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THE ACHIEVEMENT MOTIVE AND INCENTIVE VALUE
FOR
HIGH AND LOW LEVELS OF ACHIEVEMENT SUCCESS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

by

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The Ohio State University

1963

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Since 1948 there has been a large volume of research by McClelland, Atkinson, and others on the concept of the achievement motive. This research has a great deal of comparability since a uniform definition of the concept has usually been employed. This definition was essentially the scoring categories for thematic apperceptive stories that had been found to differ in frequency between stories of unaroused subjects and subjects whose achievement motivation had been experimentally aroused (McClelland, Clark, Roby, & Atkinson, 1949). Achievement motivation, measured in this way, has been studied in relation to a variety of phenomena (Atkinson, 1958a; McClelland, 1961; McClelland, Atkinson, Clark, & Lowell, 1953). This research has been outlined as having investigated the effects of experimentally aroused motives on fantasy as a first phase in developing the instrument, studying the internal characteristics of the instrument itself, its relationship to early learning experiences, its relationship to situational behavior, and its relationship to broad societal conditions (Atkinson, 1958a, pp. 3-5).

The problems proposed for the present research probably best fit into this scheme in terms of: first, the effects of experimental arousal on achievement fantasy; and second, the behavioral correlates of motive strength. Previous studies dealing with experimental arousal of achievement motivation largely emphasized incentives relating to a person's
need to "do well" in a general, abstract sense. The general definition of the achievement motive was derived from a distillation of the scoring categories for the motive and the nature of arousal cues which referred to such traits as capacity for success, a measure of what a man can do, intelligence, and leadership capacity. The construct is thereby defined as the strength of a person's disposition to strive for a standard of excellence (Atkinson, 1957; McClelland, 1958d, p. 520; McClelland et al., 1949, pp. 66 and 76).

However, a close look at the methodology in a few studies suggested that more attention needed to be paid to the nature of cues or incentives since a few groups of people were found to respond with little achievement fantasy to the usual abstract incentives. These subjects were more responsive, however, to particular incentives that one can infer aroused their particular achievement motive more fully (Atkinson, 1958b, p. 611; Douvan, 1956; McClelland, 1958b, p. 13; Rosen, 1956). These kinds of data suggested that the whole question of the nature of achievement incentives needed further investigation, particularly the dimensions on which the incentive can vary. These investigations would be related to such problems as the similarity of the achievement motive among people. Some data suggested that in lower-class populations the most effective incentives are concrete rather than abstract in nature (Douvan, 1956; McClelland, 1961, pp. 328, 378-9, and 346; McClelland et al., 1958, pp. 188, 196, 199, and 203; Rosen, 1956; Winterbottom, 1958).

Most studies of behavioral correlates of the achievement motive have demonstrated that it is directly related to level of performance (French, 1955; French, 1958d; Karolchuck, 1956; Marlowe, 1959; Morgan,
There is also evidence that achievement motivation is positively related to social status and general life situations although this relationship is less well documented (McClelland, 1961, pp. 317-22, and 391; Rosen, 1956). Both sets of findings suggest that the prediction of a positive relationship between economic independence and strength of achievement motive is tenable.

The concern of the present study was with the particular problems of motive arousal in a Veterans Administration domiciliary population whose achievement motive strength was assumed to be generally low. If the motive were present in any strength, it was further assumed that their motive was not as sensitive to the usual incentives used in arousing achievement motivation. The domiciliary population is rather broadly defined as men who are unable to support themselves. The usual reasons advanced for this inability are physical and mental incapacity. The assumption made in this study was that the source of some of this "mental" incapacity could be considered within the concept of the achievement motive. It was assumed that the achievement motive has some relation to economic independence, and the domiciliary members' inability to support themselves suggested a low level of motive strength and/or a lack of response to the usual achievement incentives offered in the American society. In contrast, a group of lower-class but economically independent subjects were believed to have a greater strength of achievement motive.

The approach to these problems was to study predicted differences in strength of achievement motive between groups of subjects differing in state of economic independence. The responsiveness of these groups to
incentives varied in terms of abstractness was also investigated. The findings were expected to have both theoretical and practical value. The data should give some indication of the importance of the achievement motive as a determinant of the life status of an individual (i.e., extent of self-support). On a more practical level, the results were expected to provide information on the general strength of the achievement motive in the domiciliary population in comparison with a more normal group.

It was also anticipated that the data would furnish some information concerning characteristics of the class of incentives called achievement incentives, particularly whether they vary along a dimension of abstractness. Incentives are an integral part of the concept of achievement motivation, and information concerning cues that result in motive arousal should lead to an increasing specification of the definition of the concept. The question of whether low level vocational achievers differ from the general population in the quality of incentives to which they are most responsive was also investigated. Conclusive results would be potentially useful for purposes of controlling achievement related behavior.

Little information was available on the characteristics of motives to achieve in the domiciliary population. That this is an important problem in this population is almost axiomatic. Further, extending the data on the achievement motive to such a population would increase knowledge concerning the useful application of both the concept and the measure.
Summary Review of Theory and Research on the Achievement Motive

The philosophy of the early approach to the study of the achievement motive was described as semi-empirical. The first investigators did not start with a crystallized theory about the nature of motives. They began with a general theoretical idea and became more precise in their conceptualization through measurement (McClelland, 1958b, p. 8).

The early experiments were used as a basis for development of the measure of the motive. The general methodology for this research was to first arouse the achievement motive and then to compare the differences in fantasy behavior between non-aroused and aroused subjects. The subjects' achievement motive was assumed to be aroused, on an a priori basis, by "instructing" them that the tests they were taking measured a person's intelligence, leadership, and ability to organize material, and by stating that students from another school had excelled on the test. These tests consisted of the subjects performing a writing task in a normal manner for one minute and then backward or in some other unusual manner for one minute. They were also made to subjectively "fail" the tests through the reporting of extremely high norms. In a non-aroused or "relaxed" condition, the experimenters were introduced as graduate students who were trying out some recently devised tests, making clear that the tests and not the subjects were being tested. Further, subjects
filled out a questionnaire including self-estimates of class standing, I.Q., and self-estimates of general intelligence.

After taking these tests, all subjects wrote Thematic Apperceptive stories to pictures projected on a screen. The stories were scored according to a system used in a previous experiment on hunger (Atkinson & McClelland, 1958) with some modifications. Differences in frequency of certain response categories were found between aroused and relaxed groups. The number of such categories in a subject's stories were algebraically computed as his need achievement (nAch) score. This score was considered a measure of his strength of achievement motivation. Categories decreasing from the relaxed to aroused conditions were scored -1, and those increasing were scored +1. Mean scores increased significantly from the relaxed to a "neutral" or task-oriented condition to the aroused condition (McClelland et al., 1949). These scoring categories became the operational definition of need for achievement. Through further research, another scoring system was developed and is described in two publications, McClelland et al., 1953, and McClelland et al., 1958. A summary of these later categories is in the Appendix, pp. 98-100.

This research in developing a measuring instrument was the basis for future investigations of the characteristics of the achievement motive. Much of the theoretical and research work has been compiled in three publications: *The Achievement Motive* (McClelland et al., 1953), *Motives in Fantasy, Action, and Society* (Atkinson, 1958a), and *The Achieving Society* (McClelland, 1961). As mentioned in the previous chapter, research on achievement motivation has been concerned with a
wide variety of variables. The following might best be considered a sample of the relationships found between amount of achievement motivation and other variables.

Strength of achievement motive has been found to be related to general orientation toward achievement situations. Airmen high in nAch chose competent non-friends as future work partners significantly more often than did high need for affiliation subjects; there was a preponderance of choice of non-competent friends for all subjects. The protocols used for deriving need scores in this study were obtained by use of the French Test of Insight. This test consisted of statements about people which subjects then explained. Scoring categories differed somewhat from the scoring systems mentioned above (French, 1956). This test was used in the present study and is described more fully below. In a study by Atkinson (1953), high nAch subjects showed increasing recall of incomplete tasks as it became increasingly clear under the different experimental conditions that incompletion meant failure. Low nAch subjects recalled fewer incomplete tasks; both types of subjects showed increasing recall of completed tasks. These results were interpreted as having indicated differing proportions of motives to approach success or avoid failure and, hence, differing instrumental value of recall of the tasks (Atkinson, 1953). Level of aspiration has been found to be positively related to nAch scores of college students before feedback affected differences between past and predicted scores (Kausler & Trapp, 1958a), while children and college students high in nAch have shown more preference for goals of moderate risk than low nAch subjects (Atkinson, Bastian, Earl, & Litwin, 1960; McClelland, 1958c). The high nAch college
students had higher expectations of performance relative to other students than did the low nAch students (Atkinson et al., 1960).

Generality of achievement motive in relation to social class was investigated by Douvan (1956) by comparing results under abstract versus money plus abstract incentive conditions. She found that the differences in nAch scores between the two incentive conditions were significantly greater for the working-class than for the middle-class subjects. Also, middle-class subjects scored significantly higher than working-class subjects under the abstract condition. Further, her subjects who were classifiable as working class but who did not so identify themselves did not differ in mean nAch scores from the middle-class subjects. McClelland cited similar results suggesting a slight tendency for upward social mobility to be positively related to nAch (McClelland, 1961, pp. 317-22).

Need for achievement has also been related to pathological variables. Mahone (1960) found that college subjects who scored low in nAch and high on a scale of conscious ratings of felt interference of anxiety were more often judged to make unrealistic vocational choices in terms of both their interests and abilities. They also showed greater discrepancy between self-perceived ability and self-perceived ability needed for a given vocation. These low nAch, high anxiety subjects were least accurate in estimating their own American Council on Education Test percentiles. These percentiles showed a significant negative relationship with anxiety scores. Significant but low negative relations between nAch and the Taylor Manifest Anxiety Scale were found by Kausler and Trapp (1958) ($R = -0.22$). Finally, Brown (1953) found that correlations between rigidity and authoritarianism scores were greater when experimental
procedures were ego-involving rather than relaxing. Also, high rigidity and authoritarianism scores were associated with achievement anxiety, assuming college subjects who scored as a "middle" group in nAch were anxious about achievement.

Other results showed that high nAch has also been related to perception of time as fast moving (Green & Knapp, 1959; Knapp & Garbutt, 1958) and to greater resistance to opinion change in conformity research (Krebs, 1958).

In summary, these results describe the process of development of the measure of the achievement motive and sample the results of investigations into the relational fertility of the measure, to use McClelland's term (McClelland, 1961, p. 20). These results at least showed that the measure related to some of the variance in a wide variety of behavior. Data most pertinent to the present study are presented in the next section.

**Background and Rationale of the Present Study**

**Nature of Achievement Incentives**

Data such as those sampled above were the basis for developing inferences concerning the variables measured and their relationships with behavior. Previous authors state that the scoring categories themselves reflect the characteristics of the motive aroused and provide face validity for the instrument (Atkinson, 1958b; McClelland et al., 1949). They are briefly described in the Appendix, pp. 98-100, along with special scoring decisions for the present study, pp. 101-102.
The achievement motive is generally defined as a relatively stable, latent disposition within the individual to compete with a standard of excellence. Successful competition is considered the goal of the motive, resulting in a feeling of satisfaction. Its name is really a statement of the aim or goals of the motive, or the conditions that will satisfy it (Atkinson, 1957; Atkinson, 1958a, pp. 267 and 435; Atkinson, 1958b, pp. 597-98 and 609; Atkinson, 1958c, p. 303; Atkinson & Reitman, 1956; McClelland, 1958d, p. 520). Since goals are forward-looking, the motive is considered teleological in nature (McClelland et al., 1949).

Inherent in the definition of the achievement motive as a latent disposition is the assumption that certain conditions or cues in a situation affect its arousal. These cues are identified as (a) cues in the situation that arouse within the person a subjective expectancy or probability that a given response will result in fulfillment of the achievement motive; (b) cues that function as incentives or potential satisfiers of the motive and arouse personal valuations of these cues (Atkinson, 1958b; Atkinson & Reitman, 1956; Haber & Alpert, 1958). It should be pointed out that these statements imply two more intervening variables that have an integral relationship with the concept of achievement motive itself but are considered conceptually separate.

A theoretical relationship between achievement fantasy and aroused motivation was derived from these speculations. The general hypothesis is that fantasy results from the same variables as any other behavior that is a result of aroused motivation. These variables are internal in nature and are aroused by cues in the external situation that allow the subject to perceive that the motive can be satisfied in that situation.
Atkinson, 1958a, p. 435; Atkinson, 1958b; Haber & Alpert, 1958; McClelland et al., 1949). They are the basic achievement motive itself (Ma), the individual's subjective expectancy (Es) of achievement goal attainment in the situation, and the incentive value (Iv) of the available achievement goal.

The role of incentives and internal incentive values are the focus of one aspect of this research. With the exception of Atkinson's (1958a, p. 435) work, previous discussions of arousal of expectancies seemed to refer to both Iv and Es. They were not clearly distinguished although there may have been more emphasis on Es. Also, Iv was not always described as a variable arousable by external cues. Incentives or incentive values (Ivs) must always be implied when authors discuss expectancies, for there must be some representation of incentives or the expectancy is nil. Iv can be thought of as only one aspect of expectancy, but it can obviously be conceptually separated; this is because the available goal in the objective situation has to have a personal, or subjective value to the person regardless of his Es. Iv and Es may vary independently although this is in conflict with Atkinson who states that they vary inversely with one another. His theory and other data concerned with this question are discussed below.

It is plausible to think of this subjective value as being aroused also, as with arousal of Es. This personal aspect of the incentive has not been thoroughly examined; in fact, the concept of the incentive or goal was usually only mentioned, either in theory or research (Atkinson, 1958b; Haber & Alpert, 1958; Veroff, Wilcox, & Atkinson, 1953). However, the incentive must really be considered an integral part of the achievement
motive. In this sense, data concerning the role of the incentive would then serve to clarify the definition of the concept of the achievement motive. It is this aspect of the total concept that was part of the focus of the present study.

Some available theory and data bearing upon characteristics of the incentive had particular significance for the present study. The definitions of the achievement motive and/or the incentive generally treat incentives as homogeneous events. There seems little concern for the question of individual differences in effective achievement arousing incentives. Further, they are generally considered abstract in nature, "successful competition with a standard of excellence" (McClelland, 1958d, p. 520). In this definition, it is successful competition qua successful competition that counts. This was implicit in most of the research on the achievement motive when the incentive cues offered in the achievement arousing instructions were those of "intelligence, executive capacity, beating the other school," (Atkinson, 1957; McClelland et al., 1949, pp. 66 and 76). Atkinson (1958c) directly states that money is an incentive for a different motive than achievement. McClelland (1961, p. 47) also alludes to abstract goals and mentions other types of goals such as money as arousing low need achievers. Profit is considered not to be an end but primarily a measure of achievement (McClelland, 1961, pp. 291-92). On the other hand, McClelland (1961, p. 112) also seems to allow for the possibility of differences in goals as does Atkinson (1958b, p. 610). A study by French (1955) indicated that "free time" is a sufficient condition for increasing nAch scores of subjects hard pressed for time. Some of these seeming differences may be related to
differentiation between a generalized achievement motive and an achievement habit which is considered to be tied by language to particular situations and rewards (Atkinson, 1958b; McClelland, 1958a, p. 446). This thought is also explicit in the assumption of individual responsiveness to different pictures (Atkinson, 1958b).

Further, there were also other fairly strong indications that there are important individual differences in the type of incentive to which one will respond. Reference to "social acceptability" was found to be a more salient achievement motive arousal cue for American women (McClelland, 1958b, p. 13) than references to intelligence, for example. Chemistry majors responded with more achievement fantasy to chemistry laboratory scenes in fantasy stimuli than did physical education majors while both responded equally to athletic scenes (Atkinson, 1958b, p. 611). McClelland (1961, p. 260) notes that the appropriateness of picture content may depend on individual characteristics. Other data related to individual differences in responsiveness can be found in Haber & Alpert (1958).

Some data related to individual differences indicate that subjects vary as to degree of abstractness of incentives that are most effectively arousing. As mentioned above, working-class subjects responded with more achievement imagery when a monetary incentive was added to the usual abstract incentives (Douvan, 1956). With abstract or neutral conditions, lower-class subjects tended to have lower nAch scores than did middle-class subjects (Douvan, 1956; Rosen, 1956). Candy and a light flash were more effective reinforcement situations than a light flash by itself for lower-class children in a discrimination learning experiment.
by Terrell, Durkin, and Wiesley (1959) while middle-class children learned equally well under either condition. McClelland reported a study by Mischel (1960) suggesting that middle-class children are more willing to work for a delayed reward than working-class children. Examples of performance response of working-class and female subjects to monetary incentives can be found in Hoffman, Mitsos, & Protz (1958) and Atkinson (1958c). Also, some of the scoring categories for nAch include fairly concrete goals (McClelland, 1958, pp. 188, 196, 199, and 203).

It would seem at least from these data that a simple abstract definition, "standard of excellence," is probably insufficient. The variations in stimuli related to nAch scores should be considered as achievement incentives. This would follow if two assumptions are accepted: first, that the achievement motive is a disposition to respond to an achievement incentive, and that if the achievement motive is aroused, resulting in achievement behavior, the incentive is an achievement incentive; second, if the measure is accepted as a measure of achievement motivation, or as the operational definition of achievement motivation, then an incentive that results in achievement responses has aroused the motive and is therefore an achievement incentive.

