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THE EFFECTS OF TEACHER EXPECTANCY, SUBJECT EXPECTANCY, 
AND SUBJECT SEX ON THE LEARNING PERFORMANCE 
OF ELEMENTARY SCHOOL CHILDREN 

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

By 
Damon Floyd Asbury, B.A., M.A. 

The Ohio State University 
1970 

Approved by 

Donald C. Smith 
Adviser 
Department of Psychology
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FIELD OF STUDY

Major Field: School Psychology  
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INTRODUCTION

The concept of expectancy has played a central role in the theorizing of several psychologists who have concerned themselves with the general topic of motivation. For example, one or another variant of the expectancy construct has been used in the interpretation of empirical findings from such diverse areas of investigation as achievement motivation (Atkinson and Feather, 1966; Feather, 1966, 1968); risk-taking behavior (Atkinson, 1955, 1958, 1966); decision theory (Edwards, 1953, 1954, 1955, 1962); goal setting in level of aspiration situations (Lewin, Dembo, Festinger, and Sears, 1944); personality development and psychopathology (Rotter, 1954, 1966); and animal learning (Tolman, 1955). Subtle differences in theoretical usage notwithstanding, each of the above theorists has generally used the concept to refer to a subjectively held estimate of the probability of success or failure in reaching a favorable outcome.

More recently, two developing areas of psychological research and theory have highlighted the importance of the expectancy construct as it relates to the performance of children in academic learning situations. One of these areas of research focuses on the effects of one person's
expectancy on the behavior of another, while the second area investigates the impact of an individual's self-expectancy on his own behavior. The first area of investigation, conducted principally by Robert Rosenthal and his associates (1966), asks the question: "What are the effects of teacher expectancy regarding a child's learning potential on the actual learning performance of the child?" The second area of research, conducted within the framework of J. B. Rotter's Social Learning Theory (Rotter, 1954; Rotter, Seeman, and Liverant, 1962), asks the question: "What are the effects of an individual's self-expectancy regarding his learning potential on his actual learning performance?"

While each of the two areas of investigation is concerned with an important aspect of expectancy, both fail to fully consider the complexity of expectancy as it operates in the classroom situation. Both areas have tended to treat expectancy as a static variable, overlooking the possibility that expectancy operates in a dynamic, reciprocal fashion in interpersonal encounters. Thus, the research conducted in the Rosenthal tradition has neglected, to a substantial degree, any major concern with individual differences in responsiveness to teacher expectancy. Similarly, expectancy research stimulated by Rotter's social learning theory, while concerned with situational factors, has not dealt systematically with the influence of another's expectancy on the self-expectancy of the individual.
The child in the classroom is confronted with a complex series of overlapping, sometimes contradictory expectancies. There are the expectancies which the child holds toward his own learning ability and potential. Also, there are the expectancies held by significant others, such as parents, teachers, and peers, regarding his learning ability and potential. Expectancies may vary across situations and tasks and the match between the child's expectancy and those held for him by significant others may or may not be congruent. In the interpersonal contact between teacher and student, expectancies, and ultimately learning, may be modified in a positive or negative direction as a result of the on-going social interaction between the two and the reciprocal influence which each has upon the other.

The major concern of the present study is the nature of the interaction between teacher expectancy and student expectancy and the consequences of this interaction on student learning performance. That both teacher expectancy and student expectancy have behavioral consequences for the student has been demonstrated by research in both the Rosenthal and the Rotter tradition. What is not clearly understood is the process by which student performance is altered by positive or negative teacher expectancy. The present study, by incorporating both teacher expectancy and student expectancy into its design, and by systematically investigating the effects of discrepancies in magnitude and
direction between teacher and student expectancy, is an attempt to clarify the mediational process which intervenes between teacher expectancy and student learning performance. The results should provide greater understanding of the role of expectancy in children's learning and some insight into procedures by which student learning can be accelerated through systematic manipulation of teacher and student expectancy.
CHAPTER I

The Problem

During the past decade, Robert Rosenthal and his associates have been engaged in an extensive, systematic investigation of the phenomenon which has come to be known as "experimenter bias" or "experimenter expectancy." These terms refer to the subtle and unintended influence which the expectations of the experimenter may play in partially determining the empirical outcomes of the research which he conducts. The research efforts of Rosenthal et. al., which have focussed upon a broad range of experimenter, subject, and situational variables involved in the expectancy process, suggest that the experimenter is anything but the popular stereotype of the cold and dispassionate observer and collector of empirical data. In fact, there is a growing body of evidence to suggest that the expectations of the experimenter, in a manner as yet incompletely understood, may subtly, unintentionally, and without his awareness, influence the subject in such a way as to confirm the research hypothesis under investigation (Rosenthal, 1966).

Such evidence has profound implications not only for research design and methodology, but for the study of interpersonal behavior as well. Students of interpersonal
behavior have long been interested in the study of social influence processes and have devoted considerable effort to the study of suggestibility, persuasibility, and conformity. Research in the area of experimenter expectancy effects has added a new facet to the study of social influence situations -- the role of one person's expectancy for another upon the behavior of the person for whom the expectancy is held.

In view of the substantive implications of experimenter expectancy research for the study of interpersonal behavior, much interest has been generated in investigating the operation of expectancy effects in real-life behavioral situations. For example, Rosenthal (1966) has speculated about the potential influence of therapist expectations upon patient outcome in psychotherapy; of examiner expectations upon examinee performance in psychological testing situations; and of teacher expectations upon student achievement in the classroom.

The potential influence of teacher expectancy on student performance has recently become the subject of both enthusiastic speculation and research activity. A seminal study by Rosenthal and Jacobsen (1968) has been instrumental in stimulating much of the current interest in the effects of teacher expectancy. In this study, the authors investigated the effects of informing a teacher that a randomly selected group of children was composed of "late bloomers"
and that each child should be expected to demonstrate an academic growth spurt during the school year. Analysis of pre- and post-treatment measures on a group IQ test revealed that, as a group, the children for whom positive or favorable expectations had been created demonstrated significant IQ gains during the four month experimental period. The authors concluded that "teacher expectancy," or how the teacher views a child's potential to learn and achieve, is a significant variable in student achievement.

The Rosenthal and Jacobsen study created immediate attention and interest in the effects of teacher expectancy. The study was quickly followed by efforts to replicate (Anderson and Rosenthal, 1968; Clairborn, 1968; Evans and Rosenthal, 1969) and to generalize the findings to other teaching situations (Beez, 1968; Burnham and Hartsough, 1968; Meichenbaum, Bowers, and Ross, 1968). Also, both professional and lay writers in education, tempted perhaps by what appeared to offer a simplistic solution to the complex problems of urban education, have eagerly cited the Rosenthal and Jacobsen findings, concluding that the attainment of higher student achievement merely requires higher teacher expectations regarding the learning potential of students (e.g. Pressman, 1969).

Notwithstanding the widespread and rather uncritical acceptance of the Rosenthal and Jacobsen study, there is ample reason to regard the findings and conclusions as tenta-
tive at best. Thorndike (1968), in a cogent analysis of the study, raises serious questions regarding the validity of the procedures, data, and the data analysis, and concludes that while the hypothesis of teacher expectancy effects on student performance may be correct, the obtained data cannot be taken as confirmatory. Similarly, Clairborn (1969) points to statistical and methodological weaknesses in the study, concluding that no teacher expectancy effect was demonstrated in two-thirds of the grades examined. Further, attempts to replicate the study have yielded ambiguous and contradictory findings. For example, later research (Anderson and Rosenthal, 1968; Clairborn, 1968; Evans and Rosenthal, 1969) has produced evidence that under some conditions, greater gains in IQ are made by the children for whom the teacher is not given any special favorable expectations.

Finally, it should be noted that the bulk of the reported research on teacher expectancy effects has been concerned primarily with demonstrating the expectancy effect and delineating possible teacher behaviors associated with the expectancy effect. Surprisingly little attention has been directed toward identifying student or subject variables which might be potential mediators in the expectancy process. That is, despite the interpersonal or interactional nature of communication involved in social influence situations, there has been a general failure to consider
individual differences in responsivity or susceptibility to teacher expectations. Yet, there are growing indications to suggest that certain characteristics of the subject himself may be influential in determining the response to teacher expectations.

The above three factors -- methodological weaknesses in the original study; ambiguous and contradictory results in replication efforts; and the failure to consider individual differences in responsivity or susceptibility to teacher expectancy -- highlight the need for further investigation of the expectancy process as it relates to the influence of teacher expectations upon student learning performance. It would appear to be particularly meaningful to attempt to determine or identify behavioral and/or personality characteristics of children which may be related to, and possibly mediate, the degree of susceptibility to influence by teacher expectations.

The cumulative findings of numerous studies conducted in regard to social influence situations (i.e., studies of conformity, suggestibility, persuasibility, etc.) suggest that there exist stable individual differences among individuals in the degree of susceptibility to social influence (McGuire, 1968). The implications of these findings, as well as the potential value of the general social influence paradigm for teacher expectancy research are discussed in the following section.
Teacher Expectations: Another Perspective

The research efforts of Rosenthal closely parallel the work of many investigators who have studied such topic areas as suggestibility, conformity, and persuasibility or susceptibility to social influence. Recognizing the similarity of experimenter expectancy and social influence research, Rosenthal (1966, p. 408) commented that "the experimenter-subject dyad may profitably be viewed as a social influence system different from, but yet similar to, other social influence systems." Likewise, it would appear that the teacher expectancy situation and the processes involved can be meaningfully viewed as a special case of the general social influence situation.

Research in the area of social influence has investigated five major areas; the source of influence; the influence message; the channel used to convey the message; the recipient of the message; and the effects of the message. In short, who (source) says what (message) to whom (recipient) in what way (channel) and with what outcome (effects)? (Smith, Lawell, and Casey, 1946). In the typical teacher expectancy study, the elements of the influence paradigm can be viewed as follows: the teacher (source) conveys verbally and/or nonverbally (channel) to the child (recipient) that she regards him as possessing higher academic potential (message). The resultant outcome is a gain in
measured IQ (effect).

By and large, teacher expectancy research has focused upon variables associated with the source, channel, message, and effects elements of the general social influence paradigm. Considerably less effort has been devoted to the identification or the subject or the recipient variables associated with susceptibility to the influence of teacher expectations. In view of the many similarities between the teacher expectancy situation and the general social influence situation, it is somewhat surprising that individual differences in responsivity to teacher expectations have been generally overlooked or have received only post hoc treatment.

Investigations of other social influence situations have paid substantially more attention to the role of individual differences as partial determinants of influenceability. Each of the four major theoretical positions concerned with susceptibility to social influence (the learning, perceptual, consistency, and functional approaches) has implications for the relationship of personality variables to influenceability (McGuire, 1968, p. 1136). Accumulated data from each of the four viewpoints would appear to indicate that susceptibility to social influence is a weak general trait (Hovland and Janis, 1959; McGuire, 1968; Secord and Backman, 1964). According to McGuire (1968, p. 1130), "a person's standing as to relative persuasibility in one situation tends to have a significant positive relationship to
his standings in a wide range of other social influence situations."

Since individual differences have been demonstrated to play a significant role in other social influence situations, it would be reasonable to assume that they are also important factors in the teacher expectancy situation. This assumption, when combined with preliminary indications of the importance of individual differences now emerging from current teacher expectancy research (to be discussed in Chapter II), would indeed seem to indicate that the role of subject or recipient variables in the teacher expectancy situation merits further investigation.

In attempting to identify the behavioral and/or personality characteristics associated with the degree of susceptibility to teacher expectancy, one might select any of a number of variables to study. In fact, one could administer a battery of personality tests to subjects previously identified as susceptible to teacher expectancy, hoping to demonstrate a significant relationship between the behavior and one or more of the personality variables. However, there is no reason to expect that a randomly chosen personality variable should have implications for individual responses to expectancy situations. To simply select an arbitrary variable from the pool of general personality traits is at best a dubious procedure (Glass, 1968, p. 805). It is essential, therefore, that we isolate and study those be-
havioral and/or personality characteristics which seem to be logically and theoretically coordinate with the situation under investigation.

Hovland and Janis (1959) indicate that individual behavior in a social influence situation is a function of at least three stages -- attention, reception, and acceptance, or yielding. That is, the individual will modify his behavior to the extent that he (1) attends to the influence message; (2) receives (i.e., comprehends) the influence message; and (3) accepts or internalizes the message. McGuire (1968) has extended the Hovland and Janis model by adding two steps -- retention and action in accordance with the influence message. Both Hovland and Janis and McGuire agree that a given behavioral and/or personality variable may affect influenceability by acting upon any of the five links in the influence chain. Any behavioral and/or personality construct hypothesized to be related to the degree of susceptibility to social influence should bear a direct or indirect relationship to one or more of the five steps in the chain.

