AN EVALUATION OF A PROJECTIVE TEST OF ACHIEVEMENT MOTIVATION AS A MEANS OF PREDICTING ACADEMIC SUCCESS IN COLLEGE

A Thesis

Presented to

the Faculty of the Department of Psychology

University of Houston

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

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by

Kenneth Calvert Kramer

August 1956

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ABSTRACT

The purpose of this study was 1) to cross-validate McClelland's n-ach test of achievement motivation, 2) to determine whether or not n-ach scores used in conjunction with a battery of standardized tests will significantly improve the prediction of academic success of entering freshmen at the University of Houston, and 3) to determine other variables correlating with the need for achievement score in order to gain some insight into the factors contributing to it.

A sample of one-hundred-sixty-four male entering freshman students at the University of Houston and one-hundred-ten female entering freshman students was secured and their scores on the freshman guidance battery and McClelland's n-ach test were obtained. Coefficients of correlation were computed between the various tests in the freshman guidance battery, n-ach, and the criterion (Quality Point Average for first semester in college). Mean differences on n-ach were computed for the high and low achievers in both the male and female sample.

The correlation between n-ach and Quality Point Average was found to be .064 for the male group and .025 for the female group. No significant mean differences on n-ach scores were found between the high and low achievers in either group.

There was a slight trend for n-ach to correlate positively with certain verbal measures and to correlate negatively with occupational interest areas involving non-verbal vocations.

The investigator concluded that the test of achievement motivation is unrelated to academic success as measured by the Quality Point Average for the first semester in college. It is also unrelated to measures of scholastic aptitude, various ability measures, and vocational interest areas. The n-ach test does not appear to be sensitive to the varying degrees of achievement motivation manifested by such widely separated groups as high and low achievers in college.

The investigator recommended further research on the problem of predicting academic success with a projective test of achievement motivation because of limitations in the study. The development of a more reliable measure was also recommended before further validation investigations are attempted.

ACKNOWLEDGMENTS

Two of the most difficult problems confronting an investigator are the gathering of the data necessary for the study and the statistical manipulation of that data. In this case however, these problems were relatively minor because of the cooperation and assistance rendered the investigator by the Counseling and Testing Service of the University of Houston and the International Business Machines Corporation.

It is with a deep feeling of gratitude that I express my appreciation to Dr. Franklin L. Stovall and Dr. John W. Love for providing the data relating to the study. Also, gratitude is due Mr. William Leonard, IBM Sales Representative, for providing the services of the IBM Data Processing Machine-Type 650 and Dr. Albert Newhouse, University of Houston Research Center, for programming the statistical runs.

I am also indebted to Miss Ethel Mackenzie for her help in scoring the achievement motivation tests and to Mrs. Margaret L. Kramer for typing the manuscripts.

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CHAPTER I

THE PROBLEM

Statement of the problem. It was the purpose of this study to 1) cross-validate McClelland's n-ach test of achievement motivation; 2) to determine whether or not n-ach scores used in conjunction with a battery of standardized tests will significantly improve the prediction of academic success of entering freshmen at the Univeraity of Houston; and 3) to determine other variables correlating with the need for achievement score in order to gain some insight into the factors contributing to it.

Importance of the study. In the fall of 1955 the Counseling and Testing Service of the University of Houston began a compulsory freshman guidance program. Each entering freshman was given a battery of standardized tests and at least one individual interview with a professional counselor. His counselor helped the student to select his major area of study and to set up his first semester program on the basis of his interests and aptitudes. The scope of this program magnified many problems which have confronted universities and colleges in relation to their incoming freshman student groups for years.

One of the most important of these problems is attempting to group the new students on the basis of general intelligence, academic achievement, and other factors pertinent

to success in college, in such a way that these students may obtain maximum benefit from college as a whole. Most universities use standardized tests and/or high school academic records to resolve this problem. Many investigations have indicated that these criteria for the prediction of academic success are warranted, although the correlations with scholastic performance are relatively low. These low correlations between standardized tests and success in college are partially the result of the multiplicity of factors which contribute to success in college.

One of the most important of these factors is the student's motivational level, his drive, or, as McClelland (7) describes it, his "need for achievement". Of course, the professional counselor can, and usually does, make a clinical judgment of an individual's motivation on the basis of past performance and ability level. However, the objectivity, reliability, validity, and utility of this judgment is doubtful.

With the work of McClelland and his associates we have one of the first experimental attempts to measure objectively human motivation. The measuring instrument itself is still in an experimental stage of development.

In this study an attempt was made to cross-validate early experimental information relating the need for achievement score to scholastic performance, to determine the validity of the present instrument in a college guidance

situation, and to add to the relatively meagre and somewhat inconclusive and contradictory information concerning this problem.

