood. This motive is aroused in a situation suggesting evaluation in terms of some standard of excellence. It combines with two situational influences, the probability of success or the strength of expectancy (P_s) and the incentive value of that particular success (I_s) to produce the tendency to approach success (T_s) that is expressed overtly in the strength and direction of the performance.

$$T_s = M_s \times P_s \times I_s$$

Although the motive to achieve success is stable, the values of I_s and P_s are dependent of past experience in situations similar to the one confronted.

In addition to a disposition to seek success, it is also assumed there is a motive to avoid failure (M_{Af}), a capacity for reacting with humiliation when the performance outcome is failure. When this motive is aroused, there is anxiety and the tendency to withdraw from the situation.

$$T_{-f} = M_{Af} \times P_f \times I_f$$

The incentive value of success (I_s) is assumed to be equal to the difficulty of the task and inversely related, therefore, $I_s = 1 - P_s$. If a task is very easy as when the $P_s = .90$, then the incentive value of success would be low, .10. The negative incentive value of failure is a function of P_s ($I_f = -P_s$). When a task is very easy and the P_s is high, .90, the negative incentive value of failure is also high, -.90.

The tnedency to approach success (T_s) is stronger when the individual is confronted with tasks of intermediate difficulty. $P_s \times I_s$ is greatest when $P_s = .50$. The tendency to avoid failure (T_{-f}) is strongest when the task is of moderate difficulty. $P_f \times I_f$ given the largest negative tendency when $P_f = .50$.

When the achievement motive is greater than the motive to avoid failure ($M_s > M_{Af}$) the subject should prefer moderate risks, set reasonable levels of aspiration, and exhibit higher levels of performance. When the motive to avoid failure is the stronger motive ($M_{Af} > M_s$) the subject should avoid tasks of moderate difficulty ($P_s = .50$). When constrained to a task these individuals chose difficult tasks where they

are sure to fail and failure is not an embarrassment or very easy tasks with little possibility of failure. They perform at a lower level than those with $M_s > M_{Af}$. (Atkinson, 1964; Atkinson & Feather, 1966)

In summary, the theory of achievement motivation is an expectancy-value theory. The goal-directed tendency is viewed as the product of an interaction between a stable personality characteristic and the situational influences at the time. Important in the determination of the motive arousal are expectancies about the consequence of the action undertaken and the value of this consequence to the individual with respect to his motives. Anxiety aroused when the individual expects a negative consequence, can then inhibit the behavior expected to have the negative outcome. (Atkinson & Feather, 1966)

Definition of Terms

Three variables inherent in the theory of achievement motivation are:

1. Expectancy is the cognitive expectation, aroused by situational cues, that a particular consequence will succeed performance of an act.

2. The incentive represents the relative attractiveness or unattractiveness of the goal offered in a situation.

2. A motive in this case is defined as a disposition to strive for a certain kind of satisfaction. A particular motive, the achievement motive, is named for the incentive which produces the same experience of satisfaction. (Atkinson & Feather, 1966)

CHAPTER III

DESIGN OF THE STUDY

Introduction

The nature of the problem for this research was discussed in terms of the McClelland et al. theory of achievement motivation: that the achievement motive has important influences on performance, level of aspiration, and ultimately on vocational choice. The origin of this need is in early childhood where the independence training, mastery, affection, and achievement training, from the parents is apparently of utmost importance. A review of the literature indicated contradictory results about achievement motivation in women and a relative dearth of information on vocational choice patterns among women. Questions generated when surveying this literature included the following: Is there a difference in need Achievement patterns in women in a traditional area as opposed to the high prestige male-dominated field of engineering? What variables in perceived parental influence are effective?

Elements of the Problem

The primary goal of this study was to determine whether or not the women in the study, one group from a traditional major and the other group actually participants in a nontraditional field, show the expected differences in need Achievement as measured with the thematic apperceptive instrument. Secondly, the study was designed to determine

differences in attitude toward partental behavior between the two groups of subjects.

It was assumed that the data would indicate that the two groups would have different orientations regarding their perceptions of their partents' influence and that they would exhibit differences in their motivation to achieve.