It is a logical extension of the above position to hypothesize that a given child will be influenced by teacher expectancy to the extent that (1) he attends to the expectancy message; (2) he comprehends the message; (3) he accepts the message; (4) he retains the message; and (5) he acts in accord with the message. To the extent that a behavioral and/or personality characteristic affects one or more of the five steps, it can be seen as a determinant of
susceptibility to teacher expectations.

One such personality variable which can be logically and theoretically hypothesized to relate to the five step process involved in both the social influence and teacher expectancy situations is locus of control, a construct derived from the social learning theory of J.B. Rotter (1954, Rotter, Seeman, and Liverant, 1962). The following section presents a brief discussion of the locus of control construct and its potential mediating role in the teacher expectancy process.

**Locus of Control as a Mediating Variable**

The locus of control construct, which has its theoretical origins in social learning theory (Rotter, 1954, 1966) refers to a man's perception of his ability to control his personal environment. Individuals differ in the degree to which they expect to obtain and accept personal responsibility for material and social rewards or reinforcements from the environment. Rotter, Seeman, and Liverant (1962, p. 474) define an internal locus of control (ILC) as "the perception of positive and/or negative events as being the consequences of one's own actions, and thereby, under personal control"; an external locus of control (ELC) is defined as "the perception of positive and/or negative events as being unrelated to one's own behaviors, and therefore, beyond personal control." While the person with an ILC has
a tendency to see the outcomes of events and life circumstances as being greatly determined by personal forces, the individual with an ELC tends to believe that the reinforcements he receives are caused by agents or forces over which he has no control (Bialer, 1960, p. 3). According to Crandall, Katkovsky, and Crandall (1965, p. 92), individuals with an external orientation "may attribute causality to any of a number of forces, such as luck, fate, chance, supernatural powers, task or situation characteristics, complex social or political processes, or powerful others."

The dimension of internal vs. external control is not considered to reflect a personality typology, but rather is interpreted as an acquired behavioral disposition. According to Minton (1967, p. 230), a disposition toward an ILC or ELC is acquired through past experiences in instrumental situations and functions as a mediator of behavior in similar situations. Depending upon one's past reinforcement history, a consistent attitude develops regarding the source of reinforcements as tending toward an internal or external locus. Thus, locus of control reflects a dimension of active or passive orientation to the environment and presumably, refers to a generalized expectancy of attaining favorable outcomes in a wide range of tasks and situations (Katz, 1967; Minton, 1967).

The locus of control or generalized expectancy construct is a key variable in social learning theory. Rotter
postulates that "the occurrence of a behavior of a person is determined not only by the nature of the available goals or reinforcements, but also by the person's anticipation or expectancy that these goals will occur" (1954, p. 102). The relationship between behavior and expectancy is stated mathematically as follows:

\[
B \cdot P \cdot x, s_1, r_a = F(E_x, r_a, s_1, & R. V. a) \] Formula 1.

Formula 1 is read "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 in situation 1 (Rotter, 1954, p. 108).

Expectancy (E) is further assumed to be a function of E' (the situational expectancy developed as a function of the schedule of reinforcements in the situation) and GE (the generalized expectancy developed from reinforcements in other situations and generalized to present situation) (Rotter, 1954, p. 109). The formula for expectancy (E) is then:

\[
E = f(GE & E') \] Formula 2.

In a novel task situation, one assumes that only GE is operating. Situational expectancy (E') has not been developed because the subject has not yet had experiences in the particular situation. Thus, according to Cromwell (1963, p. 50), in the novel situation:
Both formulas 2 and 3 above have clear implications for the typical teacher expectancy situation. The student brings to the learning encounter an expectancy composed of both GE and E'. Formula 3 indicates that for relatively novel learning situations, the student's expectancy is characterized by GE only; that is, by the generalized expectancy developed from reinforcements in other learning situations and generalized to the novel situation. No E' is assumed to be present.

However, the situational expectancy (E') can be influenced by giving the student a verbal statement of the probability of success or failure in a given situation. In the novel learning situation, teacher expectancy statements regarding the student's probability of success or failure can be seen as determinants of situational expectancy. Therefore, according to Formula 2, student expectancy (E) in the novel learning situation would be a function of the interaction between his generalized expectancy for success or failure (GE) and the expectancy held for him by the teacher (TE). Substituting TE for E' in Formula 2 yields the Formula for student expectancy in the novel learning situation where teacher expectancy statements are communicated to the student.

\[ E = f(GE \& TE) \text{ Formula 4.} \]
A prediction of the exact nature of the hypothesized interaction between generalized expectancy and teacher expectancy (Formula 4) is complicated by the relationship between generalized expectancy and locus of control. A frequently overlooked, but important distinction exists between the two constructs. Locus of control refers to the attribution of causality by the individual to the outcomes (i.e., rewards, reinforcements) he receives. Outcomes may be attributed as primarily due to internal or personal effort, or to external forces such as fate, luck, or powerful others. Generalized expectancy, on the other hand, refers to the level of outcomes (i.e., number or quality of rewards, reinforcements) which the individual comes to typically expect. In this sense, generalized expectancy bears a strong similarity to the notion of comparison level which is contained in social exchange theory (Thiabut and Kelley, 1959), and which refers to the level of hedonistic experience that the individual expects to receive and finds to be minimally appropriate or acceptable.

The distinction between locus of control and generalized expectancy may be sharpened by examining the fourfold matrix which results from the juxtaposition of the two dimensions. The matrix is presented in Figure 1.

Figure 1 illustrates that individuals with an ILC attitude do not uniformly express high generalized expectancies for success and, similarly, that individuals with an
Locus of Control

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<tr>
<td>Low</td>
<td>C</td>
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Generalized Expectancy

Figure 1. Matrix illustrating four possible combinations of internal-external locus of control and high-low generalized expectancy.

ELC attitude do not uniformly express low generalized expectancies for success. Thus, individuals typically expecting a high level of outcomes may attribute the source of their outcomes to either internal or external forces (elements A and B, respectively), while those typically expecting a low level of outcomes may attribute the cause of their low reinforcement level to either internal or external forces (elements C and D, respectively).

It is the distinction between generalized expectancy and locus of control, as well as empirical findings which suggest quite consistent differences between the behavioral response patterns of ILC and ELC subjects in a wide range of situations, which leads to the general hypothesis that locus of control functions as a mediating variable in the teacher expectancy situation. The specific mediational role of the locus of control variable is hypothesized to be one of assigning differential weights to generalized expectancy and teacher expectancy. Thus, subjects with an ILC attitude should
assign greater weight to the generalized expectancy component of Formula 4, and be less influenced by statements of teacher expectancy. Conversely, subjects with ELC attitude, being more sensitive to and dependent upon external forces, should assign greater weight to teacher expectancy component of Formula 4, and therefore, be more responsive to positive or negative teacher expectancy.

Subject Sex as a Mediating Variable

In addition to personality and/or behavioral factors, subject sex is another type of recipient variable which has been shown to play an important mediating role in determining the degree of susceptibility to social influence in general, and to teacher expectations in particular. There is ample research evidence available to suggest that male and female subjects often respond in a differential fashion to the same type of social influence message. Unfortunately, the evidence is not sufficiently consistent across studies to enable hypotheses regarding sex differences to be stated with confidence.

For example, a number of traditional social influence studies indicates that females, on the average, tend to be more susceptible to persuasive communications than males. (e.g. Aas, O'Hara, and Munger, 1962; Janis and Field, 1959; King, 1959; London and Fuhrer, 1961; Simmons and Cristy, 1962; Stevenson, 1965; Whittaker, 1965a, 1965b). However,
failure to obtain significant sex differences in persuasibility has been reported in a series of studies which used first grade children as subjects (Abelson and Lesser, 1959).

Current findings regarding the role of subject sex in the experimenter and teacher expectancy situation must be regarded as inconclusive. For example, female subjects were noted to be more susceptible to the biasing effects of experimenter expectancy in two studies (Persinger, 1962, Rosenthal, Persinger, Mulry, Vikan-Kline, and Grothe, 1964a) while three additional studies (Adair, 1968; Rosenthal et. al. 1964b; Silverman, 1968) report an interaction between experimenter and subject sex. Rosenthal et. al. (1964b) reported that same-sex experimenter-subject dyads demonstrated stronger experimenter effects, while Adair (1968) and Silverman (1968) found that opposite sex dyads showed the greatest expectancy effect. The results of Adair and Silverman are consistent with the results of a series of laboratory learning studies which indicate that opposite sex experimenter-subject dyads manifest higher performance levels than same-sex dyads (Stevenson, 1961; Stevenson and Knight, 1962; Stevenson and Allen, 1964).

Sex differences have been reported in at least two studies of the influence of teacher expectations. Rosenthal and Jacobsen (1968) found that girls, but not boys, in the positive teacher expectancy groups demonstrated significant increments in Total and Reasoning IQ. In a study by Evans
and Rosenthal (1969), the opposite results were obtained.
The Evans and Rosenthal study was an attempt to replicate,
in a middle-class community, the earlier findings of
Rosenthal and Jacobsen study which was conducted in a pre­
dominately lower-class setting. Thus, it appears that a
complex interaction of pupil sex X pupil socio-economic sta­
tus X teacher expectancy is involved.

Empirical findings therefore suggest the generality
of sex differences in degree of susceptibility to social in­
fluence. In addition, McGuire (1968, p. 1165) suggests that
subject sex may be an important moderator variable in per­
sonality-influenceability relationships. Thus, the role of
subject sex in the teacher expectancy situation would appear
to warrant further investigation.

Summary of the Problem

In summary, it is the purpose of this study to ex­
plore the nature of the teacher expectancy process by in­
vestigating individual differences in degree of responsivity
or susceptibility to teacher expectations as a function of
two subject variables; (1) a status variable (subject sex);
and (2) a personality variable (locus of control), which re­
flects the subject's attribution of causality for received
rewards to internal vs. external forces. Specifically, it
is proposed that a child's responsiveness to positive or
negative teacher expectancy is, in part, a function of sex
and perceived locus of control. The present study seeks to determine (1) the effects of discrepancies in magnitude and direction between GE and TE on subject expectancy (total E) and subject learning performance; (2) the effects of locus of control on level of learning performance; (3) the effects of subject sex on level of learning performance; and (4) the possible interaction effects of sex, locus of control, and teacher expectancy on level of learning performance.

Significance of the Study

The present study, by systematically investigating the effects of adult expectancy statements on student expectancy and learning in a controlled laboratory situation, should contribute to increased understanding of the teacher expectancy process and should provide greater insight into the general role of expectancy in children's learning. Perhaps the most significant aspect of the study is that it provides data concerning a neglected aspect in teacher expectancy research -- the role of individual differences in susceptibility to the influence of teacher expectations. Contrary to the bulk of teacher expectancy research, which has focused on teacher variables, the present study attempts to relate learning performance in the expectancy situation to subject variables. The findings should, therefore, lead to greater understanding of potential mediating factors in the expectancy process. In addition, the present study, by casting
the teacher expectancy situation into a social influence paradigm, provides a useful framework for identifying variables or factors involved in the expectancy process.

The study also differs from previous teacher expectancy research in two other important aspects. First, the study seeks to investigate actual learning performance in the expectancy situation, rather than gain scores in level of intellectual functioning as measured by a group-administered test. This distinction is of importance, not only because it is relevant to ask how teacher expectancy is reflected in student learning, but also because of problems associated with interpreting the meaning of gains in IQ scores. For example, the IQ gains noted in the Rosenthal and Jacobsen study (1968) might be more parsimoniously attributed to several sources other than teacher expectancy, including the possible effects of maturation, practice, interaction between test and treatment, low test-retest reliability, and test validity. Thus, by studying actual learning performance, the present study brings teacher expectancy research closer to the major concern of education.

Secondly, the study will provide data on learning performance under conditions of low or negative teacher expectancy as well as under conditions of high or positive teacher expectancy. Previous research has concentrated on two conditions only -- positive vs. no expectancy. The present study, conducted in a laboratory-type setting where-
in the effects of any negative expectancies encountered in the experimental phase can be immediately attenuated in a post-experimental session by providing the subject with success experiences and with a debriefing of the purpose of the study, allows the investigation of the effects of negative expectancy without serious concern for any lasting expectancy effects. By determining the effects of negative teacher expectancy, the study should provide some insight into the question of the potentially detrimental effects assumed by many to result when middle-class teachers hold unrealistically negative expectancies for the learning potential of lower socio-economic status children.

