SOURCES OF VARIANCE
IN INDIVIDUAL STATEMENTS OF EXPECTANCY

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

By
SANFORD JAMES DEAN, B.A., M.A.
The Ohio State University
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Approved by:

[Signature]

Adviser
To

Betty, Cricket, and Mike
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CHAPTER I
INTRODUCTION

Clinical psychologists are constantly seeking new methods and techniques to aid them in their evaluation and assessment of the individual personality. One of the methods which has developed over the past twenty years and which has become increasingly popular is the "level of aspiration" paradigm.

The test is probably best described as "behavioral." In a sense any test is a sample of behavior, but in many of the projective tests at least, the inferences made about the subject's behavior are several steps removed from the test behavior itself, and are often reached by means of symbolic mediation. In the case of the level of aspiration test, however, we are interested in the general problem of how the subject sets his goals and how these goals fluctuate with success and failure. As a result, the generalizations made about the subject are based on a sample of behavior which is, although somewhat limited and circumscribed, much more similar in nature to the kinds of behavior to which we wish to generalize. Briefly, the level of aspiration paradigm consists of confronting the subject with a task on
which he believes his success to be dependent upon his own ability and effort, and having the subject make some estimate of his future performance. The number of trials and the number and kinds of statements about future performance may all be varied within this basic paradigm.

In addition to its clinical usage, this basic paradigm has also been used successfully as a measuring instrument in theoretical research. Fitzgerald, Rotter, and Joyce (10) have recently demonstrated that when the emphasis in bidding is placed on the expected score, the mean expected score for a group, following a series of trials, is very close to the mean of the performance scores for those trials. Variations in the technique (e.g., betting, statements of probability, and statements of exact score) seem to yield comparable results. Since the mean stated expectancy approximates the theoretical expectancy, the technique would seem to be a valid measure of group expectancies for the purposes of theoretical research.

This applies only to group means however, and individual statements of expectancy still tend to deviate markedly from the theoretical expectancy. If the stated expectancies of all individuals corresponded to the theoretical expectancy the paradigm would be worthless as a measuring instrument
for clinical purposes, for the stated expectancy would then be merely a function of the trials in this particular situation and would tell nothing about the individual's probable behavior in other situations.

Psychologists have known for some time that individual statements of expectancy do depart from the theoretical expectancy in both a positive and a negative direction, and this difference between performance and stated expectancy has been the basis for the use of the paradigm as a clinical instrument. Little attempt has been made, however, to account for or predict this variability in individual expectancies within the framework of a systematic theory of personality. If a theory of personality is to utilize the level of aspiration paradigm as an operation for the construct of expectancy, then it should also be possible to account for and predict differences in individual expectancies within the framework of that system. Utilizing as a theoretical framework Rotter's social learning theory of personality, this study attempts to explore some of the possible sources of variance in individual statements of expectancy.
CHAPTER II

BACKGROUND

The present chapter will attempt to cover the following topics: The general development of the concept of "level of aspiration" with emphasis on research related to the problem of the generality of the level of aspiration; a discussion of those aspects of Rotter's formulation of a social learning theory of personality which are important background for this study together with the relevant research; and a statement of the problem dealt with in this experiment.

THE CONCEPT OF LEVEL OF ASPIRATION

"The concept of "level of aspiration," introduced by Dembo (published in 1931), made explicit the possibility of observing goal levels occurring in the course of a relatively specific activity, designating some of the factors associated with fluctuations of such goals and linking the experimentally observed manifestations of goal-striving to the individual's behavior in other situations." (25, p. 333)

From this beginning a large body of research has developed with the emphasis ranging from attempts to validate the technique from a clinical point of view to attempts to analyze the level of aspiration phenomenon and to develop "laws" regarding it. Many variations in the technique have
evolved, largely for experimental purposes, but the basic paradigm has remained essentially the same. An individual faced with a task in which he believes his success to be dependent upon his own ability and effort, is asked to make some estimate of his future performance. After completing the task he is again asked to estimate his future performance. The nature of the task, the number of trials, and the kinds of estimates required have all varied widely but the basic elements of the paradigm as outlined above are common to all research in this area.

Related research

The research in the level of aspiration area has been reviewed by Frank (11), by Rotter (31) in terms of methodology, and by Lewin, et al. (25). The latter review is the most recent and comprehensive and the present survey has drawn heavily on it as a source of relevant studies.

Definitions of the level of aspiration. The concept as originally developed by Dembo (25) was concerned primarily with goals and goal strivings and research was directed along the lines of attempting to find the "true" level of aspiration of individuals. This unitary concept is reflected in Frank's definition of the level of aspiration as, "the level of future performance in a familiar task
which an individual, knowing his level of past performance in that task, explicitly undertakes to reach." (13, p. 119) Such a definition neglects the possibility that in the level of aspiration situation there are many possible "levels" of aspiration, and that the explicit statement of the subject is, to some extent at least, a function of the set and instructions given to him by the experimenter. Rotter (31) has summarized the early studies on this point and concluded that uncontrolled factors are present in the usual instructions due to failure to make clear what is called for in the statement of the level of aspiration. Failure to understand the instructions leads some subjects to respond in terms of hope, others in terms of actual expectation, and still others in terms of a compromise.

Gould (18), using as her instructions "what will you do next time?", found that some subjects took the question to mean what they really thought they would get while others responded in terms of what they hoped to get. Festinger (9) found that subjects who were asked what score they would like to get had a significantly higher difference score than subjects who were asked what score they expected to get. Irwin and Mintzer (23), using a dart-throwing task, fully corroborated Festinger's results.
Several studies have approached the problem of "levels" of aspiration by obtaining multiple bids from each subject. Preston and Bayton (27, 28) obtained three levels of aspiration from their subjects, the least they expected to do, the most they hoped to do, and what they actually felt they would do. The least estimates were unrelated to the other two estimates, but there was a high correlation between the actual and the maximum estimates. Dean (5) and Jessor (24) in independent studies asked their subjects to state the score they actually expected to get and the lowest score for which they would settle and still be satisfied with their performance. The results of both studies are consistent in demonstrating the relative independence of these two measures. As a result of such research findings the original unitary concept of the level of aspiration has gradually been replaced by a concept of "levels" of aspiration. It has become apparent that, depending upon the purpose of the investigation and the instructions used, a number of different statements about future performance may be elicited from the same subject. Making explicit the kinds of statements dealt with in a particular investigation would thus seem to be prerequisite to making the results of the investigation comparable with other research findings.
Almost as soon as the concept of level of aspiration was introduced, investigators became concerned with the problem of the generality of level of aspiration behavior as measured in an experimental setting. Attempts to investigate this generality have been essentially of two kinds, those concerned with studying the reliability of the difference score in other level of aspirations situations or after an elapsed period of time in the same level of aspiration situation, and those concerned with relating difference scores to personality variables already extant in the psychological literature. Other secondary measures have also been utilized such as number and patterning of shifts after success and failure but because this study is concerned only with the difference score the discussion will be limited to those studies which have dealt with this variable.

Reliability studies. The first study of the generality of difference scores was performed by Frank (13). Correlating the difference scores for two different sessions on the same task, he found correlations ranging from .57 to .75 for two of his tasks, while they ranged from .26 to .63 on a third task which was described as more of a "play" situation. Correlations within the same session of the difference scores between his first two tasks, printing and spatial
relations, yielded coefficients ranging from .50 to .65. Gould (18) utilizing six different tasks, three administered in one session and three in another, found intercorrelations among the tasks on the difference score ranging from .44 to .04 with a median intercorrelation of .29. Gardner (15) utilizing a technique which gave the same predetermined score to all subjects, administered four tasks which at different points had a rising, a falling, and a level curve of performance. The mean correlation for the initial level of aspiration was .37. For the level portion of the curve the mean correlation was .37, for the rising portion .55, and for the falling portion .61. The intercorrelations of the average difference scores over the whole series of trials, yielded a mean of .57.

With the idea that the amount of generality observed will depend to a great extent on the similarities of the different situations, Heathers (21) varied three factors of the objective situation to determine their effects on the degree of generality: the units in which the performance scores were reported to the subject, the shape of the performance curve, and the motivation of the subject. When the units in which the scores were reported to the subject and the shape of the performance curve were the same in both
tasks the difference scores correlated .87. When the curve
was the same but the units in which the scores were reported
were different the correlation dropped to .67. Varying the
curve of performance in this instance did not seem to reduce
the generality, the correlation remaining comparable to that
obtained when both the shape of the curve and the units in
which the scores were reported were the same. Variations in
level of motivation, as induced by varying instructions and
monetary reward, also failed to yield differences which were
significant although the more motivated group did have a
correlation of .93 as contrasted with the correlation of .84
which was obtained with the less highly motivated group.

Another approach to the problem of generality is to
study the effects of success or failure in one task on the
level of aspiration in a subsequent task. Using two series
of pencil and paper mazes, on one of which the subjects
always got success and the other on which they always got
failure, Jucknat (25) found that reactions to the first
series given affected the level of aspiration in the second
task. The magnitude of the effect seemed to be a function
of the degree of similarity between the two tasks and the
extent to which they were seen as continuous. Similarly,
Frank (12) found that the height of the level of aspiration
in a "normal" task was higher when it followed an easy task
than when it followed a difficult one. These are the only two studies found by the writer in the general literature which deal with the problem of what has been termed "transfer effects." Several other studies have dealt with this problem within the framework of social learning theory and these will be referred to at a later point.

All of the above studies have approached the problem of the generality of the level of aspiration from the point of view of the similarity of difference scores on the same task from one experimental situation to another or on different tasks within the same experimental situation. In this sense they are more studies of test-retest or alternate-form reliability than they are of validity for they tell nothing about what significance this sample of behavior has for making meaningful statements about behavior other than that observed in the experimental setting.

Validity studies. Attempts to relate level of aspiration behavior to personality variables have so far yielded little in the way of positive results. Among the early workers in this area who described certain personality characteristics as being important variables in determining the level of aspiration were Hoppe (25) and Jucknat (25). The former spoke of "ambition," "prudence," "self-confidence,"
and "courage to face reality," while the latter emphasized "tendency to fear failure," "ambition," and "prudence."

Frank (14) felt that the size of the difference score was a function of the "ego-level" of the individual in the task as shown by self-competition and social pressure, and assumed that these two variables strengthen the need to avoid failure, the need to keep the level high, and the need to conform to reality. The interaction of these three needs, which he assumes to be present in all individuals, results in the individual difference score. None of the above investigators made any attempt to obtain independent measures of the variables they proposed. These variables merely represented their interpretation of level of aspiration behavior as they had observed it.

In an attempt to evaluate the usefulness of these concepts predictively Gardner (16) devised a rating scale in which he attempted to get measures of those variables which had been proposed as determinants of level of aspiration behavior. Utilizing 51 adolescent boys as subjects, he administered 20 trials of a digit symbol test, reporting a score and obtaining a statement of a level of aspiration before each trial. Difference scores were then categorized as high, low, or medium, and correlated with individual scores on the
various personality variables as obtained from the rating scales. The rating scale scores were assigned by experienced judges all of whom had known the subjects from two to seven years. Inter-rater reliabilities were high. Although all of the correlations were in the predicted direction they were all extremely small and statistically non-significant.

In order to investigate the effects of habitual success and failure in other than the experimental situation, Jucknat (25) divided her 500 subjects into groups which had been consistently good, medium, or poor students in their school work. Differences in the height of the first level of aspiration were found. Faced with mazes placed in an ascending order of difficulty from one to ten the good students set an initial level of aspiration between seven and ten. The medium students' average was in the middle ranges between five and six, while the poor students tended to set the aspiration level either high or low, between seven and ten or between one and four.

Investigating along the same lines, Sears (39) selected groups of children who seemed to have clearly different school backgrounds in terms of past success and failure. The past failure group showed a higher difference score on the average than did the past success group and in addition
showed a much more marked degree of within group variability than did the success group.

Another approach to the problem of clinical validity has been the abstraction of patterns of difference scores. Sears (38) in the study discussed above, found that subjects who had a high difference score pattern were generally poorer in school achievement than were the other groups, and were rated as having low self-confidence. Subjects having pre-dominantly a low positive difference score pattern on the other hand, were rated as highly confident and successful in their achievement. A third group which was characterized by a predominantly negative difference score pattern fell between the other two in terms of confidence and school success. This group also received high ratings on self-consciousness, defensiveness, and self-protection against failure.

Rotter (34), working with a technique which placed a premium on an exact estimate of performance, differentiated nine patterns, three of which, "low positive," "low negative," and "medium high," were designated as "socially acceptable." The remaining six, characterized as "high negative," "very high positive," "step," "rigid," "confused," and "achievement following" patterns, were designated as "socially
The populations on which these patterns were derived and validated were prison inmates and crippled and normal college students. Using these patterns it was possible to differentiate "normal" inmates from other prison groups.