Subjects

The subjects for this study were sixty Caucasian American women students from the University of Tulsa. The thirty subjects chosen for the traditionally-oriented group were enrolled in the school of nursing. The nontraditionally-oriented subjects were enrolled in the college of engineering. Their ages ranged from nineteen to twenty-two years. The nursing students were members of a junior level class containing thirty-six students. Six of the subjects were not used for the study. Four were considerably older than the rest of the group and two were foreign students and therefore inappropriate to the study. The nontraditional group was made up of thirty upperclass, undergraduate, women in the college of engineering excluding those above the chosen age range.

The subjects were called and told that "we are doing some research and need subjects in your particular major. The tests will take about an hour. Would you be willing to cooperate with us?" All those called agreed and then went on to keep their appointments or make new ones. This cooperation was probably due, in part, to the fact that the subjects were called from a university office and did not know exactly why they were asked, indicating some concern. The subjects were tested in groups in university classrooms.

Instruments

Cue Interpretations

The Cue Interpretations instrument (adapted from Horner, 1968) was used as a measure of need Achievement. This instrument consists of four verbal leads or cues followed by the series of questions developed by McClelland et al. (1953).

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?

The subjects look at the cue for 20 seconds before writing a four-minute story in answer to the questions.

Verbal leads rather than the traditional Thematic Apperception-type pictures have been used by several researchers. (Atkinson & Litwin, 1960; Lowell in McClelland et al., 1953, p. 168; Horner, 1968; Wish & Hasazi, 1973). It is assumed that verbal cues keep thought free from extraneous factors such as dress, hair styles, etc., and thus avoid encumbering fantasy further.

The test was scored according to the content analysis system of McClelland (McClelland et al., 1953; Atkinson, 1958). Two scorers attained a correlation of .87 on thirty of the tests.

Anagrams Task

The Anagrams task was presented both to provide achievement cues and as a check on the need Achievement scores. Subjects with higher need

Achievement scores should perform better on this task and produce more words in the allotted time than subjects with lower scores on the need Achievement measure.

Subjects are given a master word, "GENERATION", from which they make other words. They are told to make a check mark every two minutes.

Previous research has shown that subjects high in need Achievement tend to slack off in their output of words less than subject low in need Achievement. McClelland et al. (1953) suggests that need Achievement is positively correlated with the ability to "resist the sag" in the middle of an output curve. High need Achievement subjects perform better as the task becomes more difficult. Differences in motivation generally become apparent in the second two minute period when the high groups produce more words. Since this high group has produced more words, each succeeding period is more difficult for them but in spite of this, they continue to find more words even though there are fewer remaining.

The Anagrams task has been used by many researchers (Lowell in McClelland, 1953: Veroff, Wilcox & Atkinson, 1953; Horner, 1968; Wish & Hasazi, 1973).

The Semantic Differential

A form of the Semantic Differential was used to assess the subject's attitudes toward the partents. Two separate tests were given: one for the father and one for the mother.

The Semantic Differential is made up of a series of bipolar, seven-point scales. The subject is instructed to check the point on the scale which most nearly represents the direction or intensity of

his judgment on a particular concept. Based on research from factor analytic studies using such scales, Osgood (1952) offers three hypotheses:

> 1. The process of description or judgment can be conceived as the allocation of a concept to an experiential continuum, definable by a pair of polar terms.
>
> 2. Many different experiential continuua, or ways in which meanings vary, are essentially equivalent and hence may be represented by a single dimension.
>
> 3. A limited number of such continuua can be used to define the semantic space within which the meaning of any concept can be specified. (p. 227).

Using factor analysis, Osgood has demonstracted that the meanings of concepts usually have three major dimensions; evaluative, potency, and activity. The evaluative dimension has approximately twice the variance of the other two.

The Semantic Differential was developed as an instrument to provide a method of measuring psychological meaning. Although everyone sees things differently, it is assumed there is a common core of meaning in all concepts. (Kerlinger, 1964). The test used in this study was made up of scales of bipolar adjectives primarily from the evaluative and potency dimensions. Each scale was selected on the basis of its relatively high loading according to Osgood's (1957) tables of factor loadings, and its suitability to the material to be judged.