Focusing primarily on the construct itself, it is reasonable to propose that it should be considered a more heterogeneous construct in terms of goals of the motive than has heretofore been made explicit. Most of the data suggested qualitative differences in goals. It also seems reasonable to predict from these latter data that some of this heterogeneity is related to variability between people in terms of the degree of abstractness of incentive that will arouse their achievement motive to the greatest degree.
Some data and speculations suggested several possible sources of differences in responsiveness to abstract and concrete incentives. Douvan's (1956), Terrel's (1959), and Mischel's (1960) results suggested that this variation is related to social class and may be reflective of an inability to foresee values of more abstract goals even in terms of their leading to other more concrete goals. Further, since persons with high need achievement as measured in the usual way seem to have a longer time perspective, they may be more amenable to long-range or abstract goals, while low scorers may only be responsive to more immediate concrete goals (McClelland, 1961, pp. 328 and 378). McClelland (1961, p. 346) reported that achievement demands by parents made before and after eight years of age correlated with low nAch. It is possible to speculate from this that late achievement demands may result in more concrete incentive values. McClelland (1958a, pp. 447-48) speculates upon the possibility that the achievement motive develops at a time when the individual may only vaguely learn that achievement behaviors result in "something good," a very abstract event. Later achievement training may allow the individual to perceive rewards as more concrete events. Another work by Winterbottom (1958) suggested that the relative lack of physical rewards for success by mothers of children scoring low in nAch might result in a more concrete value orientation as compensation. Cognitive expectancies differ in kind and strength and depend on recent life history according to Atkinson (1958b). Rosen (1956) suggests that value orientation may define the area in which need for achievement is expressed. A possible implication from Rosen's work was that indications of early independence training for some ethnic groups
without achievement training may result in a more concrete value orientation (Rosen, 1959).

A summary of these possible sources does not fit into a clear pattern. Concrete orientation might be related to social class variables, and the short-time perspective of low nAch subjects may be related to lower-class attitudes. Speculations concerning late achievement demands were based upon the assumption that the achievement motive usually develops at a time when only an abstract reinforcement is perceived. Late achievement training may be more typical of the lower class. Lack of physical affection as an achievement reinforcement was considered as possibly leading to a concrete orientation as compensation. Such an orientation was also related to early independence training without achievement training. While most of these speculations were related to early life experiences, it was also suggested that expectancies were dependent upon recent life history.

Even though this information does not lead to any coherent theory of the development of a concrete orientation, much of it seems to be related to characteristics of domiciliary members. They are presently of, and mostly from, the lower class. Lower-class child rearing is commonly described as more laissez faire than that of the middle class. Any achievement demands may come when the child is able to perceive more than the abstract reinforcement of "something good." It can be speculated that this type of situation was even truer in the history of domiciliary members than of the usual working-class subject. Members seem to exemplify a short time perspective. At this time in their lives, they have little contact with their families, possibly because of an
early affectionless home life. Further, their recent histories and present status would not easily result in expectations of achieving the abstract goal of being a "success in life." Whatever the case, it is reasonable that most of the information concerning abstract orientation and strong achievement motivation is not true of domiciliary members. Such events seem truer of the middle-class, college student subject with whom most of this research has been done, but that different histories result in a qualitatively different achievement motive.

The hypothesis of a strong concrete orientation for domiciliary members is also based upon indications that they may exemplify this kind of orientation to an even greater degree than the "working" class. The rationale for this would be that to build a stable work pattern an individual would need to value some sort of abstract event such as being a "success in life," "being able to do well" in a general sense, or value a stable work history in itself, even though the level of the work itself may not be very high. These must be valued at least as highly as the concrete reinforcement available through work. Otherwise, focus on concrete reinforcements would seem to allow the individual to be less concerned with long-term and/or less concrete goals. In this case, if more immediate needs are satisfied, there may be little motivation to continue working, resulting in absences, lower work rate, discontinuance of education, or similar behaviors.

Without knowledge of reinforcement histories or at least other knowledge concerning domiciliary members, any prediction concerning their incentive orientation must be tentative. A relationship is predicted between domiciliary status and fantasy response to a concrete incentive.
This was based upon the previous speculations concerning the development of an abstract or concrete incentive value orientation and its relation to job stability. The particular applications of these speculations are further based upon the possibility that reinforcement histories of domiciliary members were of the type to result in a concrete orientation.

Nevertheless, some self-report data from domiciliary members does imply an inability to persevere in long-term tasks. Thirty-one per cent of the domiciliary members admitted to having been fired from jobs and, of course, none were supporting themselves at the time. Further, their level of education was 7.73 grades (Veterans Administration, 1961).

Further assumptions on which the hypotheses were based were that domiciliary members would not respond to the usual incentives used in achievement arousal conditions because these have never been incentive factors in their lives. Also, there appear to have been few incentives in their life histories that have aroused their achievement motive, if any existed. Conversely, they might have been responsive to concrete incentives.

As a result of these data and speculations, the present study was designed to test the possibilities of individual differences in the nature of individual achievement motives more fully. It first dealt with hypothesized differential responsiveness to incentives varied along an abstract-concrete continuum of two classes of domiciliary subjects and a group of economically independent but low occupational level Veterans Administration Center employees.
Behavioral Correlates of Motive Strength

The second major concern of the study was with behavioral correlates of strength of achievement motive. This subject has been approached in many ways. For example, response tendencies related to success and failure and feedback have been studied. Children with higher levels of nAch, as derived from a doodle measure of nAch, have been found to take moderate risks while low nAch children preferred either safe or highly speculative risks significantly more often (Atkinson, 1957). High nAch subjects, measured under neutral arousal conditions, were found to be more sensitive to both success and failure words than were low nAch subjects after motivation was aroused (Moultan, 1958). Other data indicated that high nAch subjects responded with higher performance when given "task" relevant feedback, while high need affiliation subjects responded with higher performance to "feeling-oriented" feedback. The reverse feedback resulted in lower performance for both kinds of groups (French, 1958c).

There were many other potential examples of behavioral differences related to amount of achievement motive. Possibly some of the most pertinent results in terms of the present study dealt with excellence or magnitude of performance in relation to strength of motivation. A great deal of the work in this area is contained in McClelland's recent publication, The Achieving Society (McClelland, 1961). Possibly the most important results reported there were the positive relationships found between national levels of achievement motivation and future economic development of a country as a whole.

As would be expected, most of the results in this area dealt with relationships between an individual's nAch and performance scores.
Marlowe (1959) found significant relations between modified nAch scores and a sociometric measure of striving behavior of undergraduate fraternity members. These relations were not found with the Edwards Personal Preference Schedule nor were scores on the Edwards related to the Thematic Apperceptive Measure. In experiments with laboratory-type problem-solving tasks, French (1958d) found that intelligence was more highly related to performance when airmen were above the median on nAch than below, while nAch scores alone were significantly related to performance. In terms of relationships with performance in non-laboratory situations, Morgan (1952) found positive relationships between nAch and point-hour ratio in a study of college students who achieved percentiles of 90 or above on the American College of Education examination. He even found the same relationship when a slightly modified nAch scoring system was applied to a semistructured questionnaire. Further, Chabhazi (1956; Chabhazi, 1960) used a one-picture measure of need for achievement. He was able both to add substantially to the prediction of college of agriculture grades by putting these scores into a multiple regression equation and to significantly correlate grades with nAch scores alone.

Not all results in this area were completely positive. Karolchuck (1956) found incidental learning to be positively related to nAch scores but not the elements of a story to which the freshman high school subjects were directed to attend. In a study with five groups of vocational and academic high school students, Morgan (1953) found that five-week alternate form reliabilities of nAch scores were moderate (rs of .56-.64). Correlations with grades were low to moderate (.04-.47), but reduced to -.21 to .43 when Otis I.Q.'s were partialled out. Correlations with
academic school grades (.16-.47) were generally higher than with vocational school grades (.04-.31). An r of .29 was needed for a P of .05. Correlations of nAch with I.Q. were generally higher in vocational school. The higher the relation between nAch and I.Q., the lower the partial correlation between nAch and grades. These variable results were considered possibly due to unreliability of the criterion and nAch scores and the limited sample sizes ranging from 39 to 61 subjects. Further, four test forms were used which may have had varying effects. It also seemed to the present investigator that the large number of pictures per form (12, 12, 12, and 8 versus the usual 4) may have allowed subjects who would have normally scored low on nAch to introduce more nAch themes. Normally high scorers would have resorted to other themes in the later stories. As backing for this conception, Reitman and Atkinson (1958) found the first four of eight pictures the best predictors of arithmetic performance. In another study of academic performance, Bendig (1958) was unable to relate future college grades to nAch although past grades showed a low but significant correlation. Again, Reitman (1960) was unable to find any relationships between nAch and performance. Variability of response of some experimental groups and the requirement to recall a short story during performance tests were thought to be partially explanatory of results. Finally, McClelland (1961, p. 44) states that high nAch does not necessarily seem related to performance on routine tasks nor is it associated with leadership (McClelland, 1961, p. 55). Some of these negative results may be partially dependent upon the type of motivation aroused at the time of performance. If achievement incentives were used as motivators, some relationships with performance
were found by Atkinson and Reitman (1956); when other motives were presumably aroused, the relationship disappeared.

Probably the most meaningful findings in relation to the second major hypothesis of the present study were relationships found between group status and nAch scores. Rosen's (1956) finding that at least under what were probably "neutral" testing conditions lower-class high school students responded with less achievement fantasy than middle-class subjects has already been mentioned. Further results of this study are pertinent here. A larger percentage of the three highest classes of subjects aspired to a college education, but nAch by itself was not related to such aspirations although achievement value orientations were. nAch was positively related to grades, but achievement values were not (Rosen, 1956). These findings indicated that nAch and presence in college would be positively related because of academic achievement. They also suggested that such a relationship may be confounded with value orientation and social class. A similar concern was investigated by Minor (1958) who found that prestige rankings of preferred occupations and nAch levels of Korean War veterans were positively related. This latter finding seemed to conflict with Rosen's leaving the situation unclear. Since Minor's low nAch groups preferred high and low prestige occupations equally, it may have been that Rosen's subjects were from a generally low nAch group.

Other findings have been more positive in indicating a relationship between nAch and striving for higher life status. A positive relationship between upward social mobility and nAch is referred to by McClelland (1961, pp. 317-22), and in his latest book, he states that results indicate
nAch may be positively related to managerial success within the business profession (McClelland, 1961, p. 270), and that small-time Indian skilled labor entrepreneurs scored higher in nAch than those not using their skills (McClelland, 1961, p. 271).

As can be seen, there were few studies relating achievement motivation to more global indices of achievement success. It is plausible to propose that findings in the present study concerning relationships between nAch and present occupational levels of the subjects might furnish useful additional data.

In summary, these results indicated that nAch generally is related to performance level, social status, and possibly vocational aspiration. This would seem to allow the hypothesis that degree of vocational success at low achievement levels is positively related to nAch scores. However, this particular question has not been investigated.

Data from past research that would indicate the characteristics of domiciliary members' achievement motivation were meager. The only study found that used domiciliary members was concerned with disparity between life goals and present status. The study was based on Helen Peak's disparity theory of motivation and could have applied to any type of subject (Reimanis, 1962). Also, his achievement motivation scoring procedure differed from the usual practice. Filer's attempts to increase productivity of older domiciliary members can be used as an example of the generally low achievement level of these men under normal domiciliary conditions (Filer, 1959; Filer, 1961; Filer, 1962). It can be assumed that the domiciliary members were generally born to lower-class parents. Hence, McDonald's (1956) findings that children of low occupational-level
fathers have lower nAch scores would then lead to expectations of low nAch scores for domiciliary members. Since there seemed to be so little data available, comparisons between domiciliary and self-supporting subjects would be of value.

A Veterans Administration domiciliary population could generally be considered a group of vocational failures. It was assumed that the achievement motive has some relation to economic independence, and their inability to support themselves suggested a low level of motive strength and/or a lack of responsiveness to the usual achievement incentives offered in the American society. These assertions would seem to have some validity even though most domiciliary members are disabled in some way, since their disabilities are often not extensive enough in themselves to have resulted in an inability to support themselves financially. The assumption here is simply that lack of, and/or particular characteristics of their achievement motivation is one of the many variables resulting in the need for domiciliary care.

It is also hypothesized that there are levels of vocational attainment and related levels of achievement motive itself within this population. Many domiciliary members apply for and retain paid, forty-hour per week jobs within the Veterans Administration. Others never even apply. The rationale is that asking for and succeeding at a member-employee job is a symptom of a stronger amount of achievement motive, or that the subject with a stronger amount of achievement motive would be more disposed to want to contribute to his own livelihood. It also seemed self-evident that lack of finances, often obtained by domiciliary members through pensions and disability compensation, would also dispose
a member to want a paid job. It was thought, however, that some portion of the variance in this behavior could logically be attributed to strength of achievement motivation. Further, the fact that some had never had a member–employee job suggested a second group with less strength of achievement motivation although the consideration of other income sources held here also.

The third group of subjects exhibiting a successful but low level of vocational attainment were lower level Veterans Administration staff members, such as housekeeping personnel. The main point concerning these three classes of subjects was that they should exemplify three levels of achievement motive. If a valid measure of their achievement motive was obtained, their nAch scores should vary accordingly.

**Control Variables**

The latter parts of this chapter deal with factors that particularly needed to be controlled in this study and relationships between French's Test of Insight and the usual picture stimuli.

**Expectancy of Success**

It was necessary to first consider the role of subjective expectancies more fully. Even though they were not the focus of this research, they were considered as control factors since they have such a large theoretical role in motive arousal.

As a general statement, it is logical that the subjective expectancy or probability held by a person that a potential act will result in the satisfaction of the motive would have an effect on the aroused motive in
terms of behavior resulting from the arousal. Without arousal of expectancy as a limiting case, there would be no motive arousal. Literature on the subject used the term motivation to signify the interaction of aroused motive, expectancy, and incentive value (Atkinson, 1957; Atkinson, 1960). The resultant behavior tendency, including fantasy response, is then a result of motivation, not simply the motive itself. This idea was developed in a two-factor theory regarding all classes of motivation, including approach and avoidance motives (Atkinson, 1957; Atkinson, 1958b; Atkinson, 1960).

Atkinson (1957; Atkinson, 1960) elaborates this theory in terms of the achievement motive in a manner that had particular meaning for aroused Es. He hypothesizes a motive to achieve success as an approach motive and a motive to avoid failure as an avoidant motive. In his latest writing, these motives are said to operate concommitantly but independently. Total approach motivation is held to be a function of the strength of the motive to achieve success (Mas), the subjective expectancy (probability) of success (Es), and the incentive value of success (Ivs). Total avoidant motivation is a function of the strength of the motive to avoid failure (Maf), the subjective expectancy of failure (Ef), and the negative incentive value of failure (Ivf). He further assumes that at least in our society Ivs is reciprocally dependent upon Es. Furthermore, Ivf is proportional to Es. Finally, Ef is the reciprocal of Es. The resultant motivation is the algebraic sum of the approach and avoidant tendencies. As can be readily seen from this, whether the individual is more strongly motivated to approach or avoid an achievement situation depends upon the relative strengths of the basic motives to avoid failure or achieve success (Atkinson, 1957; Atkinson, 1960).
There was research evidence that suggested some validity to this theory (Atkinson, 1958c; Atkinson et al., 1960; Atkinson & Litwin, 1960; Feather, 1959; McClelland, 1958c; McClelland, 1961, pp. 248 and 251), but again not all the evidence was positive (Murstein & Collier, 1962). Also, the aforementioned research wherein money was used as an incentive, resulting in greater arousal of achievement motivation suggested that these formulations do not necessarily hold true for all achievement situations. These results indicated that achievement incentives that functioned as such for some did not for others. They also suggested that the value of the incentive, money, is not dependent upon the expectancy of success. This would seem to follow since the amount of money offered could obviously be varied independently of the probability of success. This is possibly not true in many real life situations, but it can be accomplished in the laboratory (Douvan, 1956).

The ways in which Es could affect the results of this research are discussed using a multiplicative interaction of Mas, Es, and Ivs as the paradigm for strength of aroused approach motivation, as exemplified by nAch scores. First, if Es is generally lower for the domiciliary group than for the Veterans Administration personnel as might be expected because of generalization from past failures, their nAch scores could be generally lowered for this reason rather than strength of Mas. If Es and Ivs are reciprocally dependent, the differences in amount of aroused motivation would depend upon which group's Es is nearest to .50. It is at this point that the multiplicative result is the highest when Mas is constant. Any deviation of Es from this point would lower total motivation.
Slightly different considerations held if the relationship is not reciprocal. In that case, the higher the Es the higher the aroused motivation although members would probably still have a lower Es. Krugman's (1959) data suggested that domiciliary members' maladaptive level of aspiration behavior may be related to low Es.

The main concern for this research was the control of aroused expectancies in the experimental situation. One focus of the study was the effect of Mas, as measured through fantasy, upon achievement behavior. If Es affects fantasy, there must be some means of holding its effect constant. Most research in the area seemed to assume that Es was randomized between groups, if it was considered at all. As mentioned above, this might not have been feasible for this study.

The present study attempted to control Es by outlining the situation as one wherein anyone could succeed through effort. This was further checked by measuring the subjects' estimates of their level of performance and relating them to nAch scores.

Intelligence

Intelligence was another factor to be considered in comparing domiciliary and economically independent groups because of possible effects of verbal ability and possible relations between nAch and I.Q.'s if the latter were considered as an achievement measure. French's (1958d) finding that intelligence was more related to performance at upper nAch levels has been mentioned above. However, several other studies found no direct relationship between nAch scores and intelligence test scores (Mahone, 1960; McClelland, 1958c; McDonald, 1956). An exception to this
was Morgan's (1953) work, mentioned previously, which suggested that possible relationships should be checked.