CHAPTER II

REVIEW OF THE LITERATURE

The literature in the field of psychology dealing with the n-achievement test of achievement motivation is considerable although not exhaustive. Much of the data is inconclusive and sometimes contradictory. This is not surprising when the complexities of objectively measuring human motivation are considered. Most of the reported studies have been done by McClelland and his associates. Since their main interest was in developing a test of achievement motivation, a great number of these studies are not directly comparable due to alterations in the form of the test, the differing varieties of pictures used, and the alterations in the scoring system used as their experimental knowledge of the achievement motive progressed. Since this test is still in an experimental stage of development and will continue to be revised as new data come to light, an attempt was made in the chapter to briefly present the thinking to date. Brief mention was made of some of the various behavioral correlates which have been investigated with more detailed consideration of the studies which relate n-ach to the prediction of scholastic success.

The n-ach test of achievement motivation consists of a series of pictures projected on a screen. For each

picture the subject is instructed to write a creative and imaginative story complete with plot and characters. The present scoring system (scoring system C) was developed empirically from the initial theoretical and experimental studies of McClelland, et al (7).[1] Also reported in detail are the basic theoretical and empirical rationales underlying the test of achievement motivation. In summarizing the effects on fantasy of achievement motivation, McClelland (7) says:

> We may summarize to this point by indicating which of the imaginative categories . . . . showed significant changes in frequency when n-achievement was experimentally increased. Generally speaking we are justified in saying that as achievement motivation is experimentally increased, the imaginative stories that subjects write become increasingly more concerned with achievement, the need for achievement, anticipations of success and failure, acts instrumental to success and the avoidance of failure, affective states associated with succeeding and failing, blocks in the way of achieving, and help from other persons in the direction of achievement.

In computing the n-achievement score from the record of a single individual a counting procedure of the above-mentioned categories is used. This technique relieves the scorer of making a subjective judgment as to the intensity of an individual's various achievement-related categories and tends to make the rest remarkably

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[1] A further revision in the scoring system (scoring system D) had recently been devised as reported by McClelland (8) and Riccuiti (14 and 15).

objective for a projective technique.

Very early in their experimental investigations of achievement motivation McClelland and his associates began to relate n-achievement to specific behaviors. McClelland (7) was concerned that a verbal measure might penalize the more inarticulate people. He found no significant relationships between word output in the imaginative stories and n-achievement scores. The correlations ran from .11 (New England High School) to .25 (midwestern college sample). Zatzkis (18) found that a group of individuals with n-achievement scores in the middle range produced more responses on a Rorschach Test. These results suggested a curvilinear relationship, but small groups were used and the data failed to meet the accepted standards of significance.

Atkinson (1) performed a completed-incompleted task experiment under three conditions with different groups: 1) Relaxed orientation, 2) Task orientation, and 3) Achievement orientation. The subjects with high n-ach scores did not significantly outperform the low n-ach subjects on the task and achievement conditions and did significantly worse ($P = .05$) under relaxed conditions. However, the mean number of tasks completed tended to increase for both groups as the degree of achievement orientation was increased.

Clark and McClelland (2) correlated n-achievement and the number of words obtained in successive minutes on an anagrams test under neutral and achievement-oriented conditions, but they obtained no conclusive results.

McClelland, et al (7), in attempting to explore fully the meaning of n-achievement scores have correlated it with a wide variety of tests:

> We had no particular hypothesis to test and no reason to expect relationships in these cases, and we got what might be expected under these circumstances, viz.: nothing of any importance. For the sake of the record, however, we will present here all the things we found n-achievement not related to: Otis I.Q.; Masculinity-Femininity and Occupational Level scales of the Strong Vocational Interest Inventory; the six scales of the Allport-Vernon Study of Values with the possible exception of the Aesthetic scale; the Iowa Silent Reading Test; the Bogardus Social Distance measure of racial and religious prejudice; the Remmer scales of oral and anal tendencies; the Maslow Security-Insecurity Test.

The relationship of n-achievement to college grades has been the subject of several studies, practically all of which have shown a very low or insignificant correlation. This research is of very great practical importance but little theoretical value due to the multiplicity of factors which contribute to success in college.

McClelland, et al (7) reports a correlation between n-achievement and the average grade for the semester during which the test was taken and the two succeeding semesters of .51 ($P < .01$) on a sample of thirty Wesleyan males.

Scholastic Aptitude Test (SAT) scores on the same subjects provided an estimate of their ability. Correlations of .48, .42, and .39 were reported for SAT scores and grades, SAT scores and n-achievement, and n-achievement with grades adjusted for SAT scores, respectively.