Finally, the present study attempts to synthesize the theoretical and empirical findings of teacher expectancy research and research conducted within the framework of social learning theory. An investigation of the interaction between teacher expectancy and subject generalized expectancy under both congruent and conflicting conditions (i.e., high teacher expectancy and high subject expectancy; low teacher expectancy and high subject expectancy) should provide meaningful information regarding the general influence of expectancy on behavior. Findings in the predicted direction would also provide evidence for the construct validity of the locus of control variable.
CHAPTER II

Review of the Literature

It is the purpose of this chapter to present a summary and critical review of research and theory related to the phenomena of experimenter and teacher expectancy effects and to the personality variable, locus of control. The literature included in this review has been selected in order to (1) illustrate the existence and generality of experimenter and teacher expectancy effects; (2) establish the importance of subject variables as potential mediating factors in the expectancy process; (3) present the theoretical origin and meaning of the locus of control construct and discuss its relationship to behavior in a wide range of situations; and (4) provide a rationale for the hypothesis that subject sex and locus of control function as mediating variables in the teacher expectancy situation.

No attempt has been made to provide an exhaustive review of the two areas of research and theory. Thorough reviews of experimenter and teacher expectancy research have been presented elsewhere by Rosenthal (1964, 1966, 1968, 1969), while excellent summaries of various aspects of social learning theory and research are provided by Cromwell
Teacher Expectancy: Theory and Research

The current interest in the effects of teacher expectancy stems largely from two sources. First, there is a pre-occupation in education today with the possible damaging effects of middle-class teachers teaching lower-class children (Outerbridge, 1968, p. 3). One component of this concern is the argument that white, middle-class teachers believe that black, lower-class children are less capable than their white, middle-class counterparts, and consequently, treat them in an inferior manner. Because she expects less learning from the children and responds to them in accord with her beliefs and expectations, the teacher in fact receives inferior academic performance from the students. Numerous writers have called attention to this educational "self-fulfilling prophecy" aspect of teacher expectations. In addition to Rosenthal (1966, 1968 with Jacobsen), others who have taken the position that the teacher gets less achievement because she expects less include Asbell (1963), Becker (1952), Clark (1963), Gibson (1965), Harlem Youth Opportunities Unlimited (1964), Katz (1964), Kvaraceus (1965), Mackinnon (1962), Riesmann (1962, 1965), Rose (1956) and Wilson (1963).

The second major source of interest in teacher expectancy stems from the desire of many researchers to examine the substantive implications of the experimenter bias
studies. These studies have demonstrated repeatedly, and in a wide variety of experimental tasks, that the expectations of the experimenter or data collector are a significant factor in determining the outcome of the research he conducts. Initially, the experimenter bias research attracted attention as a result of its significant implications for methodology in psychological experimentation. Recently however, attention has shifted toward demonstrating the generality in real-life situations of the operation of interpersonal self-fulfilling prophecies. Much of the latter effort has been concerned with the influence of teacher expectations.

The effects of teacher expectations are a specific instance of the operation of a far more general principle, which according to Rosenthal (1969, p. 1) holds that "in the course of interpersonal relationships, one person's expectation for the behavior of another person can come to be a significant determinant of that person's behavior." The general concept of self-fulfilling prophecies has been suggested as a plausible explanation of racial and religious prejudice and of economic depression (Merton, 1948), and as an explanation for international aggression (Allport, 1950). However, most of the empirical evidence to support the general principle of interpersonal self-fulfilling prophecies comes from research conducted with psychological experimenters.
In order to provide a general background for later discussion of teacher expectations, the following subsection presents an overview of the findings from investigations of experimenter bias or expectancy effects. The discussion is organized so as (1) to present the basic research paradigm; (2) to demonstrate the generality of expectancy effects; (3) to suggest the channels through which the effects are communicated to the subject; and (4) to point to associated experimenter and subject variables which may mediate the effects.

Studies of Experimenter Expectancy Effects

The Basic Paradigm.

Well over a hundred studies investigating the phenomenon of experimenter expectancy effects have been reported. In the majority of the studies, the experimental design has been similar to the paradigm described by Rosenthal (1968, p. 221):

"Half of the experimenters are led to expect one type of response from their subjects; half are led to expect the opposite type of response. In some way, these expectations turn out to function as self-fulfilling prophecies. Subjects contacted by experimenters expecting data type X, give type X responses. Subjects contacted by experimenters expecting data type Y, give type Y responses."

Generality of Experimenter Expectancy Effects.

While the numerous studies reported have used similar experimental designs, there are differences among them in
terms of the type of subjects used, the type of performance required of the subject, and the mode of experimenter-subject contact.

Experimenter expectancy effects have been shown to occur with both animal and human subjects. Thus, experimenters informed that their research animals would demonstrate rapid or superior learning seem to acquire better performance from their animals than do experimenters cued to expect inferior performance. Evidence confirming this observation has been reported in studies of the behavior of rats in T-mazes (Rosenthal and Fode, 1963a; Burnham, 1966; and Ingraham and Harrington, 1966) and Skinner boxes (Rosenthal and Lawson, 1964) and in studies of the learning behavior of planaria (Cordaro and Ison, 1963; Hartry, 1966).

The influence of experimenter expectancy on the performance of human subjects has been investigated using a wide variety of experimental tasks. Areas of human performance which have been shown to be influenced by interpersonal expectancy include judgements of tone-length discrimination (Zoble, 1968); reaction time on a word-association task (Silverman, 1968); the quality and quantity of responses to an inkblot test (Masling, 1965, Marwit and Marcia, 1966); ratings of the emotional characteristics of individuals in person perception experiments (e.g. Rosenthal and Fode, 1963b; Rosenthal, Persinger, and Fode, 1962); and verbal responses in verbal operant conditioning experiments.
Of more central concern to the present study are a number of research investigations of the influence of experimenter expectancy on human learning and abilities. Summarizing the results of 10 studies in this area, Rosenthal (1969, p. 11-12) reports that "inconclusive results were obtained in studies assessing the effect of interpersonal expectancy on subject's performance of (a) the Wechsler Adult Intelligence Scale (WAIS), (b) the Block Design Subtest of the same instrument, (c) a color-recognition test, (d) a dot-tapping test, and (e) two verbal learning tasks," while "evidence for the operation of expectancy effects was found in studies of (a) verbal learning, (b) verbal and mathematical ability, (c) the Wechsler Intelligence Scale for Children (WISC), and (d) the Stevenson Marble-dropping task."

For example, no statistically significant differences were obtained in the performance levels of subjects contacted by experimenters expecting superior performance and those contacted by experimenters expecting inferior performance on either the Block Design subtest of the WAIS (Wartenberg-Ekren, 1962) or on a rote verbal learning task (Hurwitz and Jenkins, 1966). Both experiments were characterized by small sample size (N = 32 & 20, respectively), a fact which makes it difficult to achieve statistical significance. Two examples of studies which support the hypo-
thesis of the effect of interpersonal expectancies on human learning and ability are provided by Larrabee and Kleinsasser (1967) and Johnson (1967). In the Larrabee and Kleinsasser study, experimenters with conflicting expectancies administered the WISC to the same child. One experimenter administered even-numbered items; the other administered odd-numbered items. Experimenters expecting above average performance from their subjects obtained significantly higher mean IQ's on the total and verbal scales of the WISC than did experimenters expecting below average performance. Similarly, Johnson found that experimenters expecting a rapid increase in marble-dropping rate over six trials obtained significantly faster increases than those expecting a lesser rate of marble-dropping.

The studies reviewed above suggest that the prior expectancy of the experimenter often provides a significant influence on the performance of his subjects. They do not, however, definitely establish a cause-effect relationship between experimenter expectancy and subject performance, nor do they explain how the effects are communicated to the subjects. These questions are considered in the following sub-section.

Modality of Communication of Experimenter Expectancy.

Before accepting the conclusion that experimenter expectancy per se, influences subject performance, one must
also consider and accept or reject other equally plausible explanations. One possible interpretation which must be given close attention is that the effects of experimenter expectancy can be attributed to accidental or willful errors in observation and recording. Barber and Silver (1968) reviewed 31 studies of experimenter expectancy and suggested that in the majority of studies, demonstration of expectancy effects could be attributed either to investigator effects (deficiencies in data analysis and interpretation) or to experimenter effects (misjudging responses, misrecording data, falsifying data). They conclude that the experimenter bias effect is more difficult to demonstrate and less pervasive than previously assumed. However, there are a number of studies which rule out the operation of accidental or intentional errors. For example, Adair and Epstein (1968) used tape recordings of experimenter voices to present the experimental task to the subjects, who in turn recorded their own responses. Obviously, accidental or intentional experimenter error could not operate in this situation; yet statistically significant experimenter effects were obtained. Also, in the previously cited experiment by Johnson (1967), electronic recording of subject responses and the use of experimenters blind to the treatment condition of each subject to transcribe the data would appear to be sufficient to rule out intentional observer errors. Again, the findings support the hypothesis of experimenter expect-
ancy effects. Thus, it would appear that accidental or inten-
tional errors cannot be accepted as the sole explanation
for experimenter expectancy effects, even though they may
operate in some situations.

A second alternative explanation lies in the possi-
bility that experimenters may respond to subjects in such a
fashion as to unwittingly reinforce only those subject re-
sponses which are consistent with their expectancy. The
operant conditioning interpretation would appear to be quite
reasonable, particularly in the studies where "shaping" of
the subject's response might occur. For example, research
in the area of verbal operant conditioning has shown that
subtle verbal and nonverbal cues emitted by the experimenter
serve as reinforcers for the subject (Greenspoon, 1962).
There is reason to believe that operant conditioning may
have been a factor in the animal learning studies reported
by Rosenthal and Fode (1963a) and Rosenthal and Lawson
(1964), and in studies of responses to ink-blot tests
(Masling, 1965; Marwit & Marcia, 1966). But other studies,
such as those conducted by Adair and Epstein (1968) and
Zoble (1968) where experimenter-subject contact was via
tape-recordings, would seem to rule out the conclusion that
experimenter effects can be entirely accounted for by
operant conditioning principles.

Given that neither accidental or intentional errors
nor operant conditioning can account solely for observed
experimenter expectancy effects, and lacking other equally plausible alternatives, one must, at least tentatively, accept the hypothesis that interpersonal expectancy does influence subject performance. But through what channels is the expectancy of the experimenter communicated? A number of studies have been addressed to this question, and at this point, the results must be viewed as inconclusive. Two studies (Adair & Epstein, 1968; Troffer and Hart, 1964) suggest that auditory cues alone may be sufficient to mediate expectancy effects and two other studies (Rosenthal & Fode, 1963a; Zoble, 1968) also lend support to this finding. The study by Zoble (1968) also suggests the importance of the visual channel in the communication process. In this study, subjects who had access to auditory cues alone were affected by experimenter expectancy only 53% as much as those subjects who had access to visual and auditory cues; subjects who had access to visual cues only were affected by experimenter expectancy 75% as much as those subjects who had access to both channels. On the basis of these studies, it would appear that while either the auditory or visual channel may be sufficient, the expectancy effect is communicated more effectively when both sources of information are available to the subject.

Related Experimenter and Subject Variables.

Given the fact that experimenter expectancy effects occur in a wide variety of experimental situations, it is
reasonable to ask whether there are certain types of experimenters more likely to obtain expectancy effects and similarly, if there are certain types of subjects more susceptible to interpersonal expectancies. Among the experimenter and subject variables which may be considered as mediating factors are (a) bio-social attributes, such as sex, age, and race, and (b) psycho-social attributes, such as anxiety and need for approval. Each class of attributes is considered in turn for both experimenter and subject.

Bio-Social Attributes -- The age and race of experimenter and subject have not been given systematic attention in experimenter expectancy research, despite the fact that both variables have been shown to be of some influence in studies of intentional social influence. For example, in regard to age, Stevenson (1965) reports that younger subjects are more easily influenced than older subjects, while a study by Ehrlich and Riesman (1961) suggests that experimenter age and subject age have an interactive influence on a subject's responses. Interactions between experimenter race and subject race have also been reported in a variety of social influence situations (Katz, 1968). Greater attention has been directed to the possible mediating role of experimenter and subject sex in the expectancy situation. Rosenthal (1964) reports that in three experiments allowing a comparison between male and female experimenters, greater expectancy effects were obtained by the males in each. He
also reports that female subjects were found to be more susceptible to expectancy effects in three other unpublished studies. These findings are complicated by two later studies (Adair, 1968; Silverman, 1968) which report an interaction between experimenter and subject sex. Both studies indicate that the expectancy effect is greater for opposite-sex dyads than for same-sex dyads. The rather meager findings reported here would seem to suggest a need for more intensive research in the role of bio-social attributes in the expectancy process.