**Reliability**

Another concern was the reliability of nAch scores. In terms of test-retest stability, Kagan and Moss (1959) obtained moderate but significant correlations between eight and eleven and eight and fourteen years of age but not between eleven and fourteen years of age. They used a modified scoring system with regular TAT stories. Morgan's (1953) alternate form reliabilities have already been reported, but he also reported an interscorer r of .89 that was pertinent to the scoring problem. Veroff, Atkinson, Feld, and Gurin (1960) reported a median Rho of .77 for a national sample of protocols, and when scorers were trained with expert scorers including many new pictures, Rhos were .89, .77, .91 for three checks respectively. In an extensive study of the nAch scoring system, Feld and Smith (1958) reported median Rhos of .87 and .82 in comparing experts' with trainees' scores after only 12 hours of study with a training manual. These Rhos were particularly high when it is noted that the scores were based upon only one-picture protocols. The lower Rho was for novel pictures and seemed to be characteristic when picture stimuli were changed. These results indicated both stability and inter-scorer reliability of the measure.

**Test of Insight**

An important concern in this study was the measure of achievement motivation to be used. Most of the theory and experimental results discussed above were based upon work that used the Thematic Apperception
Test type of stimulus to elicit fantasy. However, many potential domiciliary member subjects seemed unable to respond to the pictures at all or only gave extremely short descriptive responses in pretrials. It may have been that this was because of lack of intellectual capacity. Another possibility was that the subjects were exhibiting a generalized withdrawal from environmental stimulation. In this case, they would be fairly unresponsive to most stimuli, including Thematic Apperception Test pictures.

It was thought that the stimuli developed by French (1958a) would be easier for domiciliary members because the responses called for were somewhat more specific. This measure was developed to handle similar problems of meager responsiveness as encountered in the present study (French, 1958a). An obvious question concerning their equivalence was then raised. This inquiry followed two main courses; the evidence directly relating the two techniques and the equivalence of research results of the two measures were studied.

An example of the measure used in the present study can be found in the Appendix, pp. 126-131. It consists of a series of statements describing characteristic behaviors of a person. The subject is directed to tell why a person would act that way. The rationale is that the subject will project his own feelings and attitudes unto the person described. These statements can then be categorized according to the scoring system developed for the TAT stimulus (Atkinson et al., 1960; Atkinson & Litwin, 1960; McClelland et al., 1953; McClelland et al., 1958), or French's own system (French, 1958a).
In terms of overall effectiveness, McClelland (1958b, p. 34) states that the Test of Insight yields highly comparable results in comparison with the picture stimuli. His opinion concerning variations from the picture stimuli was that "cues will tend to be equivalent so long as they suggest vaguely the content area of the motive being measured but do not elicit strong or specific associations based on particular cultural or personal past associations" (McClelland, 1958b, p. 34). The only study found that directly related the Test of Insight and the picture measure reported discouraging results, however. One to two days after reporting to the Air Force Academy, subjects were administered the two measures plus Edward's Personal Preference Schedule within a two-day period. Interscorer reliabilities of .71 and .70 were reported for the picture and insight measures respectively. No relationships were found between any of the three measures. This result was discussed as possibly due to the lack of stability of projective measures of nAch. This did not seem unreasonable in view of the picture measure's known sensitivity to environmental stimuli, which was the basis of its development. Further, the first few days at the Academy were almost certainly periods of highly variable emotionality (Himelstein, Eschenback, & Carp, 1958). Also, the interscorer reliabilities were not as high as they could have been.

A review of research using the measure was generally more favorable. Some of the relationships found with performance level were mentioned above. An example was French's (1958d) finding that intelligence was more highly related to performance with subjects having nAch scores above the median than those below and the higher performance scores of the high nAch group as compared with the low group. Further, she found nAch scores
positively related to performance in a retest situation while motivating instructions were not. She also found that retest nAch scores vary with motivating instructions and that initial nAch scores are significantly related to these retest scores (French, 1955). Birney (1958) found that he could replicate these results with a student but not with a faculty experimenter. Other results indicated that relationships with performance are related to task difficulty and interest and type of feedback given (French, 1958b; French, 1958c). Its relationship with work-partner selection has already been mentioned (French, 1956). Many other positive findings in terms of performance, goal setting, persistance, fear of failure, and anxiety were found (Atkinson, 1960; Atkinson & Litwin, 1960; French, 1958a; Kausler & Trapp, 1958a; Kausler & Trapp, 1958b). It seemed reasonable to conclude from these data that there was an acceptable level of congruence between the two measures in terms of similarity of research results. It was also concluded that the Test of Insight could fruitfully be used in investigating the construct of achievement motivation.

Notwithstanding these data and conclusions, a question of the validity of the Test of Insight arose in the experiment proper. Several modifications were made as a result of pretrials with the test. They are described below. The results with this Modified Test of Insight were almost wholly negative, suggesting that the modifications may have affected its validity. For this reason, a control group of known high achieving high school students was tested under the same conditions as the subjects in the experiment proper.
Hypotheses

There were several specific hypotheses to be tested as a result of these considerations. The first three pertained only to subjects tested at the Veterans Administration. These subjects taken together are considered to be low achieving (LA) subjects.

A. Low achieving subjects are more motivated to achieve, as measured by nAch scores, when tested under a concrete stimulus condition than when tested under a more abstract stimulus condition.

B. Strength of achievement motivation does not differ for these subjects between relaxed and abstract arousal conditions. This hypothesis is simply an extension of Douvan's (1956) study in that she did not test for differences in nAch scores of her "working-class" group between aroused and non-aroused conditions.

C. The specific hypothesis concerning the effects of level of achievement motive is that achievement motive strength varies positively with level of vocational success.

Some hypotheses pertained to the nAch scores of the high achieving (HA) subjects. They were tested as a means of confirming conclusions developed out of the negative results of tests of the first three hypotheses.

D. High achieving subjects have greater achievement motive strength than low achieving subjects. This prediction may not hold for all experimental conditions. Therefore, two subhypotheses would predict that:

1. High achieving subjects receiving an abstract stimulus exhibit more achievement motivation than low achieving subjects receiving an abstract treatment.
2. High achieving subjects also exhibit greater achievement motivation under relaxed and concrete achievement conditions. This hypothesis is not held as strongly as D1. These subjects may not be too responsive to the concrete incentives since they might represent minimal vocational goals to them. Also, there is no evidence to predict that high achievers should show more achievement arousal under a relaxed condition. They might be relatively more relaxed than low achieving subjects since achievement stimuli may be more important to them.

E. The second major hypothesis concerning the high achieving sample was that their nACH scores reflect higher arousal from relaxed to abstract and concrete stimulus conditions. This hypothesis is less likely to hold for the concrete condition for the reasons outlined under the first hypothesis. Therefore, a subhypothesis would predict that high achieving subjects' nACH scores reflect higher arousal from a relaxed to an abstract stimulus condition.
CHAPTER III

METHOD

There were three major stages in carrying out the experiment. First, a considerable amount of development of experimental materials was necessary. The hypotheses called for the development of "relaxed," "abstract," and "concrete" test descriptions to be used to vary the experimental conditions. During their development, there were indications that many of the LA subjects would be unable to differentiate the particular characteristics of these stimuli. A test was therefore developed to measure their ability to differentiate the abstract and concrete stimuli. Scores on this test were later used to control for effects of this ability. Also, since it was believed that these subjects might have difficulty in responding meaningfully to the nAch measure, some pretrials and test development were necessary. These procedures are described in the first two sections of this chapter.

Second, using the experimental materials developed during the above procedures, the experiment proper was carried out with the LA subjects. In summary, the basic experimental design consisted of three classes of low-achieving subjects tested under three experimental conditions. The three classes of subjects varied as to degree of economic independence. The experimental conditions were varied in terms of type of arousal stimuli. The presentation of experimental materials was constant for all experimental conditions and generally consisted of (a) presentation of test description, supposedly describing the meaning of the measures to
be administered; these statements were the primary stimuli varied to test the effects of "abstract" or "concrete" incentives; (b) administration of performance tests; (c) administration of measure of nAch; (d) self-rating of success expectancy. These procedures are described more fully in the third and fourth sections of this chapter.

Thirdly, as mentioned in the previous chapter, the hypotheses developed for the LA sample were not confirmed. This particularly threw the validity of the Test of Insight into doubt. The experimental procedures were then replicated on a group of known high achieving subjects. Taken as a whole then, there were four classes of subjects tested under the three conditions. These latter subjects are described in the last section of this chapter.

**Development of Test Descriptions**

Seven statements were composed by E. These statements contained references to what the tests purported to measure or predict, i.e., the incentives. An attempt was made to vary the nature of the incentives offered along a continuum of abstractness. These references to incentives were contained in the third and fourth paragraphs of each statement. All the other parts of the statements were made as alike as possible.

Attempts were made to further arouse achievement motivation by references to the validity of the test, to interest in the subjects' scores by the parent organization from which they were drawn, comparison with other men in their organization, opportunities for finding out for themselves how they compare on the abilities supposedly measured, and by making a point of the subjects' putting down their names.
One of the statements (A) was adapted primarily from Haber and Alpert's (1958, p. 654) study on the effect of different situation and picture cues on achievement fantasy and Atkinson and Reitman's (1956) achievement cues. It was considered a representative example of abstract stimuli described in the previous chapter.

The language of the statements was kept as simple and direct as possible to control for the subjects' reading level. Effort was made, however, not to change the substance of the Haber and Alpert stimulus mentioned above. The general form of their statement was also followed in all the test descriptions. Examples of these statements including one for the relaxed condition can be found in the Appendix, pp. 103–115. In statements B and F, the name of the parent organizations etc., are properly inserted. Code letters and other identifying data were not on the actual statements used.

These statements were ranked by four psychology staff personnel at the Veterans Administration Center, Dayton. The instructions were to rank them according to degree of abstractness of the variables purportedly measured. A Kendall coefficient of concordance was computed to measure the degree of agreement among the raters in terms of the dimension or basis on which the judges made their individual rankings. The results of the ranking are given in Table 1. A complete table is in the Appendix, p. 116. The computations resulted in a $W$ of .32; $S$ equaled 572. The $S$ necessary to reach a $P$ of .01 was 343.8 (Siegel, 1956, p. 236). It was assumed that the basis for the significant degree of agreement was the degree of abstractness of the incentives inherent in the statements. Statements B and F were chosen for
Table 1
Results of Rankings of Incentives by Psychology Staff Personnel

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<tr>
<th>Incentives</th>
<th>B</th>
<th>A</th>
<th>D</th>
<th>E</th>
<th>C</th>
<th>G</th>
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<tr>
<td>Rj</td>
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<td>12</td>
<td>15</td>
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<td>21</td>
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<td>D</td>
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<td>3</td>
<td>5</td>
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<td>11</td>
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the experiment as representing the greatest range of the abstract-concrete continuum available.

There was some question of the LA subjects' ability to order these stimuli along the same continuum. There was a possibility of a difference in the hypothesized responsiveness to abstract versus concrete stimuli between those subjects who could and those who could not order these stimuli along an abstract-concrete continuum. Therefore, an attempt was made to see whether a sample of men from the LA population could differentiate the stimuli B, C, and F. An instruction sheet with examples was developed since it was thought that many of the men were unfamiliar with these concepts. Since it was felt that the subjects would be unfamiliar with the terms abstract and concrete, they were changed to general and specific. An example of these instructions is in the Appendix, p. 117. Further, the statements to be differentiated were reduced to include only the key abstract or concrete terms. This was also done for stimuli A, E, and G. Three statements pertaining to affiliation goals were also composed.
The subjects first studied the instruction and example sheet. If they could not do the sample items, further coaching was given. The affiliation cards and statements A, E, and G were then ranked by the subjects with errors explained by E. If they were still unable to comprehend the task, in E's judgement, they were not given the criterion cards. Otherwise, they went on to cards B, E, and F. Examples of these statements can be found in the Appendix, pp. 118-9. The rankings resulted in a W of .57 for 10 subjects. There were approximately equal numbers from each class of subject. S equalled 114. The S necessary to reach a P of .01 was 85.1. Again, it was assumed that the basis for the significant degree of agreement was the degree of abstractness of the incentives inherent in the statements. A table of the results can be found in the Appendix, p. 120.

The subjects did not rank the statements perfectly, and some seemed unable to comprehend the task at all. It was thought that a subject's inability to differentiate abstract from concrete stimuli might still affect the results of the experiment. Therefore, a test of the subjects' ability to differentiate between general and specific words or phrases was developed. Performance on this test could then be statistically related to nAch scores. This test is described more fully below.

The primary stimulus for the relaxed condition contained references to testing the tests, not the subjects; the experimental nature of the tests; not taking their names but giving them numbers, and an invitation to relax. It was adapted from Haber and Alpert (1958, p. 653). See example in Appendix, p. 115.

A statement that one could do well if he tried hard so that all could obtain high scores was inserted into the two aroused condition
statements. It was not put in the relaxed stimulus. As mentioned in the previous chapter, the purpose of this statement was to control for expectancy of success.

**Measures Used**

**Performance Tasks**

The first task consisted of marking row after row of I's in one-half in. circles for five minutes. There were seven pages, each containing 108 circles, with nine circles per row. This test was adapted from Atkinson (1958a, p. 282).

The second task was to differentiate between general and specific words or phrases (hereafter G-S). A copy of the final form can be found in the Appendix, pp. 121-125. As mentioned above, it was developed as a means of controlling for the possibility that this ability would be related to the subjects' responsiveness to the experimental stimuli. This problem will be treated more fully in the discussion chapter.

Because of the unfamiliarity of the concepts to the subjects, an extensive instruction and example section was included in the test. On the first form of the test, ten domiciliary members' scores ranged from 0 to 10 out of a possible score of 12. Their mean score was 4.90; the chance mean was 4.67. It was obviously too difficult.

The second form included even more extensive instructions and examples. Scores ranged from 4 through 12, with a mean of 8.7 for 10 subjects chosen from the General Medical and Surgical Hospital at the Dayton Veterans Administration Center.

The final form contained minor changes in instructions plus twice the number of items. There were two kinds of items wherein subjects
had either two or three words to compare. Each kind was doubled in number. This was to insure that less of the score variance would be due to chance alone. This form was not pretested since the pool of LA subjects was getting low and because no difficulties were anticipated with the new items.

The three main reasons for including these tasks were (a) the simplicity of the X's in circles test was thought to be encouraging. It was felt that many domiciliary members would be unable to do even simple arithmetic very well, while they would at least feel capable of responding to the X's in circles test. A feeling of failure might have resulted in less cooperation and might have brought on a withdrawal from the criterion measure; (b) the G-S test had at least face validity as being useful in discriminating the subjects' ability to differentiate between abstract and concrete stimuli; (c) the performance tasks were also part of the arousal stimuli in the sense that motives would be aroused by subjects actually being faced with and doing the task. The X's in circles task has been used for this purpose in previous research (Atkinson, 1956).

Measure of Achievement Motivation

This test was a modification of French's Test of Insight (French, 1958a). See example in Appendix, pp. 126-131.

Modifications. French's original test had two forms, each containing items that had high probabilities of stimulating need for achievement types of responses. They also contained high probability need for affiliation items. The present test was given an increased loading for nAch "pull" through eliminating need for affiliation items in the two forms
and combining the remaining items from the two tests. The remaining items were: Form I, items 1, 2, 4, 5, 8, and 10; Form II, items 1, 2, 3, 4, 5, 8, and 10. This also resulted in a longer test of 13 items, three more than the usual 10, again increasing the opportunity for responses scorable for nAch. Item 3, Form I, was eliminated since reference to "organizing groups and committees" was considered inapplicable to the life experiences of domiciliary members. Item 5, Form II, was changed for the same reason to "concern about his job" rather than concern about how well he had done "on examinations". Also, the test was simplified by changing the instructions and adding two general questions as guides for answering the items. Responses to Item 7 of the final form were not scored because it became evident that it was often impossible to tell the nature of the goal to which the subject was referring.

These modifications were necessary for two reasons. First, on previous attempts with a ten-item test, using items with strong need for affiliation pull, the LA subjects' nAch scores seemed very low, with a short range of scores. It was thought necessary to give them as much chance to give nAch responses as possible, without changing the basic nature of the test. This finding was probably due to the LA subjects' low level of arousal even when under an assumed arousal condition. The LA subjects may not have responded to the arousal stimuli because they simply did not touch any aspect of their need structure. This type of reaction may be pertinent to the LA subjects' lack of differential response to the stimuli in the experiment proper. These findings are discussed in the next chapter. Secondly, the LA subjects would often not respond at all to the items, or responded inappropriately. This not only lowered
nAch scores, but it also made it impossible to measure the level of achievement motive arousal.

Incorporating these modifications, a final pretest of the measure on eleven LA subjects resulted in scores ranging from -10 through +8 plus two invalid protocols. The mean score was 2.67. These scores were obtained under what were assumed to be arousal conditions. Except for the invalid protocols, the responses were generally more appropriate than those to the unmodified Test of Insight.

**Scoring.** Scoring was done according to the system developed for the TAT stimulus (McClelland et al., 1958; Smith & Feld, 1958) with slight modifications. There were general scoring decisions to be made that were not fully or explicitly covered in the scoring manual, however. Rulings of this nature are presented in the Appendix along with the scoring modifications, pp. 101-102. All scoring decisions were made as nearly as possible in terms of the general rules in the manual.

Scoring ability was checked by comparison with scoring on practice materials that accompany the scoring manual with experts' scoring of these same materials. The reliability of E's scoring of the Test of Insight protocols from the present experiment was checked by comparison with an independent scorer.

The scoring for the LA experimental subjects was done by the author. All identifying material was first removed from the protocols by a VA staff member. Protocols and face sheets were marked with the same random number. Protocols from the different classes of subjects and experimental conditions were then randomly mixed before scoring. The protocols and face sheets were then rematched by their respective numbers.
Measure of Expectancy of Success

The self-rating of success expectancy was on a four-point scale. See example in Appendix, p. 132.