The scales are scored by assigning values to each of the seven scale points as follows:

positive 7 : 6 : 5 : 4 : 3 : 2 : 1 negative

The most positive score a concept could receive is a rating a 7, while the most negative score is a rating of 1. Osgood classifies one adjective of each pair as "positive" and the other as "negative."

The instructions to all tests were read aloud by the examiner

after the subjects were seated and testing materials passed out. For the Cue Interpretations test the subjects were allowed twenty secons to look at the cue and then four minutes to write each succeeding story. At the end of three minutes of writing, the examiner told the subject of the time.

On the Anagrams task, after the directions were read aloud, the subjects were instructed to make a check mark every two minutes to indicate the final word completed in that two minute period.

The instructions for the Semantic Differential were read aloud to the subjects and they were allowed as much time as necessary to complete it.

CHAPTER IV

ANALYSIS OF DATA

The data were analyzed to evaluate the differences of traditionally and nontraditionally-oriented college women in regard to their need Achievement, performance, and the effects of their perceived parental influence on these variables. Specifically, it was hypothesized that when the traditional group is compared with the nontraditional group:

1. There is no significant difference in need Achievement between the traditional group and the nontraditional group.

2. There is no significant difference in performance on the Anagrams Task between the traditional group and the nontraditional group.

3. There is no significant difference in attitude toward the father between the traditional group and nontraditional group as measured by the Semantic Differential scales.

4. There is no significant difference in attitude toward the mother between the traditional and nontraditional group as measured by the Semantic Differential scales

A t Test for difference between two independent means was used to determine if the difference between the two groups' need Achievement scores was significant. It may be seen in Table 1 that the t Test reached significance at the .001 level of confidence.

The numbers of words produced in each two-minute period on the Anagrams Task were analyzed by comparing the performance of the two

groups. A t Test for difference between two independent means was used to determine if the difference in word output in the five sessions was significant. As shown in Table 2, the difference in performance in the first three periods failed to reach significance. However, the output difference in the last two, and most important periods, did reach significance at the .05 level.

The scores for each group on the Semantic Differential were subjected to an analysis of variance by item. The level of significance was set at .05. The twenty adjective pairs were compared and the several pairs were found to differentiate the two groups. On the "Father" form of the test (see Table 3) the following pairs differed significantly: friendly-unfriendly, col-warm, and active-passive. On the "Mother" form, significant differences were found for important-unimportant, friendly-unfriendly, active-passive, influential-unfluential, cold-warm, true-false, and positive-negative. In all instances the traditional subjects viewed the parent more positively.

Hypothesis one was rejected. The need Achievement scores of the traditional and the nontraditional group were significantly different at the .001 level of confidence.

Hypothesis two was rejected. There was no significant difference in mean output for the first three sessions. The .05 level of confidence was reached for the last two periods.

Hypothesis three was rejected as there were some differentiating pairs of words.

Hypothesis four was rejected for the differences found on several word pairs were significant at the .05 level.

TABLE 1

$\underline{t}$ TEST

Need Achievement Scores

	$\overline{X}$	SD
Traditional Subjects	.43	2.92
Nontraditional Subjects	5.90	5.18

t value 5.03 < .001

TABLE 2

Summary of t Tests For

Significance For Hypotheses Two

2-minute period	Mean no. words		SD	t		
1	traditional	16.87	4.10	1.04	>	.05
	non-traditional	17.90	3.57			
2	traditional	8.47	3.09	1.28	>	.05
	non-traditional	9.47	2.93			
3	traditional	7.20	1.63	.47	>	.05
	non-traditional	6.93	2.64			
4	traditional	5.37	2.03	1.87	<	.05
	non-traditional	6.40	2.37			
5	traditional	4.60	1.95	1.97	<	.05
	non-traditional	5.70	2.37			