**Psycho-social Attributes** -- Among the psycho-social attributes of experimenter and subject which have received consideration are need for approval, anxiety, need for affiliation, and locus of control. Rosenthal (1964) reports that in seven unpublished studies, experimenter's need for approval was significantly correlated with the magnitude of their expectancy effects. In these studies, the obtained correlations between need for approval and expectancy effects averaged .64 (p.<.001, N = 57). One unpublished study reported by Rosenthal (1964) found that experimenters with high need for approval showed less expectancy effects. No relationship between subject need for approval and susceptibility to experimenter expectancy effects has been reported.

The relationship of experimenter and subject anxiety levels to performance in expectancy situations is quite confusing. Again citing unpublished research, Rosenthal (1964)
reports that in three studies, experimenters with medium levels of anxiety showed the greatest expectancy bias; in two other studies, experimenters with high levels of anxiety showed the greatest expectancy bias; and one study showed that the greatest expectancy bias occurred for experimenters low in anxiety. The susceptibility of subjects to experimenter bias was found to be greatest for highly anxious subjects in two studies; for medium anxious subjects in two other studies; and for least anxious subjects in one study (Rosenthal, 1964).

Finally, Gore (1964) reports a study which found differences in susceptibility to experimenter expectancy among subjects. In this investigation, subjects with an external locus of control and with a higher need for affiliation were found to be more compliant with the experimenter in an expectancy or bias situation.

The reported studies of the relationship of biopsychosocial and psycho-social attributes of experimenter and subject to performance in an expectancy situation are far from conclusive and most suffer from the methodological weaknesses of all post hoc analyses. Nevertheless, the studies have considerable merit in pointing to the potential importance of experimenter and subject variables as mediating factors in the expectancy situation, and suggest the need for further investigation of the behavioral and/or personality characteristics of subjects susceptible to the in-
fluence of other's expectancies.

The preceding discussion of experimenter expectancy studies has been presented to provide a general overview of the theoretical and empirical antecedents of teacher expectancy research. The following section presents a summary and discussion of the teacher expectancy studies completed to date, and focusses particularly upon establishing the fact that individual differences in responsivity to teacher expectations exist and merit further investigation.

Studies of Teacher Expectancy Effects

Earlier, it was stated that the effects of teacher expectations may be viewed as a specific instance of the operation of the more general principle of interpersonal self-fulfilling prophecies. Concern with the influence of teacher expectations represents the attempt to generalize the operation of this principle to an educational setting.

The most widely cited study dealing with the question of teacher expectancy is that reported by Rosenthal and Jacobsen (1966, 1968). As this particular study has served as a model for many later studies, it serves a useful purpose to examine the procedures and findings in detail. The authors were concerned with the effects of informing a teacher that a randomly selected number of children were "intellectual bloomers." At the beginning of the school year, teachers in an urban elementary school were
given the names of a randomly-chosen number of "special" children (approximately 20% of the children in each of three classes in Grades 1-6). Teachers were told that these "special" children had been identified by a test of "intellectual blooming" and that each child could be expected to show significant intellectual growth in the coming months. The test, which was actually a standardized non-verbal test of intelligence (Tests of General Ability, Flanagan, 1960), had been administered in the spring of the previous year. The test was readministered twice during the experimental period -- once, four months after the teachers had been given the names of the special children, and again, four months later. Difference scores in IQ were then compared between the designated experimental group children and the undesignated control group children.

The results (second retest, 8 months after the introduction of the bias) indicate that for the school as a whole, the children of the experimental groups didn't show any significantly greater gain in verbal IQ or verbal mental age (MA) than did the control group children. However, in total IQ and MA, and especially in reasoning IQ and MA, the experimental group gained significantly more than did the control group children (p.<.02, one-tailed). However, when the data is analyzed grade-by-grade, the differences in IQ gains between the experimental and control group children are found to be statistically significant only in the first and second
grades (p.<.02, one-tailed). The authors concluded that telling a teacher that some of her children are likely to show intellectual blooming is sufficient to result in changes in the pupil's measured IQ, and a case is built for the significant influence of teacher expectancy upon student achievement.

The Rosenthal and Jacobsen study stimulated numerous attempts to replicate and to generalize the findings. Flowers (1966) reports a study in which teacher expectations of student intellectual performance were experimentally varied. Working with two classes of seventh-grade children in each of two cities, he falsely designated one of the classes in each city as considerably brighter than the remaining (control) class. Actually, the classes were comparable in tested achievement and intelligence. At the end of the experiment the children falsely designated as brighter at one of the schools showed a small, significant gain in IQ (p.<.03), but showed no gain in achievement relative to the control group children. In the other city, the group designated as brighter tended to show a greater gain in achievement relative to the control group children, but the effect was not statistically significant. No gain in IQ for the experimental group relative to the control group was indicated.

Beez (1968) conducted a study which divided 60 preschool children into high and low expectancy conditions.
Each child was assigned to a teacher who taught him the meaning of a series of symbols. One-half of the teachers were led to expect good symbol learning and the other half to expect poor learning. The results indicated that 77% of the students in the high expectancy condition met the criterion of learning five or more symbols, while only 13% of the children in the low expectancy condition attained criterion.

Meichenbaum, Bowers, and Ross (1968) found that an increase in teacher's favorable expectations led to significant increases in the frequency of appropriate classroom behavior in a group of institutionalized, adolescent female delinquents. Teacher expectations have also been shown to affect the performance of children on a standardized swimming test (Burnham & Hartsough, 1968) and on a variety of achievement and intellectual measures (Hurwitz and Jenkins, 1966; Rosenthal, 1969; and Wartenberg-Ekren, 1962).

However, not all of the results have yielded consistently positive support for the hypothesis of teacher expectancy as an interpersonal self-fulfilling prophecy. For example, Clairborn (1969) reports a failure to demonstrate teacher expectancy effects in a study which closely replicated the Rosenthal and Jacobsen study. And, in at least two other replication efforts (Anderson and Rosenthal, 1968; Evans and Rosenthal, 1969), evidence has been found to suggest that under some conditions, greater gains in IQ are made
by children for whom the teacher is not given any special favorable expectations.

Careful analysis of the teacher expectancy research reveals the presence of a number of inconsistencies and ambiguities which suggest that individual differences in subject or recipient variables may play a potentially vital role in mediating the impact of teacher expectancy. For example, it is often overlooked that the conclusions of the Rosenthal and Jacobsen study were based on differences in mean IQ gain between experimental and control group children. Thus, while some experimental group subjects responded to favorable teacher expectations in the predicted manner, others failed to do so. By the same token, some control group children demonstrated significant gains in IQ, even in the absence of favorable expectations.

In addition, there were no significant IQ gains reported in any of the Grades 3-6; one third grade even showed a significant decrease. The fact that expectancy effects were demonstrated only in grades 1 and 2 suggests that age may be an important variable in mediating responsivity to the expectations of the teacher. This is consistent with the evidence summarized by Stevenson (1965) which concluded that 5 year olds are more responsive to overt social influence than are 12 year olds.

Teacher ratings of the children involved in the Rosenthal and Jacobsen study also suggest that subject vari-
ables may have played a significant role in mediating the outcome of teacher expectancy effects. The control group children who demonstrated significant IQ gains were rated by teachers as being less affectionate, less happy, less appealing, less well-adjusted, and less curious, but as more autonomous. While teacher ratings cannot be viewed as entirely accurate reflections of actual student behaviors, they nevertheless are suggestive of such behaviors. Perhaps the teacher ratings reflect a cluster of behavioral characteristics possessed by children who are either unaffected by teacher expectancies or who perform contrary to such expectancies. Of particular interest is the finding that subjects who made significant gains in IQ without favorable expectations were rated as more autonomous. The significance of this detail lies in the fact that subjects with an ILC attitude also tend to be rated as autonomous, suggesting that the control group children who demonstrated significant IQ changes were characterized by an internal locus of control.

Finally, in the Rosenthal and Jacobsen study, the sex of the subject appeared to be an important factor. Girls for whom the teacher had been given favorable expectations demonstrated significant increments in total IQ and reasoning IQ as compared to control group girls. No significant expectancy advantage was demonstrated for boys in the experimental groups, even though there was a trend for experi-
mental group boys to show more IQ gains than control group boys on the verbal section of the criterion measure. These findings are contrary to what would be predicted from the literature of intentional social influence. Summarizing the literature, Stevenson (1965) suggests that with female influencers, boys should be more susceptible than girls.

The role of subject sex in teacher expectancy situations is complicated by a later study, however. Evans and Rosenthal (1969), in an attempt to replicate the Rosenthal and Jacobsen findings, report that boys in the positive expectancy condition made significantly greater gains in reasoning IQ than control group boys. In this study, control group girls made significantly greater gains than experimental group girls. However, the interpretation of the differences in results between the two studies is further complicated by the fact that in the Rosenthal and Jacobsen study minority group children served as subjects, while Evans and Rosenthal conducted their experiment in a Midwestern, middle class community. Thus, a complex interaction of pupil sex by pupil socio-economic status by teacher expectancy would seem to be operating. Further research is needed to either substantiate or reject this possibility. While providing no empirical evidence, Evans and Rosenthal also discuss the possibility of subject personality variables as mediating factors and suggest that research should be pursued in this area.
An intriguing investigation by Conn, Edwards, Rosenthal, and Crowne (1968) also highlights the need for further study of the behavioral and/or personality characteristics associated with susceptibility to teacher expectancy. In this study, it was found that those children who were more accurate in identifying the emotional tone of an audio-taped recording of an adult female voice benefited most (i.e., showed greater IQ gain) from favorable teacher expectations. The findings suggest the possible role of empathic ability or sensitivity to social cues as important determinants of responsivity to teacher expectations.

In summary, analyses of the findings from both experimenter and teacher expectancy research provide a reasonable basis to hypothesize that subject variables may play an important role in mediating the influence of interpersonal expectancies. In view of the implications of teacher expectancy research for educational practices, it would appear to be particularly meaningful to attempt to delineate the behavioral and/or personality characteristics of children whose school learning performance is susceptible to the influence of teacher held expectancies.

The following section, therefore, presents a discussion of one such personality construct, locus of control, which can be shown to have a rational and theoretical relationship to the teacher expectancy situation. The discus-
sion includes an overview of the theoretical background of the construct and provides a summary of studies which have investigated the relationship of the construct to behavior. The rationale for hypothesizing a relationship between locus of control and the teacher expectancy situation was presented in Chapter I.

**Locus of Control: Theory and Research**

A general orientation to the theoretical origin and meaning of the locus of control construct was presented in Chapter I. It may be recalled that locus of control is a personality variable which was conceived within the framework of social learning theory and which refers to a person's perception of the agency of control of the reinforcements he receives from the external environment. (Rotter, 1954, 1966). According to the construct, individuals differ in the degree to which they believe they can extract material and social benefits from the environment. Individuals who perceive that positive and/or negative events are a consequence of their own personal actions are said to be characterized by an internal locus of control (Rotter, Seeman, & Liverant, 1962, p. 474). Externally oriented subjects attribute the control of their reinforcements to external sources, such as luck, fate, chance, supernatural powers, task or situational characteristics, or powerful others (Crandall, Katkovsky, and Crandall, 1965, p. 92).
Thus, in its broadest sense, locus of control refers to the degree to which people have a sense of efficacy or power and accept personal responsibility for what happens to them.

The dimension of locus of control is not considered to reflect a personality typology, but rather is interpreted as an acquired behavioral disposition. Thus, one's locus of control is not viewed as some innate or static quality of the individual, but rather as a learned attitude or disposition to regard one's source of reinforcements as tending toward an internal or external locus.

Although the locus of control construct is specific to social learning theory and research, the viability of the concept is attested to by the number of similar concepts utilized in psychological and sociological theorizing. Among the concepts which appear to bear a degree of similarity to locus of control is competence (White, 1959); psychological causality (Heider, 1958; Piaget, 1932; Werner, 1957); reward vs. cost orientation (Thiabut and Kelley, 1959); and anomie or alienation (Durkheim, 1951). In addition, locus of control has been linked with the concepts of latent power (Minton, 1967) and powerlessness (Seeman, 1959).