McClelland, et al (7) using data from Lowell (5) reports a correlation of .05 between n-achievement and grade point average based on the preceding semester for a sample of forty Trinity College males. However, different pictures were used, the subjects were more highly selected for cooperativeness in the Wesleyan study, and the Wesleyan study predicted grades, while the Trinity study postdicted them.

Lowell (5) administered two forms of the test to twenty-one students, one under neutral conditions and another under achievement-oriented conditions. An r of .33 was obtained between n-achievement scores obtained under achievement-oriented conditions and past grades in college. The difference between n-achievement obtained under neutral and achievement-oriented conditions correlated .53 ($P<.05$).

Morgan (10,11) reports a small relationship of n-achievement and over and under achievement for students matched at a very high I.Q. level. The mean difference of n-achievement for the achievers (17.8) and the non-achievers (13.47) produced a t of 2.3 which was significant at the .05

level of confidence (N = 40 and 30 respectively).

A similar study by Parrish and Rethlingshafer (13) at the University of Florida reports essentially negative results. They matched forty-eight male freshman and sophomore students at a high intelligence level (above the 90th percentile on the high school edition of the A.C.E.). One group (achievers) had grade point averages of above 2.0, while the other group (non-achievers) had grade point averages below 1.0. They found no significant differences in n-achievement between the two groups. Different pictures were used however, and they had a fairly low scorer reliability (.76).

McClelland (private communication) reports that follow-up studies at Wesleyan relating n-achievement to college grades with the effects of intelligence partialled out have regularly shown very low and insignificant correlations, of the order of .07.

Ricciuti (15) in an initial validation study of the prediction of academic grades with a projective test of achievement motivation for Educational Testing Service presents a more detailed analysis of the problem with material obtained at the high school level, college freshman level, and with naval officer candidates. The study was based on three groups of male subjects who took various forms of the picture interpretation test of achievement

motivation. The scoring system was somewhat revised for this study and the various test forms were equivalent only on *a priori* grounds. The groups were as follows: 1) one-hundred-forty-seven juniors in a large academic high school in a New England industrial city, 2) four-hundred-six individuals in a naval officer candidates school, and 3) one-hundred-eighty freshmen in an eastern private liberal arts college for men.

Moderate positive correlations with high school grades were obtained (r's from .23 to .33) and somewhat lower correlations with intellectual ability: Otis I.Q. (.15 to .17). When the grades were adjusted for ability, achievement motivation measures continued to show positive significant correlations (.16 to .29). An interesting side light of the high school study was that one scoring category (Achievement Thema) yielded a correlation slightly higher than the total test score. It was also noted that the mere number of words written by the subject on the achievement motivation test correlated .50 with the n-ach score, .14 with Otis I.Q., and .21 with grades adjusted for ability.

The data for the college freshmen and officer candidate groups indicated that achievement motivation scores were not related to grade point average. It was noted also that with these groups n-ach scores were even more independent of measures of general ability than was found in the

high school study. These findings might reflect the extended range in the high school sample.

Ricciuti and Sadacca (17) performed an extensive cross-validation of the earlier study at the high school level. The results in general confirmed the findings of the earlier study. The investigators conclude that

> . . . . while the results are not of any great immediate practical value, they warrant continued research on the measurement of achievement motivation as a determinant of academic grade performance, and other aspects of scholastic achievement or success.

Ricciuti (15) in summarizing his research says

> It is concluded that the achievement motivation test shows encouraging although not immediately practicable validities in predicting high school grades after ability differences are ruled out. Further research on the test as a predictor of school success certainly seems indicated at both the high school and college level. Validation against broader criteria of personal and scholastic achievement beyond course grades as such would appear to be particularly desirable. Additional research is also needed on the identification of the most generally valid scoring categories, the relationship between validity and picture content, and the value of word output as a supplementary measure of achievement drive.

Some preliminary research concerning an overall achievement-in-college index is presently being carried out at Wesleyan by McClelland (private communication). He has developed an "achievement index" in which so many points are given for academic achievement, so many more for athletic participation, for membership in clubs, for managerships, for being elected to office, etc. While this research

is in an early stage, McClelland has found substantial and somewhat higher relationships between n-achievement and this overall "achievement index" than between n-achievement and college grades alone.

CHAPTER III

GROUPS STUDIED AND MATERIALS USED

Groups studied. The entire group was composed of entering college freshmen who matriculated at the University of Houston in the fall of 1955. It was first decided to split the group according to their sex on the basis of experimental evidence of basic sex differences in the test of achievement motivation (1, 16). All freshman students were included in the two groups, male and female, who met the following requirements:

1. Their records included all variables to be studied. [1]
2. They were full-time college students (enrolled in four college courses or more). [2]
3. They did not withdraw from or incomplete any of their courses during the first semester. [3]

One-hundred-sixty-four males and one-hundred-ten

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[1] Of the 2500 entering college freshmen tested in connection with the University of Houston's freshman guidance program, only the first 900 were administered the test of achievement motivation, due to the relatively long administration and scoring time involved.