Escalona (18) utilized a series of puzzle tasks to investigate the relationship between a number of variables in the level of aspiration situation and personality. Two groups of high school subjects were used, the subjects being divided on the basis of overt maladjustment or overt good adjustment. A number of differences are reported but no statistical reliabilities are reported and many of the differences appear to be questionable. Her most significant finding would seem to be in relation to decision time. The maladjusted group required twice as long to select the tasks as did the adjusted group.

In summary, the results of the studies of the generality of the level of aspiration would seem to suggest that there is a fairly high degree of reliability among difference scores on various types of tasks and between subsequent samples of behavior on the same task. There is also considerable evidence to indicate that this generality is primarily a function of the subject's perception of the tasks as similar. In the area of clinical validation, the analysis of
patterns of difference scores seems to be the only approach to date which has resulted in any suggestive material. Here the results are fairly consistent in finding that people who are confident and successful tend to have a relatively high positive difference score, while people at the other extreme seem to be highly variable in their responses, ranging from low negative to extremely high positive in their difference scores. Further, some relationship has been found between patterns of difference scores and level of adjustment.

Two aspects of these studies should probably be noted however. First, the usual criterion of confidence and past success has been success in the academic area and this may or may not be directly related to a more generalized expectancy of success. Second, there has been no clear-cut delineation from study to study as to what kind of statement about future performance is being elicited. It is quite possible that with sufficient emphasis on the actual score expected, the results would be somewhat different than would be the case with a less structured statement about future performance. The latter allows more freedom for individuals with very low expectancies to indulge in wish fulfillment or symbolic goal-setting behavior. Some individuals, for example, because of the symbolic satisfaction derived from
the statement of a high goal in the presence of the experi-
menter, may make estimates that they have little or no ex-
pectancy of achieving.

Lewin's analysis of the level of aspiration

Lewin has attempted to integrate the results of the
many empirical studies which have been done in this area, and
to formulate a systematic theory of level of aspiration be-
havior within the framework of his more general theoretical
approach. Lewin postulates two primary goals, the "ideal
goal" and the "action goal." These he sees as lying within
the more complex goal structure of the individual, with the
action goal being the goal which is usually taken as the
criterion for the level of aspiration.

"In order to understand this behavior,
we must consider the action goal as within
the whole goal structure of the individual.
This may include quite a number of more or
less realistic goal levels. Goal levels
within one goal structure may include a
high dream goal, a somewhat more realistic
wish goal, the level which the person ex-
pects to reach when he tries to judge the
situation objectively, and a low level he
might hit if luck were against him. Some-
where on that scale will be what can be
described as the "action goal," e.g., what
the person "tries for" at that time; some-
where is ideal goal will located." (25, p. 335)

He has further differentiated the "action goal" from the lev-
el of expected performance as follows:

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"Another characteristic of the goal structure is the discrepancy between the level of the action goal and the level of the expected performance. This difference might be characterized directly as the "goal-expectation discrepancy." This discrepancy will depend in part on the "subjective degree of probability" which the individual holds with reference to his chances of reaching his action goal. One expression of the subjective probability is the confidence level." (25, p. 335)

In general Lewis (25) conceives of the setting of a level of aspiration in a particular situation as occurring within the frame of reference of the individual, and to be a function of two basic variables; the valences of success and failure attached to a particular goal level within a scale of goals and the subjective probability of achieving that goal.

The valence of success is seen as increasing with the difficulty of the goal up to a point where the goal represents a level of difficulty which taxes the individual's ability to capacity; it is at this point that the valence is considered to be at a maximum. Goals above the level of ability would probably also have the same high positive valence. The negative valence of failure is seen as increasing in the opposite direction with a maximum being reached when the goal is considered "too easy." Given the valence of success and failure which is predominant in our culture,
it would be predicted that normally individuals would reach out for more difficult tasks; that there would be positive difference scores in general.

The subjective probability of achieving a particular goal is seen as primarily a function of the individual's past experienced with the same or similar tasks, but it is also secondarily a function of such factors as amount of experience with the task, the sequence of achievement (e.g., so that the subject may feel "I am improving"), the recency of the experience, the goal structure of the activity, and the wishes and fears of the individual.

Differing statements of level of aspiration by various individuals within the same objective situation are explained theoretically on the basis of differing individual valences of success and failure relative to particular goals and differing individual subjective probabilities of success and failure. Lewin summarizes his analysis of the level of aspiration situation as follows:

"These theoretical considerations show that most of the qualitative results related to the level of aspiration can be linked with three factors, namely, the seeking of success (Fp, Suc), the avoiding of failure (Fp, -Fai), and the cognitive factor of a probability judgment. These forces operate in a setting which has to be characterized as a choice for a future objective. The strength of these forces and the
values corresponding to the subjective probability depend on many aspects of the life space of the individual at that time, particularly on the way he sees his past experience, and on the scales of reference which are characteristic for his culture and his personality." (25, P. 376)

In his discussion of subjective probability Lewin has emphasized the importance of past experience in the same or similar situations, and the frame of reference including the individual's wishes and fears. This implies that the present subjective probability is not alone a function of experiences in the same or similar situations but is also a function of a more generalized probability of success held by the individual. The extent to which this enters into the immediate subjective probability of success would seem to be a function of the extent to which the subject perceives this situation as related to other situations in which he has had experience.

This represents the major historical attempt to handle level of aspiration behavior systematically and to incorporate it into a larger theory of personality.

ROTTER'S SOCIAL LEARNING THEORY OF PERSONALITY

In an attempt to formulate a social learning theory of personality, Rotter has outlined a set of basic principles (35) and basic constructs (36) which he feels are necessary
to such a point of view. The discussion which follows will attempt to give a general overview of the system with special emphasis on those aspects of the theory which are relevant to the present investigation. A more complete presentation of the theory may be found in references 17 and 24.

Rotter's position is founded on a monistic philosophical position which states that the various sciences represent merely different levels of description. A level of description is defined as a set of constructs which aim to describe events from a consistent orientation, the nature and limitations of such constructs being determined by their purpose. Inasmuch as the present theory is concerned with the psychological level of description, it deals only with those events which can be described as psychological constructs. Any statement of interaction or interdependence between the constructs of different levels of description is rejected as dualistic because of the implication of the existence of more than one kind of event. The potential integration of several levels of description is recognized but felt to be premature at this time in light of the inadequate development of the various individual levels.

"The unit of investigation for studying personality is the interaction of the individual and his meaningful
environment." (35, P. 1) This interaction provides the basis for the development and modification of personality and constitutes what is commonly known as experience. The study of personality then, is the study of learned behavior. Since human goals develop as a result of satisfactions and frustrations growing out of interaction with other individuals, they are oriented toward and are in terms of other individuals; therefore, a social learning theory of personality.

Behavior is assumed to have directionality; to be oriented toward the obtaining of certain satisfactions, and it is from this directionality that needs are inferred. Social learning theory does not operate on an organic need reduction basis, but rather, accepts an empirical law of effect; objectively describeable events will affect the probability of occurrence of behavior as described at the psychological level. The system then, is an explicitly historical one which bases its predictions on the previous learnings of the individual.

Briefly, the probability of the occurrence of any given behavior in a specific situation, relative to a specific reinforcement, is a function of, (1) the value that the specific reinforcement has for the individual, and (2) the subjective probability held by the individual that this reinforcement will occur in the specific situation following the specific
behavior. The three basic constructs involved are behavior potential, reinforcement value, and expectancy. These are defined as follows:

Behavior potential:
"the potentiality of any behavior occurring in any given situation or situations as calculated in relation to any single reinforcement or set of reinforcements." (36, V, p. 1)

Expectancy:
"the probability or contingency held by the individual that any specific reinforcement or group of reinforcements may occur in any given situation or situations." (36, V, p. 3)

Reinforcement value:
"the degree of preference for any reinforcement to occur if the possibilities of their occurring were all equal." (36, V, p. 1)

The theoretical interrelationship of these constructs may be expressed in the following formula:

\[ B.P. = f (E \& R.V.) \]

The nature of the relationship between expectancy and reinforcement value is not known and is considered to be a subject for empirical research. Thus, in order to study the effects of reinforcement value on behavior potential it is necessary to hold expectancy constant and, conversely, in order to study the effects of expectancy on behavior potential it is necessary to hold reinforcement value constant.
It should be noted that by the nature of their definitions, different measuring methods must be employed in evaluating expectancy and reinforcement value. While expectancy may be measured in absolute terms, reinforcement value is normally measured only in relative terms. The operation is a choice value and, therefore, it may only be stated that reinforcement "a" has a higher value than reinforcement "b", or, depending upon the technique of measurement, that it is also lower than reinforcement "c".

It is possible to conceptualize reinforcement in terms of the individual or in relation to the environment. Internal reinforcement is defined in terms of the individual and refers to "... a change in the relationship of the individual and the goal resulting in a changed expectancy of the future occurrence of some event or events leading to the goal." (36, I, p. 1)

External reinforcement is defined in terms of the environment and refers to any event or act known to have predictable reinforcement value for the group or culture of which the individual is a member. A one-to-one relationship is not assumed to exist between internal and external reinforcements. If we are interested in making individual predictions, it is necessary to obtain as accurate an estimate
of the nature of the internal reinforcements as possible. In most instances the best initial approximation is provided by a knowledge of the external reinforcements. For the purposes of group research a knowledge of external reinforcements is usually sufficient.

The basic formula for behavior may be logically elaborated by steps to include a variety of behavior potentials, a variety of situations, and a variety of reinforcements. For example, if we are interested in a group of functionally related behaviors and the degree to which these behaviors are used to obtain one of a set of functionally related reinforcements, the formula would be as follows:

\[ B.P. = f (E \& R.V.) \]

"This may be read: The potentiality of the functionally related behaviors \( x \) to \( n \) to occur in the specified situations \( 1 \) to \( n \) in relation to potential reinforcements \( a \) to \( n \) is a function of the expectancies of these behaviors leading to these reinforcements in these situations and the values of these reinforcements."

"This rather complicated formula might now be reduced to a formula for more general prediction which might be expressed as follows: The potentiality of a set of behaviors occurring which lead to the satisfaction of some need is a function of the freedom of movement or"
expectancies of these behaviors leading to the reinforcements of the satisfaction of this need and the strength or value of these reinforcements or need. This may be given in the formula below:

\[ N.P. = f (F.M. & N.V.) \]

"Need potential is a function of freedom of movement and need value. In clinical work it is usually this formula that we are essentially interested in. That is, it is these constructs we are trying to measure in clinical predictions." (36, IV, p. 3)

The construct which is particularly relevant to the present investigation is that of freedom of movement. This concept may be used in reference to particular needs or in a more general sense to cover all needs. In its latter sense it is somewhat analogous to what has, in other systems, been referred to as maladjustment. Freedom of movement is defined as: "The mean expectancy of obtaining positive satisfactions as a result of a set of related behaviors directed toward the accomplishment of a group of functionally related reinforcements." (36, VI, p. 5)

Certain behaviors and certain reinforcements are hypothesized to form meaningful groupings with high substitutive value by means of the principle of functional relatedness. This concept is based on the more general principle of stimulus generalization. Many external reinforcements or goals have an original functional relatedness which is based
on stimulus generalization. As a number of behaviors become available to the individual, all of which lead to the accomplishment of the same reinforcement, a functional relatedness develops among these behaviors by means of mediated stimulus generalization. Here it is the reinforcement which is considered to be the mediator.

Changes in the expectancy of a single behavior leading to a specific reinforcement are hypothesized to also affect the expectancy that this behavior will lead to other reinforcements. The gradient of generalization of expectancy changes is hypothesized to follow functionally related lines. The plotting of the gradient is an empirical problem, but it is expected that the gradient would follow dimensions of similarity determined by the similarity of the reinforcements which usually follow the behavior. From these formulations we would predict that expectancies within any group of behaviors which are functionally related would be more similar than the expectancies within any group of behaviors which are selected at random. The mean expectancy of such a group of functionally related behaviors has been referred to earlier as freedom of movement.

The principles of functional relatedness and generalization described above constitute the basis for the concept
of need as it is used in social learning theory.

"On this basis it would seem that functional relationships among reinforcements and among behaviors may be approached profitably through concepts like psychological needs, which organize and classify behaviors and goals (external reinforcements) in terms of directionality (similarity of reinforcements). In this way a basis is provided for considering the behavior of an individual meaningfully in terms of broader generalized categories (i.e., he is a highly dependent individual) without necessitating a trait, faculty, typological or instinctual approach to personality." (36, III, p. 3)

The amount of functional similarity between behaviors or reinforcements is a function of the degree to which these events have led to the same reinforcement, or to each other in the past experience of the individual. Consequently, it would be expected that the more any classification scheme is broadened, the less functional similarity will exist between any two randomly selected behaviors or reinforcements within the classification, and the more limited will be the predictability from one behavior potential or reinforcement value to another.