Several objective inventory measures of locus of control have been developed, including the Internal-External Control Scale (Rotter, 1966), the Intellectual Achievement Responsibility (IAR) Scale (Crandall, et. al., 1965), the Children's Picture Test of Internal Control (Battle &
Rotter, 1963), and the Children's Internal-External Control Scale (Morrison, 1961). The particular instrument utilized in this study, the IAR, assesses the extent to which favorable or unfavorable reactions from parents, peers, and teachers are believed by the child to depend upon the quality of his own efforts or upon extraneous factors, such as luck or personal bias. Research employing these measures of locus of control suggests that the construct has utility in predicting a wide range of individual differences in attitudes, beliefs, and behaviors, and has demonstrated theoretically consistent relationships between locus of control and other conceptually similar personality and cognitive style variables. Several research studies have gone beyond attempts to correlate degree of internality-externality with other individual differences measures to consider and investigate the question of behavioral correlates of internal vs. external locus of control. The research, which has studied behavioral responses of subjects in controlled laboratory settings, attempts to control one's environment, and in achievement and social influence situations, has been successful in identifying consistent behavioral patterns associated with an ILC or ELC, and thus, also suggests the predictive utility of the construct.

The following sections review the research findings from investigations utilizing the locus of control construct. The studies of locus of control are categorized and reviewed in terms of the relationship of the construct to (1) other
individual differences variables; (2) performance in controlled laboratory situations; (3) attempts to control one's personal environment; (4) performance in achievement situations; and (5) performance in social influence situations.

Relationship of Locus of Control to Other Individual Differences Variables

Evidence supporting the validity of the locus of control construct is provided by several studies which have demonstrated theoretically consistent relationships between internality-externality and a number of other individual differences measures which are believed to have similar conceptual components. Thus, a tendency toward an external locus of control has been shown to have a low to moderate, but significant degree of relationship with two cognitive style variables (cognitive complexity-simplicity and field dependence) which are also believed to indicate dependence or reliance upon external authority for guidance or cues. (Minton, 1967; Newman, 1968; Sedor, 1968; Willoughby, 1968).

In another study, Odell (1959) reports a significant relationship between scores on the I-E Control Scale and the Barron Independence of Judgement Scale, a finding interpreted as suggesting that externally oriented subjects have a greater tendency to conform to conventional or popular judgements. In a similar vein, Rotter et. al. (1962) found a significant relationship between external control and au-
Authoritarianism, as measured by the California F Scale, which was interpreted as reflecting the successful measurement of the degree to which individuals see the world as containing powerful forces that they cannot influence. External control has also been shown to have positive, significant correlations with such measures as anomia (Wolfe, 1966), normlessness (Dean, 1961), and powerlessness (Lefcourt, 1963). Finally, external control has been found to be positively related to non-constructive problem-solving responses and to debilitating anxiety and negatively related to constructive problem-solving responses and facilitating anxiety (Butterfield, 1964; Watson, 1968).

Evidence regarding the discriminant validity of the locus of control construct is provided by several studies which have investigated the relationship between the control construct and such individual differences variables as social desirability, acquiescence, and intelligence. The findings to date suggest that response styles, such as social desirability, and acquiescence, tend to be only weakly related to locus of control. Ten studies, using college students and prison inmates as subjects, are reported by Rotter (1966) in which the correlations between the Internal External Control Scale and the Marlowe-Crowne Social Desirability Scale range between -.12 and -.41, with a median r = -.22. Two additional studies (Crowne & Liverant, 1963; Seeman, 1963) are reported by Lefcourt (1966) which did not
find a significant relationship between locus of control and social desirability. However, one study reported by Lichtman and Julihan (1964) found a significant, negative correlation (-.39) between internality and social desirability. Studies of the relationship between locus of control and response style variables among children tend to be consistent with the bulk of adult-based findings. Thus, Goazli and Bialer (1968), using the Bialer Children's Locus of Control Scale, found internality only weakly related to social desirability ($r = -.16$) and acquiesence ($r = -.14$). Similarly, Crandall, Katkovsky, and Crandall (1965) report that performance on the IAR scale is not strongly related to social desirability ($r = -.26$). Thus, on the basis of current findings, it appears that social desirability accounts for only a small proportion of the total variance associated with locus of control measures.

Present research evidence does not permit firm conclusions to be drawn concerning the relationship between locus of control and intelligence. For example, two studies of this relationship have reported moderate degrees of correlation between locus of control and intelligence, while low and negligible correlations have been obtained in three additional studies. In a study of the performance of normal and retarded 10 year old children on the Bialer Locus of Control Scale and the Peabody Picture Vocabulary Test, Bialer (1961) obtained a significant correlation between
internality and mental age \( (r = .47, p < .05, N = 89) \). A similar degree of correlation has been reported by Crandall, Katkovsky, and Crandall (1965) who found that a subject's willingness to accept personal responsibility for performance in an intellectual achievement situation was positively related to IQ on the Stanford-Binet Intelligence Scale \( (r = .52, p < .05, N = 20) \). However, Crandall et. al. (1962) found no such relationship among elementary school girls or ELC elementary school boys. Finally, Rotter (1966) cites three unpublished studies in which the degree of relationship between locus of control and intelligence varied from \( r = .03 \) to \( r = -.22 \). The present evidence suggests that no strong relationship exists between locus of control and intelligence, particularly within relatively homogeneous samples of subjects. Nevertheless, the two studies which have reported moderate correlations between the two variables suggest that locus of control may represent, in part, the subject's response to his level of intelligence. However, the doubtful validity of the intellectual measure used by Bialer (e.g., Allen and Jones, 1967, p. 41) and the small number of subjects in the Crandall et. al. study may have resulted in spuriously higher correlations between locus of control and intelligence. Consequently, definite conclusions regarding the contribution of intelligence to locus of control await further research.

Locus of control measures have also been shown to re-
late to the status variables of age, race, and social-class in a consistent fashion. Thus, the sense of internal control has been found to be stronger in white children and adults than in Negro children and adults and stronger in middle-class subjects than in subjects from lower socio-economic statuses (Bartel, 1970; Battle & Rotter, 1963; Crandall et al., 1965; Coleman et al., 1966).

Performance in Controlled Laboratory Studies

Considerable research regarding the behavioral correlates of locus of control has been conducted in controlled laboratory situations. Such investigations have focussed on a variety of subject behaviors, including risk-taking preferences, level of aspiration or expectancy shifts, and learning acquisition and extinction curves.

Investigations of level of aspiration behaviors under a variety of treatment conditions (e.g., skill vs. chance; success vs. failure instructions) have yielded evidence of quite consistent behaviors associated with degree of internality-externality. Externally controlled S's have a greater tendency to manifest the "gambler's fallacy" (i.e., lowering their expectancy of success following success, raising expectancy following failure), while internally oriented S's tend to demonstrate more realistic and cautious betting behavior. (Battle and Rotter, 1963; James, 1957; Liverant and Scodel, 1960; Simmons, 1959). Subject's with an ex-
ternal locus of control also tend to report a significantly lower mean expectancy for success than do those with an internal locus of control (Battle and Rotter, 1963). In two studies with children, Gardner (1958) and Miller (1961) found evidence that the ELC child, when put in a situation of pressure, high standards, or high probability of failure, will tend to decrease effort or withdraw from the situation, while the ILC child tends to be less attentive to the conditions and performs more adequately. They report, however, that in a warm, accepting, or positive expectancy situation, the ELC child tends to develop situational ILC tendencies and performs at a higher level. Finally, Rotter (1966) in a summary of literature, concludes that studies of performance in skill vs. chance conditions consistently indicate that the person faced with external causality (chance) is less influenced by past reinforcements than the person who is confronted by internal causality (skill) and as a result, the person with external causality may learn less.

Attempts to Control One's Personal Environment

Studies of the relationship of internality-externality to attempts at control of one's personal environment have generally shown that the person with an internal locus of control takes a more active role than does the person with an external locus of control. For example, in a study of hospitalized TB patients, Seeman and Evans (1960 found that
patients with an ILC tended to know more about their physical condition, questioned authorities more often, and expressed less satisfaction at the amount of feedback from hospital personnel. Among a group of prisoners, it was found that those with an ILC retained more information about prison administration, parole requirements, and the long-range implications of imprisonment (Seeman, 1963). These findings are supported by additional evidence from Davis and Phares (1967) and Phares (1968), who report that ILC subjects not only demonstrate greater attentiveness to and more recall of immediately present information than ELC subjects, but also more actively seek and effectively use additional relevant information when placed in a social influence situation where such information could be of personal benefit. In the civil right's sphere, Gore and Rotter (1963) found a relationship among southern Negro students between ILC and commitment to various civil right's activities, while Strickland (1965) reported that activists in the civil right's movement were significantly more internal than a group of non-active Negroes, matched for education and socio-economic status. Finally, Lefcourt and Ladwig (1965), by altering expectancy through giving a person an identification with a valued reference group, were able to attain significantly more competitive behavior from a group of externally oriented S's than from a similar group who did not receive the valued reference group identification. The latter finding suggests that
situational ILC tendencies can be developed and is consistent with the previously cited findings of Miller and Gardner.

Performance in Social Influence Situations

Social learning theory predicts that individuals with an external locus of control, expecting control from the outside world, should be less resistant to social influence attempts than internally controlled subjects. Empirical data accumulated to date supports this hypothesis. The relationship which Odel (1959) reported between locus of control and the Barron Independence of Judgement Scale is suggestive of the greater conformity of subjects with an external locus of control. Crowne and Liverant (1963) found that high externals conformed significantly more often and were less confident in their judgements than high internals when placed in an Asch-type conformity situation. Similarly, Rotter (1966), citing unpublished research, reports that internal S's are more resistant to subtle social influence attempts in verbal conditioning research. An earlier cited study, (Gore, 1964) indicated that subjects with an ELC attitude are more compliant to experimenter bias, suggesting that personal locus of control may be a factor in increasing sensitivity to the subtle, unintended form of social influence operating in the experimenter expectancy situation. Finally, it has been demonstrated that ELC subjects manifest more reciprocal behavior (i.e., agreement with others) in interpersonal situ-
ations than internally-oriented persons (Jones and Shrauger, 1968).

Additional indirect support for the greater influence-ability of ELC subjects comes from the previously cited studies by Lefcourt and Ladwig (1965), Gardner (1958), and Miller (1961). For example, in the Lefcourt and Ladwig study, S's with a situationally induced ILC tendency conformed less to the expectations of others than did ELC S's. Also Gardner and Miller found that ILC S's were less influenced by task-irrelevant demands, including the expectancies generated by the experimental conditions (i.e., success vs. failure set), than were ELC children. Finally, research on a construct known as outerdirectedness (the degree to which the individual relies upon external cues in his problem solving rather than relying on his own cognitive resources), a concept which appears to have much in common with internality-externality, suggests that the outerdirected child is more prone to rely upon extra-task cues, such as verbal statements and overt behaviors of the experimenter, than upon task-relevant cues (Achenbach and Zigler, 1968; Sanders, Zigler, and Butterfield, 1968; Turnure and Zigler, 1964).

Performance in Achievement Situations

Important differences in the behavioral characteristics of internal and external subjects have been revealed in studies of performance in academic and achievement-type sit-
uations. Thus, in a correlational study, with the effects of intelligence partialled out, McGhee and Crandall (1968) found that elementary school boys and girls with an internal orientation have significantly higher academic grade-point averages than children with an external orientation. High school students with an ILC attitude report that they spend a greater amount of time doing homework than do ELC subjects (Franklin, 1968) and internally controlled boys have been observed to spend more free time in pursuing activities of an intellectual nature and to exhibit more intense striving in those activities than externally controlled boys. James (1957) has also reported that internals are more persistent than externals in attempts to solve a complex logical puzzle.

The monumental *Equality of Educational Opportunity* report (Coleman et al., 1966) also reveals a strong relationship between a student's degree of internality and his academic achievement. The data from this nationwide survey indicates that student expectation for success accounted for a greater proportion of total variance in academic achievement than any other single school factor studied.

Finally, Crandall, Good, and Crandall (1964) report that children with a low generalized expectancy for success in an academic situation are more influenced by positive reinforcement and less influenced by negative reinforcements than children with high generalized expectancies for success. A later investigation confirmed these findings and also ob-
tained evidence that adult non-reaction (silence) following either positive or negative verbal reinforcement produces changes in achievement expectations which are opposite to those produced by the preceding verbal reactions (Adelman, 1969). The results of these two studies have been interpreted as suggesting that children are more sensitive to adult reactions which are contrary to those generally expected and experienced in academic situations.