Basic Design

Experimental Conditions Varying in Terms of Achievement Motive Arousing Stimuli

In the relaxed stimulus (RS) condition, as many potential achievement cues as possible were eliminated from the testing situation. E acted as casual as possible and the tests were described in terms designed to minimize their importance, such as reference to their developmental nature.

In the abstract achievement stimulus condition (AS), E acted in a manner designed to inculcate a serious attitude on the part of the subjects. More importantly, a statement was read by and to the subjects that described the tests in terms depicting characteristics they supposedly measured. These terms indicated that the tests measured a person's ability to attain goals that had previously been ranked as abstract goals by the VA psychology staff. This was statement B. These descriptions of the tests were the main stimuli to be varied to test hypotheses concerning the potential meaningfulness of an abstract-concrete dimension of achievement incentives.

In the concrete achievement stimulus condition (CS), the statement describing the tests referred to them as measuring abilities that result in more concrete goals than those supposedly predicted under the AS condition. This was statement F. All other stimuli were the same as in the AS condition.
Classes of Low Achieving Subjects Varying in Terms of Economic Independence

The economically independent, "working-class" subjects (VAWC) consisted of 42 VA Center personnel from GS levels 1, 2, and 3, housekeeping personnel, for example. The successful member-employees (ME) consisted of 53 domiciliary members whose work on their member-employee job had been satisfactory enough for them to retain the job for six months or more. The nonemployed group (NE) consisted of 53 domiciliary members who had never had a member-employee job.

Criteria for selection or elimination of subjects. The criteria used for selecting or eliminating subjects were as follows: (a) All subjects were under 56 years of age; (b) subjects had to be literate to take the tests; (c) all subjects had to be physically able to participate; (d) all subjects who did not respond meaningfully to the test protocols were eliminated; and (e) all subjects were voluntary participants.

Domiciliary members were given appointments directing them to the testing room. They were then told they did not have to participate. VA personnel were asked to participate but were told it was voluntary, would not affect their jobs, etc. This was necessary because VA personnel could not be required to take the tests, and because the voluntary or non-voluntary nature of subjects is related to nAch scores (McClelland, 1958b, pp. 18 and 25).
Description of Overall Testing Procedures

All the experimental materials including test descriptions, performance tests, Test of Insight, and the success expectancy rating scale were contained in a single booklet. The LA subjects' testing was carried out over a period of approximately two months. During one 11-day period, it was impossible to obtain any data. The VA personnel were being tested at that time, and their supervisors did not release them from duty. Subjects were tested in groups of varying sizes. The number of usable records gathered at any one time ranged from one to six. One hundred forty-eight usable protocols were gathered from LA subjects.

The test descriptions were first read to the subjects. These were also on the first page of the test booklet and subjects were directed to read silently along with E. Content of these descriptions varied with the experimental condition. Secondly, the instructions for X's in circles test were read. Copies of the instructions can be found in the Appendix, p. 133. There were different instructions for the RS and the two aroused conditions. Thirdly, the test of ability to differentiate between general and specific words was administered. Both the test of differences between general and specific words and the nAch test were self-administering, with no time limit. Responses to these tests were observed to see if scorable and meaningful responses were being obtained. If a subject was having trouble, he was coached. Attempts were made to keep from biasing the subjects' answers during such coaching. Fourthly, the experimenter then administered the Test of Insight. The estimate of success expectancy was obtained last.
Description of Other Testing Procedures

Descriptions of other testing procedures that varied with experimental condition besides the differences in test descriptions follow.

Aroused conditions. These procedures were adapted from Atkinson and Reitman (1956) and Haber and Alpert (1958, p. 654), and were used for both the abstract and concrete conditions. The procedures were as follows: (a) E wore a business suit; (b) E "acted" formally, often and openly looked at stop watch, was "watchful" of subjects, and actions or comments by subjects indicating lack of achievement involvement were counteracted by reference to importance of the task and reminders to do their best; (c) performance test instructions referred to abilities supposedly measured, sensitivity of the tests to effort, and subjects were urged to try hard.

Relaxed conditions. These procedures were adapted from Haber and Alpert (1958, p. 652). They were as follows: (a) E dressed informally, slacks and open shirt; (b) E "acted" casually, randomly entered and left the testing room, read a magazine when present, i.e., attempted to deemphasize the "test's" importance; (c) performance task instructions only described what subjects must do, there was no reference to abilities, effort, or admonitions for speed. Note: The relaxed X's in circles instructions were inadvertently used with one group of four abstract condition subjects but inspection indicated there was no apparent affect on scores on the dependent variable.
Procedure for High Achieving Control Group

The purpose in testing this group was primarily to check the validity of the Modified Test of Insight.

Basis of Selection as High Achieving Subjects

All of the subjects in this group were male high school students voluntarily attending an accelerated summer school program. This program consisted of nine weeks of intensive work in a subject of their choice. The students study what is usually considered an academic year's work in this time period. From this, the students receive credit for early high school graduation, or simply knowledge of the area and extra high school credits. There is also an accelerated school grading system in which the students may receive more honor points for a given grade than for a regular course. This can increase point hour ratio. A major criterion for acceptance into this program is the achievement of B grades or better in all subjects during the regular academic year. It was noted that there were a few exceptions to this, however.

Other Descriptive Characteristics

The mean school grade for 43 of these students was 10.74, was .85. All students were in the 10th to 12th grades and came from all schools in the Dayton, Ohio, area. The mean California Test of Mental Maturity I.Q. for 38 students, was 125.63, was 12.08. The I.Q.'s ranged from 91-151. Forty-six students were tested.

Experimental Procedures

The test procedures were almost exactly the same as with the LA subjects. Only the test descriptions were changed to refer to the school
administration instead of the VA. The efficacy of the tests as predictors was not overplayed as it was with the LA sample. The testing took place after school hours over a period of approximately two weeks. The number of subjects ranged from seven to nine and were all volunteers. They were told that the school board was interested in the test results in order to know more about its students. The real purpose was explained after the test was completed.

It was necessary for an independent scorer to score the HA subjects' protocols as their source could not be disguised from E. Since scoring reliability for this system is not perfect, he also had to rescore the LA protocols. This scorer's accuracy was checked in a manner similar to E's.
CHAPTER IV

RESULTS

Control Variables

Scoring Reliability

The scoring system can be self-taught through use of a scoring manual and comparison of the learner's scores with those of experts on several practice sets of thirty stories each (Smith & Feld, 1958; McClelland et al., 1958). Scoring accuracy can be checked in two ways: (a) percentage of agreement on presence or absence of overall achievement imagery within a story; and (b) rank order correlations between experts' and learner's total score per story on the practice sets are computed (Smith & Feld, 1958).

Scoring reliability was first checked in relation to expert scoring of these practice sets (Smith & Feld, 1958). E's percentages of agreement on presence or absence of achievement imagery were: Set B = 87, C = 90, D = 88, E = 87, F = 69, G = 67. Rhos for total score per story were: B = .90, C = .80, D = .77, E = .90, F = .63, and G = .65. These were all beyond the .01 significance level (Rho necessary for P at .01, one-tailed test, = .432.) These results compared favorably with those reported in the previously mentioned reliability study by Feld and Smith (1958). They reported median percentages of agreement of 82, 91, and 84 for sets B, C, and D respectively. Rhos for these graduate student subjects were .785, .805, and .755 for sets B, C, and D (Feld & Smith, 1958). A group of undergraduate scorers attained slightly lower reliabilities on
sets A through D. There were no reliability scores for the graduate students on sets E, F, and G, but the undergraduate students attained percentages of agreement of \( E = 59 \), \( F = 48 \), and \( G = 64 \). This was a drop from 90 on set D. Their median Rhos dropped from .83 on set D to set \( E = .43 \), \( F = .44 \), and \( G = .67 \) (Smith & Feld, 1958, p. 690). These drops in reliabilities were due to the novel pictures used to elicit the last three sets and seems typical when projective stimuli are changed (Feld & Smith, 1958).

A VA psychology staff member served as an independent scorer. His percentage of agreement on practice set C in comparison with the experts' was 94; Rho equaled .87. The staff member then scored two random samples of experimental protocols according to the modifications established by E. His Rho for total scores on the first sample of fifteen protocols, in comparison with E's, was .72, for the second sample of twenty protocols it was .83. The Rhos necessary for \( p \) at .01 for Ns of 15 and 20 equalled .645 and .534 respectively. E's scoring accuracy and interscorer reliability on the Modified Test of Insight was considered acceptable. The accuracy and interscorer reliability of another independent scorer who scored the HA subjects' protocols and rescored the LA subjects' protocols are presented below when the HA data are introduced.

Intelligence

The possibility of nAch scores being related to intelligence seemed clearly negated. Oral Directions Test (ODT) raw scores from the Personnel Tests for Industry were available for thirty-one of the domiciliary members. These scores had been obtained within two months from the date of the present experiment. The Rho for the two scores was .182. A Rho
of .144 was obtained for nAch scores and California Test of Mental Maturity I.Q.'s of 36 of the high school subjects. Neither of these correlations approached a P of .05. These results suggested that strength of aroused motivation, as exemplified by the nAch scores, was not a function of intellectual ability in the usual sense. Since perception of incentives is involved in motive arousal, it might still be hypothesized that such perception is dependent upon understanding the meaning of the incentives in a deeper sense. This might include a whole complex of attitudes and values that an individual has toward a given event, in this case, the incentives. In sum, understanding may still be important in motive arousal, but not the type of intellectual ability measured in an intelligence test. These considerations may have some bearing on the study's results and are discussed more fully below.

Time of Testing

It was thought that some of the nAch score variance might be a function of time of testing. There was a possibility that E's behavior would change over time through familiarity with the experimental procedures or differing attitudes toward them. Also, such events as communication between subjects and changes in weather from late winter to early spring could conceivably affect scores. Therefore, the subjects' scores were grouped in terms of chronological order of testing. The best grouping accounting for time of testing and number tested in a given time period resulted in ten groups with Ns ranging from 26 to 8. Three analyses of variance were then computed. The first was for the total sample of 148 valid protocols. F was 1.14 with 9 and 138 degrees of freedom and did not
approach significance. The other two F ratios were computed for the domiciliary members and Veterans Administration personnel separately. It seemed necessary because they might have had different communication characteristics and because none of the VA personnel were available for testing until all data had been gathered from the two classes of domiciliary subjects. Thus, any changes in E's behavior due to familiarity with the testing procedures or attitude change had probably taken place. The analysis for 106 domiciliary members, divided into six groups, resulted in an F ratio of 1.23. The analysis for 42 VA personnel, divided into four groups, resulted in an F of 1.33. Both Fs were clearly nonsignificant. It was concluded that possible variables related to date of testing had no significant effects on nAch scores. Summary tables of these results are found in the Appendix, pp. 134-135.

**Expectancy of Success**

The next variable considered was the subjects' subjective expectancy of success. Since this measure was taken after all tests were completed, it did not measure expectations of performance on the performance tasks themselves. However, Es was probably affected by the subjects' experience with the performance and criterion tasks. Therefore, it appeared to be a valid measure of the subjects' Es for future performance while taking the Test of Insight. Also, the Es scale was given last so that experience with it would not affect nAch scores.

The theory would predict that success expectancies nearest to .50 would result in the highest levels of aroused motivation due to their reciprocal and multiplicative relationship. The more extreme the Es, either high or low, the lower the nAch scores. Therefore, the result
of multiplication of these two values is highest when they are both valued at .50.

A scatterplot of the Es ratings and nAch scores for subjects tested at the VA suggested that if any relationship existed it was curvilinear, as predicted. The mean nAch scores from the lowest to highest Es groups were 2.88, 5.80, 6.12, and 5.40. These Es levels were given scores of 1, 2, 3, and 4 respectively. None of the highest nAch scores were attained by subjects at the extreme Es ratings. All but 21 of the 147 ratings gathered, however, were in the middle two Es levels. Eta was only .17, F was 1.39. P was less than .25. These results were only slightly suggestive that a relationship existed and were not considered further in terms of control within this sample.

Results for the high achieving subjects were similar although the nAch means were linear. Mean nAch scores for the three highest Es groups were 7.00, 9.33, and 12.78. None of these subjects rated themselves at the first Es level, and only 3 and 9 rated themselves at the second and fourth levels respectively. An analysis of variance based on these three groups resulted in an F of 1.89. P was less than .25.

The mean Es rating of the high achieving group was 3.13 and for the LA subjects it was 2.50; t was 6.30 with a P of less than .01 for 190 degrees of freedom. Furthermore, when an analysis of variance was computed for the four Es levels, including both the LA and high achieving subjects, F was 3.70. Summaries of these three analyses are presented in Tables 2, 3, and 4. The Es variable was therefore controlled through analysis of covariance in the tests of the hypotheses based on both samples. These are presented below.
Table 2
Summary Table for Analysis of Variance of Need Achievement Scores of Low Achieving Subjects Grouped According to Expectancy of Success Ratings

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectancy of success ratings</td>
<td>3</td>
<td>141.28</td>
<td>47.09</td>
<td>1.39</td>
<td>&lt;.25</td>
</tr>
<tr>
<td>Within groups</td>
<td>143</td>
<td>1,830.88</td>
<td>33.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>146</td>
<td>1,972.16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *Eta = 0.17. F necessary for a P <.25 with 3 and 120 DF = 1.39.*

Table 3
Summary Table for Analysis of Variance of Need Achievement Scores of High Achieving Subjects Grouped According to Expectancy of Success Ratings

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectancy of success ratings</td>
<td>2</td>
<td>110.31</td>
<td>55.16</td>
<td>1.892</td>
<td>&lt;.25</td>
</tr>
<tr>
<td>Within groups</td>
<td>42</td>
<td>1,224.89</td>
<td>29.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>1,335.20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *F necessary for a P <.25 with 2 and 40 DF = 1.44.*
Table 4

Summary Table for Analysis of Variance of Need Achievement Scores of Low and High Achieving Subjects Grouped According to Expectancy of Success Ratings

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectancy of success ratings</td>
<td>3</td>
<td>372.263</td>
<td>124.088</td>
<td>3.70</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Within groups</td>
<td>188</td>
<td>6298.049</td>
<td>33.50</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>6670.312</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F necessary for a P < .05 with 3 and 150 DF = 2.67, and for a P < .01 is 3.91.

The significant relationship between nAch and Es was potentially quite meaningful when it is considered that strength of MA is independent in the theoretical interaction of Mas x Es x Iv's. As mentioned above, it is the multiplicative interaction of these three variables that determines strength of aroused motivation. Within this context, Ma is considered to be the individual's basic motive strength and may take any value. It is the mean strength of this variable which is inferred from a sample of nAch scores wherein Es and Iv are assumed to be randomly distributed. Ma is not considered to be directly measured. The point of this is that varying strengths of Mas in a sample would result in considerable variability of scores, even with Es constant. Hence, when Es and nAch scores are related, only a low relationship would be expected since Es is only considered to be one of the variables that determines level of aroused motivation.

There were methodological problems that made interpretation of these results difficult, however. It may be questionable to combine two groups...
to test the effect of a variable when the variable has been shown to have no effect within each group alone. Also, there were considerable differences between these groups in age, intelligence, socioeconomic status, and achievement success. These results implied that success expectancy contributes to strength of motivation. This contribution may be linear and not curvilinear as held by Atkinson (1957; Atkinson, 1960). This interpretation appears premature, however, since the data do not preclude the possibility that strongerMas results in higherEs. Further, an investigation designed expressly to test the interaction ofEs and Ivs was conducted by Murstein and Collier (1962), and their results were largely negative in terms of the theory. Possibly the most defensible interpretation is that future studies ofEs should be based upon heterogeneous samples, particularly in terms ofEs. Otherwise, any relationship betweenEs and nAch scores may not appear.

Results

Tests of Hypotheses Regarding Low Achieving Sample

Some descriptive data for the sample from the VA should be mentioned first. The range of nAch scores was -9 to 23. The mean score was 5.62, with a standard deviation of 5.82. The median score was 5.40. A rough frequency distribution of these scores suggested a platykurtic but homogeneous variance. There was a slight skewness toward the high scores as the slightly higher mean would suggest.

It was possible to evaluate the effects of ability to differentiate abstract from concrete stimuli at the same time that the major hypotheses were tested. Descriptive data from scores on theG-S test are presented first. The scores on the G-S test ranged from 4 through 24 out of a
possible 0 through 24. Subjects could achieve one point for each of the
first eight items and two for items 9 through 16. The mean score for
143 valid protocols was 16.22; the standard deviation was 5.08. A fre­
quency distribution was slightly skewed toward the low scores.

It was observed that the scores seemed to fall into a trimodal
frequency distribution. This suggested three ability groups in terms
of G-S test performance. These scores were then divided into the three
groups 4 through 12, 13 through 20, and 21 through 24. Their mean scores
were 9.25, 16.38, and 22.69 respectively. Chance was 9.33, which
strongly indicated that the lowest group did not comprehend the test.
Those in the middle averaged about one point per item. This indicated
they could differentiate between two but not three stimuli. They seemed
to have a fair understanding but were unable to comprehend the idea of
a continuum. This was necessary for items 9 through 16 which had three
items to rank. The highest scorers were conceived as having a good
understanding of the terms and of the concept of an abstract-concrete
continuum.

It was conceivable that an inability to differentiate abstract and
concrete stimuli would preclude a differential degree of motive arousal
in response to the experimental stimuli. The rationale for this was
that their inability was because these stimuli had little meaning to
them in a personal evaluative sense. They may have been functionally
the same or equally meaningless to them. This problem was mentioned
above in relation to intelligence. Its significance is discussed below
in terms of the overall results of the study. The high and possibly
middle scorers were, therefore, thought to be more likely to respond to
the three treatments.
The nAch scores of the 143 subjects were then put into a 3 x 3 x 3 factorial table. The factors were subject class, incentive condition, and G-S test score. An analysis of variance was computed based upon unweighted cell means because of unequal cell Ns. None of the F ratios reached the .05 level of significance. The F ratio for main effects of the G-S factor was the largest at 2.14; P was < .25. A summary of the computations is in Table 5.