TABLE 3

Item Variance on Semantic Differential

Father

	ITEM	F
1.	important-unimportant	.18 > .05
2.	sufficient-insufficient	1.60 > .05
3.	disapproving-approving	.59 > .05
4.	progressive-regressive	.06 > .05
5.	friendly-unfriendly	16.50 < .05
6.	active-passive	3.21 < .05
7.	pessimistic-optimistic	.28 > .05
8.	severe-lax	2.19 > .05
9.	influential-uninfluential	.01 > .05
10.	submissive-domineering	1.55 > .05
11.	cold-warm	3.67 < .05
12.	aggravating-soothing	1.51 > .05
13.	strong-weak	.23 > .05
14.	leading-following	.55 > .05
15.	permissive-prohibitive	2.90 > .05
16.	unsuccessful-successful	.01 > .05
17.	hateful-affectionate	.61 > .05
18.	selfish-unselfish	.01 > .05
19.	true-false	3.64 < .05
20.	negative-positive	.07 > .05

TABLE 4

Item Variance on Semantic Differential

Mother

	ITEM	F
1.	important-umimportant	12.72 < .05
2.	sufficient-insufficient	1.38 > .05
3.	disapproving-approving	.10 > .05
4.	progressive-regressive	2.74 > .05
5.	friendly-unfriendly	7.47 < .05
6.	active-passive	4.02 < .05
7.	pessimistic-optimistic	2.75 > .05
8.	severe-lax	.13 > .05
9.	influential-uninfluential	3.40 < .05
10.	submissive-domineering	1.99 > .05
11.	cold-warm	4.65 < .05
12.	aggravating-soothing	.94 > .05
13.	strong-weak	2.13 > .05
14.	leading-following	2.60 > .05
15.	permissive-prohibitive	.13 > .05
16.	unsuccessful-successful	1.62 > .05
17.	hateful-affectionate	2.80 > .05
18.	selfish-unselfish	1.54 > .05
19.	true-false	11.54 < .05
20.	positive-negative	5.89 < .05

Discussion

Findings from the present study indicate that the outward manifestation of involvement in the nontraditional area of engineering, and of rejection of the cultural stereotype may indeed be well internalized among these women engineering students. The highly significant differences found in the need Achievement scores were validated by the significantly higher performance scores on the Anagrams Task of the nontraditional group. Horner (1972) states, "The prevalent image of women found throughout history, amidst scholarly and popular circles converged on the idea that femininity and individual achievement which reflect intellectual competence or leadership potential are desireable but mutually exclusive goals." (p. 157) Perhaps now a group is emerging which is strong enough to reject this "prevalent image of women" and who do set standards of excellence for themselves and who do value academic and intellectual achievement as goals appropriate for women.

In spite of the notion that our educational system is allegedly preparing boys and girls identically for careers, Horner (1972) says that the data to date still indicate that psychological barriers are limiting the opportunities for women. When success becomes a possibility for women, anxiety enters as a block and their positive achievement strivings are ended and their abilities remain unfulfilled.

In a study of this debilitating anxiety called "fear of success" Horner found that girls who did not fear success were aspiring to graduate school or were in such areas as mathematics, science, and chemistry. She reports that the thematic apperceptive imagery written in response to the cue, "Anne is sitting on a chair with a smile on her face," by subjects high in fear of success, was bizarre and full of

negative imagery dealing with hostility or manipulation of others.

While this study did not deal with the "fear of success" motive the fact is worth noting that the nontraditional group of subjects in this study did not write bizarre or negative stories to this cue. In general, they were positive, often humorous, and often achievement-oriented.

The traditional group, on the other hand, wrote stories dealing with romance, pregnancy, and a large number cast Anne as a small child. Almost none contained achievement imagery and several could be considered morbid.

On the Semantic Differential parental ratings, the traditional group rated both parents and especially the mother more positive and potent on nearly all items than did the nontraditional group. This is in keeping with most of the current research on the development of achievement motives in girls requires a somewhat rejecting and less nurturant attitude of the mother or one perceived in that manner (Veroff, 1969; Crandall, 1960). Alper (1974) however, has found that high achievers often see the parent figure in TAT type pictures as more supportive and nurturant.

The results in this study are similar to McClelland's (1962) study of college males. Those who rated their parents, and particularly the father in this case, unfriendly, unhelpful, and unsuccessful tended to have the highest need Achievement scores. Their fathers were rated especially rejectant. McClelland interpreted this data that these subjects were made to "stand on their own feet" and therefore felt rejected.