The present review of research regarding internality-externality provides evidence that the construct possesses sufficient theoretical and predictive utility to merit further investigations. The cumulative findings suggest that measures of the variable are related in a consistent fashion to behavior in a broad range of situations, and as such, have both predictive and explanatory value. As a variable reflecting self-consistent individual differences with respect to both the source and level of reinforcements one expects, and which has been shown to relate to information seeking and performance in achievement and social influence situations, locus of control should be closely related to susceptibility to the influence of teacher expectancies.

**Summary and Conclusions**

The present chapter has presented a review and discussion of research in the areas of experimenter and teacher expectancy and locus of control. The findings permit the
following general conclusions. First, research has demonstrated that the prior expectancies of the experimenter and teacher are transmitted to the subject or student and reflected in performance in a wide range of tasks and situations. While the mode by which expectancies are communicated is not clearly understood at this point, there is sufficient evidence to suggest that individual subject variables play an important mediating role in the expectancy process. Locus of control research has shown that an individual's measured degree of internality-externality is related to behavioral responses in a range of situations, including situations which bear many common elements with the teacher expectancy situation. Thus, the present review of literature supports the general hypothesis of an interaction between student locus of control and generalized expectancy and teacher expectancy.
CHAPTER III

Summary of the Rationale and Hypotheses

Teacher expectancy and locus of control research both represent efforts to more fully understand the role of expectancy in human learning and performance. However, each area has generally limited itself to a consideration of one aspect of expectancy, and thus neither stream of research, in and of itself, can account for the total expectancy process. For example, in terms of the influence of expectancy in student achievement performance, teacher expectancy research considers only the role of teacher expectations, while locus of control research involves only the generalized expectancy of the student. While such research has demonstrated that both teacher and student expectancy have behavioral consequences, neither approach has the potential for leading to an understanding of the dynamic interaction believed to occur in learning encounters where student and teacher expectancies are mutually congruent or conflicting. The present study by systematically arranging such expectancy encounters should provide insight into the interaction of teacher and student expectancy.

In Chapter I, a detailed rationale for the interaction
between student expectancy and teacher expectancy was presented. In brief, the argument states that total expectancy (E) for success or failure in a given situation is a function of two components; generalized (GE) and situational expectancy (E'). Generalized expectancy is that which has developed from reinforcements in past situations and is generalized to the present situation, while situational expectancy is that which develops as a function of the schedule of reinforcements in the situation in question. Thus, for the novel situation, total expectancy is composed entirely of the generalized expectancy (GE) component.

However, statements of probability for success or failure can serve to determine situational expectancy (E') for the subject. Statements of teacher expectancy (TE) regarding a student's potential for success or failure could, therefore, serve to establish a situational expectancy for the student. Consequently, in a teacher expectancy situation where the student is confronted with a novel learning task, total expectancy for success is a function of the interaction between teacher expectancy and student generalized expectancy. The relationship can be stated in mathematical form as:

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

The exact nature of the function, which is assumed to be multiplicative rather than additive, is complicated by
the fact that GE is not entirely synonymous with locus of control. Thus, while most individuals with an internal orientation tend to express high generalized expectancies for success, others, depending upon past reinforcement history, may expect a low level of success. Similarly, some ELC subjects will express high generalized expectancies for success, even though most ELC subjects are characterized by low generalized expectancies for success. It is therefore proposed that locus of control operates as a mediating variable in determining the contribution of GE and TE to the total E. The function of locus of control is proposed to be one of assigning differential weights to the GE and TE components of the formula.

Research evidence suggests that ILC subjects tend to be less conforming and more active in efforts to control their environment than ELC subjects. Thus, ILC subjects should assign greater weight to the GE component and be less susceptible to statements of teacher expectancy. Conversely, it is predicted that ELC subjects, being more sensitive and conforming to external forces, should assign less weight to the GE component and, therefore, would be more likely to yield to and internalize the TE component.

The presumed relationship between total expectancy, yielded by the combined interaction of GE and TE, and behavioral performance in an achievement situation is suggested for several reasons. For example, Katz (1969), p. 16)
suggests that child's feeling about whether his own efforts determine his external rewards should affect his expectancy for success, and hence, his motivation to strive for achievement. "Other things being equal," according to Katz (1969, p. 24), "the higher the person's expectancy for goal or reward attainment, the higher should be his motivation." Similarly, Kagan (1967, p. 155-156) suggests that "the most frequent and prepotent reaction to an expectancy for failure is decreased involvement in the task and subsequent withdrawal."

Accordingly, we may propose that the ILC child with a high generalized expectancy for success will be highly motivated to perform well, regardless of teacher expectancy. Because teacher expectancy is weighted less, the child with an already high expectancy level will be motivated perhaps only slightly more by positive teacher expectancy. The negative teacher expectancy should do little to decrease his expectancy, and it is possible that the dissonance created by the discrepancy between self and teacher expectancy will have an energizing or motivating effect upon performance, as has been found in other situations (Cottrell and Wack, 1967; Waterman and Katkin, 1967). Similarly, the ILC child with low generalized expectancy for success should be little influenced by teacher expectancy.

In the case of the child with ELC tendencies, teacher expectations should take precedence over generalized expectancy. The ELC child, when confronted by negative teacher
expectancy, should be expected to perform poorly, regardless of his prior generalized expectancy. However, when faced with positive teacher expectancy, performance should be increased due to enhanced motivation, regardless of whether generalized expectancy is high or low.

Statement of the Hypotheses

The general hypothesis of the present study is that student performance in a teacher expectancy situation is influenced by the interaction of teacher expectancy and student generalized expectancy, as mediated through the student's locus of control. It is generally proposed that subjects with an ILC attitude are less influenced by statements of teacher expectancy and rely more upon their own generalized expectancy. Conversely, subjects with an ELC attitude, expecting their reinforcements to be under the control of external forces, are more influenced by teacher expectancy and rely less upon their own generalized expectancy.

Differential subject responses to positive or negative teacher expectancy as a function of student locus of control and sex are manifested in the following dependent variables:

1.0 overt learning performance in the expectancy situation as reflected in:
   1.1 the number of correct responses in a Type II incidental learning task; and
   1.2 the number of correct responses in an intentional paired-associate learning task.

2.0 alterations in statements of expected levels of success:
2.1 prior to exposure to statements of teacher expectancy; and
2.2 following exposure to statements of teacher expectancy.

3.0 post-session ratings by the subject in terms of:
3.1 perceived difficulty of the task;
3.2 perceived attractiveness of the task; and
3.3 perceived fairness of the teacher.

Therefore, the following specific hypotheses will be examined.

1.0 In terms of actual learning performance:
1.1 Externally controlled subjects in the negative teacher expectancy condition demonstrate significantly less incidental learning than externally controlled subjects in the positive expectancy condition and internally controlled subjects in either expectancy condition.
1.2 Externally controlled subjects in the negative teacher expectancy condition demonstrate significantly less intentional learning than externally controlled subjects in the positive expectancy condition and internally controlled subjects in either expectancy condition.

2.0 In terms of alterations in stated expectancy level:
2.1 Externally controlled subjects make significantly more extreme initial expectancy and aspiration statements than internally controlled subjects.
2.2 Externally controlled subjects shift their initial expectancy statements to correspond with teacher expectancy statements (in both direction and magnitude) significantly more than internally controlled subjects.
2.3 Internally controlled subjects and externally controlled subjects in the positive expectancy condition make significantly fewer unusual expectancy shifts (i.e., lower estimate after success, raise estimate after failure) than externally controlled subjects in the negative expectancy condition.

3.0 In terms of subject ratings, both task and teacher are rated significantly more favorably by subjects in the positive expectancy condition than by subjects in the negative expectancy condition.
Finally, the study explores the relationship of subject sex to performance in the positive and negative teacher expectancy condition.
Renewed interest in the construct of expectancy and its relationship to performance in achievement situations has been stimulated by two independent areas of research. One area has investigated the effects on student learning performance of a teacher's expectancy regarding the student's learning potential, while the second area has been concerned with the role of the student's own generalized expectancy for success in learning performance. Research findings from these areas suggest that an individual's own generalized expectancy and the expectancy held for him by others has behavioral consequences in terms of his performance in a wide range of situations.

While both areas consider an important aspect of expectancy, neither has considered the nature of the dynamic or reciprocal interaction believed to occur in interpersonal situations where an individual's generalized expectancy is brought into contrast with the expectancy held for him by another. The present study, by incorporating both teacher expectancy and student expectancy into the design, seeks to determine the nature of the interaction between the two and to discover the consequences of the interaction on student
learning performance. The study also seeks to explore the relationship of a status variable, subject sex, and a personality variable, perceived locus of control, to individual differences in the degree of susceptibility to teacher expectations.

The design of the present study is based upon the premise that the careful collection of data in a one-to-one, controlled laboratory setting, utilizing a group of subjects relatively homogeneous in age, socio-economic status, and intellectual and educational level, holds greater promise of yielding insight into the potential interaction of student and teacher expectancies than does the post hoc correlation of personality measures with teacher expectancy effects in a largely uncontrolled classroom setting. An effort to control potential sources of extraneous bias will be made by randomly assigning subjects to experimenter, introducing the teacher expectancy bias to subjects in a systematic and standardized fashion, using a relatively homogeneous group of subjects, and randomly assigning by locus of control and sex to one of the two experimental conditions -- positive or negative teacher expectancy. It is assumed that by conducting the study within a school setting, using an academic task, and introducing the experimenter to the subject as a "special teacher," sufficient realism will be achieved to approximate a teaching-learning encounter and thus enable the findings to have implications
for teacher expectancy research.

**Subjects**

The subjects were 48 boys and 48 girls selected from the third and fourth grade classes of two parochial elementary schools. Both schools draw their pupils from racially-mixed and predominately lower socio-economic status neighborhoods. Children were selected on the basis of two criteria: (1) chronological age between 8-5 and 11-0 and (2) measured IQ of at least 85. Twenty-five students were excluded from the study on the basis of the selection criteria. Table 1 presents a summary of the characteristics of the subjects in terms of age and IQ.

**TABLE 1**

CA and IQ of the Experimental Treatment Groups (Means and Standard Deviations)

<table>
<thead>
<tr>
<th>Locus of Control</th>
<th>Teacher Expectancy</th>
<th>Sex</th>
<th>( \bar{x} ) CA</th>
<th>s</th>
<th>( \bar{x} ) IQ</th>
<th>s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>Positive</td>
<td>M</td>
<td>9.56</td>
<td>.56</td>
<td>100.17</td>
<td>7.71</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td></td>
<td>9.52</td>
<td>.98</td>
<td>101.58</td>
<td>8.16</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>M</td>
<td>9.51</td>
<td>.53</td>
<td>99.58</td>
<td>8.72</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td></td>
<td>9.97</td>
<td>.57</td>
<td>100.25</td>
<td>11.31</td>
</tr>
<tr>
<td>External</td>
<td>Positive</td>
<td>M</td>
<td>9.26</td>
<td>.54</td>
<td>100.08</td>
<td>10.78</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td></td>
<td>10.11</td>
<td>.81</td>
<td>100.25</td>
<td>13.02</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>M</td>
<td>9.61</td>
<td>.87</td>
<td>100.33</td>
<td>11.37</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td></td>
<td>9.58</td>
<td>.76</td>
<td>100.83</td>
<td>9.19</td>
</tr>
</tbody>
</table>

Appendix C presents a summary of the sample characteristics in terms of father's educational level, father's occupation, and racial proportion.
Instruments

Each subject was administered the Intellectual Achievement Responsibility Scale (Crandall, Katkovsky, and Crandall, 1965) in an individual session approximately two weeks prior to the experimental session. In order to control for individual differences in reading ability among subjects, the experimenter presented each question to the subject orally and recorded the subject's response.