Table 5

Summary Table for Analysis of Variance of Low Achieving Subjects Grouped According to High, Median, and Low on G-S Test, Treatment Received, and Class of Subject

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatments</td>
<td>2</td>
<td>34.7776</td>
<td>17.3888</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Abstract-concrete discrimination</td>
<td>2</td>
<td>69.4183</td>
<td>34.7406</td>
<td>2.1391</td>
<td>&lt; .25</td>
</tr>
<tr>
<td>Subject class</td>
<td>2</td>
<td>28.0545</td>
<td>14.0272</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Treatments vs abstract-concrete discrimination</td>
<td>4</td>
<td>32.7388</td>
<td>8.1847</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Treatments vs subject class</td>
<td>4</td>
<td>53.3676</td>
<td>13.3419</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Abstract-concrete discrimination vs subject class</td>
<td>4</td>
<td>50.7565</td>
<td>12.6891</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Treatment vs abstract-concrete discrimination vs subject class</td>
<td>8</td>
<td>129.9259</td>
<td>16.2407</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>399.1022</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Note: F necessary for a P of < .25 with 2 and 8 DF = 1.66.
An examination of the mean nAch scores of the 36 subjects who were in the high G-S score group alone suggested that they might be responsive to the different experimental treatments. The mean for the relaxed group was 3.09, for the abstract stimulus group it was 6.93, and for the concrete stimulus group it was 7.13. This was in line with the possibility discussed above, that these subjects would be most likely to respond to the experimental treatments.

It was a questionable procedure to apply a statistical test to one segment of a total sample when none of the statistical tests of that sample have achieved significance. It did seem justifiable, however, as a point of departure for a discussion of trends that could point the way to future research. A simple analysis of variance was, therefore, computed based on subjects in the three treatment groups who scored at the highest level on the G-S test. The different classes of subjects were grouped together. The F ratio of 2.45 was slightly smaller than that necessary to reach a P of .10 in the F distribution.

A second simple analysis was computed for these same subjects after rearranging the scores according to classes of subjects. In this case, the different treatment groups within the classes were put together. The mean scores for these three groups were 3.83 for the nonemployed domiciliary members, 5.71 for the member-employees, and 9.00 for the VA personnel. These means were in the predicted direction. The F ratio for these 36 subjects was 2.70. Summary tables of these two analyses are in Tables 6 and 7.

The possibility of a relationship between G-S scores and intelligence was also examined. ODT and G-S scores were available for 29 of the
Table 6
Summary Table for Analysis of Variance of Low Achieving Subjects Scoring High on G-S Test Grouped According to Treatment Received
(Subject Class Ignored)

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatments</td>
<td>2</td>
<td>117.93</td>
<td>58.965</td>
<td>2.45</td>
<td>approx. .10 &lt; .25</td>
</tr>
<tr>
<td>Within groups</td>
<td>33</td>
<td>794.42</td>
<td>24.073</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>912.35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: F necessary for P < .10 with 2 and 3 DF = 2.49, and for 2 and 40 DF = 2.44.

Table 7
Summary Table for Analysis of Variance of Low Achieving Subjects Scoring High on G-S Test Grouped According to Subject Class
(Treatment Received Ignored)

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject class</td>
<td>2</td>
<td>128.44</td>
<td>64.22</td>
<td>2.70</td>
<td>&lt; .10</td>
</tr>
<tr>
<td>Within groups</td>
<td>33</td>
<td>783.91</td>
<td>23.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>912.35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: F necessary for P < .10 with 2 and 30 DF = 2.49.
domiciliary subjects. The Pearson product-moment correlation was .311. The r necessary to reach a P of .05 for a one-tailed test with 27 degrees of freedom is .311 and for a two-tailed test is .367. This finding suggests that if any relationship does exist in the population it would be fairly low at best. Results of interviews with several subjects whose scores were most deviant in a scatterplot of G-S and ODT scores were worth noting, however. They suggested that subject unreliability inordinately contributed to the low correlation. There were indications that these subjects had not performed at their maximum on one or the other tests. One subject, as the clearest example, described his condition at the time of the ODT testing. His description strongly indicated that it was a period of serious emotional crisis. As backing for this, his psychotherapist stated he was having a psychotic episode at the time. Also, he had achieved a much higher ODT score on a previous test. Possible implications of these data are discussed below.

Since the major hypotheses had already been tested, a further analysis was probably unnecessary. A three-factor analysis of variance based upon unweighted cell means was computed, however, since a more efficient test could be made when time of testing was used as one of the factors. With this procedure, changes in criterion scores related to the passage of time were more controlled. Subjects within each cell of the two major independent variables were divided into approximately equal groups in terms of time of testing. The other factors were treatment received and subject class. As would be expected, the results were completely nonsignificant. A summary of the analysis is presented in the Appendix, p. 136. A table of mean scores
for each cell with time of testing omitted is in Table 8. Potential significance of these results is discussed below after results of some further analyses are presented. There were no particular trends in the major table that seemed to warrant further testing by analysis of variance.

Table 8

Mean Need Achievement Scores for Total Low Achieving Sample Grouped According to Subject Class and Treatment Received

(As Scored by E)

<table>
<thead>
<tr>
<th>Subject class</th>
<th>Relaxed</th>
<th>Abstract</th>
<th>Concrete</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veterans Administration personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>5.14</td>
<td>4.36</td>
<td>7.43</td>
<td>5.64</td>
</tr>
<tr>
<td>N</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>42</td>
</tr>
<tr>
<td>Member employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>5.29</td>
<td>5.71</td>
<td>5.86</td>
<td>5.63</td>
</tr>
<tr>
<td>N</td>
<td>17</td>
<td>17</td>
<td>19</td>
<td>53</td>
</tr>
<tr>
<td>Nonemployees</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>4.34</td>
<td>7.47</td>
<td>5.00</td>
<td>5.59</td>
</tr>
<tr>
<td>N</td>
<td>16</td>
<td>17</td>
<td>20</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>4.93</td>
<td>5.94</td>
<td>5.95</td>
<td>5.62</td>
</tr>
<tr>
<td>N</td>
<td>47</td>
<td>48</td>
<td>53</td>
<td>148</td>
</tr>
</tbody>
</table>

Note: Range -9 to 23, -5.82.
Inspection suggested that extreme scores in some of the cells had kept the mean scores from differing. Therefore, the possibility that differing proportions of subjects within each independent variable would be high or low in nAch was investigated by the median test. Ten Chi squares were computed in all. Each time the subjects were first divided into groups according to whether their nAch scores were above the median or were equal to or below the median score interval. Chi square tables were based upon various arrangements of treatment group and subject class combinations. For example, a 2 x 3 contingency table for the total sample was composed in terms of the relaxed, abstract, and concrete treatments. A second contingency table for the total sample was composed of the three classes of subjects. The other tables were based upon subgroups within the treatment groups or subject classes. Examples of these breakdowns are: the three classes of subjects within the relaxed condition only were put in a 2 x 3 table; also, the three treatment groups within the nonemployed class of subjects only were arranged in a table. As would be expected, none of the Chi squares computed from these tables reached an acceptable level of significance.

The Chi square for the VA personnel, broken down into the three treatment groups, was the highest at 5.34, which was beyond the .10 significance level. The contingency table from which these results were obtained is in Table 9. None of the other aforementioned Chi square data are reported. Two further analyses of the VA personnel's scores were then computed. The first one deals with the relaxed and abstract treatment groups. This seemed legitimate since the proportions of these two groups of subjects exceeding the median score interval
Table 9

Chi Square Table for VA Personnel Grouped
According to Treatment Received and Divided
into Those Exceeding and Those Equal to or
Below the Median Score

<table>
<thead>
<tr>
<th>Score level</th>
<th>Relaxed</th>
<th>Abstract</th>
<th>Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fo</td>
<td>Fe</td>
<td>Fo</td>
</tr>
<tr>
<td>Above median</td>
<td>6</td>
<td>6.67</td>
<td>4</td>
</tr>
<tr>
<td>Equal or below</td>
<td>8</td>
<td>7.33</td>
<td>10</td>
</tr>
<tr>
<td>N</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

Note: Chi square = 5.34. With 2 DF, Chi square necessary for $P < .10 = 4.60$, and for $P < .05 = 5.99$.

were both low, and it had been originally predicted that they would not be responsive to the abstract stimulus. These proportions were tested by the median test, and the Chi square was found to be less than that necessary to reach a $P$ of .30. These data are in Table 10. These proportions were assumed to be equal. They were combined and the resulting proportion was analyzed by the median test in a 2 x 2 table against the proportion for the concrete treatment group. This Chi square was 4.76 which exceeded the .05 level of confidence. These data are presented in Table 11. This finding tenuously supported the first hypothesis. Since it was in the predicted direction, however, and was comparable with Douvan's (1956) results, its potential indication will be discussed below in relation to the overall results of the study.
### Table 10

Chi Square Table for VA Personnel for Relaxed and Abstract Treatment Groups and Divided into Those Exceeding and Those Equal to or Below the Median Score

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Score level</th>
<th>Relaxed</th>
<th>Abstract</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F0</td>
<td>Fe</td>
<td>Fo</td>
</tr>
<tr>
<td>Above median</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Equal or below</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>N</td>
<td>14</td>
<td>14</td>
<td>28</td>
</tr>
</tbody>
</table>

Note: Chi square = 0.62. With 1 DF, Chi square necessary for P < .05 = 3.84, and for P < .02 = 5.41.

### Table 11

Chi Square Table for VA Personnel for Relaxed and Abstract Treatment Groups Combined versus Concrete Treatment Group, and Divided into Those Exceeding and Those Equal to or Below The Median Score

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Score level</th>
<th>Relaxed</th>
<th>Abstract</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F0</td>
<td>Fe</td>
<td>Fo</td>
</tr>
<tr>
<td>Above median</td>
<td>10</td>
<td>13.33</td>
<td>10</td>
</tr>
<tr>
<td>Equal or below</td>
<td>18</td>
<td>14.67</td>
<td>4</td>
</tr>
<tr>
<td>N</td>
<td>28</td>
<td>14</td>
<td>42</td>
</tr>
</tbody>
</table>

Note: Chi square = 4.76. With 1 DF, Chi square necessary for P < .05 = 3.84, and for P < .02 = 5.41.
Tests of Hypotheses Regarding
High Achieving Sample

Because the results just presented were almost completely negative, the validity of the experimental procedures was thrown into doubt. There was some question whether the Test of Insight had become invalid as a measure of achievement motivation since it had been modified somewhat. As described above, the experimental procedures were replicated with a group of known high achieving (HA) high school subjects. If such a group did not respond as predicted, it could be concluded that the Modified Test of Insight was not responsive to differences in motivation.

All of these new data were gathered after the protocols from the low achieving (LA) subjects tested at the Veterans Administration Center, Dayton, had been scored and analyzed. It was therefore necessary to have someone who was unfamiliar with the hypotheses of this study score these new protocols. Although high interscorer reliabilities can be achieved, there is considerable judgement involved in scoring. With knowledge of hypotheses and personal interest in the outcome, it would be quite possible to influence the results. This problem was controlled with the LA sample by removing identifying information from the protocols and randomly mixing them before scoring. Since the writing characteristics of the HA subjects were recognizable and the LA sample's protocols were familiar by this time, it was not possible to disguise the source of the new data. It was also necessary for the naive scorer to score the old protocols since a slight liberality or conservatism of scoring, in comparison with E, could influence the results.

The new scorer (hereafter NS) was a recent graduate in psychology who was unfamiliar with the hypotheses of the present study and the
literature on achievement motivation. His scoring accuracy and interscorer reliability were checked in the same manner as E's. He first studied the manual and compared his scores with the experts' on the practice stories. His percentages of agreement with the experts on presence or absence of achievement imagery in a story were: Set B = 100, C = 97, D = 93, E = 82, F = 75, and G = 75. Rank order correlations of the total score per story between the experts and NS were: Set B = .97, C = .91, D = .93, E = .76, F = .58, and G = .75. It was concluded that he reached a generally high level of scoring accuracy.

Interscorer reliability was checked by rank order correlations between NS and E's total score per Test of Insight protocol. NS used the scoring modifications and rules previously established by E for the Test of Insight. These are described in the previous chapter and in the Appendix, p. 101-2. The rank order correlations using protocols drawn randomly from the LA sample were as follows: first sample of 20 = .428; second sample of 20 = .713, third sample of 21 = .948. A correlation based on 20 protocols from the new sample was .919. All but the first correlation was beyond that necessary to exceed a probability of .01 for a one-tailed test. Interscorer reliability was considered highly acceptable.

Table 12 presents mean scores for the new HA sample and the old LA sample based on NS scores. His mean scores for the LA sample were generally slightly higher than E's. The ranges, standard deviation, and direction of cell and total means were highly comparable to E's, however. This indicated that the overall direction of the original results was not changed by NS.
Table 12

Mean Need Achievement Scores for Low and High Achieving Samples Grouped According to Subject Class and Treatment Received

(As Scored by NS)

<table>
<thead>
<tr>
<th>Subject class</th>
<th>Treatments</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Relaxed</td>
<td>Abstract</td>
<td>Concrete</td>
<td>Total</td>
</tr>
<tr>
<td>High achieving high school subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>8.57</td>
<td>12.00</td>
<td>8.94</td>
<td>9.89</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>14</td>
<td>16</td>
<td>16</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Veterans Administration personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>5.71</td>
<td>5.07</td>
<td>8.36</td>
<td>6.38</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Member employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>6.47</td>
<td>5.29</td>
<td>6.11</td>
<td>5.96</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>17</td>
<td>17</td>
<td>19</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Nonemployees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>4.25</td>
<td>7.76</td>
<td>5.15</td>
<td>5.72</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>16</td>
<td>17</td>
<td>20</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Total for VA sample only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score</td>
<td>5.49</td>
<td>6.10</td>
<td>6.34</td>
<td>5.99</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>47</td>
<td>48</td>
<td>53</td>
<td>148</td>
<td></td>
</tr>
</tbody>
</table>

Note: Range -7 to 21, <-5.73.
Results of statistical tests of the hypotheses based on the HA subjects were much more encouraging. The first hypothesis predicted higher nAch scores for HA than for LA subjects. The mean scores for these samples were in the predicted direction.

In the first test of this hypothesis, nAch scores were corrected for Es through analysis of covariance. This was necessary since the HA subjects had been found to have significantly higher expectancies of success, and expectancy of success had related significantly to nAch scores. A factorial analysis of covariance was computed with date of testing and high versus low achieving subjects as factors. The F for the comparison of the HA and LA subjects was 15.804, which was significant beyond the .01 level of confidence. The F ratios for date of testing and interaction were clearly nonsignificant. When these F ratios were corrected for Es, F for HA versus LA subjects was reduced to 8.499 which was still beyond the .01 level of confidence. Summaries of these two analyses are presented in Tables 13 and 14.

In the next test of the differences between HA and LA subjects, verbal productivity was controlled through analysis of covariance. This was considered worthwhile since the HA subjects were observed to be more productive. It had not been necessary for the LA sample since productivity had not varied greatly. The greater productivity of the HA subjects increased the word count range for the two samples combined. This variable was also controlled in a study of fear imagery by Walker and Atkinson (1958). A comparison of mean differences in word count between the HA and LA samples yielded a t of 11.11. The t necessary to reach the .001 level of confidence for a two-tailed test with 120
Table 13
Summary Table for Analysis of Variance
With Date of Testing and High versus Low Achieving Subjects as Factors

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Date of testing</td>
<td>1</td>
<td>15.7356</td>
<td>15.7356</td>
<td>-</td>
</tr>
<tr>
<td>B. High versus low achieving subjects</td>
<td>1</td>
<td>514.6271</td>
<td>514.6271</td>
<td>15.804</td>
</tr>
<tr>
<td>A x B</td>
<td>1</td>
<td>2.1219</td>
<td>2.1219</td>
<td>-</td>
</tr>
<tr>
<td>Within cell</td>
<td>188</td>
<td>6121.6739</td>
<td>32.5621</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F for P of .01 with 1 and 150 DF = 6.81.

Table 14
Summary Table for Analysis of Covariance
With Date of Testing and High versus Low Achieving Subjects as Factors

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of Freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Date of testing</td>
<td>1</td>
<td>24.5032</td>
<td>24.5032</td>
<td>-</td>
</tr>
<tr>
<td>B. High versus low achieving subjects</td>
<td>1</td>
<td>271.0356</td>
<td>271.0356</td>
<td>8.499</td>
</tr>
<tr>
<td>A x B</td>
<td>1</td>
<td>3.5914</td>
<td>3.5914</td>
<td>-</td>
</tr>
<tr>
<td>Within cell</td>
<td>187</td>
<td>5963.5512</td>
<td>31.8906</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F for P of .01 with 1 and 150 DF = 6.81.
degrees of freedom is 3.37. Further, a rank order correlation between nAch scores and word count for the total sample of 194 subjects was .274, with correction for tied ranks (Siegel, 1956, pp. 206-210), t was 3.95. These results suggested that not only were nAch scores related to productivity but that nAch score differences between the samples might be related to this variable. Possible interpretations of the relationship between nAch scores and verbal productivity are discussed in the following chapter.

An analysis of variance for the LA versus the HA samples, with treatment groups combined, yielded an F of 16.627 which was beyond the .01 level of confidence, as shown in Table 15. When corrected for word count through analysis of covariance, however, the F ratio was reduced to a nonsignificant value as shown in Table 16.