The subjects in the nontraditional group, like McClelland's subjects rated their mothers more cold, unfriendly, uninfluential, unimportant, and negative, but the writer feels that this should be considered along with several other points. As Hoffman (1972) cautions, one must be aware of relativity in subjective ratings. A girl might consider her mother cold or unfriendly when comparing her to the mothers of other girls, as probably she would. In comparison with the mothers of boys, those who more often are the achievers in this society, their mothers might well be quite average in their behaviors. As Bronfenbrenner (1961) suggests, it is the very fact that girls are given too much support that holds them back.

When looking at these nontraditionally-oriented girls subjectively as the writer has had the opportunity to do, saying that this "coldness" of mother, etc, has been a detriment to them or has caused them an unhealthy mental or emotional condition, would be difficult. Unless we use a double standard of mental health as we are often wont to do (Broverman, et al., 1970), and expect them to meet the cultural stereotype which says that they should be passive, dependent, lacking in self-confidence, submissive, non-competitive, etc. they can be considered a healthy group of girls. As a whole their grades put them at the top in their college. One girl was number one in the senior class, one was number one in the junior class. Two were graduating a semester early. Several had double majors, taking enormous class loads. They exude self-confidence, are active in campus activities, are outgoing, independent, and competitive.

Some uncontrolled variables must be mentioned here which could significantly effect a study such as this. Attitude research and

measurement is always under revision. There is no readily identifiable research tool to measure with absolute reliability and validity, the attitudes toward parents. Also, it could be assumed that the traditional group in keeping with their role expectations, might be less free about making negative statements about their parents.

Finally, the samples for the study were drawn from the students at the University of Tulsa. Whether or not the samples could be generally representative is not known.

Conclusions

Based on the data in this study, women in traditional and non-traditional fields of endeavor may be differentiated by motivational factors. Where compared to women entering the traditionally feminine field of nursing, those in engineering scored significantly higher in the need to achieve when responding female thematic apperceptive cues. When the two groups were compared on the basis of their attitudes toward their parents other differences emerge. The traditionally-oriented subjects tended to view both parents more positively on all items on the attitude scale administered. The nontraditionally-oriented subjects tended to view the parents more negatively--especially their mothers. Higher scores on an Anagram Task attained by the nontraditional group indicate a possible predictive power of need Achievement for performance for this group.

Implications

The purpose of this study is not to imply that the male model of aggressive striving is preferable or even desireable, but the fact is evident that the typically acceptable female role is not particularly

fulfilling for many women. The waste of talent and intellectual ability in our country is monumental. It is apparent that some melding of our "masculine" and "feminine" characteristics into a more androgynous model would be preferable.

Much more needs to be known about women's career decision-making processes but before this can be accomplished, much more research is needed on the psychology of women in general and motivational factors peculiar to them in particular.

It is suggested that subsequent research in the area of need Achievement look into differences observable in women who have actively set themselves apart from the mainstream of "feminine" endeavor and those more typically involved. Parental influence appears to be an important area for further research. If McClelland's (1965) achievement motivation training for the development of entrepreneurship among underdeveloped peoples has proven viable, what would happen with a similar sort of counseling for women with regard to their career choices? Also, this nontraditional group should be studied under different arousal conditions and using both male and female stimuli.

Research has shown that in males, those low in the need to achieve avoid even seeking information about certain careers. One can speculate that this might be a major concern when dealing with women who are most limited in their variety of choices, perhaps as a result of lack of knowledge about them.

Summary

During the last quarter of a century, since the first publications on the achievement motive, a tremendous amount of research has followed

McClelland and Atkinson's initial breakthrough. Through the use of thematic apperceptive-type tests many researchers have been able to isolate and define the "need to achieve." This need is defined in terms of an internalized standard of excellence moving the individual to work hard and do well in a situation involving intelligence or competition with a standard of excellence.

The motive has its origin in childhood when parents emphasize and support properly the child's training in independence and mastery. Other investigations have shown the need to achieve to be related to levels of aspiration, performance, vocational choice, risk-taking, and entrepreneurship, however, only when men are the subjects.