[2] A preliminary investigation indicated basic differences in criterion scores between full-time and part-time students.

[3] Since withdrawals and incompletes are figured into the Quality Point Average as failures, it was felt that this would add spurious factors to the criterion scores.

females met these requirements and comprised the two main samples in this investigation.

One limitation of this study is the heterogeneous nature of the sample. Both groups were comprised of students enrolled in all colleges of the University of Houston with the exception of the College of Technology. Their respective curricula varied widely with some rather large differences in difficulty level between the individual courses. This would probably have a considerable but unknown effect on the criterion used (Quality Point Average).

Another limitation is that the primary purpose of administering these tests to all entering freshmen was for counseling and guidance with respect to both the choice of major and the choice of courses once the student decided upon a major area of study. The low ability students were counseled into lower level remedial courses while the highest level ability students were counseled into "honor" courses in most cases. The net effect of this would lower to some unknown extent the correlations between ability measures and the criterion of Quality Point Average. It is not known whether or not the test interpretations and counseling and guidance interviews had any effect on the correlations between n-achievement and the criterion.

Materials used. The Counseling and Testing Service

of the University of Houston selected the following battery of tests which was administered to all incoming freshmen in the fall of 1955 by the testing staff.[1]

American Council on Education Psychological Examination for College Freshmen, 1947 Edition. This is a test of scholastic aptitude which roughly predicts success in college work in general. In addition to the total scholastic aptitude score it yields two sub-scores: 1) a Q-score (quantitative aptitude), based on problems in arithmetic, figure analogies, and number series, and 2) an L-score (linguistic aptitude), based on same-opposites, verbal completion problems, and verbal analogies.

Cooperative Inter-American Test of Reading: Form AE-Advanced Level. This is a test of general proficiency in reading speed and comprehension. In addition to the total score it yields separate scores for vocabulary and for reading speed and comprehension. Only Part II, the reading score, was used in this research.

Cooperative General Achievement English Test A: Mechanics of Expression, Form S. This is a test of general proficiency in the English language. It includes four parts: grammatical usage, capitalization, punctuation, and spelling,

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[1] See footnote #1 on page 13.

but yields only one score.

Kuder Preference Record, Form CM. This test is designed to measure the relative strength of a person's vocational interests in ten different areas: outdoor, mechanical, computational, scientific, persuasive, artistic, literary, musical, social service, and clerical.

Algebra Screening Test. This is a locally developed and standardized algebra achievement test designed to select and place entering freshman students in algebra courses suited to their level of advancement.

The Test of Achievement Motivation. This is a projective test of achievement motivation which is still in an experimental and developmental stage. A more detailed description of the test may be found in McClelland, et al (7). Several various forms of the tests and revised scoring systems have been reported in the literature.

For the purpose of this research the Counseling and Testing Service decided to use the standard series of pictures and scoring system C reported by McClelland,et al (7).

The scoring technique involves the analysis of the content of the imaginative stories written as interpretations of the stimulus pictures for the presence of various scoring elements or categories. The important decision that the scorer has to make is whether or not an individual story contains

Achievement Imagery (AI), Doubtful Achievement Imagery (TI), or Unrelated Imagery (UI). Only if a story contains AI is it scored for the other categories. The n-achievement score is simply the total number of scoring categories found in the total number of slides used minus the total number of UI categories. Each category can only be scored once per story.[1]

Much research has shown that the specific conditions at the time of the test greatly affect the n-achievement score. The environmental conditions acting on the subjects reported in this research were considered to be highly achievement-oriented. The achievement motive tests were given as a part of the freshman guidance battery directly following the American Council on Education Psychological Examination. Prior to the tests the students were told that these tests would enable them to choose their major in college and perhaps their life's vocation with the help of their counselors. The specific instructions for the test of achievement motivation as well as the administration techniques were exactly as reported by McClelland, et al (7).

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[1] See Appendix A for a list of the scoring categories including a brief description and scoring weight.

All of the protocols used in this research were scored by two scorers, one of whom had extensive previous familiarity with scoring system C, including several discussions with Dr. McClelland. After three weeks of intensive training and practice together the two scorers separately scored two samples of protocols. When they agreed to score only those categories that they were sure of an r of .96 (N = 50) was obtained. When all categories were scored regardless of doubt an r of .89 (N = 62) was obtained. At this point the scorers scored the nine-hundred protocols from which the samples in this investigation were drawn. These protocols were scored separately but simultaneously. Whenever a disagreement occurred it was discussed and a final n-achievement score was decided upon. Later the two scorers scored the thirty illustrative protocols previously scored by McClelland and his associates (7) and obtained an r of .88 (N = 30) between their scoring and McClelland's.