The second hypothesis predicted there would be significantly higher nAch scores from the relaxed to the two aroused conditions. This hypothesis was held more strongly for differences between relaxed and abstract treatments than between relaxed and concrete. A factorial analysis of variance based on unweighted cell means was used to test this hypothesis. Date of testing and incentive condition were the factors. As shown in Table 17, the F ratio for treatments did not reach an acceptable level of significance. An analysis of covariance further reduced this F ratio and is not reported.

It was less certain that these subjects would respond to the concrete treatment condition, and the mean score for this condition was not as high as that for the abstract condition. An analysis of variance based upon unweighted cell means was, therefore, conducted upon the relaxed and abstract treatment groups alone. As shown in Table 18, the F of
Table 15
Summary Table for Analysis of Variance of NAch Scores of Low versus High Achieving Subjects

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
<td>1</td>
<td>533.23</td>
<td>533.23</td>
<td>16.627</td>
</tr>
<tr>
<td>Error</td>
<td>192</td>
<td>6157.45</td>
<td>32.07</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>6690.68</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F for P of .01 for 1 and 150 DF = 6.81.

Table 16
Summary Table for Analysis of Covariance of NAch Scores of Low versus High Achieving Subjects

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
<td>1</td>
<td>74.28</td>
<td>74.28</td>
<td>2.39</td>
</tr>
<tr>
<td>Error</td>
<td>191</td>
<td>5937.19</td>
<td>31.08</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>6011.47</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F for P of .25 with 1 and 200 DF = 1.33, and F for P of .10 with 1 and 200 DF = 2.73.
Table 17

Summary Table of Analysis of Variance of High Achieving Subjects with Date of Testing and Treatments as Factors

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of testing</td>
<td>1</td>
<td>0.737</td>
<td>0.737</td>
<td>-</td>
</tr>
<tr>
<td>Treatments</td>
<td>2</td>
<td>103.105</td>
<td>51.5525</td>
<td>1.786</td>
</tr>
<tr>
<td>Replication x treatments</td>
<td>2</td>
<td>72.637</td>
<td>36.3185</td>
<td>1.258</td>
</tr>
</tbody>
</table>

Within cell 40 1154.571 28.8643 -

Note: F for P of .10 with 2 and 40 DF = 2.44.

Table 18

Summary Table of Analysis of Variance of High Achieving Subjects with Date of Testing and Relaxed versus Abstract Treatment Groups as Factors

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
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<td>8.572</td>
<td>8.572</td>
<td>-</td>
</tr>
<tr>
<td>Treatments (relaxed &amp; abstract)</td>
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<td>87.775</td>
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</tr>
<tr>
<td>Replications x treatments</td>
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<td>32.033</td>
<td>-</td>
</tr>
<tr>
<td>Within cell</td>
<td>26</td>
<td>818.587</td>
<td>31.484</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F for P of .10 with 1 and 26 DF = 2.91.
2.788 for treatment groups did not quite reach the .10 level of significance. An analysis of covariance reduced the F ratio and is not reported.

Possible interpretations of these data are presented in the following chapter.
CHAPTER V

INTERPRETATION

Subject Class Differences in Motive Strength

The results first discussed concern differences in achievement motivation between classes of subjects. The significantly higher nAch scores for the HA than for the LA sample generally confirmed hypothesis D. This indicated that achievement motivation generally varied with achievement success.

The finding that this difference was erased when nAch scores were adjusted for verbal output may have made this interpretation untenable. This could have meant that the HA subjects simply wrote more, and if they chanced upon an achievement theme they automatically scored higher. The nAch scores would then have simply measured a "disposition to write" variable.

On the other hand, there are arguments that may reasonably refute this consideration. In the first place, since correlation does not necessarily mean causation, it need not be assumed that verbal output per se was the cause of higher scores. This seems to be the case with these data even though the nature of the scoring system generally makes it necessary to write more to achieve a higher score. A subject receives points for each statement that fits one of the scoring categories. The same statement cannot generally be scored for more than one category. However, verbal output may be an achievement motive based behavior in itself to some degree. Correction for output could then
penalize the variable being measured. Further, a subject must write on an achievement theme to receive any points. Since so many themes are possible, the choice of an achievement theme is more likely a function of the motive.

The possible effect of the covariate is not to be ignored. Sheer verbal output may account for some of the variance in nAch scores. Based on these latter considerations, however, it is reasonable to conclude that the analysis of variance indicates that achievement motivation differs in the high and low achieving groups. The meaning of the results would have simply been even more certain if the covariate had not erased the difference.

This was the case when Es was used as a covariate. The HA subjects had a significantly higher mean Es, and Es was found to be positively related to nAch scores when both groups were combined. Differences in nAch scores between low and high achieving subjects were still significant when corrected for Es, however. This indicated that some of the difference in achievement motivation between these two groups was due to expectancy, but a significant amount of the difference was still a function of basic motive strength.

Although significant differences in achievement motivation were found between subjects showing large differences in achievement success, there was still the question of why the LA sample did not show similar differences within its own levels of success. This question pertained to hypothesis C which was not confirmed.

The possibility of attributing this lack of difference to test unreliability was examined. A projective test does not have a high
degree of test-retest reliability. This makes it more difficult to attain significant differences between groups of varying vocational achievement. This would be particularly so if achievement differences are not great, as in the LA sample. This did not seem to be the case, however, since the mean scores of the three LA groups were so similar. Also, the lack of group differences was probably not due to insensitivity of the test since the LA subjects attained an extensive range of nAch scores. This range was comparable with that of the HA sample. The fact that differences in achievement motive strength did not appear until extreme groups in terms of achievement success were compared makes the test's sensitivity still questionable, however.

Although their scores were generally lower, this range indicated a considerable variability of achievement motivation in the LA sample. This was more than could be accounted for by test unreliability. This finding emphasized the problem of lack of score differences in relation to differences in achievement.

In general, these three LA groups could be considered homogeneous as to strength of achievement motivation. Also, these results could indicate that there is a base level of achievement success. At or near this level, individual differences in achievement motivation are not related to performance, at least in the vocational sphere. Thus, not only did these subjects exhibit a generally lower and homogeneous level of achievement motivation, but those that did possess a greater strength of motivation may not have expressed it vocationally. If a man did succeed in supporting himself, it was to satisfy other needs such as affiliation. In terms of Rosen's (1956) concept, their achievement
values were not oriented toward work. Failures in work experiences may have caused a reorientation of achievement values. These findings also suggested that the emotional and physical problems of the members had been enough to bring them out of these low level occupations and into the domiciliaries.

The source of the LA subjects' generally lower level of motivation was not answerable in the present data. It is possible that a description of their early environment would be a great deal like Winterbottom's (1958) low nAch subjects. Also, their motivation may have become extinguished through consistent failure.

One source of lack of application of achievement motivation in work might have been related to the results with the G-S test. There was a nonsignificant trend for the nAch scores of the high G-S subjects to be related to level of vocational attainment. The G-S test possibly measured depth of comprehension of stimuli. The indication of a relationship between G-S and ODT scores backed this up somewhat. Therefore, if a subject could comprehend an incentive stimulus, and the particular achievement incentive had some value to him, he may have been aroused by an achievement incentive and have achieved more when such incentives were offered. Since most of the LA subjects did not score high on the G-S test, they may not have had the comprehension necessary to respond to achievement incentives, whatever their value orientation.

It should be pointed out that there were problems in comparing the HA to the LA sample. The HA subjects differed in age, socioeconomic status, intelligence, and probably other variables besides achievement
success. The lower level VA personnel were more like the members in terms of these characteristics. They were chosen, therefore, as part of the first sample in order to control for these variables as much as possible. This choice probably contributed greatly to the negative results with the LA sample since their achievement behavior was also at a low level.

The question, however, was whether the differences in nAch scores could be related to these other differences between the LA and HA samples. As mentioned in Chapter II and illustrated by the LA sample in the present data, achievement motivation is not generally related to intelligence (French, 1958d; Mahone, 1960; McClelland, 1958c; McDonald, 1956; Morgan, 1953). Further, beyond the early years, it does not seem to change with age (McClelland et al., 1953).

On the other hand, achievement motivation has been shown to be related to socioeconomic status (McClelland, 1961, pp. 317-22; McDonald, 1956; Rosen, 1956). These HA subjects exhibited more than the usual middle-class achievement, however. Thus, the differences in achievement motivation that they did show were very probably more than could be attributed to class differences. And, of course, class differences are largely defined in terms of differences in vocational achievement. Therefore, the interpretations based upon differences in achievement still seem tenable.

If the conclusion that one of these variables affected the results was warranted, the results still indicated that the Modified Test of Insight is responsive to group differences. Further, any relationship with another variable besides achievement that did exist would not
necessarily negate the interpretations related to the homogeneity and expression of achievement motivation in the LA sample. Possible relations with social class can be assessed through future research to be described in the following chapter.

There are several general conclusions from these data. The Modified Test of Insight used in this study has been shown to be a valid instrument when tested against groups differing greatly in achievement level. It may not be sensitive to minor differences in motive strength, however. Also, achievement motivation seems generally related to achievement performance. This relationship can logically be interpreted as causative. Previous literature has indicated similar relationships both with the Test of Insight and TAT measures. These studies were reviewed in Chapter II. Achievement motivation can also be considered as related to vocational achievement. This is based on the assumption that school work was the vocation of the high school subjects at the time of the experiment and that they will be more successful in their actual vocational careers. The results also indicate that this relationship does not hold at lower levels of achievement motivation and vocational achievement.

Further, the data indicate a relationship between achievement motivation and general life status in contrast with more specific relations to performance on laboratory tasks, for example. Indications of this type of relationship seemed somewhat lacking in the available literature.

In terms of practical usefulness, data such as these are related to such problems as the chronically unemployed. A low level of
achievement motivation may be one of the factors in their status. Unemployment may also be related to orientation of achievement values and comprehension of incentives.

The indication that even those who were employed at low level jobs did not have a generally higher level of achievement motivation was potentially meaningful. It indicates considerable similarity to the unemployed. Weak achievement motivation may be one reason why they were employed in low level jobs and why they would be a major source of unemployed. The data, of course, did not indicate how such behavior could be controlled. One approach to such problems was related to the question of response to achievement incentives, discussed in the next section.

Effects of Achievement Incentives

The second major concern of the study dealt with the effects of the different treatment conditions. Predictions of their effects were contained in hypotheses A, B, and E. This area of the study is first discussed in terms of the overall effectiveness of the treatments.

There were some trends in the data, suggesting that high G-S, VA personnel, and HA subjects are more responsive to either the abstract or concrete arousal conditions. Since none of the differences reached an acceptable level of significance, it must be concluded that the incentives were generally ineffective, however. There appeared to be several potential sources of these results. These were: insensitivity of the measure, ineffectiveness of the treatments per se, and characteristics of the subjects.
Since the test did seem responsive to achieving behavior and measured an extensive range of strength of achievement motivation, the lack of results was probably not due to test insensitivity. Further, previous literature indicated it is sensitive to arousal conditions (Birney, 1958; French, 1955).

Neither did the nature of the treatments as a whole seem to be the most logical source of negative results for the HA sample. The abstract condition did not exactly duplicate arousal stimuli in previous research, but it was very similar in most respects (Atkinson, 1956; Haber & Alpert, 1958). The HA subjects, at least, would have been expected to respond to it. The nature of the concrete stimulus may have negated positive results for the LA subjects. This possibility is discussed below.

The most likely general source was related to the nature of the subjects. In this respect, the HA and LA subjects are discussed separately since a different rationale seemed to apply to each group.

The lack of differential nAch scores within the HA sample was the most surprising since their general behavior suggested a strong responsiveness to achievement stimuli. In retrospect, this responsiveness may have been the most likely source of lack of differential response. These subjects were probably very easily aroused, particularly by any test situation, since this is where they have demonstrated a high level of achievement. Hence, they were probably considerably aroused by the relaxed condition itself since it included tests. Observations in the test situation strongly indicated this. They tried hard on the X's in circles test, with many exclamations indicating concern, and asked
questions about how well they had done. On the G-S test and Test of Insight, they worked quietly and gave extensive answers to the latter.

In contrast to a basal lower level of achievement motivation, they were probably near an upper level in the relaxed condition so that more arousal would have been difficult to achieve. They may have needed a situation wherein performance was more clearly personally valuable, as in a scholarship examination, to show differential arousal. While taking the test, these subjects were aware that scores would not show on their records. Some possibilities related to these interpretations are discussed under future research.

There was also a possibility that their lack of response was related to perception of E. Birney (1958) was unable to replicate French's (1955) results with a faculty E while he could with a student E. The meaning of this problem was not clear, however. Finally, the trend for the abstract group may have been a stable difference that would be significant with a larger N.

The lack of responsiveness of the LA subjects was more important since it was a major focus of the study. It was fairly clear that concreteness, as defined for the experiment, was not a source of differential arousal. Nevertheless, the finding that the range of scores was extensive and comparable with those of the HA sample strongly suggested that the conditions were not completely lacking in arousal stimuli for these subjects. This suggested that the stimuli were simply not differentially arousing but that the subjects were responding to the overall situation.

There were two possible sources of this lack of differential response, the definition of concreteness used, and characteristics of the subjects.
The literature generally supported the idea that a concrete stimulus would be more arousing for these subjects. This work was reviewed in Chapter II. A reanalysis of these data suggested a slightly different interpretation from that used, however. The key study for the hypothesis was Douvan's (1956), and her concrete incentive was the offer of a ten dollar prize to the highest scorer on the following day. The incentives used in the present study were not really offered to the high scorers but only described as events related to high scores. The actual achievement of the concrete goals was only implied, and not in the immediate future. Therefore, a concrete incentive should possibly be redefined as one that is attainable immediately and directly from task performance. In this case, a hypothesis based upon the concreteness of the stimulus may still hold and can be checked in future research. An experiment based upon this possibility is described below.

It should be noted that the stimuli used in the present experiment consisted only of words since they would have had more practical usefulness as means of controlling achievement behavior of domiciliary members. Further, words were the usual type of stimuli in past research and significant results were attained with them.

Another possible source of these negative results concerned characteristics of the IA subjects. Preliminary data for the study had suggested that there might be a general lack of responsiveness of these subjects. As mentioned in Chapter III, they had trouble ranking the stimuli on an abstract-concrete continuum although the stimulus differences seemed readily apparent. And they were generally unresponsive to a picture stimulus. Also, many did not do well on the G-S test in
the experiment proper, even though it was not particularly difficult in terms of intellectual capacity. Further, the general vocational achievement record of the domiciliary members suggested a general lack of responsiveness to vocational achievement incentives (Veterans Administration Center, 1961). Observations of general behavior also indicated that they were a very passive group. These observations strongly indicated that it would be difficult to arouse any strong motivation in these subjects. Most of these characteristics were known before the experiment, however, and were some of the reasons for attempting to find a stimulus that would be arousing.

There were some trends in the data suggesting that the high G–S subjects and VA personnel were responsive to arousal cues. The high G–S scorers may have been responsive to both the abstract and concrete incentives. This suggested that these subjects may have been more responsive to stimulus differences because these stimuli had more meaning to them. They could differentiate between aroused and non-aroused conditions as those that did and those that did not have a personal value to him and responded appropriately. If this were the case, the G–S test is a measure of the depth of meaning of a stimulus to a subject. The suggestion of a relationship between the G–S test and intelligence reinforces this interpretation.

In line with this interpretation of the G–S test and in terms of the results with this test alone, the fact that only the high G–S subjects showed this trend led to the possibility that stimuli, in general, had little personal meaning in a value sense for the great bulk of these subjects. And, these subjects may not have been generally
aware of environmental differences. This was based on their difficulty in ranking the stimuli and with the G-S test. This lack of meaning and of awareness of stimuli should probably not be considered strictly an intellectual variable since any relationship with intelligence would only be a low one, at best. This analysis may explain the general inability to respond differentially to the abstract and concrete cues or to both of these cues taken together. The rationale for this would be as follows: if the G-S test measured depth of meaning of stimuli, the generally low scores suggested that relaxed, concrete, and abstract stimuli had little personal meaning to most LA subjects. Because they had little personal meaning, these stimuli were perceptually equivalent. This could have been so even though most subjects might have had the intellectual capacity to differentiate the stimuli. Hence, they could not rank them or respond differentially to any of the stimuli, including the relaxed, in the experiment proper. This interpretation did not apply to the HA subjects since most of them achieved very high G-S scores. Even though they did not score higher on the G-S test, the suggestion of greater responsiveness to the concrete stimuli of the VA personnel and their economic independence may have indicated that concrete vocational stimuli had a value meaning to a greater proportion of them. This trend was more likely meaningful since these subjects were the most like Douvan's (1956).

The source of development of the LA sample's general unresponsiveness can only be guessed. Repeated failure experiences on the part of these LA subjects may have resulted in withdrawal from stimuli and a resulting inability to value them.
There was some question whether to continue the experiment as originally planned since the domiciliary members were known to be generally unresponsive and had such difficulty in ranking the stimuli. It was thought, however, that their difficulty in ranking could have been strictly due to intellectual capacity or education. This was indicated in the ranking procedure when it was observed that the concepts of general and specific and even of a continuum were unfamiliar to many of the subjects. Also, such a possibility did not preclude a differential response since the experiment did not entail their making an intellectual distinction between the stimuli. They only needed some understanding of the terms since people can respond differentially to stimuli and be aware of differences even though they cannot communicate the basis for the differences.

Further, the G-S test was constructed as a means of controlling for possible lack of meaning of stimuli. The trends in the data were not conclusive but suggested that many LA subjects may have had this necessary level of intellectual understanding, but most may not have been able to perceive any potential personal value of the incentives.