"... it may be seen that any group of reinforcements, which may be considered similar, may in turn be considered similar to a larger organization of reinforcements which is yet more inclusive. This process of broadening the classification of reinforcements may be replicated until one arrives at a single over-all concept of directionality. Such a
single organization may be referred to as security or psychological homeostasis. Within the framework of such an organization all behaviors are functionally related to all other behaviors. However, the level of inclusiveness of generality in classifying behavior which one proposes to use in describing any individual's needs will be determined by the breadth and/or exactitude required of one's prediction. The broader, or the more inclusive, the classification of the directionality of behavior (psychological needs), the greater will be the variety of behaviors about which predictions can be made, but the less accurate the predictions regarding any specific event." (36, III, p. 5)

Since this investigation is concerned only with sources of variance in individual statements of expectancy, no attempt will be made here to elaborate on the specific determinants of reinforcement value. For historical summaries of the concepts of expectancy and reinforcement value see references 17, and 24.

The determinants of expectancy are described as follows:

"Expectancy is not a probability determined in actuarial terms but may be considered to be both (1) a function of probability which can be calculated from past histories of reinforcements, necessitating the consideration of special problems such as the immediacy of last reinforcements, patterning, reducing increments, interrelationships, etc.; and, (2) a generalization of expectancies from other related behavior-reinforcement sequences. Stated in other terms generalization of expectancy effects may represent the failure to make differentiations which are
necessary for adequate or efficient adjust-
ment to any given situation." (36, V, p. 3)

This is expressed in the following formula:

\[ E = f (E' \& GE) \]

"It would seem logical or fitting with
common sense observation that in a relative-
ly novel situation the expectancies held by
the individual would be largely a function
of such generalizations as we have described.
Or, stated differently, that the GE effect
will weight more heavily in situations which
might be described as novel (No) than in
those in which the individual has had a
series of experiences." (36, V, p. 3)

The concept of generalization of expectancies is cen-
tral to the present investigation. In order to make maximum
predictions of expectancy in a particular situation one
would have to know how the individual relates this situation
to his past experience and what reinforcements he sees as
potentially available in the present situation. A number
of estimates of generalized expectancy might be made ranging
from a very specific estimate based on behavior in a situ-
tion which resembles the present one as nearly as possible,
to broader and broader estimates based on a more inclusive
sampling of situations. The broadest possible estimate of
generalized expectancy which might be made would be the mean
of all the expectancies held by the individual for obtaining
reinforcements in any situation. It would be predicted,
however, that the broader the sample of behaviors from which the generalized expectancy is estimated, the less accurate would be the prediction. It would also be predicted that the contribution of GE to E would be in inverse relation to amount of experience in the situation (i.e., with more and more experience GE would be less and less a factor in the calculation of the actual expectancy.

One further aspect of the relationship between GE and expectancy should be discussed. Just as we would expect the accuracy of our predictions of expectancy to decrease as the estimate is progressively based on more inclusive samplings of behavior, so would we expect the contribution of GE to the actual expectancy to decrease as the degree to which the experience on which it is based is perceived as related to the present situation. Further, while the total effect of generalized expectancy would be expected to be at a maximum with a minimum amount of experience in a given situation, it would also be expected that there is a differential rate of decrease, with experience, in the relative contribution of generalized expectancies based on different situations. This decrease would be expected to follow functionally related lines. It would be hypothesized that the broader the category of behaviors on which the GE
is based the greater will be the amount of experience neces-
sary in the present situation to eliminate the effects of
the GE. Thus, we would expect the effects of experiences
in highly similar situations to be eliminated first and the
effects of the most generalized expectancies to be elimi-
ated last.

Relevant social learning theory studies

A number of techniques have been utilized by Rotter
and his students for the purpose of obtaining measures of
expectancy. Most of these have been based on modification
of the level of aspiration paradigm. Verbal statements of
expected performance (3, 5, 10, 17, 24), verbal statements
of probability (10), and betting (1, 2, 10) have all been
used to sample group expectancies.

In an attempt to evaluate and compare these various
methods, Fitzgerald, Rotter, and Joyce (10) administered
a modified version of the Rotter-Jensen Group Level of As-
piration Test to four groups of subjects. Different
measures of expectancy were obtained from each group (bet-
ting, ratings of probability, statements of exact score),
all subjects having received the same series of predeter-
mined scores. The results of this study indicated that
the various methods were measuring the same thing with a
high degree of reliability. Group means obtained by the various methods also corresponded closely with the theoretical expectancy (the mean of the performance trials). It was concluded that these four techniques represented valid and reliable methods of measuring group expectancies.

The first study of the generalization of expectancy changes was performed by Crandall (4). In an attempt to measure the generalization of reinforcement effects in fantasy production, he derived measures of freedom of movement, before and after a frustrating experience, from specially designed thematic apperception pictures. Measures of freedom of movement were obtained for the three areas of love and affection-opposite sex-peers, physical skills recognition, and academic recognition. The frustrating experience was introduced in relation to the need for recognition in the area of physical skills. It was hypothesized that the frustrating experience would result in differentially reduced freedom of movement in the three areas, with the gradient following need related lines. Statistically significant reductions in freedom of movement were obtained in both recognition areas while a non-significant reduction was obtained in the love and affection area. The magnitude of these reductions followed the theoretically predicted
gradient.

Jessor (24), using verbal statements of expectancy and predetermined positive and negative reinforcements, was also able to demonstrate a gradient of generalization of expectancy changes which followed the course predicted on the basis of functional relatedness.

Chance (3) administered two pseudo-projective techniques to her subjects. Some subjects were told that the tests measured the same aspect of personality while others were told that the tests measured different aspects of personality (heterosexual adjustment and leadership). Following a verbal reinforcement of one of the tasks (the reporting of a fictitious score), significantly greater generalization of expectancy was found to the second task when it was represented as measuring the same aspect of personality than when it was not.

The results of Crandall, Jessor, and Chance are all consistent in supporting the utility of a concept of generalization of expectancy changes. Further, these results seem to indicate that the gradient of such changes can be predicted by the theoretical construct of functional relatedness. The results of Jucknat (25) and Frank (12), reported earlier, may also be interpreted in terms of general-
ization of expectancy. No attempt was made in the latter studies, however, to demonstrate a gradient of such changes.

A final study within social learning theory which has general relevance to the present investigation is that of Rockwell (30). Investigating the generality of six need concepts, she felt that accuracy of measurement and prediction decreased as the need classification became progressively broader and more inclusive. Several of her need concepts appeared to be so inclusive that no prediction was possible. These findings would seem to raise some question as to the efficacy of attempting to utilize extremely broad concepts in the prediction of behavior in a specific situation. It may be that there is a point on a gradient of functional relatedness beyond which there is such a loose interrelationship between the behaviors which are subsumed by the classification that no prediction to specific behavior is possible.

STATEMENT OF THE PROBLEM

The utility of the level of aspiration paradigm as a measure of group expectancies appears to have been adequately demonstrated. The mean group expectancy approximates the theoretical expectancy and the paradigm would thus seem to provide an adequate measure for research purposes. All investigators, however, have noted large individual differences
in stated expectancies, and these differences must be theoretically accounted for and predicted. Before proceeding to a formal statement of the problem dealt with in this investigation, an attempt will be made to analyze the level of aspiration situation in terms of social learning theory.

It will be recalled that the basic formula for behavior stated that the potentiality of the occurrence of a given behavior relative to a given reinforcement is a function of the expectancy that the specific behavior will be followed by the specific reinforcement, and the value of the specific reinforcement. The subject in the level of aspiration situation who is asked to state the score which he expects to make on his next trial is faced with a behavioral choice. The number of possible behaviors is limited only by the range of possible scores. Each of these scores has an individual potential for being selected which is a function of the reinforcements which are seen as available in the situation, the values of these reinforcements, and the expectancies that these reinforcements will follow the selection of a particular score. It is evident then, that the statement of a bid in the level of aspiration situation does not strictly speaking represent a wish, a hope, a goal, or an expectancy; it merely represents a behavioral choice. The
same analysis would be relevant to any measurement which is obtained of any personality variable. The experimenter can only observe and measure behavior; it is from this behavior that he makes inferences about his theoretical variables.

It was stated earlier that in order to measure expectancy it is necessary to hold reinforcement value constant. The use of the level of aspiration paradigm as a measure of expectancy has been based on the assumption that the test instructions define the external reinforcement sufficiently to accomplish this purpose. An attempt has been made to so word the instructions that the subject obtains maximum reinforcement from attempting to predict his best score accurately. This may be contrasted with many other uses of the paradigm where the instructions place a premium on wish, hope, or least scores. To the extent that the instructions do succeed in defining the reinforcement, differential statements of expected score (behavioral choices) should be a function of differential expectancies. In the earlier mentioned study by Fitzgerald, Rotter, and Joyce (10), it was found that the mean expected score was also the score which was rated as having the highest individual probability of being achieved. These measures were obtained on separate groups, both of which had received the same set of
predetermined scores. It would seem, therefore, that insofar as group means are concerned, the stated expectancy does represent the score which is seen as having the greatest probability of being achieved.

The question of controlling the reinforcements becomes a more serious one, however, when the problem is the measurement and prediction of individual expectancies. If the stated expectancy is to represent a valid measure of the subjective expectancy held by the individual, there must be a high relationship between the external and internal reinforcements, and reinforcement value must always be held constant. To the extent that this is accomplished the stated expectancy should be a reflection of the subjective expectancy held by the individual; the score with the greatest individual subjective probability should be the score which each individual predicts for his next trial.

Referring again to the formula for expectancy, we find that expectancy is a function of E' and GE, or, experience in this situation and generalized expectancies from other situations. To the extent that the above conditions concerning reinforcement are met in the level of aspiration situation, differences between performance and statements of expected score (difference scores) should be a function
of the generalized expectancies which the individual brings into the situation. Further, this difference score should be predictable from an appropriate sampling of generalized expectancies. It will be recalled, however, that the accuracy of measurement and prediction is related to the breadthness of the concept which is employed. As the classification becomes more inclusive prediction decreases. We would expect then, that the accuracy of our prediction of difference scores would decrease as our estimates of generalized expectancy are based on broader and broader classifications of behavior.

In the present study an attempt was made to investigate the relationship between difference scores and three estimates of generalized expectancy. The estimates were obtained by sampling behavior at three points on a theoretical gradient of functional relatedness, each succeeding estimate representing a more inclusive sample of behavior. These points were as follows: (1) Specific experience in a highly similar situation, (2) freedom of movement in a need-related area, and (3) freedom of movement in its broadest sense; covering all need areas. The Rotter Level of Aspiration Board was used as the basic task from which difference scores were calculated, and the sample of behav-
ior in a highly similar situation was obtained by pre-administering a modified form of the same board. Estimates of expectancy for success in motor coordination tasks and of expectancy for success in general were obtained from a clinical interview. These three estimates were labeled GE₁, GE₂, and GE₃ respectively.

We may now proceed to a formal statement of the hypotheses to be tested. The first hypothesis deals with the inter-judge reliabilities of the interview ratings of GE₂ and GE₃ and is preliminary to the remaining hypotheses.

Reliability hypothesis

A significant relationship will be present between the interview ratings of the judges on both of the interview variables.

Null hypothesis 1. No correlation will be present between the judges' interview ratings of expectancy for success in motor coordination tasks, beyond that which would be expected by chance.

Null hypothesis 2. No correlation will be present between the judges' interview ratings of expectancy for success in general, beyond that which would be expected by chance.
**Experimental hypothesis 1**

A significant relationship will be present between individual difference scores on the level of aspiration board and: (1) mean performance on the **modified** level of aspiration board, (2) an interview rating of expectancy for success in motor coordination tasks, and (3) an interview rating of expectancy for success in general. It was predicted that the various estimates of generalized expectancy would correlate maximally with difference scores at different points in the series of trials, and consequently a significant correlation at any point in the series of trials was considered sufficient to reject the specific null hypothesis.

**Null hypothesis 3.** No correlation will be present between difference scores at any point in the series of trials on the level of aspiration board and mean performance on the **modified** level of aspiration board, beyond that which would be expected by chance.

**Null hypothesis 4.** No correlation will be present between difference scores at any point in a series of trials on the level of aspiration board and the interview rating of expectancy for success in motor coordination tasks, beyond that which would be expected by chance.
**Null hypothesis 5.** No correlation will be present between difference scores at any point in a series of trials on the level of aspiration board and the interview rating of expectancy for success in general, beyond that which would be expected by chance.

**Experimental hypothesis II**

The magnitude of the maximal correlations obtained between the various estimates of generalized expectancy and difference scores on the level of aspiration board will vary as the degree of functional relatedness. This hypothesis predicts a falling gradient based on the degree of functional relatedness of the behaviors of which the estimate of generalized expectancy is based; the broadness of the classification.