Criterion: Quality Point Average. For the purpose of this study academic success for each student was defined as the Quality Point Average (QPA) reported by the Registrar's Office at the end of his first semester of college work. Quality points were assigned to each college letter grade by means of the weighting system in effect at the University of Houston (17). The weights for the

several letter grades are as follows:

Letter Grade	Quality Points (per sem. hr.)	Explanation
A	4	Excellent
B	3	Good
C	2	Satisfactory
D	1	Poor
F	0	Failure
I	0	Incomplete
W	0	Withdrawal

The Quality Point Average was computed for each student by summing the quality points earned in all courses and then dividing by the number of semester hours attempted. Students whose grade sheets reported "I's" and "W's" were not used in this study because of spurious effects on the Quality Point Average.

CHAPTER IV

TECHNIQUES AND ANALYSIS OF THE DATA

Presentation of Data. Pearson product-moment coefficients of correlation were computed for both the male and female samples between each test and every other test, the criterion, and the test of achievement motivation scores. These coefficients are presented in Tables 1, 2, 3, and 4.

Means and sigmas were computed for both samples on each test in the freshman guidance battery, the criterion, and the achievement motivation tests. These statistics are presented in Tables 5 and 6.

From Table 1, it can be seen that the achievement motivation scores for male college freshmen were not related to academic averages at the end of the first semester in college. A correlation of .064 was obtained between n-ach and Quality Point Average. When the effects of intelligence were partialled out this correlation reduced to .046. Also the achievement motivation test scores appear to be independent of measures of general ability, scholastic aptitude, and reading ability. The correlation obtained between n-ach and the Cooperative English Test A: Mechanics of Expression, .154, was barely significant at the .05 level of confidence. Since Test A also correlates

highest (.25) with the criterion, the n-ach test would probably contribute a small amount to a Wherry-Doolittle test selection formula. However, the validities of the test for predicting Quality Point Average were not determined since the correlations with grades as such were so low. It is also very possible that this is a chance relationship since many correlations were computed and we would expect a certain number of these to be significant on the basis of chance alone.

Table 2 presents the correlations between the interest areas on the Kuder Preference Record and the other variables measured in this study for the male sample. The achievement motivation test scores were found to be independent of the various interest areas with the possible exception of the computational area of interest. Here a correlation of -.21 ($P < .01$) was obtained but might very probably be a chance significant relationship.

Table 3 shows the correlations among the various ability and achievement tests, the criterion, and n-ach test for the female group. Here again we find that n-ach is independent of Quality Point Average ($r = .025$) as well as the various measures of scholastic aptitude and ability (r's from .051 to .171). The correlation between n-ach and the Cooperative Inter-American Test of Reading, .195, was significant at the .05 level of confidence. Since this

TABLE 1

Correlations and Intercorrelations among the Various Tests of the Freshman Guidance Battery, the Quality Point Average (QPA), and the Test of Achievement Motivation (n-ach).

Group I-Male N = 164

Tests	IA	Q	L	Total	A	Math	QPA	n-ach
Coop IA Reading	-	.511	.638	.781	.544	.164	.179	.031
ACE Q	-	-	.459	.785	.466	.361	.095	.073
ACE L	-	-	-	.828	.634	.166	.199	.127
ACE Total	-	-	-	-	.673	.270	.195	.101
Coop A English	-	-	-	-	-	.279	.250	.154
Math Screening	-	-	-	-	-	-	.250	.045
QPA	-	-	-	-	-	-	-	.064
n-ach	-	-	-	-	-	-	-	-

Note: Correlations $\geq$ .154 and .202 reach the .05 and .01 levels of confidence respectively.

correlation is much too low for any valid predictability and since the interpretation or meaning of the correlation is not readily apparent, it is suggested that it might also be due to chance factors operating in the selection of the sample.

Table 4 presents the correlations of the various test scores and the interest areas on the Kuder Preference Record, Form CM, for the female group. As was true of the male group, n-ach was independent of the various interest areas with the exception of the mechanical scale ($r = -.23$, $P < .05$).

Means on the test of achievement motivation were computed for the high and low achievers from both the male and female groups. This data is presented in Tables 7 and 8. An inspection of these tables reveals that there is no difference in mean n-ach scores between the high and low achievers in either the male or female groups.

Analysis of results. The essentially negative results obtained in this investigation would seem to indicate that the test of achievement motivation has no valid predictive value for use in predicting academic success in a college guidance situation. For this study it can be stated definitely that n-ach is not related to achievement as defined by Quality Point Average for first semester college work. It is doubtful that the test is actually measuring

TABLE 2

Correlations Between the Kuder Interest Areas and the Various Tests of the Freshman Guidance Battery, the Quality Point Average, and the Test of Achievement Motivation.