The results of this study suggested new avenues of experimental approach to the problems of achievement motivation and with motivation of domiciliary members in particular. Two of these are described in the next chapter.
CHAPTER VI

PROJECTED RESEARCH

Several potential areas of research became evident during the course of the present study. The first experiment proposed would study the effects of immediate and direct concrete incentives upon domiciliary members as discussed in the previous chapter. The procedure would be to apply various modifications of the stimulus conditions used in Douvan's (1956) experiment to domiciliary members. This would include the presentation of abstract incentives and the offer of various types of concrete rewards as direct results of high performance. The time lag between performance and concrete reward attainment could also be varied.

The results of such a study could indicate the nature of incentives to which members will respond. Higher nAch scores in response to direct and immediate concrete rewards than to abstract incentives would indicate that the former are more effective achievement motive arousers for members.

A lack of differential response to a delayed incentive would indicate that the immediacy of a concrete incentive is a necessary condition for greater motive arousal. Possibly it would also be a sufficient condition, but this could not be assured since it seems impossible to create a situation wherein the reinforcement would be immediate but not direct.

Such results would be generally important for an increasing specification of the concept of incentive value in terms of individual
differences. They could also function as a source of orientation to classes of effective achievement incentives for members. Such incentives could be used in the therapeutic control of members' and similar low achieving subjects' achievement behavior. These incentives could further be used as a basis for relearning concerning the values of long-term goals in our society. This might be accomplished by discussions directed toward bringing about an awareness of their responsiveness to short-term goals. Such awareness could be used as a basis for reorientation toward the achievement of similar goals, available after more prolonged effort.

The second proposed study is based on the fact that the data did not rule out the possibility that the variance between the high and low achieving subjects was a function of class differences. There was also a question of the responsiveness of the Modified Test of Insight to arousal conditions. These problems could be answered to some extent through duplicating the present procedures on an average achieving middle-class sample.

If these average achieving subjects' nAch scores were between those of the HA and LA samples, it would indicate that the difference between the latter samples was not simply a social class difference. Such results would also reinforce the conclusion that achievement motivation is related to differences in achieving behavior. This is based on the assumption that average achievement is considered a higher level of achievement than that of the LA sample.

Higher nAch scores for the abstract over the relaxed condition for the new sample would validate the present interpretation that the high
achieving subjects were too responsive to achievement stimuli to be easily motivated further. Such results would also validate the general efficacy of the arousal conditions and sensitivity of the Test of Insight to degree of arousal.

Approaches to the above studies seem reasonably clear. Two other areas should be investigated, but the means of doing so is not evident at present.

The present study suggested that success expectancy may be one determinant of strength of aroused motivation under some conditions. Since the experiment was not expressly designed to test the effects of expectancy, many questions were left unanswered, however. Possibly the greater achievement success of the HA subjects determined their higher expectancy. Conformation of such an idea would suggest that programs designed to raise expectancy through success experiences would be an effective means of increasing motivational response to achievement situations. Such procedures could be applied in combination with classes of incentives known to be effective motive arousers.

On the other hand, strength of basic achievement motive itself may act as a determinant of expectancy. This would suggest that increasing the strength of aroused motivation would be very difficult since the achievement motive seems to develop at an early age (McClelland et al., 1953).

Another point is related to the distribution of Es ratings. The bulk of both the HA and LA samples rated themselves at the next to highest level. This could be a defensive type of rating on the part of both classes of subjects. When comparing these subjects with people in
general, these ratings are not accurate estimates of either group's overall level of past achievement success. These ratings could simply be a function of the type of group with which each subject was comparing himself, but there may be other possibilities. These subjects could be unaware of the level of accomplishment of the general population. The reasons for such unawareness could differ for each group.

A final area that was suggested by the data is the problem of perceived meaning of stimuli to a subject. One interpretation of the results was that there may have been little depth in the meaning of the incentive terms to most LA subjects. This did not necessarily seem to be a function of intelligence. Such an interpretation has a general significance since the depth of one's perception of an event is basic to the value attached to it. If a person were unaware of or had little comprehension of a stimulus, his attitude toward it would be neutral.

Shallowness of meaning of a situation may be one determinant of inadequate response. Particularly, meaning of achievement incentives may be important in vocational failure. On a broader scale, depth of meaning given to a stimulus by a particular cultural group may be a determinant of that group's response to vocational and economic situations. This would apply to attempts to aid underdeveloped countries and underprivileged groups within the United States economy.

On the other hand, methods of approaching the area, such as measuring the concept of depth of meaning, are not available. Such problems make it a potentially important but inaccessible field at present.
CHAPTER VII

SUMMARY

Considerable research has been done by McClelland and others on the concept of the achievement motive. They consistently used a unified method of measurement, based upon projective responses of their subjects. Through their research they defined the motive as a latent disposition within the individual to compete with a standard of excellence. As a latent disposition, there must be stimuli in the external situation that arouse a person's subjective expectancy of goal attainment and personal valuations of the achievement goal available. The interaction of these three factors of achievement motive, expectancy of success, and incentive value are hypothesized as determining the strength of aroused motivation.

Most of the studies concerned with arousal of motivation implicitly accepted an abstract incentive as a sufficient goal for achievement motive arousal. A few studies dealing with the concept suggested that there is considerable individual variation in type of incentive that is the most effective arousal stimulus, however. The data suggested that low-achieving subjects might be most responsive to a concrete incentive. This was one focus of the present study.

The second focus was the relationship between strength of measured achievement motive and economic status. Most of the past research indicated a generally positive relationship with performance level. On the other hand, there was little data dealing with more global indices.
of performance level, such as general vocational achievement. What there was suggested that the achievement motive was positively related to economic success. None of these data were directly concerned with strength of achievement motive at very low levels of vocational success or failure.

The present study investigated the characteristics of incentive orientation and strength of achievement motive in a group of Veterans Administration domiciliary members and low-level Veterans Administration personnel. The former was considered to be a group of vocational failures. The latter was considered representative of the working-class population.

It was hypothesized that all subjects' achievement motivation would be most aroused by concrete incentives. It also was predicted that there were three levels of economic independence within this sample that would be positively related to strength of achievement motive. These three levels were: (a) lower level Veterans Administration personnel; (b) domiciliary members who work a paid forty-hour week at the Dayton Veterans Administration Center; and (c) domiciliary members who have never held a member-employee job at the Center.

The procedure was to test each class of subject under three experimental conditions. Under a relaxed condition, achievement motive arousal was presumably minimized. In the abstract condition, the tests were defined as predicting the subjects' chances of reaching abstract goals. In the concrete condition, the goals were concrete in nature.

Three tests were administered to each subject. In the first, they were instructed to mark X's in circles. In the second, they had to
discriminate between abstract and concrete terms. The third test was the
criterion measure. It consisted of statements of characteristic behav—
iors of people which the subjects were to "explain."

This last measure was adapted from one developed by Elizabeth French
which she titled, Test of Insight. The responses were considered pro­
jections by the subjects and were scored according to a system of
categories developed by McClelland and others with slight modifications.
The numbers of such categories scored were considered a measure of the
subject's strength of aroused achievement motive. This was termed his
nAch score.

The X's in circles task was used as a motive arousal stimulus. The
test of abstract-concrete discrimination was used as a control measure.
It was thought that this ability might relate to a subject's responsive­
ness to the treatment variables. Each subject also rated his expectancy
of success on the two performance tasks. This was given in order to
test whether different success expectancies between groups would affect
their need achievement scores.

The hypotheses tested by these procedures were almost completely
unconfirmed. The mean nAch scores of the three classes of subjects were
very similar. Further, there was no overall indication of differential
arousal to the three treatments. The validity of the Test of Insight
was thrown into doubt by these results since it had been modified some­
what. A group of known high achieving high school students was then
tested as a means of checking this possibility. They were expected to
have generally higher nAch scores than the sample from the Veterans
Administration. Also, they were expected to be responsive to the arousal
incentives. Only the first of these two hypotheses was confirmed. When
the higher nAch scores of the high achieving subjects were corrected for
expectancy of success, the difference was decreased but was still sig­
nificant. When corrected for verbal productivity, the difference was not
significant.

These results were interpreted as indicating that the achievement
motive does have a causal relationship with achieving behavior. It is
also probably related to general vocational achievement if school work is
accepted as the high achieving subjects' vocation. Some of the variance
between these two groups can probably also be attributed to greater ex­
pectancy of success. The lack of significant differences when corrected
for word count was not seen as denying a relationship with achievement
level. Verbal productivity is probably an achievement behavior in it­
self, and the nAch scores themselves are indirectly dependent upon
amount written.

The low achieving subjects' nAch scores did not vary within their
own level of vocational achievement. This finding indicated that at a
generally low level of achievement motive strength the motive is not
expressed in work.

There were several possible reasons for the lack of differential
response to one or both arousal incentives. For the high achieving
group, it may have been a function of high sensitivity to achievement
stimuli making them highly aroused in the relaxed condition. Greater
arousal, therefore, would have been difficult to achieve. There was a
trend toward greater response to the abstract stimulus for these sub­
jects that suggested they would respond to a very strong stimulus.
The low achieving subjects may not have responded to the concrete incentive because it was not offered as an immediate and direct result of high performance. The definition of a concrete incentive should possibly contain these qualities. Another possible reason for the low achieving subjects' lack of response was related to depth of meaning of incentive stimuli to these subjects. There was a trend for subjects scoring high on the test of ability to discriminate abstract from concrete stimuli (G-S test) to have higher nAch scores under the two aroused conditions. This suggested that this test measured depth of meaning of a stimulus. The bulk of these low achieving subjects did not score very high on the G-S test. Possibly they could not respond to the experimental conditions because the incentives had little meaning to them. Since these incentives were vocational in nature, the general lack of response to them may partially explain why they do not succeed vocationally. Along this vein, the self-supporting VA personnel within this group also showed a tendency to respond to the vocationally oriented, concrete incentives.

nAch scores were also positively related to success expectancy. The meaning of this result was unclear, however, since no relationships were found within either the high or low achieving samples.

Some of these interpretations could be checked through research. One possible study would focus on effects of varying the immediacy of direct reinforcement for high scores on the experimental performance tasks. A second study would duplicate the procedures of the present study with an average achieving high school group. It would focus on possible effects of socioeconomic status on the present data and their response to the arousal incentives in contrast to the high achieving subjects.
Summary of achievement motive scoring system condensed from McClelland et al., 1958, "A Scoring Manual for the Achievement Motive."

There is a theoretical possibility of 11 points per story, made up of the following categories. Score values are given with each category.

I. Achievement Imagery (AI). The scorer must first decide whether the goal of some person in the story is to be successful in terms of competition with some standard of excellence. If AI is present, score 1.

The three criteria for this decision are:

A. **Competition with a standard of excellence.**
   1. A character is engaged in competitive activity where winning, etc., is explicitly stated as a primary concern.
   2. If a character is engaged in competitive activity but the desire to win is not explicitly stated, then he must:
      (a) show affective concern regarding goal attainment, or
      (b) engage in certain types of instrumental activity to score AI.
   3. If the activity is not competitive, the character must show the same signs as above for meeting self-imposed standards of excellence.

B. **Unique accomplishment.** A character is involved in accomplishing something beyond the ordinary which will mark him as a personal success, such as an invention.
C. Long-term involvement. A character is involved in attaining a long-term achievement goal, such as becoming a lawyer, machinist, etc. If one of these three criteria is met, other categories below are scored. These two are scored if none of the criteria for AI are met.

II. Doubtful Achievement Imagery (TI) (score 0) and not scored further. The story contains some references to achievement but fails to meet any of the above criteria.

III. Unrelated Imagery (UI) (scored -1) and not scored further. The story contains no reference to an achievement goal.

IV. Stated Need for Achievement (N) (score 1). A character is explicitly desirous of reaching an achievement goal; he hopes to succeed, for example.

V. Instrumental Activity with Various Outcomes (I+, I?, I-) (score 1). A character in the story exhibits activity indicating something is being done about attaining an achievement goal. The outcome signs depict whether the net result was successful, doubtful, or unsuccessful.

VI. Anticipatory Goal States (Ga+, Ga-) can achieve one point for each. Someone in the story anticipates goal attainment and/or frustration and failure.

VII. Obstacles or Blocks (BP, BW) can achieve one point for each. Progress toward the goal is hindered through obstacles within the character (BP) and/or in the environment (BW).
VIII. **Nurturant Press (NUP)** (score 1). Personal forces aid the character who is engaged in attaining an achievement goal.

IX. **Affective States (G+, G−)** can achieve two points. Affective states associated with, or definite objective benefits of, success (G+) or failure (G−). "He **enjoys** painting"; "He became a drunken bum", are examples.

X. **Achievement Theme (Ach Th)**. Scored when the achievement imagery is elaborated so that it becomes the central plot in the story.
Special Scoring Decisions Applied in the Present Study

1. Thema was not scored in these protocols. Many responses contained few words. They might all have been achievement related and scorable. However, it was not considered prudent to give credit to such a response, even though achievement was the only theme.

2. As mentioned in the body of the text (p. 42), the difficulties with Item 7 precluded objective scoring. Hence, the item was not scored.

3. Sometimes the words "want" or "desire," etc., were not explicitly put into the response. For example, in answer to the question, "What does he want to do?," the subject may have simply put "succeed," or "do a good job." Since this was a logical way of responding, the explicit need word was implied. The statement was then scorable for N.

4. A statement that the person "wants to learn," was considered as indicating an achievement goal and scorable for N.

5. Statements such as "he wants to get ahead," were considered representative of a long-term goal and scored N.

6. Statements such as "he is ambitious," were considered representative of a long-term goal and scored AI. Since the need was not stated, it was not scored N.

7. Statements to the effect that "he wants to become a leader," were considered examples of long-term goals and scored for N.

8. If the outcome was that the person "became a leader," it was considered an objective benefit and scored G+.

9. For the person to "come out on top," etc., was considered an objective benefit and scored G+. 
10. If the character simply wanted to "impress others," it was not considered representing an achievement goal and was only scorable as TI. If he wanted to "show" or impress others with what he can do, or other terms that indicated he wanted to meet a standard of excellence, besides whatever impression he could make, it was scored N.
**Statement B**

(This was the Abstract Stimulus for the study.)

**Explanation of Procedures**

This first page will explain what we are asking you to do today.

We want you to take some important tests. They will take about an hour. These tests have been used a lot, and we know they tell us about important abilities.

Most of us want to compete successfully with others in our chosen field, and we want to succeed in general. These tests tell us which men have the abilities to do this. In other words, if you score high on these tests, you can succeed in your chosen field and succeed in general, or have already done so.

We want to give you these tests to see how well you compare with men who have these abilities. You can also see for yourself how you stack up with men who will be able to succeed in life and compete with others in their field or have already done so. Since they are so important, you will probably want to know how you compare with other men on these tests, so we have arranged to let you know how well you have done as soon as we have the scores available.

One thing about these tests is that they depend more upon how hard you try than anything else, so everyone who tries hard will get a high score.

We are doing this testing for the Veterans Administration, which is interested in finding out how well you stand on these abilities. We also want to know how you compare with other men in other VA Centers.
Therefore, we want you to put your name exactly as you have given it to the administration on the test booklets in front of you. Please do that right now.
Statement A

Explanation of Procedures

This first page will explain what we are asking you to do today.

We want you to take some important tests. They will take about an hour. These tests have been used a lot, and we know they tell us about important abilities.

Most of us want to have the ability to be leaders. We want to be really smart. These tests tell us who has these abilities. Besides how smart you are, they tell us how well you learn from your experience, your ability to understand what is going on around you, and to put things together in an organized way. In other words, if you score high on these tests, you are smart and have leadership ability.

We want to give you these tests to see how you compare with other men on these abilities. You can also see for yourself how you stack up with men who have shown they have leadership ability and who are smart. Since they are so important, you will probably want to know how you compare with other men on these tests, so we have arranged to let you know how well you have done as soon as we have the scores available.

We are doing this testing for the (name of organization), which is interested in finding out how well you stand on these abilities. We also want to know how you compare with other men in other (domiciliaries, Senior Citizens' Clubs, VA Centers).

Therefore, on the test booklets in front of you, we want you to put your name exactly as you have given it to the administration. Please do that right now. (Pause) Thank you.
I will now read the instructions for the first test. Please read along with me.
Statement D

Explanation of Procedures

This first page will explain what we are asking you to do today.
We want you to take some important tests. They will take about an hour. These tests have been used a lot, and we know they tell us about important abilities.

Most of us want to get a job and keep it and to make a living. These tests can tell us which men have the abilities to do this. In other words, if you score high on these tests, you will successfully qualify for a job and keep that job, or have already done so.

We want to give you these tests to see how well you compare with men who are able to do this. You can also see for yourself how you stack up with men who have or have had enough ability to be chosen for a job and who then have kept that job. Since they are so important, you will probably want to know how well you compare with other men on these tests, so we have arranged to let you know how well you have done as soon as we have the scores available.

We are doing this testing for the (name of organization) administration, which is interested in finding out how well you stand on these abilities. We also want to know how you compare with other men in other (domiciliaries, VA Centers, Senior Citizens' Clubs).

Therefore, on the test booklet in front of you, we want you to put your name exactly as you have given it to the administration. Please do that right now. (Pause) Thank you.

I will now read the instructions on the test booklet in front of you. Please read along with me.
Explanation of Procedures

This first page will explain what we are asking you to do today.

We want you to take some important tests. They will take about an hour. These tests have been used a lot, and we know they tell us about important abilities.

Most of us want to be financially successful. These tests can tell us which men have the abilities to do this. In other words, if you score high on these tests, you will make the most money or have already made a lot of money.

We want to give you these tests to see how you compare with men who have shown they have this ability. You can also see for yourself how you stack up in comparison with other men who have or will make a lot of money. Since they are so important, you will probably want to know how you compare with other men on these tests, so we have arranged to let you know how well you have done as soon as we have the scores available.

We are doing this testing for the (name of organization) administration, which is interested in finding out how you stand on these abilities. The administration is also interested in finding out how you compare with other men in other (Domiciliaries, VA Centers, Senior Citizens Clubs).