**Null hypothesis 6.** Maximal correlations obtained between the various estimates of generalized expectancy and difference scores on the level of aspiration board will not differ among themselves to a degree beyond that which would be expected by chance.

**Experimental hypothesis III**

A significant relationship will be present between the initial statement of an expected score on the level of aspiration board and mean performance on the modified level
of aspiration board. The initial statement of expectancy on the standard board was made without previous experience in the specific task and would therefore be expected to be based primarily on generalized expectancy from the just completed task.

**Null hypothesis 7.** No correlation will be present between initial statement of expectancy on the level of aspiration board and mean performance on the **modified** level of aspiration board, beyond that which would be expected by chance.

The final hypothesis is a descriptive one and is not stated in a manner which allows for the acceptance or rejection of the null hypothesis as a result of these research findings. It was earlier hypothesized that the amount of experience in a specific situation which was necessary to dissipate the effects of generalized expectancy would vary as the degree of functional relatedness of the situations on which these generalized expectancies are based. In the level of aspiration situation we would expect that early in a series of trials a majority of the variance in expectancy, as measured in difference scores, would be accountable for in terms of expectancies based on highly similar situations. As the trials proceeded, however, the effects of such
expectancies would be the first to be eliminated, and at a later point a majority of the variance would be accountable for in terms of expectancies based on experiences in a need-related area. Still later in the series, one would expect that the only effects of GE which remained would be a function of a very generalized expectancy for success. In simple correlational terms, this would mean that the various estimates of generalized expectancy would correlate maximally with difference scores at different points in a series of trials. In order to state a specific hypothesis, however, it would be necessary to specify trials on which this would occur. Such an hypothesis would have to be specific to a particular situation and the number of trials given on the particular task. It is not felt that sufficient information is available at this time to make such an explicit prediction, and consequently, only the following prediction is made:

Experimental hypothesis IV

The various estimates of generalized expectancy will correlate maximally with difference scores on the level of aspiration board at different points in a series of trials. Following the principle of functional relatedness, it is predicted that the maximal correlation based on GE\(_1\) will be
obtained early in the series of trials; the maximal correlation based on GE\textsubscript{2} will be obtained at some later point in the series; and the maximal correlations based on GE\textsubscript{3} will be obtained at a still later point. This prediction refers to differences in the magnitude of the correlations obtained over the series of trials with any single estimate of generalized expectancy.
The present investigation was divided into two major portions: (1) the preliminary research, and (2) the final experiment. The former was devoted to the development of the procedure, the instructions, the interview, and the manual for the rating of the interview. The latter consisted of the formal testing of the hypotheses.

PRELIMINARY RESEARCH

The experimental tasks

The purpose of the present study was to investigate the relationship between estimates of generalized expectancy and individual difference scores in a level of aspiration situation. In order to increase the generality of the results it was felt that the task should be one which was in general use as a clinical instrument. Further, the task should be one which, in its clinical usage, had stressed the "level of expectancy" rather than some one of the other possible "levels" of aspiration. The task selected was the Rotter Level of Aspiration Board (32). The standard instructions for this task place a premium on the prediction of the exact score by means of a system of penalties for
over and under bidding. The specific instructions will be presented later.

In order to obtain an estimate of performance in a highly similar task it was necessary to select another task for pre-administration. Several considerations entered into the selection of this task. First, it was desirable to have a wider than usual range of performance scores in order to facilitate the study of the effects of experience in the first task on expectancy as measured in the second task. This could be best accomplished by some method of controlling the score. Further, controlling the score would allow the experimenter to assign scores on a random basis, thus eliminating the possibility that the distribution of scores which was obtained was based on differential ability.

Second, the task should be highly similar but not identical to the level of aspiration task from which the difference scores were to be calculated. These criteria were met by using the Rotter Level of Aspiration Board as adapted by Rotter and Rodnick (37) and further modifying it by changing the method by which the ball was propelled along the groove.

The adapted board makes it possible for the experimenter to control the subject's score within fairly narrow limits. The standard board is mounted between two wooden side supports on the top of a small table and the level of
the board is controlled mechanically by the manipulation of a foot pedal concealed at the base of one of the table legs. The wooden side supports camouflage the slight, gradual movement of the board and reduce the possibility of detection by the subject to a minimum. For the purposes of this experiment a plunger of the type commonly used on pin-ball machines was mounted on the front of the board to replace the cue which is used in the standard task. In all other respects the boards were identical. Pictures of the experimental tasks may be found in Figures 1 and 2.

Subjects

The subjects used in the preliminary research were 13 college males enrolled in an introductory psychology course during the winter quarter. Since each student is required to participate in several experiments during the course of the quarter, and since the experiment was not described to them, it was felt that there was no selective bias in the sample. The subjects ranged in class level from the first to the fifth year but the preponderance of the students were freshmen. Male subjects were used exclusively because it was felt that the nature of the experiment task might introduce sex differences in expectancy and reinforcement value which are, at least in part,
Figure 1.
The Rotter Level of Aspiration Board
Figure 2.

The Modified Rotter Level of Aspiration Board
culturally determined, and it was not the purpose of this experiment to investigate such factors.

**Procedure**

Each subject was seen for two periods which were scheduled with at least two days and no more than seven days between appointments. The first appointment with each subject was devoted to a clinical-type interview in which an attempt was made to elicit material which was relevant to expectancy in the area of motor coordination, and to expectancy for success in general. All interviews were fully recorded on Gray Audograph recorders. The second appointment was devoted to the administration of the modified level of aspiration board and the administration of the standard level of aspiration board.

The initial structuring of the interview was kept as standard as possible within the limits of appearing natural and was approximately as follows:

This is in the nature of a survey. We are interested in finding out certain things about college males -- something about their interests, their attitudes, and their abilities in various areas. Some of the questions may seem rather difficult but I would like you to try your best to answer them. Some of them may even seem rather personal and there is no obligation to answer any question if you do not wish to do so. Those questions which you do answer, I would like
you to try and answer as frankly and honestly as possible because to the extent that you do not, it would defeat the purpose of the study.

This, as you may have recognized, is recording equipment. I would like to record the interview, if you have no objections, because it is impossible for me to keep up with our rate of talking by writing. Are there any questions? Okay, let's get started.

Lapel microphones were clipped to the clothing of both the subject and the experimenter and, in most cases, appeared to be promptly forgotten. No subject refused to answer any question at any time and few showed any awareness of the microphone after the first few moments.

Questions relevant to expectancy for success in general were asked first and these consumed the major portion of the interview. Approximately five minutes were then spent on questions relevant to expectancy for success in motor coordination tasks. The entire interview length varied from twenty- to thirty minutes. At the close of the interview an appointment was made with the subject for "the other experiment."

When the subject arrived for his second appointment he was taken into a room where both of the level of aspiration boards had been set up. This was not the same room which had been used for the interview. The subject was requested to stand by the modified board and he was given the
following instructions:

This is a test of motor control. The idea is to aim for the ten and your score will depend on how close to the ten you come. You will be given a series of trials with five shots to each trial, making a total possible score for each trial of fifty points. You may take a few warm-up shots to get the feel of the board.

The subject was stopped after five warm-up shots and asked if he had any questions. If not, the formal administration of the task proceeded. The mean score which the subject would receive on the pre-task was always determined prior to the subject's arrival, and in all cases it was possible to approximate this mean. Each subject received six trials on this task. The mean individual performances were normally distributed and ranged from 16 to 40 with an overall mean performance of 27.9.

When the six trials on the modified board were completed the subject was requested to step over to the standard board and he was given the following instructions:

This is another test of motor control. Again, the idea is to always aim for the ten and your score will depend on how close to the ten you come. You will be given a series of trials with five shots to the trial, making a total possible score for each trial of fifty points. This time before each trial I would like you to tell me what score you expect to make on the next trial; what score you actually expect
to get. Should you make more than what you expect, you will be credited with your bid. Should you make less than what you expect, one point will be deducted from your score for each point you miss it by. For example, if you should expect to make 27 and you make 29, you would be credited with 27. On the other hand if you should expect to make 27 and you make 25, you would be credited with 23. Once you have stated what score you expect to make it is to your advantage to score as high as possible and you should try to do so. Are there any questions? Okay, what score do you expect to make on the first trial?

No practice shots were given on this task and the subject was asked what score he expected to make prior to each trial. Forty trials were administered in the preliminary research.

Development of the manuals

Using the interview protocols which were obtained on the preliminary group, two manuals were developed, one for each of the estimates of generalized expectancy to be rated. The manual for rating expectancy for success in general was further subdivided empirically according to the following four areas: (1) academic, (2) social relationships with peers of the opposite sex, (3) social relationships with peers of the same sex, and (4) general evaluation of self. The purpose of this sub-division was primarily to organize specific referents so that the rater might more easily follow
the interview with the relevant referents at hand. The referents were not summative and only one overall clinical rating was eventually made on each of the two interview variables.

Utilizing an interview, Rafferty (29) obtained reliable measures of freedom of movement in the need areas of love and affection—opposite sex peers, and academic recognition. The present study has drawn heavily on her work in the development of both the interview and the manuals. Many of her items which appeared to be good predictors and which were also appropriate to this study were incorporated into the present manual. Additional items were developed which seemed to meet the theoretical definition of freedom of movement, and all of the items were then arranged on six point scales according to areas. These rough scales were distributed to the judges for their evaluation and criticism. Items were deleted, revised, and added as a result of the discussion and group agreement was reached for items on the final six-point scales. Copies of the manuals appear in Appendix B.

FINAL EXPERIMENT

Experimental tasks

The experimental tasks and the instructions used in
the final experiment were identical to those which had been used in the preliminary study.

Subjects

A total of 82 college males enrolled in an introductory psychology course during the spring quarter participated in the final experiment. Since the same requirements applied to this group as had applied to the preliminary group, it was again felt that there was no selective bias in the sample. The subjects ranged in class level from first to fourth year and again the preponderance of the subjects were freshmen.

A total of four subjects were discarded. Of these, three were dropped because the experimenter was unable to contact them following their failure to appear for the second appointment. The other subject was discarded following the interview when it became apparent that, because of his cultural background (Guam) and his brief residence in the United States (one month), the interview referents would not be appropriate. No second appointment was made with this subject.

Procedure

The procedure which was followed in the final experiment was quite similar to that of the preliminary research.
Subjects were again seen for two periods which were scheduled with at least two and no more than ten days between appointments. Some modifications were made in the interview procedure as a result of findings in the preliminary study. Correlations between ratings of expectancy in motor coordination tasks and ratings of expectancy for success in general were found to be very high and this was felt to be, at least in part, a function of the interview procedure. With the portion of the interview which was related to expectancy in motor coordination tasks appearing last in the interview, it was possible that the judges' ratings were being contaminated by the more general material which had constituted the greater part of the interview. In addition, there was also the possibility that the subjects' statements at the close of the interview might be modified somewhat by his earlier statements concerning himself. In an effort to make the two ratings more differentiated the following modifications were made.

Since the material which dealt with expectancy in motor coordination tasks was relatively brief and was considered as less likely to contaminate the rest of the subject's interview, it was taken up first. At the conclusion of this portion of the interview the record was removed and
another record was substituted for the remainder of the interview. A master list was made up consisting of two sets of non-related numbers. The subject's name was placed on this list and the number from each set which was opposite his name was placed on the appropriate record. Until all ratings had been completed the individual records could be identified only by these numbers and the possibility of the contamination of one rating by another was reduced to a minimum. A complete schedule of the interview which was used in the final experiment appears in Appendix A.

Sixty of the subjects in the final experiment performed on both level of aspiration tasks, receiving predetermined scores on the modified board and performing in a free situation in the standard level of aspiration situation. The remaining eighteen subjects did not perform on the pre-task, but went directly into the standard level of aspiration situation, receiving five warm-up shots prior to the formal administration. This group was added so that observations could be made of the relationships between difference scores and interview estimates of generalized expectancy early in the series of trials when the effects of the pre-task were not present. It is not in any formal sense a control group.

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An examination of the level of aspiration protocols of the preliminary group revealed that there was little change in difference score beyond trial thirty and as a result the number of trials was reduced from forty to thirty-one in the final experiment. These were the only changes in the procedure which was carried out during the second appointment.

**Training the judges**

The experimenter met with the judges and discussed the manual for the interview with them. They were then given five records of GE\(_2\) and five records of GE\(_3\) to rate. In a second meeting the ratings were discussed and points of disagreement were clarified. Five additional records of each type were then distributed and rated. Another meeting was held to evaluate the adequacy of the ratings and the judges then proceeded to rate the remaining records. Forty records of each type were rated by all judges, the records to be judged representing alternate subjects in the order in which they appeared for their appointments. Sixty subjects were represented in this group, twenty records of each type being based on the same individuals and twenty on different individuals. The experimenter rated all 78 subjects on both variables. Approximately ten hours were spent in the training of the judges.
STATISTICAL TREATMENT

After all the records were rated and tabulated, inter-rater correlations were computed using a Pearson product-moment method. Coefficients were computed between judges A and B, A and C, and B and C for both of the interview variables. In addition, average intercorrelations were computed using Fisher's \( z' \) transformation of \( r \).