Group I-Male N 164

Test	Kuder Interest Areas									
	Out	Mech	Comp	Sci	Pers	Art	Lit	Mus	S.S.	Cler
Coop IA Reading	.010	.057	.030	.232	-.048	-.113	.265	.107	-.206	.003
ACE Q	.088	.202	.145	.298	-.268	-.109	-.135	.063	-.076	-.068
ACE L	.051	.063	-.129	.151	-.088	.024	.224	.076	-.045	-.143
ACE Total	.061	.132	.012	.268	-.188	-.065	.141	.073	-.131	-.107
Coop A English	-.040	.056	-.067	.120	-.058	-.063	.162	.098	-.103	-.059
Math Screening	.072	.172	.238	.212	-.223	-.052	-.171	-.082	-.067	.057
QPA	-.020	.086	.135	.046	.027	-.129	.059	-.066	-.145	.057
n-ach	-.013	.109	-.210	.135	.019	-.052	-.002	.051	-.011	-.081

Note: Correlations $\geq$ .154 and .202 reach the .05 and .01 levels of confidence.

TABLE 3

Correlations and Intercorrelations Among the Various Tests of the Freshman Guidance Battery, the Quality Point Average (QPA), and the Test of Achievement Motivation (n-ach)

Group II-Female N 110

Tests	IA	Q	L	Total	A	Math	QPA	n-ach
Coop IA Reading	-	.588	.766	.765	.533	.216	.339	.195
ACE-Q	-	-	.624	.854	.531	.308	.349	.125
ACE-L	-	-	-	.934	.642	.278	.302	.137
ACE-Total	-	-	-	-	.652	.360	.344	.139
Coop A English	-	-	-	-	-	.213	.478	.051
Math Screening	-	-	-	-	-	-	.063	.171
QPA	-	-	-	-	-	-	-	.025
n-ach	-	-	-	-	-	-	-	-

Note: Correlations $\geq$ .188 and .247 reach the .05 and .01 levels of confidence respectively

TABLE 4

Correlations Between the Kuder Interests Areas and the Freshman Guidance Battery, Quality Point Average, and the Test of Achievement Motivation.

Group II-Female N 110

Test	Kuder Interest Areas									
	Out	Mech	Comp	Sci	Pers	Art	Lit	Mus	Soc. Ser.	Cler
Coop IA Reading	.132	.107	-.104	-.027	-.057	.325	.049	-.058	-.071	-.292
ACE Q	.195	.041	.090	.060	-.304	.296	-.028	-.083	.058	-.170
ACE L	.217	.070	-.091	.020	-.139	.295	.135	.012	-.093	-.344
ACE Total	.243	.071	-.021	.045	-.243	.322	.066	-.034	-.022	-.308
Coop A English	.103	.098	-.102	-.032	-.080	.187	.138	.041	-.222	-.112
Math Screening	.000	-.061	.149	.241	-.048	.164	-.014	-.104	.038	-.194
QPA	-.067	-.056	-.022	-.238	.000	.268	.016	.082	-.047	-.074
n-ach	-.139	-.232	-.021	-.117	.073	.073	.121	.015	.147	-.112

Note: Correlations = .188 and .247 reach the .05 and .01 levels of confidence.

TABLE 5

Means and Standard Deviations for the Freshman Guidance Battery, the QPA, and the Test of Achievement Motivation (n-ach).

Group I-Male N 164

Tests	Means	Standard Deviations
Coop IA Reading	34.35	6.63
ACE Q	42.84	9.28
ACE L	58.54	16.54
ACE Total	100.77	20.92
Coop A English	47.49*	9.55*
Math Screening	15.59	8.56
QPA	1.887	.688
n-ach	6.13	4.57

* Cooperative scaled scores. All other scores are raw scores.

TABLE 6

Means and Standard Deviations for the Freshman Guidance Battery, the QPA, and the Test of Achievement Motivation (n-ach).

Group II-Female N 110

Tests	Means	Standard Deviations
Coop IA Reading	34.35	7.05
ACE Q	40.50	10.27
ACE L	58.22	14.33
ACE Total	98.55	22.18
Coop A English	54.83*	11.35*
Math Screening	12.33	8.85
QPA	2.344	.75
n-ach	6.73	4.78

* Cooperative Scaled Scores. All other scores are raw scores.

achievement motivation if we can define achievement motivation as an internal drive state pushing an individual ever onward toward a higher goal.