Therefore, on the test booklet in front of you, we want you to put your name exactly as you have given it to the administration. Please do that right now. (Pause) Thank you.
I will now read the instructions on the test booklet in front of you. Please read along with me.
Statement C

ExplanatIon of Procedures

This first page will explain what we are asking you to do today.

We want you to take some important tests. They will take about an hour. These tests have been used a lot, and we know they tell us about important abilities.

Most of us want to be one of the best workers on their jobs and be able to earn a lot of raises. These tests can tell us which men have the abilities to do this. In other words, if you score high on these tests, you will do best on your job and get the most raises, or have already done so.

We want to give you these tests to see how you compare with men who are or were good at their jobs. You can also see for yourself what your chances would be of getting a raise on any job you might have. Since they are so important, you will probably want to know how you compare with other men on these tests, so we have arranged to let you know how well you have done as soon as we have the scores available.

We are doing this testing for the (name of organization) administration, which is interested in finding out how you stand on these abilities. We also want to know how you compare with other men in other (domiciliaries, VA Centers, Senior Citizens Clubs).

Therefore, on the test booklet in front of you, we want you to put your name exactly as you have given it to the administration. Please do that right now. (Pause) Thank you.

I will now read the instructions on the test booklet in front of you. Please read along with me.
This first page will explain what we are asking you to do today.

We want you to take some important tests. They will take about an hour. These tests have been used a lot, and we know they tell us about important abilities.

Most of us want to do well enough to be able to afford a few of the extras such as: good clothes, a new car, a good steak when you want it, tickets to sports events, fishing tackle, a transistor radio, and so on, whatever kinds of things you want besides the bare necessities. These tests can tell us which men have the abilities to do this. In other words, if you score high on these tests, you will end up with the extras that you want, or have already done so.

We want to give you these tests to see how well you compare with men who have been able to get these things. You can also see for yourself how you stack up with men who have or have already shown the ability to get such things as good clothes, new furniture, tickets to sports events, or whatever extras you may personally want. Since they are so important, you will probably want to know how well you compare with other men on these tests, so we have arranged to let you know how well you have done as soon as we have the scores available.

We are doing this testing for the (name of organization) administration, which is interested in finding out how well you stand on these abilities. We also want to know how you compare with other men in other (Domiciliaries, Senior Citizens Clubs, VA Centers).
Therefore, on the test booklets in front of you, we want you to put your name exactly as you have given it to the administration. Please do that right now. (Pause) Thank you.

I will now read the instructions on the test booklet in front of you. Please read along with me.
Statement F
(This was the Concrete Stimulus for the study.)

Explanation of Procedures

This first page will explain what we are asking you to do today.

We want you to take some important tests. They will take about an hour. These tests have been used a lot, and we know they tell us about important abilities.

Most of us want to have our own home, a good car, and a little money in the bank. These tests can tell us which men have the abilities to do this. In other words, if you score high on these tests, you will end up with your own home, a car, and some money saved, or have already done so.

We want to give you these tests to see how you compare with men who have succeeded or will succeed in accomplishing these goals. You can also see for yourself what your chances would be of having these things: a home, a car, etc. Since they are so important, you will probably want to know how you compare with other men on these tests, so we have arranged to let you know how well you have done as soon as we have the scores available.

One thing about these tests is that they depend more upon how hard you try than anything else, so everyone who tries hard will get a high score.

We are doing this testing for the Veterans Administration, which is interested in finding out how you stand on these abilities. We also want to know how you compare with other men from other VA Centers.
Therefore, we want you to put your name exactly as you have given it to the administration on the test booklets in front of you. Please do that right now.
Relaxed Stimulus

Explanation of Procedures

This first page will explain what we are asking you to do today.

We want you to take some tests. They will take about an hour.

However, they will be very different from other times you have ever taken a test. In the first place, we are not interested in how good you are at these tests. We aren’t really testing you at all.

What we are really doing is trying to find out something about the tests themselves. They have just been made up, and we are going to see how they work so we can make them better. We are testing the tests, to put it bluntly, and you are not going to be graded on them.

We don’t even need to know who you are. But, since there is more than one test, we need to keep all the papers together, so I will give you each a number.
Table 19
Results of Rankings of Incentives
by Psychology Staff Personnel

<table>
<thead>
<tr>
<th>Judges</th>
<th>B</th>
<th>A</th>
<th>D</th>
<th>E</th>
<th>C</th>
<th>G</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>J.D.</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>B.B.</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>D.M.</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>G.L.</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>E.B.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

\[
R_j - \frac{\sum R_{ij}}{N} \quad -13 \quad -8 \quad -5 \quad 00 \quad 1 \quad 12 \quad 13
\]

\[
(R_j - \frac{\sum R_{ij}}{N})^2 \quad 169 \quad 64 \quad 25 \quad 0 \quad 1 \quad 144 \quad 169
\]

\[
R_j \quad 7 \quad 12 \quad 15 \quad 20 \quad 21 \quad 32 \quad 33
\]

\[
D = 5 \quad 3 \quad 5 \quad 1 \quad 11 \quad 1
\]
**Instruction Sheet**

We want to see if you can tell the difference between **GENERAL** words or phrases and **SPECIFIC** words or phrases.

A **SPECIFIC** word is a word that refers to particular things, or material objects or actual events.

A **GENERAL** word is a word that may refer to many kinds of things.

Here are some examples of words or phrases that vary in how specific or general they are:

- **food** — most general
- **fruit**
- **apple** — most specific
- **meat eating animal**
- **lion** — most specific
- **animal** — most general
- **people** — most general
- **men**  
- **John Jones** — most specific
- **ex-sailor** — most specific
- **man** — most general
- **veteran**

Now you try these: Which is most general and which the most specific? The remaining one should be somewhere in between these two.

- **leader**
- **alcoholic drink**
- **officer**
- **liquid**
- **lieutenant**
- **glass of beer**

- **The Ford that belongs to John Jones**
- **chair**

- **Ford**

- **the chair on which you are sitting**

- **car**

- **furniture**
Need Affiliation Incentive Cards

(Abstract Need Affiliation)

Most of us would like to have successful relationships with others. We want to deal with others effectively.

(Median-Abstract Need Affiliation)

Most of us would like to be popular and to have lots of friends. We want to be well liked.

(Concrete Need Affiliation)

Most of us would like to be asked to go to coffee, to chat with others, to go to lunch with someone, to go to the recreation building with someone, and so on, any kind of human contact.

Achievement Incentive Cards

(Abstract of Statement A)

Most of us want to have the ability to be leaders and be really smart. We want to be able to learn from our experience, to understand what is going on around us, and to be able to put things together in an organized way.
Achievement Incentive Cards

(Abstract of Statement E)

Most of us want to be financially successful, we want to make a lot of money.

(Abstract of Statement G)

Most of us want to do well enough to be able to afford a few of the extras such as: good clothes, a new car, a good steak when you want it, tickets to sports events, fishing tackle, a transistor radio, and so on, whatever kinds of things you want besides the basic necessities.

(Abstract of Statement B)

Most of us want to compete successfully with others in our chosen field, and we want to succeed in general; we want to succeed in life.

(Abstract of Statement C)

Most of us want to be one of the best workers on our jobs and be able to earn a lot of raises.

(Abstract of Statement F)

Most of us want to have our own home, a good car, and a little money in the bank.
Table 20

Results of Rankings of Statements B, C, and F by Lower-Level V.A. Personnel and Domiciliary Members

<table>
<thead>
<tr>
<th>Judges</th>
<th>Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
</tr>
<tr>
<td>G</td>
<td>1</td>
</tr>
<tr>
<td>H</td>
<td>2</td>
</tr>
<tr>
<td>I</td>
<td>1</td>
</tr>
<tr>
<td>J</td>
<td>1</td>
</tr>
</tbody>
</table>

\[
\begin{align*}
R_j & \quad 12 \quad 21 \quad 27 \\
\frac{R_j - \frac{\sum R_j}{N}}{N} & \quad -8 \quad 1 \quad 7 \\
\left( \frac{R_j - \frac{\sum R_j}{N}}{N} \right)^2 & \quad 64 \quad 1 \quad 49 \\
\end{align*}
\]

Note: \( W = .570; S = 114 \). (S for \( P \) of \( .01 = 85.1 \))

<table>
<thead>
<tr>
<th>Judges</th>
<th>Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>R_j</td>
<td>12</td>
</tr>
<tr>
<td>D =</td>
<td>9</td>
</tr>
</tbody>
</table>
Description of the Test

PLEASE READ CAREFULLY

We want to see if you can tell the difference between **GENERAL** words or phrases and **SPECIFIC** words or phrases.

A SPECIFIC word is a word that refers to particular things or a small number of things which can be included in a larger group of things with something in common.

A GENERAL word is a word that may refer to many kinds of things which have something in common.

Words can be compared on how **GENERAL** and how **SPECIFIC** they are.

For example:

**Clothing** is a GENERAL word that refers to many things, including coats, hats, shoes, dresses, etc., etc. Coats, hats, and shoes are SPECIFIC words under the GENERAL category of clothing or things a person could wear. So, clothing is more general than coat.

In the same way a **penny** is more SPECIFIC than money because the word money includes nickels, quarters, dollars, pennies, etc., etc.

Here are two more examples:

**drill press** is more SPECIFIC than **machine**

and

**tree** is more GENERAL than **oak tree**
Also, a word may be more GENERAL than one word but more SPECIFIC than another.

For example: Of the three (3) words food, fruit, and apple, fruit is more SPECIFIC than food but more GENERAL than apple; it is in between the most GENERAL word food and the most SPECIFIC word apple.

The reason for this is because apple is just a SPECIFIC kind of fruit, but so are pears, oranges, etc. Also, fruit is just a specific kind of food, but so are meats and vegetables.

Here is another example:

People-------------most general—because it includes every kind of person

Men---------------in between—because it leaves out women but still includes all kinds of males

John Carpenter-------most specific—because it only refers to the very few males with that name

Here are two more examples:

meat eating animals—in between ex-sailor—most specific

lion-------------most specific man--------most general

animal----------most general veteran------in between

After you understand the instructions and examples, go on to the test on the following pages.
HERE ARE SOME PAIRS OF WORDS. ONE OF EACH PAIR OF WORDS IS MORE SPECIFIC THAN THE OTHER. EACH KIND MAY BE EITHER THE FIRST OR THE SECOND WORD. YOU ARE TO COMPARE THEM AND PICK OUT THE MOST GENERAL AND THE MOST SPECIFIC IN EACH PAIR. PUT A G IN FRONT OF THE MOST GENERAL WORD AND AN S IN FRONT OF THE MOST SPECIFIC WORD. THIS MEANS THAT YOU WILL HAVE A G AND AN S FOR ANY ONE PAIR. READ THESE INSTRUCTIONS AGAIN CAREFULLY TO MAKE SURE YOU UNDERSTAND WHAT TO DO.

HERE IS A COMPLETED EXAMPLE:

<table>
<thead>
<tr>
<th>Metals</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1. _flower</th>
<th>2. _coffee</th>
<th>3. _hammer</th>
<th>4. _jewelry</th>
</tr>
</thead>
<tbody>
<tr>
<td>rose</td>
<td>beverage</td>
<td>tool</td>
<td>bracelet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>reading material</td>
<td>machinist</td>
<td>grammar school</td>
<td>musical instrument</td>
</tr>
</tbody>
</table>
These are like those described on page 2. Read that page again.

Now try to decide which is the most GENERAL and which the most SPECIFIC of the three (3). The remaining one will be somewhere in between these two. Mark the most GENERAL one with a G and the most SPECIFIC one with an S, as you did before. Each set of three (3) will then have a G, an S, and one BLANK space. The BLANK one will be more GENERAL than one of the words but more SPECIFIC than the other. Read these instructions again to make sure you understand exactly what to do.

Here is a completed example:

| S | ham
| G | food
|   | meat

9. __leader
   __military officer
   __lieutenant

10. __alcoholic drink
    __liquid
    __glass of beer

11. __The Ford that belongs to John Jones
    __Fords
    __automobiles

12. __chairs
    __a green chair
    __furniture
13. ___container
   ___bottle

14. ___singer
    ___artist

15. ___athlete
    ___baseball player
    ___first baseman

16. ___pickup truck
    ___vehicle
    ___truck
We want to see if you understand why people act the way they do.

There are thirteen (13) sentences on the following pages.
They tell what different people do.

Read each sentence and decide why the person acts this way.

Think about:

- What he is like.
- What he wants to do.
- What will probably happen.

There are questions after each sentence to get you started.
But you don't have to stick to each question too closely.

Just put down whatever you think, and as much as you can about each person. Try and answer each one.

Don't worry about how well you are doing, just do your best.
1. Bill always lets the "other fellow" win.

What does he want to do?

What will happen?

2. Ed feels upset if he hears that anyone is criticizing or blaming him.

What does he want to do?

What will happen?

3. Frank would rather follow than lead.

What does he want to do?

What will happen?
4. Don is always trying something new.

What does he want to do?

What will happen?

5. Joe is always willing to listen.

What does he want to do?

What will happen?

6. Ted never hesitates to express an opinion.

What does he want to do?

What will happen?
7. Pete said, "I'm pretty sure I can do it."

What does he want to do?

What will happen?

8. Ray works much harder than most people.

What does he want to do?

What will happen?

9. Dave likes a good argument.

What does he want to do?

What will happen?
10. Jerry never keeps anything to himself.

What does he want to do?

What will happen?

11. George will usually volunteer for a difficult task.

What does he want to do?

What will happen?

12. Sam worries a lot about how he has done on his job.

What does he want to do?

What will happen?

What does he want to do?

What will happen?
The last thing for you to do is to tell us how well you feel you did on the first and second tests you took. Just mark an X along the line at a place that best describes how well you think you did.

<table>
<thead>
<tr>
<th>Very Low</th>
<th>Below Average</th>
<th>Above Average</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
X's in Circles Test Instructions and Procedure
for Aroused Conditions

This is a test to see how fast you can get things done. I don't think you need to practice this one. All you have to do is mark an X in each of the circles on these pages as fast as you can. Start when I say GO; stop when I say STOP. You will have five minutes. Are there any questions? (Pause) The harder you try, the better you will do. There are too many to do for you to finish, but do as many as you can. Okay, READY, START! (Five minutes—READY, STOP!) Measure from Atkinson, p. 282, Atkinson (1958a).

Relaxed Condition

Please turn to the next page, with all the circles on it. I don't think you need to practice this one. All you have to do is mark an X in each of the circles on these pages. Start when I say GO; stop when I say STOP. You will have five minutes. There are too many to do for you to finish. Are there any questions? (Pause) Okay, READY, GO! (Five minutes—READY, STOP!)
Table 21

Summary Table for Analysis of Variance
of Total Sample Grouped According to Date of Testing

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of testing</td>
<td>9</td>
<td>337.50</td>
<td>37.50</td>
<td>1.14</td>
<td>NS</td>
</tr>
<tr>
<td>Within groups</td>
<td>138</td>
<td>4536.05</td>
<td>32.87</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>147</td>
<td>4873.55</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F necessary for P < 120 with 9 and 20 DF = 1.29.

Table 22

Summary Table for Analysis of Variance
of VA Domiciliary Members Grouped According to Date of Testing

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of testing</td>
<td>5</td>
<td>196.73</td>
<td>39.35</td>
<td>1.23</td>
<td>NS</td>
</tr>
<tr>
<td>Within groups</td>
<td>100</td>
<td>3191.14</td>
<td>31.91</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>3387.87</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F necessary for P < .25 with 5 and 120 DF = 1.35.
Table 23
Summary Table for Analysis of Variance of VA Personnel Grouped According to Date of Testing

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of testing</td>
<td>3</td>
<td>140.73</td>
<td>46.91</td>
<td>1.33</td>
<td>NS</td>
</tr>
<tr>
<td>Within groups</td>
<td>38</td>
<td>1344.91</td>
<td>35.39</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>1485.64</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F necessary for P < .25 for 3 and 40 DF = 1.42.
Table 24
Summary Table for Analysis of Variance of Total Sample Grouped According to Treatment Received, Subject Class, and Date of Testing

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>A -Treatments</td>
<td>2</td>
<td>5.4238</td>
<td>2.71</td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>B -Subject class</td>
<td>2</td>
<td>0.0005</td>
<td>0.00025</td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>R -Date of testing</td>
<td>1</td>
<td>1.8176</td>
<td>1.8176</td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>AB -Treatment vs subject class</td>
<td>4</td>
<td>15.6107</td>
<td>3.90</td>
<td>1.32</td>
<td>&gt;.25</td>
</tr>
<tr>
<td>AR -Treatment vs date of testing</td>
<td>2</td>
<td>0.5071</td>
<td>0.25</td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>BR -Treatment class vs date of testing</td>
<td>2</td>
<td>3.8576</td>
<td>1.93</td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>ABR -Treatment vs subject class vs date of testing (error)</td>
<td>4</td>
<td>19.3183</td>
<td>4.83</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>(AR+BR+ABR) (error)</td>
<td>8</td>
<td>23.6830</td>
<td>2.96</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>46.5356</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

Note: F necessary for P <.25 with 4 and 8 DF = 1.66.
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I, Forest Baird Ward, was born in Downey, California, November 19, 1931. My secondary-school education was received at Downey Union High School. I attended Fullerton Junior College, Long Beach City College, and Occidental College in California. I was granted the Bachelor of Arts degree in 1955 and the Master of Arts degree in 1960 from Occidental College. I was a psychology intern with the California Youth Authority in 1957 and 1958. In October 1958, I began studying for the Doctor of Philosophy degree at The Ohio State University. While there, I held positions as a teaching assistant, counselor, and Veterans Administration psychology trainee.

I have accepted a position as counseling psychologist with the Veterans Administration Center, Dayton, Ohio.