The IAR scale is a self-report inventory designed to measure the degree to which the subject accepts responsibility for the quality of his performance in achievement situations. The scale yields three measures of internality: I+ the degree to which the subject accepts responsibility for success; I-, the degree to which responsibility for failure is accepted; and I total, the degree to which the subject accepts responsibility for the overall quality of his performance. The scale has demonstrated a degree of reliability sufficient for research purposes. (test-retest = .69 (total I); internal consistency = .54 (I+); .57(I-); Crandall, Katkovsky, and Crandall, 1965). Evidence of divergent validity is provided by the generally low and insignificant degree of correlation found between IAR performance and intelligence (r = .26 (total I), .22 (I+); .14 (I-), and between IAR performance and social class (r = .08 (total I), .17 (I+), -.04 (I-) (Crandall, Katkovsky, and Crandall,
1965). Further, Crandall et al. report that social desirability, as measured by the Children's Social Desirability Scale (Crandall, et al., 1965) accounts for only about 6% of the total variance in IAR performance. The predictive validity of the scale has been demonstrated in several studies which have been previously discussed in Chapter II (e.g., Adelman, 1969; Crandall, Katkovsky, and Crandall, 1965; Franklin, 1968; McGhee and Crandall, 1968).

Subjects were classified as either internal or external in locus of control on the basis of an IAR score above or below the median of the total distribution of IAR scores. The obtained distribution of IAR scores for the present sample is presented in Appendix B.

The Wechsler Intelligence Scale for Children (1949) was administered to each subject following completion of the experimental session in order to obtain an accurate estimate of intellectual functioning. Three advanced graduate students in psychology served as examiners.

Experimental Tasks and Measures

Each subject was administered two learning tasks, two expectancy measures, and three rating scales at various points in the experimental session.

Learning Tasks

Two verbal learning tasks were administered to each
subject during the experimental session. The first task presented to the subject was a Type II incidental learning task based on a procedure reported by Gardner et al. (1958) and Witkin et al. (1962). The subject was presented with a series of 8 randomly selected letters of the alphabet, each printed in one of four colors, at 3 sec. interstimulus intervals. The order of presentation was random, with the only restriction being that all other colors be presented before the same color was repeated. The subject was instructed to call out each letter as it was presented and to try to remember it, as he would be asked to recall it later. Following one presentation of the list, the subject was asked to recall the color of each letter. The number of correct responses in the recall session was taken as a measure of incidental learning. (See Appendix H for the stimulus letters and order of presentation).

The second verbal learning task was a paired-associate task requiring the association of pictures of common objects with colored geometric forms, based on a procedure reported by Dilley & Paivio (1968). The stimulus list was composed of pictures of three animals, three forms of transportation, and three articles of clothing. The response terms were colored geometric figures (circle, square, diamond). Each of the three concept clusters in the stimulus list had a geometric figure in common. For example, all animals were associated with a circle as response term. Colors were
randomly assigned and thus, were irrelevant cues in the concept formation task. Subjects were instructed to learn both the color and shape of the response term associated with the stimulus term. Following the presentation of an example and the study list, the subject was exposed to 9 learning trials. To prevent the effects of serial learning three randomly ordered lists were utilized. Interstimulus intervals of 6 sec. duration and intertrial intervals of 10 sec. duration were used. The number of correct responses per trial and the total number of correct responses over the block of trials was taken as a measure of intentional learning. (See appendix H for the stimulus and response lists and order of presentation).

Expectancy Measures

Two measures of subject expectancy were used in the study. The first measure, based on a procedure described by Crandall (1963), consisted of 25 consecutively numbered stick figures. The subject was instructed to circle the figure of his choosing which corresponded to how well he expected to perform on the task, in comparison with other boys and girls his age. Subject ratings on this scale were collected twice. The first rating was obtained prior to a statement of teacher expectancy, and thus enabled the collection of a measure of subject generalized expectancy. The second rating, obtained after conveying a statement of
teacher expectancy, enabled the collection of a measure of total expectancy, resulting from the interaction of teacher and generalized expectancy. The rating procedure was performed prior to the incidental learning task and repeated prior to the intentional learning task. Shifts in magnitude and direction were interpreted as measures of expectancy change.

The second measure of general expectancy consisted of a 9 point rating scale (corresponding to the number of stimulus-response terms in the paired-associate list) which was completed by the subject prior to each of the nine learning trials on the paired-associate task. The subject was instructed to place an X on the number of items he expected to get correct on the following trial. This procedure enabled the collection of the number of unusual expectancy shifts for each subject.

**Post-Session Rating Scales**

Immediately following the completion of the experimental session, each subject was asked to fill out three 5 point Likert-type rating scales. The scales asked the subject to rate the degree of perceived task difficulty (very hard—very easy), perceived task attractiveness (much fun, enjoyed—not much fun, did not enjoy), and examiner fairness (very fair—not very fair).
General Design

The total subject sample, consisting of 48 boys and 48 girls, was randomly assigned by sex and locus of control to one of two teacher expectancy conditions (positive or negative expectancy). This procedure resulted in the assignment of 12 subjects to each cell of the 2 (sex) X 2 (locus of control) X 2 (teacher expectancy) complex factorial design illustrated in Figure 2.

<table>
<thead>
<tr>
<th>Subject Expectancy</th>
<th>Internal</th>
<th>External</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Expectancy</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Positive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2. General Experimental Design.

As three experimenters were used in the experiment, subjects were randomly assigned to experimenters such that each experimenter administered the expectancy condition to 4 subjects in each of the 8 treatment cells.

Procedures

Approximately two weeks after the administration of the IAR, subjects were contacted by the appropriate experimenter and administered the assigned experimental treatment.
The experimenters (E), who had been previously introduced to the children as "special teachers" by the regular classroom teacher and school principal, reinforced this impression and told the subject (S) that he was interested in finding out how well S would be able to play some "word games." The E, using a standard set of instructions (Appendix D), informed the child that he had observed many other children playing the word games, and therefore, had a good idea of how well children similar to S usually performed. The child was told that performance on the word games was related to ability, and that E had some information about S's ability, but that he needed additional information in order to predict how well the child would perform.

The S was then asked about his school grades in math, reading, and spelling. After making careful notation of the reported grades, E told S that he was going to administer a short test (Similarities subtest of the WISC) which would allow a prediction of how well S would be able to play the word games.

After scoring the subtest, E informed the S that he now had enough information to tell whether S would be successful or unsuccessful. Prior to conveying this expectancy, E asked the child to mark the stick figure which corresponded to how well he expected to perform in comparison to the other children his age. After S had marked the expectancy sheet, E then circled another figure, telling S
that on the basis of his ability he could be expected to perform at the level indicated by the new circle. For Ss in the positive expectancy condition, E circled figure 2, indicating a high teacher expectancy for success; for Ss in the negative expectancy condition, E circled figure 2 kidn, indicating a low teacher expectancy for success. S was then given the opportunity to change his initial estimate.

E next proceeded to administer the incidental learning task. Following completion of the task, E made one of two verbal statements. For Ss in the negative expectancy condition, E stated "Well, just as I expected! You didn't do very well that time. Let's see how well you will do on a new game." For Ss in the positive expectancy condition, E stated, "Well, just as I expected! You did very well that time. Now, let's see how well you will do on a new game."

Ss were then asked to repeat the expectancy rating procedure, following which the paired-associate learning task was presented. Prior to each learning trial the measure of expected level of success was obtained.

After completion of the paired-associate task and the three rating scales, all Ss were informed that they had performed at a very high level and that their performance had changed the E's initial expectancy. S was then administered the WISC where substantial praise and other verbal reinforcements were provided.
CHAPTER V

Results and Discussion

The present study investigated the performance of a sample of third and fourth grade parochial school children under experimentally induced conditions of teacher expectancy. Of primary interest was the relationship of two subject variables, sex and perceived locus of control, to learning performance under conditions of either positive or negative teacher expectancy. Accordingly, subjects were classified by sex and locus of control and randomly assigned to one of the teacher expectancy conditions. Teacher expectancy was experimentally manipulated by assigning students to a simulated teaching-learning situation in which the "teacher" was an experimenter who had been previously introduced to all students as a special teacher who was interested in how well children were able to play some newly developed word games. Subjects in the positive teacher expectancy condition were consistently given statements of positive expectancy by the special teacher, while subjects in the negative teacher expectancy situation received the same number of negative expectancy statements. No other statements or reinforcements relative to subject performance were administered by the special teacher during the
experimental session.

The experimental procedures used in the study resulted in a 2X2X2 complex factorial design, with two factor levels each of subject sex, subject locus of control, and teacher expectancy. The experimental tasks consisted of two verbal learning procedures; a Type II incidental learning task and a paired-associate task. The paired-associate task was designed such that it contained within it an embedded concept-formation task. The dependent variables involved in the present study were the number of correct responses on the learning tasks, the magnitude and direction of changes or shifts in statements of subject expectancy, and post-session ratings of task difficulty, task attractiveness, and teacher fairness.

**Actual Learning Performance**

**Incidental Learning.**

It was hypothesized (Hypothesis 1.1) that externally controlled subjects in the negative teacher expectancy condition demonstrate significantly less incidental learning than either externally controlled subjects in the positive teacher expectancy condition or internally controlled subjects in either expectancy condition. The hypothesis was based on the rationale that subjects with an ELC attitude, being more reliant upon external forces and authority, would be more susceptible to the influence of teacher expectancy
statements than ILC subjects. It was further reasoned that in the externally threatening situation created by negative teacher expectancy statements, ELC subjects would be less task-oriented and therefore, demonstrate less incidental learning than their ILC counterparts. However, ELC subjects in the positive teacher expectancy condition were expected to develop situational ILC tendencies and therefore, perform at approximately the same level as ILC subjects on the incidental learning task.

To assess the influence of sex of subject, locus of control of subject, and teacher expectancy condition on incidental learning, a 2X2X2 factorial analysis of variance was performed. This analysis is summarized in Table 2.

**TABLE 2**

**Summary of Analysis of Variance of Performance on Incidental Learning. (Number of Correct Responses)**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Sex (A)</td>
<td>1</td>
<td>3.010</td>
<td>1.346</td>
<td></td>
</tr>
<tr>
<td>Locus of Control (B)</td>
<td>1</td>
<td>0.093</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Teacher Expectancy (C)</td>
<td>1</td>
<td>2.343</td>
<td>1.048</td>
<td></td>
</tr>
<tr>
<td>AXB</td>
<td>1</td>
<td>1.261</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXC</td>
<td>1</td>
<td>0.845</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>BXC</td>
<td>1</td>
<td>0.095</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXBXC</td>
<td>1</td>
<td>8.759</td>
<td>3.917</td>
<td>&lt;.10</td>
</tr>
<tr>
<td>Error</td>
<td>88</td>
<td>2.236</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ F_{.05}(1,88) = 2.77 \]

\[ F_{.01}(1,88) = 3.95 \]
Inspection of Table 2 reveals that no significant main or simple main effects were found for any of the factors under study. However, the triple-interaction of subject sex X locus of control X teacher expectancy was significant at the .10 level and only barely failed to attain significance at the conventional .05 level. The mean performance of the treatment groups involved in this interaction are presented in Table 3.

TABLE 3
Mean Number of Correct Responses on the Incidental Learning Task.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Locus of Control</th>
<th>Teacher Expectancy</th>
<th>Mean Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Internal</td>
<td>Positive</td>
<td>2.75</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
<td>2.58</td>
</tr>
<tr>
<td></td>
<td>External</td>
<td>Positive</td>
<td>3.09</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
<td>1.92</td>
</tr>
<tr>
<td>Female</td>
<td>Internal</td>
<td>Positive</td>
<td>1.75</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
<td>2.42</td>
</tr>
<tr>
<td></td>
<td>External</td>
<td>Positive</td>
<td>2.58</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
<td>2.17</td>
</tr>
</tbody>
</table>

While this interaction failed to reach significance at a conventional alpha level of .05, it is sufficiently strong to warrant further consideration. Figure 3 provides a graphic illustration of the interaction between subject sex, locus of control, and teacher expectancy. It is interesting to note that both male and female subjects with an ELC orientation performed at a higher level under positive
Figure 3. Mean number of correct responses on the incidental learning task as a function of subject sex, locus of control, and teacher expectancy.

teacher expectancy than did ELC subjects under negative teacher expectancy. This trend is entirely consistent with Hypothesis 1.1 and suggests that teacher expectancy statements are important motivational influences on the learning performance of the child with an external orientation. The
results for ILC subjects are less easily interpreted. Only slight, insignificant performance differences were obtained under the two expectancy conditions for male subjects with an ILC attitude. However, among ILC females, negative teacher expectancy appeared to have a positive motivational value, with significantly higher performance demonstrated under negative expectancy conditions than under positive teacher expectancy conditions. This finding was not anticipated, but suggests that the resolution of the discrepancy between subject expectancy and teacher expectancy differs in same-sex and opposite-sex teacher-subject dyads.