The usual method of computing difference scores in level of aspiration tasks has been to take the difference between an individual's performance on a given trial and his bid for the next trial. Lezak (26), however, has suggested that a more meaningful difference score might be obtained by taking the difference between an individual's mean performance through a given trial and his bid on the next trial. This method recognizes the importance of cumulative experience in the situation, which is ignored by the other method, but also fails to weight the last score sufficiently. In the present study, difference scores were computed by both methods.

For each individual difference scores were computed for each trial and then grouped by five trial averages to reduce chance fluctuations due to performance. This resulted in six difference scores for each individual, each difference score representing a five trial average. This was done
for both methods of computing the difference score.

Pearson product-moment correlations were then computed between these difference scores and the three estimates of generalized expectancy. The experimenter's ratings of the interviews were used as the estimates of expectancy for success in motor coordination tasks and expectancy for success in general. Fisher's $z'$ transformation of $r$ was used to test the significance of the differences between correlations, and the F-test was used to test the significance of the differences between standard deviations.

Following the formal statistical analysis it appeared that a curvilinear relationship might exist between the interview ratings of generalized expectancy and difference scores. Consequently, correlation ratios were computed between the interview ratings and individual mean difference scores covering trials 7-31. The chi-square test was used to evaluate the linearity of the regression.
CHAPTER IV
RESULTS AND DISCUSSION

The analysis of the data will be presented as it is related to the stated hypotheses. A further statistical analysis will then be presented, followed by a discussion of the results and a consideration of the possibilities for further research in this area.

RESULTS
Inter-judge reliabilities

Before the interview ratings of GE₂ and GE₃ could be used in the formal testing of the experimental hypotheses, it was necessary to demonstrate that the method of rating was communicable and resulted in reliable ratings by the several judges. The inter-judge reliabilities are presented in Table I.

Null hypothesis 1. No correlation will be present between the judges' interview ratings of expectancy for success in motor coordination tasks beyond that which would be expected by chance. It may be seen by reference to Table I that all three of the correlations relevant to GE₂ were significant beyond the .001 level of confidence, and consequently, the null hypothesis may be rejected in each instance.
Null hypothesis 2. No correlation will be present between the judges' interview ratings of expectancy for success in general, beyond that which would be expected by chance. Table I reveals that again all three correlations were significant beyond the .001 level of confidence and the null hypothesis may be rejected in each instance.

TABLE I

INTER-SCORER CORRELATIONS (PEARSON r) FOR THE INTERVIEW

<table>
<thead>
<tr>
<th>Judges</th>
<th>GE₂</th>
<th>GE₃</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>A &amp; B</td>
<td>.81*</td>
<td>.82*</td>
<td>40</td>
</tr>
<tr>
<td>A &amp; C</td>
<td>.74*</td>
<td>.88*</td>
<td>40</td>
</tr>
<tr>
<td>B &amp; C</td>
<td>.86*</td>
<td>.78*</td>
<td>40</td>
</tr>
</tbody>
</table>

* P = .001

Judge C is the experimenter

Using Fisher's z' transformation of r, average inter-correlations were computed for GE₂, GE₃, and the overall group of inter-scorer correlations. These were as follows:

GE₂ -------------.81
GE₃ -------------.83
GE₂& GE₃ -------.82
These inter-scorer reliabilities were considered adequate to demonstrate the reliability of the method of rating the interviews and consequently the experimenter's ratings were utilized in the testing of the formal experimental hypotheses.

**Experimental hypotheses**

The first experimental hypothesis predicted a relationship between the various estimates of generalized expectancy and difference scores on the level of aspiration board. Since it was not expected that the various estimates would correlate significantly at all points in the series of trials (hypothesis IV), a significant correlation at any point in the series was considered sufficient basis for the rejection of the specific null hypothesis. The results which are relevant to these hypotheses are summarized in Tables II and III.

**Null hypothesis 3.** No correlation will be present between difference scores at any point in the series of trials on the level of aspiration board and mean performance on the **modified** level of aspiration board, beyond that which would be expected by chance.

**Null hypothesis 4.** No correlation will be present between difference scores at any point in a series of trials
on the level of aspiration board and the interview ratings of expectancy for success in motor coordination tasks, beyond that which would be expected by chance.

Null hypothesis 5. No correlation will be present between difference scores at any point in a series of trials on the level of aspiration board and the interview ratings of expectancy for success in general, beyond that which would be expected by chance.

**TABLE II**

INTERCORRELATIONS BY TRIALS BETWEEN ESTIMATES OF GENERALIZED EXPECTANCY AND DIFFERENCE SCORES BASED ON THE LAST PREVIOUS TRIAL (GROUP I)

<table>
<thead>
<tr>
<th>Trials</th>
<th>2-6</th>
<th>7-11</th>
<th>12-16</th>
<th>17-21</th>
<th>22-26</th>
<th>27-31</th>
<th>7-31</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE1</td>
<td>.21*</td>
<td>.13</td>
<td>.08</td>
<td>-.12</td>
<td>.05</td>
<td>-.01</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>GE2</td>
<td>-.07</td>
<td>-.06</td>
<td>.15</td>
<td>.07</td>
<td>.11</td>
<td>.12</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>GE3</td>
<td>-.29**</td>
<td>.07</td>
<td>.04</td>
<td>-.03</td>
<td>.06</td>
<td>-.06</td>
<td>.02</td>
<td></td>
</tr>
</tbody>
</table>

* P = .10
** P = .05

N = 60
TABLE III

INTERCORRELATIONS BY TRIALS BETWEEN ESTIMATES OF GENERALIZED EXPECTANCY AND DIFFERENCE SCORES BASED ON THE CUMULATIVE MEAN (GROUP I)

<table>
<thead>
<tr>
<th>Trials</th>
<th>GE1</th>
<th>GE2</th>
<th>GE3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-6</td>
<td>.26*</td>
<td>.06</td>
<td>.03</td>
<td>-.08</td>
</tr>
<tr>
<td>7-11</td>
<td>.09</td>
<td>.11</td>
<td>.00</td>
<td>-.06</td>
</tr>
<tr>
<td>12-16</td>
<td>.14</td>
<td>.19</td>
<td>.09</td>
<td>-.12</td>
</tr>
<tr>
<td>17-21</td>
<td>.03</td>
<td>-.06</td>
<td>.00</td>
<td>-.12</td>
</tr>
<tr>
<td>22-26</td>
<td>-.08</td>
<td>.01</td>
<td>.05</td>
<td>-.03</td>
</tr>
<tr>
<td>27-31</td>
<td>-.09</td>
<td>-.12</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>7-31</td>
<td>.02</td>
<td>.03</td>
<td>.03</td>
<td></td>
</tr>
</tbody>
</table>

* P = .05
N = 60

The only significant positive correlation was obtained on trials 2-6 between difference scores based on the cumulative mean and GE1. The correlation of .21 obtained on trials 2-6 between difference scores based on the last previous trial and GE1 approaches but does not meet the requirements for statistical significance. We may, therefore, reject null hypothesis 3 only when difference scores are based on the cumulative mean. A significant negative correlation was obtained on trials 2-6 between GE3 and difference scores based on the last previous trial (Table II). There is no apparent way of accounting for this correlation other than on a chance basis, and, consequently, much less importance may be attached to the positive correlation obtained between GE1 and difference scores on these same trials. The negative correlation disappears when difference scores are based
on the cumulative mean, however, (Table III) while the positive correlation between GE₁ and difference scores improves somewhat. This might be interpreted as indicating that the positive relationship between GE₁ and difference score is relatively stable while the negative relationship between GE₃ and difference score is more possibly due to chance factors. All of the other correlations seem to fall within chance limits and, consequently, null hypotheses 4 and 5 cannot be rejected.

The second experimental hypothesis predicted that the magnitude of the maximal correlations obtained between the various estimates of generalized expectancy and difference scores on the level of aspiration task would vary as the degree of functional relatedness.

Null hypothesis 6. Maximal correlations obtained between the various estimates of generalized expectancy and difference scores on the level of aspiration board will not differ among themselves to a degree beyond that which would be expected by chance. Tables II and III reveal that the predicted gradient was obtained. The differences between the maximal correlations for each variable were not statistically significant however, and consequently null hypothesis 6 cannot be rejected.
The third experimental hypothesis dealt with the relationship between mean performance on the pre-task and initial statement of expectancy on the standard level of aspiration board. Since this statement was made without previous experience on the specific task it was felt that it should be based largely on experience in the just-completed task. Performance was not controlled on the second task and so no predictions could be made about actual statements of expectancy beyond the first trial.

Null hypothesis 7. No correlation will be present between initial statements of expectancy on the level of aspiration board and mean performance on the modified level of aspiration board, beyond that which would be expected by chance. A correlation of .70 was obtained between these variables. This correlation is significant beyond the .001 level of confidence and consequently null hypothesis 7 may be rejected.

The final hypotheses was a descriptive one which stated only that the maximal correlation based on GE₁ would occur early in the series of trials, that the maximal correlation based on GE₂ would occur at a later point in the series, and that the maximal correlation based on GE₃ would occur at a still later point. Since most of the obtained
correlations are not statistically significant, nothing definitive can be stated about this hypothesis.

An additional eighteen subjects were administered the standard level of aspiration board without previous experience on the modified board. This was done in order that observations could be made of the relationships between difference scores and interview estimates of generalized expectancy when the effects of GE\textsubscript{1} were not present. Although no formal hypotheses were stated which were specific to this group, all of the hypotheses with the exception of null hypotheses 3 and 7 are applicable. The Group II results are summarized in Tables IV and V.

**TABLE IV**

INTERCORRELATIONS BY TRIALS BETWEEN ESTIMATES OF GENERALIZED EXPECTANCY AND DIFFERENCE SCORES BASED ON THE LAST PREVIOUS TRIAL (GROUP II)

<table>
<thead>
<tr>
<th>Trials</th>
<th>2-6</th>
<th>7-11</th>
<th>12-16</th>
<th>17-21</th>
<th>22-26</th>
<th>27-31</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE\textsubscript{2}</td>
<td>.16</td>
<td>.08</td>
<td>.07</td>
<td>.10</td>
<td>.28</td>
<td>.12</td>
<td>.18</td>
</tr>
<tr>
<td>GE\textsuperscript{2}</td>
<td>-.08</td>
<td>-.06</td>
<td>-.24</td>
<td>.26</td>
<td>.20</td>
<td>.17</td>
<td>.07</td>
</tr>
</tbody>
</table>

.40 required for P = .05

N = 18

69
TABLE V

INTERCORRELATIONS BY TRIALS BETWEEN ESTIMATES OF GENERALIZED EXPECTANCY AND DIFFERENCE SCORES BASED ON THE CUMULATIVE MEAN (GROUP II)

<table>
<thead>
<tr>
<th>Trials</th>
<th>2-6</th>
<th>7-11</th>
<th>12-16</th>
<th>17-21</th>
<th>22-26</th>
<th>27-31</th>
<th>Mean</th>
<th>2-31</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE₂</td>
<td>.17</td>
<td>.17</td>
<td>.14</td>
<td>.01</td>
<td>-.02</td>
<td>-.11</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td>GE₃</td>
<td>-.26</td>
<td>-.10</td>
<td>-.03</td>
<td>.16</td>
<td>-.26</td>
<td>.01</td>
<td>-.08</td>
<td></td>
</tr>
</tbody>
</table>

.40 required for P = .05 N = 18

All of the correlations are low and statistically non-significant. Again, GE₂ seems to consistently correlate higher with the difference score than does GE₃, but the lack of stability of these correlations precludes the drawing of any conclusions about relative correlations.

It would be predicted from social learning theory that relatively small but positive correlations would be present between the various estimates of generalized expectancy, the size of the correlation varying with the degree of functional relatedness of the particular samples of behavior on which the estimates are based. In this study a correlation of .04 was obtained between the interview ratings of GE₂ and GE₃. The size of this correlation is not surprising considering the broadness of the sample of behaviors on which the estimate of GE₃ was based.
Further statistical analyses

All of the findings presented thus far are based on the assumption of a linear relationship between estimates of generalized expectancy and difference scores. Previous investigators, however, have found that individuals who have a past history of failure and are apparently lacking in self-confidence tend very often to have high positive difference scores. Such individuals, when asked to state the score which they expect to make, apparently make estimates which they have little or no expectancy of achieving. In these instances it would appear that the individual derives more satisfaction from the statement of the high goal than he does from predicting his best score accurately.