Early in the achievement motivation research it was discovered that the results obtained from women subjects were confusing. Eventually the work was based almost entirely on men leaving scarce and contradictory female data.

Consistent throughout the research on women was the fact that they exhibited more anxiety in test situations than did men. Margaret Mead's suggestion that intellectual achievement may be viewed as aggressive and therefore inappropriate behavior for women is often mentioned. A girl who is motivated to achieve is not behaving in a sex-appropriate manner and is therefore anxious and the achievement motive is depressed.

In this present study, two general questions were asked: 1. Do women actively involved in a typically male, high prestige, area of study (rather than sorted out by measure of sex-role orientation) differ significantly in need achievement from women in a traditionally feminine field of endeavor? and 2. What perceived parental behaviors are effective?

The two groups were administered a need achievement measure, the Cue Interpretation Test, using female cues; a performance test; an anagrams task; and a version of the Semantic Differential to measure attitudes toward parents.

A significant difference was found between the need Achievement scores of the two groups, with the nontraditional group scoring higher. On the Anagrams Task there were no significant differences found in word output for the first three two-minute periods, however, in the last two two-minute periods the mean word output of the nontraditional group was significantly greater. This measure was used to verify the need Achievement scores and also as a means of motive arousal.

On the Semantic Differential significant differences were found between the groups on several of the items which differentiated them. On all items there was a general tendency for the traditional group to view both parents and especially the mother more positively than did the nontraditional group.

This study, to some degree, confirmed the notion that less nurturant mothers, or at least those perceived as less nurturant, tend to produce daughters inclined to be more achievement-oriented.

Also, these nontraditionally oriented women seem to have overcome the cultural notion that achievement behavior is inappropriate for women, writing positive achievement imagery to the female leads presented in the need Achievement measure.

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APPENDIX A

ANAGRAM TASK

Name _____

ANAGRAM TASK

Instructions

This is a measure of creative intelligence. Your task will be to make as many words as possible using the letters of a master word which will be presented to you.

For example:

If the master word were WASHINGTON, possible smaller words would be: WING, AS, TIN, WAS, NON, and so on.

The word NOON would not be acceptable since there is only one "O" in the master word.

At the end of a few minutes I will say "CHECK" and you are to put a check mark after the last word you have written. Indicate the last word completed at the time I say check and then GO ON WORKING.

Do not begin until told to do so. You will be allowed ten minutes.

GENERATION

APPENDIX B

CUE INTERPRETATIONS TEST

CAROL IS LOOKING INTO HER MICROSCOPE

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?

A YOUNG GIRL IS TALKING ABOUT SOMETHING IMPORTANT WITH AN OLDER PERSON

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?

AT THE END OF THE SCHOOL DAY, ANN IS GOING BACK TO THE CHEMISTRY LAB

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?

DOROTHY IS SITTING IN A CHAIR WITH A SMILE ON HER FACE

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?

APPENDIX C

SEMANTIC DIFFERENTIAL TEST

DIRECTIONS

The purpose of this study is to determine what a particular concept means to you by having you judge it against a series of descriptive scales.

Please use the scales in the following way:

1. If you think the concept is very closely related to one end of the scale, place your check mark as follows:

   good _X_ : ___ : ___ : ___ : ___ : ___ : ___ bad

   OR

   good ___ : ___ : ___ : ___ : ___ : ___ : _X_ bad

2. If you think the concept is quite closely related to one or the other end of the scale (but not extremely) you should place your check mark as follows:

   good ___ : _X_ : ___ : ___ : ___ : ___ : ___ bad

   OR

   good ___ : ___ : ___ : ___ : ___ : _X_ : ___ bad

3. If the concept seems only slightly related to one side as opposed to the other side (but not really neutral) then you should check as follows:

   good ___ : ___ : _X_ : ___ : ___ : ___ : ___ bad

   OR

   good ___ : ___ : ___ : ___ : _X_ : ___ : ___ bad

4. The direction toward which you check, of course, depends upon which of the two ends of the scale seems most characteristic of the concept.