A review of the literature indicates that the instrument is sensitive to varying degrees of experimental manipulation of achievement-oriented conditions at the time the test is taken. However, the n-ach score does not appear to be related to achievement in terms of increased productivity over and above an individual's ability level. The following question remains to be answered: If the n-ach test of achievement motivation is not measuring achievement motivation, what is it measuring?

There is always the possibility that the resulting score is a measure of an individual's concern over achievement but not necessarily his drive to achieve. It is a well-known observation that although many people are very concerned about achievement and are worried about not getting ahead in the world, they are nevertheless complacent and have no drive or motivation to do anything except worry about it. Since the scoring categories (see Appendix A) very definitely involve an individual's concern over achievement as projected into his fantasy stories around structured stimulus pictures, it is not surprising that the n-ach score is not related to achievement in terms of increased output.

TABLE 7

Means on the Test of Achievement Motivation for High (above 2.5 QPA)and Low (below 1.2 QPA) Achievers for Group I-Males

	n-ach	N
High Achievers	6.35	34
Low Achievers	6.33	36

Mean difference: .02 (not significant)

TABLE 8

Means on the Test of Achievement Motivation for High (above 2.5 QPA) and Low (below 2.0 QPA) Achievers for Group II-Female

	n-ach	N
High Achievers	7.16	50
Low Achievers	6.51	41

Mean difference: .65 (not significant)

One other dimension concerning the question of what the resulting n-ach score is actually measuring deserves consideration from the results of this study. There appears to be a slight trend for n-ach to correlate with certain verbal factors. For the male sample n-ach correlated significantly with English Test A, an achievement test in English grammar. This relationship did not exist for the female sample. For the female sample n-ach correlated significantly with the Coop IA Reading Test, a test of speed and comprehension in reading. This did not hold up for the male sample. However, neither sample correlated significantly with the linguistic score on the ACE. Ricuitti (15, 16) found moderate correlations between n-ach and a word count on the tests of achievement motivation which would seem to indicate that this whole problem of relationships between n-ach and verbal factors deserves further study.

The correlations between n-ach and the Kuder interest areas would seem to bear out this trend. n-ach correlated significantly in a negative direction with the computational scale for the males, and with the mechanical scale for the females. Occupations represented by an interest in these two areas are essentially non-verbal in nature. It must be pointed out that n-ach did not correlate for either sample with the literary or persuasive

scales, both of which represent an interest in occupations of a more verbal nature. As was suggested earlier, since these correlations are low and barely significant, and since many correlations were computed, there is a definite possibility that these correlations are due to chance factors operating in the selection of the samples.

Another aspect that one must consider if he intends to use this test in a practical situation such as counseling and guidance is the very low test-retest reliability, r = .22, reported by McClelland, et al (7). It is not only uncertain what the test is measuring but it fails to measure it consistently. Even if it could be assumed that the test is measuring achievement motivation the low reliability of measurement makes the present instrument of little value for use in predicting academic or occupational success.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary. The general purpose of this investigation was to determine the predictive value of the test of achievement motivation for entering college freshmen, male and female, at the University of Houston for use in a counseling and guidance situation.

Data was collected for a sample of one-hundred-sixty-four males and for another sample of one-hundred-ten females. Pearson product-moment correlations were computed between the various ability and achievement tests in the freshman guidance battery, the n-ach scores, and the criterion (Quality Point Average). Mean differences on the test of achievement motivation were computed for the high and low achievers in both the male and female groups. The dorrelation between n-ach and Quality Point Average was found to be.064 for the male group and .025 for the female group. No significant difference on the n-ach scores were found between the high and low achievers in either group.

Conclusions. The following conclusions are based on the findings of this study:

1. The achievement motivation test is unrelated to academic success as measured by the Quality Point Average

for the first semester in college.

2. The achievement motivation test is independent of measures of scholastic aptitude, various ability measures, and vocational interest areas.

3. The test of achievement motivation, in its present stage of development, does not appear to be sensitive to the varying degrees of achievement motivation manifested by such widely separated groups as high and low achievers in college.

Recommendations. The investigator believes that certain recommendations for further research are in order because of the limitations of this study and because of the imposing need for a valid test of achievement motivation in counseling and guidance situations as well as many others.

The heterogeneity of the samples, along with the counseling interview, tended to lower the correlations. It is also obvious, in view of the essentially negative results of this study, that grades, as such, are too limited a criterion against which to validate a projective test of achievement motivation. It is suggested that a much broader criterion of scholastic achievement beyond course grades be used in future validating studies.

Further research is also needed as to the validity of particular picture content. It was not the purpose of

this study to investigate this aspect of the problem, but it was noticed, during the scoring, that certain pictures seemed more sensitive to the aroused achievement motivating conditions under which the tests were taken.

Along with this, additional research as to the validity of particular scoring categories and the present scoring system as a whole would appear to be warranted.