In social learning theory, one of the proposed measures of freedom of movement is "... the frequency with which the individual when seeking a potential goal resorts to avoidance behavior or to symbolic methods of satisfying or reaching that goal." The lower the freedom of movement relative to a particular goal, the greater incidence of symbolic behaviors we would expect. It was earlier stated, however, that in order to utilize difference scores in the level of aspiration situation as a measure of generalized expectancy, it is necessary to reduce such behavior to a
minimum. In the present study an attempt was made to so word the instructions that the individual would obtain maximal satisfaction from attempting to predict his best score accurately. The possibility remains, however, that regardless of how explicitly the instructions are stated, some individuals with very low expectancy will continue to seek symbolic satisfactions in the situation. If this were the case, a linear relationship could not be expected between estimates of generalized expectancy and difference scores. Under these conditions we would have to hypothesize that difference scores would decrease with ratings of expectancy only to a certain point, beyond which we would predict a greater and greater incidence of symbolic goal-setting behavior (high difference scores). It would also be predicted that there would be greater variability among the difference scores of individuals who are rated as having low expectancy, some individuals reflecting their low expectancy directly in low difference scores and others resorting to symbolic behaviors which would result in high difference scores.

An inspection of the data obtained in the present study suggested that a curvilinear relationship such as described above might be present between the estimates of generalized expectancy and difference scores. Consequently,
individuals were grouped according to the interview ratings they had received and the mean difference score covering trials 7-31 was computed for each of these six groups (six-point interview scale). Since most of the effects of the pre-task seemed to disappear during the first six trials in Group I, the combined group (78 subjects) was used in this analysis. These mean difference scores appear in Table VI.

**TABLE VI**

MEAN DIFFERENCE SCORES ACCORDING TO INTERVIEW RATING, TRIALS 7-31
(N = 78)

<table>
<thead>
<tr>
<th>Rating*</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GE₂</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(D-score L)**</td>
<td>3.8</td>
<td>2.0</td>
<td>2.2</td>
<td>1.2</td>
<td>1.5</td>
<td>4.8</td>
</tr>
<tr>
<td>(D-score M)**</td>
<td>4.1</td>
<td>3.0</td>
<td>3.3</td>
<td>2.4</td>
<td>1.9</td>
<td>7.2</td>
</tr>
<tr>
<td><strong>GE₃</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(D-score L)</td>
<td>4.2</td>
<td>1.8</td>
<td>1.7</td>
<td>2.3</td>
<td>2.5</td>
<td>2.0</td>
</tr>
<tr>
<td>(D-score M)</td>
<td>4.5</td>
<td>3.1</td>
<td>2.6</td>
<td>3.4</td>
<td>3.3</td>
<td>6.5</td>
</tr>
</tbody>
</table>

* 1 = high expectancy; 6 = low expectancy.
** In this and all subsequent tables, "L" will refer to last previous trial and "M" to cumulative mean.

These mean difference scores further suggested that a curvilinear relationship might be present and consequently correlation ratios were computed between each of the interview estimates and mean individual difference scores, trials 7-31. These results are summarized in Table VII.
TABLE VII

CORRELATION RATIOS BETWEEN ESTIMATES OF GENERALIZED EXPECTANCY AND DIFFERENCE SCORES
TRIALS 7-31

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Eta</th>
<th>Epsilon</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(D-score L)</td>
<td>.376</td>
<td>.288*</td>
</tr>
<tr>
<td>(D-score M)</td>
<td>.421</td>
<td>.347*</td>
</tr>
<tr>
<td>GE3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(D-score L)</td>
<td>.292</td>
<td>.149</td>
</tr>
<tr>
<td>(D-score M)</td>
<td>.256</td>
<td>.080</td>
</tr>
</tbody>
</table>

* P = .05

N = 78

In order to evaluate whether the observed departure from linearity was dependable or whether it was probably due only to a chance deviation from linearity, Fisher's chi-square test of non-linearity was employed. These results appear in Table VIII.

TABLE VIII

CHI-SQUARE TESTS OF NON-LINEARITY

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Eta</th>
<th>Pearson r</th>
<th>Chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(D-score L)</td>
<td>.376</td>
<td>.126</td>
<td>10.62*</td>
</tr>
<tr>
<td>(D-score M)</td>
<td>.421</td>
<td>.024</td>
<td>15.49**</td>
</tr>
<tr>
<td>GE3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(D-score L)</td>
<td>.292</td>
<td>.026</td>
<td>6.65</td>
</tr>
<tr>
<td>(D-score M)</td>
<td>.256</td>
<td>.024</td>
<td>4.99</td>
</tr>
</tbody>
</table>

* P = .05

** P = .01
These results indicate that there is a significant curvilinear relationship between the interview rating of expectancy for success in motor coordination tasks and difference score on the level of aspiration board. Further, the relationship appears to be a stable one and not due to a chance deviation from linearity. The relationship between interview rating of expectancy for success in general and difference score is lower and does not meet the requirement for statistical significance. Also, the observed departure from linearity in this instance appears to be within chance limits.

In order to evaluate the variability among the difference scores of individuals receiving particular interview ratings, the rating scale was condensed into three categories of high, medium, and low expectancy by combining the one and two ratings, the three and four ratings, and the five and six ratings. The F-test of differences between standard deviations was then computed between each of these three groups. These results appear in Table IX.
### TABLE IX

**COMPARISON OF VARIANCES IN DIFFERENCE SCORES ACCORDING TO INTERVIEW RATINGS**

(F - RATIOS)

<table>
<thead>
<tr>
<th>Estimate</th>
<th>High-Medium</th>
<th>Medium-Low</th>
<th>High-Low</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GE₂</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(D-score L)</td>
<td>1.010</td>
<td>2.251*</td>
<td>2.243*</td>
</tr>
<tr>
<td>(D-score M)</td>
<td>2.049*</td>
<td>2.545*</td>
<td>3.586**</td>
</tr>
<tr>
<td><strong>GE₃</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(D-score L)</td>
<td>1.214</td>
<td>2.139</td>
<td>1.762</td>
</tr>
<tr>
<td>(D-score M)</td>
<td>2.745*</td>
<td>2.049</td>
<td>1.340</td>
</tr>
</tbody>
</table>

* P = .05  
** P = .01

In all instances the least variability among difference scores occurred in the "high expectancy" group. Variability increased in the "medium expectancy" group and reached a maximum in the "low expectancy" group. When difference scores are classified according to the rating of expectancy for success in motor coordination tasks, the differences between the standard deviations are all statistically significant with the exception of the "high" vs. the "medium" group when difference scores are based on the last previous trial. When difference scores are classified according to the rating of expectancy for success in general, none of the differences between the standard deviations are
significant with the exception of the "high" vs. the "medium" group when difference scores are based on the cumulative mean.

**DISCUSSION**

The results of the formal testing of the hypotheses are inconclusive. Only two points seem to be clearly demonstrated: (1) that reliable interview judgments may be made of expectancy for success in motor coordination tasks and expectancy for success in general, and (2) that there is a fairly high relationship between mean performance on a modified version of the level of aspiration board and initial statement of expectancy on the standard board. Secondarily, there seems to be a low but significant relationship between mean performance on the modified board and difference scores based on the cumulative mean early in the series of trials on the standard board. Using Pearson product-moment correlations, only a chance relationship seems to be present between the two interview ratings of generalized expectancy and difference scores at any point in the series of trials on the standard board. Differences between the obtained correlations generally follow the gradient predicted on the basis of functional relatedness, but again these differences are not large enough to be statistically significant.

The analysis in terms of the correlation ratio yields
somewhat better results, however. Using this statistic, a significant relationship is obtained between interview estimates of expectancy for success in motor coordination tasks and individual mean difference scores over the series of trials.

The correlation ratio indicates that some sort of curvilinear relationship is present but, unfortunately, it does not reveal the nature of the relationship. This must be obtained from an inspection of the data. Referring again to the mean difference scores by rating categories (Table VI), we find that mean difference scores tend to decrease with expectancy rating fairly regularly until the lower ranges of expectancy are reached; at this point difference scores again increase. This is consistent with the theoretical prediction that, if the instructions do not sufficiently delimit the reinforcements in the situation, there will be a progressively greater incidence of high difference scores in the low expectancy group as a function of an increased use of symbolic behaviors. The finding that there is a significant increase in the variability among difference scores as the rating of expectancy decreases also supports this hypothesis. Apparently individuals who bring a low expectancy for success into the level of aspiration situation vary widely in their responses,
some making very low estimates and others making very high estimates. These results are all consistent with the earlier findings of Jucknat (25), Sears (38), and Rotter (34).

The failure to demonstrate a significant relationship between difference score and interview rating of expectancy for success in general is not too surprising. It was earlier stated that prediction of specific behavior would become progressively poorer as the classification of behavior on which the prediction is based becomes more and more inclusive. The results of this study would suggest that a classification such as expectancy for success in general is probably too broad to be very predictive in a situation as specific as that defined by the level of aspiration board. These results are consistent with Rockwell's (30) findings in suggesting that accuracy of prediction is limited by the level of abstraction of the concepts used (inclusiveness of the behaviors subsumed by the concept.)

While the curvilinear relationship obtained in this study is consistent with social learning formulations regarding expectancy, the question of the adequacy of the difference score as a measure of generalized expectancy is not clearly answered. We may say that individuals who are rated high in expectancy for success in motor coordination

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tasks tend, on the average, to have relatively high difference scores, and that individuals who are rated somewhat lower tend, on the average to have somewhat lower difference scores. Individuals who are rated very low, however, tend to be extremely variable in their responses, with the majority having either very high or very low difference scores. When such individuals do have high difference scores, they tend to be even higher than those of individuals rated as having a high expectancy for success. If, however, we attempt to predict from difference scores to expectancy we are more limited in the predictions we can make. Given a high difference score, we cannot be sure whether it is a function of high or low freedom of movement unless it is extremely high and clearly falls into the symbolic behavior category. Further, it would not seem to be sufficient to state that a high difference score in one case is a function of high freedom of movement, and an equally high difference score in another case is a function of very low freedom of movement. Such double-ended hypotheses are always post hoc and non-predictive. Since not all individuals with low freedom of movement resort to the use of symbolic behavior, some method must be developed which will make it possible to predict which individuals
with low expectancy are likely to do so. This might be accomplished through the use of an interview designed to evaluate the extent of the use of symbolic behaviors, or through the use of specially designed thematic apperception pictures such as Crandall (4) and Rafferty (29) used.

While the obtained correlation ratios between rating of expectancy for success in motor coordination tasks and difference scores on the level of aspiration board are statistically significant, they are not extremely large and do not represent a very high level of prediction. A number of methodological factors may have mitigated against the obtaining of a higher relationship. A clinical evaluation of the behavior of the subjects during the administration of the level of aspiration task strongly suggested that reinforcements other than those delimited by the instructions were being sought in the situation. This point has already been discussed in regard to the low-rated individuals who resorted to symbolic goal-setting behavior, but it also seems to be applicable in other cases. Improvement is strongly reinforced in our culture and once an individual achieves a single high score, reinforcement values seem to change and the individual may continue for some time to "try" for that score even though he has little hope of
achieving it again. A number of individuals explicitly verbalized their intention to continue to try for a previously achieved score despite instructions to state the score which they expected to make. In order to make difference scores comparable between individuals, it might prove useful to administer the same predetermined scores to all individuals. This would make the objective experience identical for all subjects and would remove any possibility of differences due to chance fluctuations in performance. Further emphasis on the expected score, perhaps by exclusion (e.g., not what you hope to get or wish you might get, etc.), would also seem to be necessary if the situation is to be structured in terms of the desired reinforcements.

Another factor which was undoubtedly in part responsible for the failure to obtain a higher relationship was the inadequacy of the interview ratings. Despite the relatively high inter-judge agreement on the interview ratings, a number of difficulties were encountered. In attempting to rate GE3 it was found that occasionally individuals would appear to have high freedom of movement in some areas and relatively low freedom of movement in others. The question then arises as to how to rate such individuals. To take an extreme example, suppose that an individual receives a "one"
rating in the academic area and a "six" rating in the love and affection-opposite sex-peers area. How much does each of these areas contribute to what would be considered the individual's generalized expectancy? Is the best rating in this case a "three"? This is a question which obviously cannot be answered by retreat to the statistical mean. In the present study such differences were resolved by means of rules laid down in the judging manual, and failing this, by the clinical judgment of the rater. Unfortunately there is no validating research to support either the rules in the manual or the clinical judgments which were used and, consequently, this remains a major source of possible error. Such difficulties in rating are also a function of the breadth of the concept which is being rated. As the concept becomes progressively more inclusive there is progressively less functional relatedness among the behaviors subsumed by the concept and it becomes progressively more difficult to assign a unitary rating.