   If you consider the concept to be neutral on the scale or if the scale is completely irrelevant, unrelated to the concept, you should place your check mark in the middle space:

   good ___ : ___ : ___ : _X_ : ___ : ___ : ___ bad

MY MOTHER

1.	tough	___ : ___ : ___ : ___ : ___ : ___ : ___	fragile
2.	important	___ : ___ : ___ : ___ : ___ : ___ : ___	unimportant
3.	sufficient	___ : ___ : ___ : ___ : ___ : ___ : ___	insufficient
4.	disapproving	___ : ___ : ___ : ___ : ___ : ___ : ___	approving
5.	progressive	___ : ___ : ___ : ___ : ___ : ___ : ___	regressive
6.	friendly	___ : ___ : ___ : ___ : ___ : ___ : ___	unfriendly
7.	active	___ : ___ : ___ : ___ : ___ : ___ : ___	passive
8.	pessimistic	___ : ___ : ___ : ___ : ___ : ___ : ___	optimistic
9.	severe	___ : ___ : ___ : ___ : ___ : ___ : ___	lax
10.	influential	___ : ___ : ___ : ___ : ___ : ___ : ___	uninfluential
11.	submissive	___ : ___ : ___ : ___ : ___ : ___ : ___	domineering
12.	cold	___ : ___ : ___ : ___ : ___ : ___ : ___	warm
13.	aggravating	___ : ___ : ___ : ___ : ___ : ___ : ___	soothing
14.	strong	___ : ___ : ___ : ___ : ___ : ___ : ___	weak
15.	leading	___ : ___ : ___ : ___ : ___ : ___ : ___	following
16.	permissive	___ : ___ : ___ : ___ : ___ : ___ : ___	prohibitive
17.	unsuccessful	___ : ___ : ___ : ___ : ___ : ___ : ___	successful
18.	hateful	___ : ___ : ___ : ___ : ___ : ___ : ___	affectionate
19.	selfish	___ : ___ : ___ : ___ : ___ : ___ : ___	unselfish
20.	true	___ : ___ : ___ : ___ : ___ : ___ : ___	false
21.	negative	___ : ___ : ___ : ___ : ___ : ___ : ___	positive

MY FATHER

1.	tough	___ : ___ : ___ : ___ : ___ : ___ : ___	fragile
2.	important	___ : ___ : ___ : ___ : ___ : ___ : ___	unimportant
3.	sufficient	___ : ___ : ___ : ___ : ___ : ___ : ___	insufficient
4.	disapproving	___ : ___ : ___ : ___ : ___ : ___ : ___	approving
5.	progressive	___ : ___ : ___ : ___ : ___ : ___ : ___	regressive
6.	friendly	___ : ___ : ___ : ___ : ___ : ___ : ___	unfriendly
7.	active	___ : ___ : ___ : ___ : ___ : ___ : ___	passive
8.	pessimistic	___ : ___ : ___ : ___ : ___ : ___ : ___	optimistic
9.	severe	___ : ___ : ___ : ___ : ___ : ___ : ___	lax
10.	influential	___ : ___ : ___ : ___ : ___ : ___ : ___	uninfluential
11.	submissive	___ : ___ : ___ : ___ : ___ : ___ : ___	domineering
12.	cold	___ : ___ : ___ : ___ : ___ : ___ : ___	warm
13.	aggravating	___ : ___ : ___ : ___ : ___ : ___ : ___	soothing
14.	strong	___ : ___ : ___ : ___ : ___ : ___ : ___	weak
15.	leading	___ : ___ : ___ : ___ : ___ : ___ : ___	following
16.	permissive	___ : ___ : ___ : ___ : ___ : ___ : ___	prohibitive
17.	unsuccessful	___ : ___ : ___ : ___ : ___ : ___ : ___	successful
18.	hateful	___ : ___ : ___ : ___ : ___ : ___ : ___	affectionate
19.	selfish	___ : ___ : ___ : ___ : ___ : ___ : ___	unselfish
20.	true	___ : ___ : ___ : ___ : ___ : ___ : ___	false
21.	negative	___ : ___ : ___ : ___ : ___ : ___ : ___	positive