Finally, in view of the very low test-retest reliabilities reported (7, $r = .22$) and the fact that the test of achievement motivation has demonstrated practically zero validity in predicting academic success, it is considered that further research to develop a more reliable measure is necessary before further validation investigations are attempted.

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APPENDIX

APPENDIX A

n-ACHIEVEMENT SCORING CATEGORIES

I. ACHIEVEMENT IMAGERY / 1 (AI)

1. Competition with a standard of excellence one or more characters engaged in competitive activity - not pure aggression - where winning or doing as well or better than others is actually
   (1) stated as the primary concern.
   (2) implied by affective concern over goal attainment
   (3) indicated by a certain type of instrumental activity
   (4) assumed by meeting self-imposed requirements of good performance.
2. Unique accomplishment--one or more characters involved in accomplishing something out of the ordinary which will mark him as a person of achievement - inventions, discoveries, artistic creations, etc.
3. Long-term or career involvement--
   one or more characters involved in attainment of a long-term achievement goal. Being successful in life, becoming a machinist, doctor, lawyer, successful business man - unless it is made explicit that another goal is primary. Routine or limited tasks must be specifically stated as relating to a

long-term achievement goal and not be inferred.

II. DOUBTFUL ACHIEVEMENT IMAGERY 0 (TI)

Stories containing some references to achievement but which fail to meet one of the three criteria for AI.

III. UNRELATED IMAGERY -1 (UI)

Stories in which there is no reference to an achievement goal.

IV. STATED NEED FOR ACHIEVEMENT /1 (N)

Someone in the story states the desire to reach an achievement goal for himself - wants, hopes, determines, etc.

V. INSTRUMENTAL ACTIVITY /1 (I)

Overt or mental activity by one or more characters indicating that something is being done at the present time toward attaining an achievement goal. There must be an actual statement of activity within the story independent of both of the original statement of the situation and the final outcome of the story - not a description of previous acts.

VI. POSITIVE ANTICIPATIORY GOAL STATES /1 (CA/)

Someone in the story anticipates goal attainment - thinking about the success he will achieve, expects that the invention will work, dreams of himself as a

great surgeon - must be related to the achievement goal of the story.

VII. NEGATIVE ANTICIPATORY GOAL STATES /1 (GA-)

Someone in the story anticipates goal frustration or failure - worried about failure, concerned over the possibility that the invention won't work, expects the worst, or is wondering whether or not he will succeed - must be related to the achievement goal of the story.

VIII. PERSONAL OBSTACLES OR BLOCKS (BP) /1

The progress of goal-directed activity is blocked or hindered in some way and is located within the individual - lack of confidence, a conflict to be overcome, inability to make decisions, responsibility for some breakdown in equipment or some past failure - distinction must be made between apparent obstacles which really define the achievement goal of the story and real obstacles to on-going-goal-directed behavior.

IX. ENVIRONMENTAL OBSTACLES OR BLOCKS /1 (EW)

When the block to be overcome is part of the environment or when there is some doubt about whether it is located in the individual or in the world.

X. NURTURANT PRESS /1 (NUP)

Forces in the story, personal source, which aid the

character in the story who is engaged in on-going achievement - related activity. Someone aids, sympathizes with, or encourages the person striving for achievement. The assistance must be in the direction of the achievement goal and not just incidental to it.

XI. POSITIVE AFFECTIVE STATES +1 (G+)

Affective (emotional) states with goal attainment, active mastery, or fulfillment of the achievement - directed activity - a positive affective state associated with active mastery or definite accomplishment - "He enjoys painting." "He is proud of his accomplishment.", "They are very satisfied with their invention.", or definite objective benefits as a result of successful achievement which allow the inference of positive affect - "His genius is recognized by millions; the people are proud of the inventor; fame and fortune were his; he received a raise in pay."

Scored only when there is a definite statement of positive affect associated with the achievement directed activity or a statement of objective benefits above and beyond the statement of successful instrumental activity.

XII. NEGATIVE AFFECTIVE STATES /1 (G-)

When someone in the story experiences:

(1) A negative state associated with failure to attain an achievement goal: "He is disturbed over his inability,"; "He is discouraged about past failures,"; "He is disgusted with himself,"; "He is despondent, mad and sorry." or

(2) The objective concomitants of complete failure and deprivation which allow the inference or negative affect. "He became a drunken bum."; "He became the laughing stock of the community."

XII. ACHIEVEMENT THEMA /1 (ACH TH)

When the Achievement Imagery is elaborated in such a manner that it becomes the central plot or thema of the story. Whether or not the whole story is an elaboration of the achievement behavior sequence. If there is a major counter-plot, or if there is any doubt about the achievement imagery being central to the plot, then Ach Th is not scored.