Another difficulty which was encountered, especially in the rating of GE₃, was the relative weighting of implicit and explicit referents. A number of individuals gave many referents which were implicit indicators of low freedom of movement (e.g., dates infrequently or not at all; very
critical of girls) while at the same time making direct statements which were indicators of high freedom of movement (e.g., rates self above average in popularity with girls; being refused a date doesn't bother him). Such behavior probably merits further investigation as a possible referent for predicting which individuals with low freedom of movement are likely to resort to the use of symbolic behaviors.

Some question might also be raised about the appropriateness of the sampling of behaviors on which GE3 was based. Because of time limitations in the interview, only a few areas could be sampled, and these none too thoroughly. It is possible that other areas and other questions might have resulted in a more representative sample of behavior and a better estimate of expectancy for success in general. Despite the obvious shortcomings of the rather brief interview, however, it was felt that in general a great deal of material was elicited and the rating of GE3 represented a relatively valid measure of the theoretical construct of generalized expectancy.

The rating of GE2 presented a much more difficult task than did the rating of GE3. The portion of the interview which dealt with this variable was very brief (about
five minutes) and the number of behaviors sampled was relatively small. Further, it was found that there was extreme variability among the referents used by each individual with few people clearly falling into a particular category. All of the judges indicated some lack of confidence in their ratings of GE₂. Rafferty (29), attempting to assess freedom of movement in the need area of physical skills recognition by means of an interview, encountered many of the same difficulties and it is not felt that a good method has yet been developed for obtaining a measure of expectancy in this area. A further refinement and analysis of the interview in terms of particular items and their predictive value would seem to be necessary if prediction is to be improved.

No attempt was made in this study to evaluate differences in correlation ratios or differences in the variability of difference scores, by trials. All of these results were based on individual mean difference scores for trials 7-31. A further analysis by five trial groups, such as was attempted with the product-moment correlations, might reveal further evidence relative to the experimental hypotheses.

Finally it will be recalled that in the present study difference scores were calculated on two different bases,
(1) the last previous trial, and (2) the cumulative mean. In general, better results seemed to be obtained when difference scores were calculated on the basis of the cumulative mean. This method is more consistent with the theoretical definition of expectancy but it has been used but little in the level of aspiration literature. Better results might be obtained by some method of combining the two methods. Theoretically, such a formula should be based on the mean of the trials to date, plus an additional weighting of the last trial which would progressively decrease with the number of trials.

In summary, it seems to the writer that the most significant findings of this study are as follows:

1. Difference scores on the level of aspiration board tend to decrease with ratings of expectancy for success in motor coordination tasks until the lower ranges of expectancy (freedom of movement) are reached. Many individuals rated as having a very low expectancy for success tend to make estimates which are as high or higher than the estimates made by individuals rated as having the highest expectancy for success.

2. There is significantly greater variability among the difference scores of individuals rated as having low
expectancy for success in motor coordination tasks than there
is among the difference scores of individuals rated as having
a high expectancy for success in such tasks. The variability
among difference scores appears to progressively increase as the rating of expectancy decreases.

3. Accuracy of prediction appears to decrease as the classification of behaviors on which the prediction is based becomes more and more inclusive. No significant relationship was found between estimates of expectancy for success in general and difference scores, and it is possible that such a classification of behavior is too broad and inclusive to be predictive in a specific situation. These results are consistent with Rockwell's earlier findings and seem to the writer to have some relevance to the frequent attempts on the part of clinicians to find an omnibus test which will tell all things about the personality. Better prediction might be obtained by using tests which were designed to yield more specific information about particular behavior in particular situations.

In general it is felt that the results of this study offer considerable encouragement for the use of social learning constructs in the prediction of level of aspiration behavior. A great deal of further research with more refined
research methods appears to be necessary, however, before accurate predictions can be made. In order to predict individual difference scores accurately within the present theoretical framework, it seems to the writer that the following questions about the individual must first be carefully answered:

1. How does he define the situation? Does he see it as a test of his motor coordination ability; as an academic recognition situation; or as possibly a test of his adequacy in general? These are only a few of the possibilities.

2. What are the relevant generalized expectancies which the individual brings into the situation?

3. What are the reinforcements which the individual sees as potentially available in the situation and what values do these reinforcements hold for him?

The answers to questions two and three are dependent upon first obtaining an adequate answer to the first question. Until we know how the individual defines the particular situation we have no accurate way of knowing what generalized expectancies to sample or what reinforcement values to assign.
The level of aspiration paradigm has become quite popular in recent years both as a clinical instrument and as a research method. Briefly, the paradigm is as follows: An individual, faced with a task in which he believes his success to be dependent upon his own ability and effort, is asked to make some estimate of his future performance. The nature of the task, the number of trials, and the number and kinds of estimates required have all varied widely but the basic elements of the paradigm as outlined above are common to all research in this area.

Psychologists have long noted that individuals, when asked to state the score that they expect to make in a level of aspiration situation, tend to consistently overestimate or underestimate their performance. It is this difference between performance and stated expectancy (difference score) which has been the primary basis for the use of the paradigm as a clinical instrument. While it has been consistently demonstrated that there is a high degree of relationship between difference scores on similar tasks and between difference scores on subsequent administrations of
the same task, attempts to relate difference scores to personality variables have so far met with less success. The analysis of patterns of difference scores seems to be the only approach to date which has resulted in any suggestive material.

The paradigm has also been used successfully as a measure of group expectancy in theoretical research, but here the emphasis has been on the mean expectancy of the group rather than on individual statements of expectancy. Large individual differences in statements of expectancy persist, however, despite objectively identical experience in the situation and these differences must be theoretically accounted for and predicted.

Thus far, the only effort to handle level of aspiration behavior within the framework of a general theory of personality has been Lewin's attempt to integrate the results of the many empirical studies in terms of valence-probability theory. The present study represents an attempt to predict individual difference scores in the level of aspiration situation within the framework of a systematic theory of personality.

From the point of view of Rotter's social learning theory, the statement of an expected score in the level of
aspiration situation represents a behavioral choice. Each score in a group of possible scores has an individual potentiality of being selected which is a function of the reinforcements which are seen as potentially available in the situation, the values which these reinforcements hold for the individual, and the expectancy (subjective probability) that a given reinforcement will follow a given behavioral choice. This relationship may be expressed in the following quasi-mathematical formula which Rotter has suggested as a basic formula for behavior:

\[ B.P. = f(E, R.V.)\]

"This may be read as follows: The potential for behavior \( x \) to occur in situation \( 1 \) in relation to reinforcement \( a \) is a function of the expectancy of the occurrence of reinforcement \( a \) following behavior \( x \) in situation \( 1 \), and the value of reinforcement \( a \)." (36, VI, p. 2)

Expectancy is defined in terms of subjective probability and is considered to be a function of probability of occurrence as based on past experience \( (E') \) and the generalization of the expectancies of the same or similar reinforcements occurring in other situations for the same or functionally related behaviors \( (GE) \).

\[ E = f(E' & GE) \]

We would expect that when an individual is asked what
score he expects to make on his next trial in the level of aspiration situation, his expectancy is a function not only of his performance trials on the particular task, but also of certain generalized expectancies which he brings into the situation.

Individual difference scores should, therefore, be predictable on a basis of generalization of expectancies from related behaviors in similar situations directed toward the same or similar reinforcements.

A number of estimates of generalized expectancy might be made ranging from a very specific estimate based on behavior in a situation which resembles the present one as nearly as possible, to broader and broader estimates based on a more inclusive sampling of situations. The broadest possible estimate of generalized expectancy which might be made would be the mean of all the expectancies held by the individual for obtaining reinforcement in any situation. It would be predicted, however, that the broader the sample of behaviors from which the generalized expectancy is estimated, the less accurate would be the prediction.

The present study was designed to investigate the relationship between difference scores as obtained on the Rotter Level of Aspiration Board and three estimates of
generalized expectancy which were selected from three arbitrary points on a theoretical gradient of functional relatedness. The first estimate was mean performance on a modified version of the level of aspiration board, the second estimate was an interview rating of expectancy for success in the area of motor skills, and the third estimate was an interview rating of expectancy for success in general.

Briefly, the experimental procedure was as follows. Thirteen pre-experimental subjects were interviewed and administered both the modified and the standard level of aspiration boards. The interview protocols obtained from these subjects then served as the basis for the development of the judges' rating manuals which were used in the final experiment.

Seventy-eight college males enrolled in an introductory psychology course completed the final experiment. Each subject was seen for two periods with at least two and no more than ten days between appointments. The initial appointment was devoted to an interview in which an attempt was made to elicit material which was relevant to expectancy for success in motor coordination tasks and to expectancy for success in general. Each portion of the interview was separately recorded on a Gray Audograph recorder and
non-related numbers were assigned to each record. The records were identifiable only by these numbers until all of the data had been collected and the ratings had been completed.

The second appointment was concerned with the administration of the two level of aspiration tasks. The modified board is identical to the standard board with the exception that the subject's score may be controlled within fairly narrow limits through varying the level of the board by means of a concealed foot-pedal. For the purposes of this experiment a pin-ball plunger was substituted for the usual cue as a means of propelling the ball on the modified board.

The subject was first given six trials of predetermined scores on the modified board. Immediately following the conclusion of these trials, thirty-one trials on the standard level of aspiration board were administered. Both tasks were introduced as tests of motor control and all of the subjects received identical treatment with the exception of eighteen individuals who performed only on the standard board. This group was introduced in order that observations could be made of the relationships between difference scores and interview estimates of generalized expectancy early in the series of trials when the effects of the pre-task
Two manuals were developed, one for each of the interview variables. These manuals were then discussed with the judges and five records of each type were distributed for rating. In a second meeting the ratings were discussed and points of disagreement were clarified. The judges then proceeded to rate the remaining records. Each judge assigned one overall clinical rating, on a six-point scale, to each of the two interview variables. Forty records of each type were rated by all judges, the records to be judged representing alternate subjects in the order in which they appeared for the experiment. The experimenter rated all 78 subjects on both variables and these ratings were used in the testing of the formal experimental hypotheses.

Inter-judge reliabilities were evaluated by computing Pearson product-moment correlations between judges' ratings. In addition, average inter-correlations were computed using Fisher's $z'$ transformation of $r$. Difference scores were computed for each trial and then grouped by five trial averages. This resulted in six difference scores for each individual, each representing a five trial average. Pearson product-moment correlations were then computed between difference scores and the various estimates of generalized
expectancy. Fisher's z' transformation of r was used to test the significance between correlations.

The following null hypotheses were submitted to test:

1. No correlation will be present between the judges' interview ratings of expectancy for success in motor coordination tasks, beyond that which would be expected by chance.

2. No correlation will be present between the judges interview ratings of expectancy for success in general, beyond that which would be expected by chance.

3. No correlation will be present between difference scores at any point in the series of trials on the level of aspiration board and mean performance on the modified level of aspiration board, beyond that which would be expected by chance.

4. No correlation will be present between difference scores at any point in a series of trials on the level of aspiration board and the interview rating of expectancy for success in motor coordination tasks, beyond that which would be expected by chance.

5. No correlation will be present between difference scores at any point in a series of trials on the level of aspiration board and the interview rating of expectancy for success in general, beyond that which would be expected by chance.
6. Maximal correlations obtained between the various estimates of generalized expectancy and difference scores on the level of aspiration board will not differ among themselves to a degree beyond that which would be expected by chance.

7. No correlation will be present between initial statement of expectancy on the level of aspiration board and mean performance on the modified level of aspiration board, beyond that which would be expected by chance.

All of the reliability coefficients were significant beyond the .001 level of confidence, the average inter-judge correlation being .82. Null hypotheses 1 and 2 were therefore rejected. Of the remaining null hypotheses, only 3 and 7 could be rejected. A low but significant correlation of .26 was obtained between difference scores on trials 2-6 and mean score on the modified level of aspiration board, and a correlation of .70 was obtained between mean score on the modified board and initial bid on the standard board. All of the remaining correlations between difference scores and the various estimates of generalized expectancy were within chance limits. In the case of null hypothesis 6, the predicted gradient was obtained but the differences between the obtained correlations were not statistically
significant and consequently the null hypothesis could not be rejected.

An inspection of the data suggested that a curvilinear relationship might be present between interview ratings and difference scores. Consequently, correlation ratios were computed between individual mean difference scores covering trials 7-31 and each of the two interview variables. A significant relationship (\( \eta = .42 \)) was obtained between difference scores and interview ratings of expectancy for success in motor coordination tasks using this method. No significant relationship was found, however, between difference scores and ratings of expectancy for success in general.

The rating scale was then condensed into three categories of high, medium, and low expectancy, and the F-test of differences between standard deviations was computed between each of these groups. Significant differences were obtained when difference scores were classified according to interview rating of expectancy for success in motor coordination tasks, with the variability among difference scores progressively increasing as the rating of expectancy decreased. No differences were found when difference scores were classified according to expectancy for success in general.
An attempt was made to investigate some of the methodological shortcomings of this investigation and tentative suggestions were offered for future research in this area.

The following conclusions appear to be justified from the results of this study:

1. Reliable interview judgments may be made of expectancy for success in motor coordination tasks and of expectancy for success in general.

2. There is a fairly high relationship between mean performance on a modified version of the level of aspiration board and initial statement of an expected score on the standard board.

3. There is a low but significant relationship between mean performance on the modified board and difference scores early in the series of trials on the standard board.

4. Using Pearson product-moment correlations only a chance relationship appears to be present between the two interview measures of generalized expectancy and difference scores at any point in the series of trials on the standard level of aspiration board.

5. Differences between the obtained correlations generally seem to follow the gradient predicted on the basis
of functional relatedness, but these differences are not large enough to meet the requirements for statistical significance.

6. A significant curvilinear relationship is present between the interview ratings of expectancy for success in motor coordination tasks and difference scores on the level of aspiration board. Difference scores decrease with the rating of expectancy until the lower ranges of expectancy are reached. Many individuals with very low ratings of expectancy make estimates which are as high or higher than those made by individuals who are rated as having very high expectancies for success.

7. There is a significant difference in the variability among the difference scores of individuals who are rated as having high, medium, and low expectancies for success in motor coordination tasks. The variability progressively increases as the rating of expectancy for success decreases.

8. No significant relationships or differences in variability of difference scores were found under any conditions using the interview rating of expectancy for success in general. It is felt that this is probably in part a function of the level of abstraction of the concept used.
Such a concept is so inclusive that there is little functional relatedness among the behaviors subsumed, and consequently, little accurate prediction of specific behavior should be expected.
BIBLIOGRAPHY


12. Frank, J. D. The influence of the level of performance in one task on the level of aspiration in another. J. exp. Psychol., 1935, 18, 159-171.


35. Rotter, J. B. Tentative formulation of basic principles for a social learning theory of personality, mimeographed, April, 1948.

   I. The nature of reinforcement
   II. The nature of needs
   III. The functional relationships among external reinforcements
   IV. A basic formula for behavior
   V. The measurement of some basic constructs; behavior potential, reinforcement value, and expectancy
   VI. The measurement of some basic constructs; need potential, freedom of movement, and need value
   VII. Categorical behavior potential
   VIII. Minimal goal levels.


APPENDIX
APPENDIX A

INTERVIEW SCHEDULE

I. Introduction.
   A. The interview was introduced as a general survey concerning college males — their interests, attitudes, and abilities in certain areas.

II. Generalized expectancy in the area of motor coordination.
   A. Has he ever been interested in working with his hands in tasks which require relatively fine manual motor coordination?
   B. What sorts of things has he done? Hobbies?
   C. What sorts of games requiring manual motor coordination has he participated in? How is he at them?
      1. Does he bowl? What is his average?
      2. Does he play pool? How is he at it?
      3. Anything else of this nature in which he has participated?
   D. How would he rate himself in general in skill with his hands?
   E. If for some reason he had to fall back on working with his hands in order to earn a living, how does he feel he would make out? What sort of thing does he feel he might take up?

III. Generalized expectancy for success in general.
   A. Academic.
      1. How did he happen to come to college?
      2. What was his first reaction to the university?
      3. How does he like it now that he has been here awhile? Anything about it that he particularly likes or dislikes?
4. What point-hour does he feel he should have by the time he graduates in order to feel satisfied? What is it now? What does he feel his chances are of getting it by the time he graduates?

5. What are his plans for the future after graduation? How does he feel he will be doing 10 years after graduation relative to the average individual who graduates when he does and goes into the same field?

B. Social relationships with peers of the same sex.

1. How many fairly close male acquaintances does he have? How many intimate friends does he have?

2. How easy is it for him to make friends?

3. When a friendship develops, who usually makes the overtures — who initiates it?

C. Social relationships with peers of the opposite sex.

1. Is he married? Is he going steady? Has he ever gone steady? How many times? When and how long? How did they happen to break up? What does he think of the idea of going steady?

2. How does he generally meet girls? What are the usual sources?

3. What does he think of the girls on the campus?

4. How often does he date on the average? Does he date preponderantly university girls or non-university girls?

5. How does he feel about asking a girl for a date -- one that he doesn't know very well or is asking for a date for the first time?
6. How does he feel when he is turned down for a date? Will he try again later? What does he feel the reasons usually are?

7. How does he rate himself in terms of popularity with girls generally?

D. General evaluation of self.

1. What activities did he participate in in high school -- in college?

2. Has he ever held any elective offices -- what are they?

3. From the point of view of a very frank evaluation of himself, what does he feel are his strong points and his relatively weaker points -- things he might want to change or improve if he could?

4. How confident would he be of himself if he were confronted with a situation about which he knew nothing prior to his entering the situation?

5. How confident is he of himself in general?

All of the areas listed above were covered, although not in all cases in the exact order listed here. In addition, items were followed up with open-ended questions whenever it seemed indicated. In other words, the above schedule served as a general framework within which the interview was conducted.
Use your clinical judgment in the overall ratings. Do not attempt a summative approach through the area referents as these are guide-posts only, to give you a general way of judging how the interview is proceeding by areas. Use your clinical judgment also in weighting the various areas and deciding how seriously a given low or high area enters into the overall generalized expectancy. In general, long pauses, halting speech, and avoidance answers should be regarded as referents for low expectancy, whereas, a fairly frank, easy flow of conversation would be a referent for high expectancy. Finally always keep in mind such variables as size of high school, and length of time on this campus.

1. Generally high expectancy. Probably cannot be a "1" if he is lower than a "2" in any single area.
2. Fairly high general expectancy. Might have a "3" or "4" area if also is very high in another (1). The balance must be fairly high.
3. Moderately positive throughout or at least the balance on the moderately positive side.
4. Neutral or non-committal, or very mildly negative, or such that the balance is neutral or very mildly negative.
5. Fairly low expectancy. Might have higher areas if also has seriously low area. The balance must be fairly low.
6. Generally low expectancy. Probably cannot be a "6" if he is higher than a "5" in any area.
Manual for Rating Expectancy for Success in General

I. Academic

1. University perceived as a friendly place and described in very positive terms. (e.g., instructors, courses, facilities, social, etc.)

   Fully expects to graduate with desired point-hour.
   Highly optimistic about post-college future, well defined and realistic plans.
   Certain he has chosen the right school.

2. Feels he is getting something out of school and sees his education as leading to something.

   University generally described as good and satisfying.
   Feels he has a good chance of graduating with desired point-hour.
   Fairly well defined post-college plans.
   Certain he has chosen the right field.

3. Mildly positive reaction toward the university.

   Feels he has a pretty fair chance of graduating with desired point-hour, or reiteration of "Well, I hope to."
   Some structuring and defining of post-college plans.

4. Neutral, noncommittal, or very mildly negative in general reaction toward the university.

   Strongly critical of any one aspect of school.
   Undecided about major or has changed major because of low grades.
Complains of considerable trouble getting adjusted to college.

Feels he probably should do better (in terms of minimal goal level)

School described as okay with no elaboration.

5. Feels he should do better but isn't very confident that he will.

Any rating of self as slightly below average (e.g., ten years after graduation).

Doubt as to having chosen the right field.

Any expression of self-doubt as to ability.

6. University perceived as a threatening place.

Negative evaluation of university (e.g., instructors, courses, facilities, social, etc.)

Feels he is getting little or nothing out of school.

Vague and ill-defined plans for the future (or unrealistic plans)

Expresses doubt that he may graduate.

Feels he does not fit in in college.

II. Social relationships with peers of the same sex

1. Strong statements about ease of making friends (e.g., very, extremely, no difficulty at all, my strongest point, etc.)

Wide scope of friends.

Likes people and likes to be with them.

2. Indications that friendships are on a 50-50 basis, sometimes initiated by the subject, sometimes by others.
Indications of spontaneous development of friendships.

3. Indications that subject usually tries to initiate friendships.

Mild positive statements about ease of making friends.

4. Neutral or noncommittal statements about ease of making friends.

5. Any indication of some difficulty in making friends.

Any reference to self as backward, shy, lacking in confidence in social situations.

Seems to have to "work" at making friends.

6. Usually waits until other person initiates friendship.

Difficulty in keeping friends.

Limited social contacts.

Difficulties in general in social relationships.

Description of self as being different from other people, or feeling inferior, or having standards of any sort which few people meet in terms of friendship.

III. Social relationships with peers of the opposite sex

1. Finds it easy to meet girls.

Very positive evaluation of campus girls.

Girls seen as friendly and easy to get acquainted with.

Finds it easy to ask for a date.
2. Philosophical about being refused a date -- will try again later.

 Gets along well with most girls.

 Dates, or has dated, widely.

 Feels that girls like and accept him.

 Rates self as somewhat above average in popularity with girls.

3. Finds girls generally accepting.

 Feels the reasons are generally valid when he is turned down for a date.

 Generally positive evaluation of campus girls.

4. Neutral or noncommittal in reaction to girls, or in description of campus girls.

 A previous steady relationship was broken off by the girl.

 Likes to know a girl some time before asking for a date.

5. Has difficulty in asking a girl for a date.

 Rates self as slightly below average in popularity with girls.

 Any description of self as backward, shy, withdrawn, or feeling inferior (regarding girls)

 Makes certain he will not be refused before asking for a date.

 Complains of difficulty in meeting girls.

 Has never dated campus girls (take into consideration outside steady relationships)

 Relies on blind dates or friends for meeting girls.
6. Dates infrequently (less than once a month, except for extenuating circumstances)

Perceives girls as uninterested in, hostile toward, depreciating of him.

Highly critical of girls on campus (frivolous, fickle, man-hunters, gold-diggers, immoral, loose, etc.)

Feels he is unattractive to girls.

Will not ask a girl for a date again if refused the first time.

IV. General evaluation of self

1. Perceives self as competent, socially outgoing, innocuous "weak points," if mentioned.

Perceives self as very confident in general and even in an ambiguous situation.

2. Large number of elective offices.

3. "Fairly" confident in ambiguous situation.

Description of self as fairly confident in general.

Generally mild-positive evaluation of self.

4. Neutral or noncommittal about general confidence.

Neutral or noncommittal in evaluation of self.

Description of self as "cautious" etc. in ambiguous situation, (qualifications or need for further structuring)

5. Feels he has some serious "weak points" which should be changed.

Feels he has some serious "weak points" which should be changed.

Description of self as backward, shy, withdrawn, inferior, etc.
Lacks confidence in ambiguous situation although may be fairly neutral in terms of general confidence.

Has never held an elective office of any kind.

6. Any discussion or dwelling on serious "weak points" (e.g., nervousness, withdrawal, difficulty making or keeping friends, backwardness, lack of confidence, etc.)

Describes self as very lacking in confidence in ambiguous situation.

Describes self as lacking confidence in general.

Manual for Rating Expectancy in the Area of Motor Coordination

1. Marked interest in the use of hands in skilled tasks.

Rates self as good at pool.

Bowling average of about 150 or more.

Feels that he would have no difficulty in earning a living with his hands if it were necessary, and would select some "skilled" occupation.

2. Feels he could earn living with hands if necessary and do fairly well.

Has been a "star" or multi-letter winner in sports in high school.

Rates self somewhat above average in motor skills tasks.

Rates self as somewhat above average in pool.

3. Mild interest in tasks requiring motor coordination.

Feels he could do fairly well if he practiced.
4. Neutral or noncommittal in regard to skill.
   Little interest in motor coordination tasks.
   Description of self as "fair" in pool.

5. Any description of self as slightly below average in motor coordination tasks.

6. Marked lack of interest in motor coordination tasks.
   Describes self as poor in motor coordination tasks.
   Describes self as poor in pool.

   Bowling average of around 100 or less (if he bowls any amount)
   Feels he would have difficulty earning a living with his hands.
   Has no idea what he would do in terms of a job if he had to earn a living with his hands -- or selects common labor.
### APPENDIX C

#### BASIC DATA FOR GROUP I

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*For each subject, difference scores based on the last previous trial are listed in the first row, and difference scores based on the cumulative mean are listed in the second row.*
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# APPENDIX D

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* For each subject, difference scores based on the last previous trial are listed in the first row, and difference scores based on the cumulative mean are listed in the second row.
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I, Sanford J. Dean, was born in Minneapolis, Minnesota, December 20, 1921. I received my secondary school education in the public schools of Minneapolis and Eden Prairie, Minnesota. My undergraduate training was obtained at Hamline University, from which I received the degree Bachelor of Arts in 1948. The degree Master of Arts was received in 1951 from Ohio State University. While completing the requirements for the degree Doctor of Philosophy I held the following positions: psychological trainee, Veterans Administration training program, 1948-51; assistant instructor, Department of psychology, 1951-52; United States Public Health Scholar, 1952-53; and instructor, Department of Psychology, 1953.