In terms of an alpha level of .05, Hypothesis 1.1 must be rejected. However, the observed statistical interaction was sufficiently strong that further investigation of the influence of subject sex, locus of control, and teacher expectancy on incidental learning would appear to be warranted. While the failure to attain conventional significance levels may be considered as evidence contrary to the theoretical arguments proposed earlier, a more parsimonious explanation may be that the difficulty of the task was too great to sufficiently discriminate between subjects and conditions. With a modified task, the observed trends may have reached statistical significance.

**Paired-Associate Learning.**

Hypothesis 1.2 stated that externally controlled subjects in the negative teacher expectancy condition demon-
strate significantly less intentional learning on a paired associate task than either externally controlled subjects in the positive teacher expectancy condition or internally controlled subjects in either expectancy condition. This hypothesis was also based on the rationale that ELC subjects under positive expectancy conditions would develop situational ILC tendencies and perform at a level equal to ILC subjects, while ELC subjects in the negative teacher expectancy conditions would develop a very low expectancy for success and consequently, perform poorly on the learning task.

To analyze the data from the paired-associate task, the trials were divided into three blocks of three trials each and the subject's score on each block of trials was his total number of correct responses. A 2X2X2X3 analysis of variance for repeated measures was performed on these scores in order to evaluate the influence of subject sex, locus of control, experimental conditions, and the blocks of trials. This analysis is summarized in Table 4.

Analysis of Table 4 reveals a significant main effect for blocks of trials (p.<.01) and a significant simple main effect for locus of control by blocks of trials (p.<.05). In addition, one main effect (locus of control), one simple main effect (locus of control X teacher expectancy), and one interaction effect (locus of control X teacher expectancy X blocks of trials) attained the .10 level of significance.

The significant main effects for blocks of trials was
TABLE 4

Summary of Analysis of Variance of Performance on the Paired-Associate Task

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject Sex (A)</td>
<td>1</td>
<td>51.680</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Locus of Control (B)</td>
<td>1</td>
<td>190.125</td>
<td>2.808</td>
<td>&lt;.10</td>
</tr>
<tr>
<td>Teacher Expectancy (C)</td>
<td>1</td>
<td>12.500</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXB</td>
<td>1</td>
<td>3.556</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXC</td>
<td>1</td>
<td>0.348</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>BXC</td>
<td>1</td>
<td>210.125</td>
<td>3.104</td>
<td>&lt;.10</td>
</tr>
<tr>
<td>AXBXC</td>
<td>1</td>
<td>6.721</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Error (Between)</td>
<td>88</td>
<td>67.600</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Within Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blocks of Trials (D)</td>
<td>2</td>
<td>1358.962</td>
<td>238.962</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>AXD</td>
<td>2</td>
<td>0.170</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>BXD</td>
<td>2</td>
<td>22.594</td>
<td>3.971</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>CXD</td>
<td>2</td>
<td>0.323</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXBXD</td>
<td>2</td>
<td>0.268</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXCXD</td>
<td>2</td>
<td>3.671</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>BXCXD</td>
<td>2</td>
<td>14.511</td>
<td>2.550</td>
<td>&lt;.10</td>
</tr>
<tr>
<td>AXBXCXD</td>
<td>2</td>
<td>0.542</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Error (Within)</td>
<td>176</td>
<td>5.690</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F. .90(1,88) = 2.77  F. .90(2,176) = 2.34  F. .99(2,176) = 4.73
F. .95(1,88) = 3.95  F. .95(2,176) = 3.05

not hypothesized, but is to be expected on a learning task. That this factor was highly significant provides empirical support that the paired-associate task utilized in the present study was a satisfactory learning task, with subjects demonstrating significantly greater performance across block of trials.

The significant main effects for locus of control (p.<.10), and the interaction effects noted for locus of control by teacher expectancy (p.<.10); locus of control by blocks of trials (p.<.05); and locus of control by teacher
expectancy by blocks of trials (p.<.10) are clarified by inspecting the mean performance of the treatment groups across the three blocks of trials. Table 5 presents the mean number of correct responses on the paired-associate task for each experimental group (combined by sex).

**TABLE 5**

<table>
<thead>
<tr>
<th>Locus of Control</th>
<th>Teacher Expectancy</th>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>Positive</td>
<td>6.792</td>
<td>11.042</td>
<td>14.375</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>7.125</td>
<td>12.500</td>
<td>16.458</td>
</tr>
<tr>
<td>External</td>
<td>Positive</td>
<td>6.958</td>
<td>11.375</td>
<td>14.125</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>5.583</td>
<td>9.042</td>
<td>11.458</td>
</tr>
</tbody>
</table>

Individual comparison tests (Newman-Keuls) of the locus of control by blocks of trials interaction reveal no significant differences in mean performance between ILC and ELC subjects following either Block 1 or 2 of the paired-associate task (F < 1, df = 1/95, p. = ns; F = 2.23, df = 1/95, p. = ns). However, ILC subjects demonstrated a significantly higher mean performance level following Block 3 than did ELC subjects (F = 6.26, df = 1/95, p.<.05).

In order to add conceptual clarity to these findings, individual comparison tests were also performed on the locus of control by teacher expectancy by blocks of trials interaction. While the overall F for this interaction was sig-
significant at only the .10 level, Winer (1962, pp. 207-208) indicates that individual comparisons of this nature are justified and statistically valid. Figure 4 presents a graphic illustration of this interaction.

Figure 4. Mean number of correct responses on the paired-associate task as a function of locus of control and teacher expectancy.
The results of the individual comparison tests reveal that under conditions of positive teacher expectancy, both ILC and ELC subjects attained virtually the same mean level of performance on the paired-associate task. However, ILC subjects experiencing negative teacher expectancy performed significantly higher on Blocks 2 and 3 of the paired-associate task than did ELC subjects exposed to similarly low teacher expectancy ($F = 11.21, df = 1/46, p.<.01; F = 22.76, df = 1/46, p.<.01$). ILC subjects in the negative teacher expectancy condition also performed significantly higher than either ILC or ELC subjects in the positive expectancy condition on Block 3 of the learning task ($F = 4.11, df = 1/46, p.<.05; F = 4.96, df = 1/46, p.<.05$). Finally, ELC subjects in the negative expectancy condition performed significantly below either ILC or ELC subjects in the positive expectancy condition on Block 3 trials. ($F = 7.74, df = 1/46, p.<.01; F = 6.47, df = 1/46, p.<.05$). Thus, at the end of the learning trials comprising Block 3, an ordering of subjects had occurred, with ILC subjects under negative expectancy conditions performing significantly higher than ILC or ELC subjects in the positive expectancy condition, who in turn, performed significantly higher than ELC subjects exposed to negative teacher expectancy.

In general, the data derived from the paired-associate learning task supports Hypothesis 1.2. That is, ELC subjects under conditions of negative teacher expectancy demon-
strated significantly less intentional learning than ILC or ELC subjects in the other experimental groups. However, when given a positive expectancy for success, ELC subjects were able to attain the same mean level of performance as those with an ILC attitude. Previous research by Gardner (1958) and Miller (1961) suggests that ELC subjects may develop situational ILC tendencies when exposed to a series of initial success experiences on an experimental task. A similar effect has been reported by Lefcourt and Ladwig (1965) who noted an alteration in the stated expectancies of prison inmates with an ELC attitude when they were given an identification with a positively valued reference group. The present findings extend and generalize the idea of "situational ILC tendencies" by providing evidence that a similar motivational and behavioral effect may be achieved with elementary age school children by creating an expectancy set for success through adult statements of expectancy.

Perhaps the most theoretically interesting outcome of the paired-associate task was the consistently higher mean performance of ILC subjects under conditions of negative teacher expectancy in comparison with the other experimental groups. It was hypothesized that ILC subjects in the negative expectancy condition would perform significantly higher than ELC subjects in the negative expectancy condition, and the predicted differences did in fact attain significance on Blocks 2 and 3 of the learning task. Surprisingly, however
ILC subjects in the negative expectancy condition also attained a significantly higher level of performance than ILC or ELC subjects in the positive expectancy condition on Block 3.

The most plausible interpretation of this finding would appear to lie in dissonance theory. According to Festinger's theory of cognitive dissonance (1957), a subject is expected to feel uneasy about dissonant situations and thereby be motivated to strive for consonance. Both Cottrell and Wack (1967) and Waterman and Katkin (1967) have pointed to the energizing or motivating effect of inconsistency or dissonance upon performance. In a dissonance situation in which two or more cognitions, attitudes, or behaviors are mutually inconsistent, a subject may alter one of the beliefs, feelings, or behaviors in order to achieve consonance. For example, in one classic study, Aronson and Carlsmith (1962) found that people who expected to fail would reject evidence of success. This finding was interpreted as evidence that disconfirmation of expectations is itself a source of psychological tension that subjects will strive to avoid or reduce. The Aronson and Carlsmith results have been supported by later findings by Brock, Edwards, Edelman, and Schuck (1965).

In the present study, dissonance was introduced by the apparent discrepancy or inconsistency between the subject's self-expectancy and the performance expectancy given
him by the special teacher. The dissonance resulting from the conflicting expectancies could be reduced by altering one's own expectancy and acting in accord with, and thereby confirming teacher expectancy, or by maintaining self-expectancy and performing in such a fashion as to alter the teacher expectancy. The obtained results suggest that the preferred mode of dissonance resolution is a function of perceived locus of control. Subjects with an ILC orientation tended to act in accord with self-expectancy, while ELC subjects tended to behave in such a way as to confirm the teacher expectancy. For ELC subjects who accepted the expectancy of the teacher, dissonance was a minimal factor, and therefore, was not motivating or energizing. However, ILC subjects in the negative condition apparently preferred to act in accord with their self-expectancy. For these subjects, negative teacher expectancy had a positive motivational influence and led to increased task performance.

Locus of Control and Generalized Expectancy.

In Chapter I, a distinction was drawn between locus of control and generalized expectancy (GE). Because locus of control is not a measure of generalized expectancy, but rather reflects the subject's attribution of causality for reinforcements, it was decided to re-analyze the paired-associate data by incorporating a measure of GE in addition to the locus of control measure. In order to perform this
analysis, subjects were categorized according to High or Low GE groups within the original locus of control categories. Because no significant sex differences were present in the initial analysis of the paired-associate data, the factor of subject sex was eliminated from the sub-analysis. The measure of GE used was the subject's first rating of expectancy which was obtained prior to the incidental learning task. It was reasoned that this rating, obtained prior to the biasing teacher expectancy statement, represented the best available estimate of GE. In order to reduce overlap among the High and Low GE groups, subjects with an intermediate estimate of GE were eliminated from the analysis. A total of 16 subjects were eliminated from the analysis by this procedure.

The above procedures yielded a 2X2X2 complete factorial design with two factor levels each of locus of control (internal-external), generalized expectancy (high-low), and teacher expectancy (positive-negative). A 2X2X2X3 analysis of variance for repeated measures was again performed on the paired-associate data in order to evaluate the influence of locus of control, GE, teacher expectancy, and blocks of trials. This analysis is summarized in Table 6.

The results of the analysis reveal significant main effects for locus of control (p.<.05) and blocks of trials (p.<.01). Simple main effects were again significant for the locus of control by blocks of trials interaction (p.<.01).
An additional significant interaction was noted for the locus of control by teacher expectancy interaction (p.<.05). Other findings included a significant triple interaction of locus of control by teacher expectancy X blocks of trials (p.<.01) and a triple interaction of generalized expectancy by teacher expectancy by blocks of trials which approached statistical significance (p.<.10).

**TABLE 6**

Summary of Analysis of Variance of Performance on the Paired-Associate Task as a Function of Locus of Control, Generalized Expectancy, and Teacher Expectancy

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locus of Control (A)</td>
<td>1</td>
<td>248.066</td>
<td>4.153</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>GE (B)</td>
<td>1</td>
<td>2.400</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Teacher Expectancy (B)</td>
<td>1</td>
<td>36.816</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXB</td>
<td>1</td>
<td>2.817</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXC</td>
<td>1</td>
<td>345.601</td>
<td>5.786</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>BXC</td>
<td>1</td>
<td>11.267</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXBXC</td>
<td>1</td>
<td>0.416</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Error (Between)</td>
<td>72</td>
<td>59.729</td>
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<td></td>
</tr>
<tr>
<td><strong>Within Subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blocks of Trials (D)</td>
<td>2</td>
<td>1216.779</td>
<td>229.841</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>AXD</td>
<td>2</td>
<td>26.180</td>
<td>4.945</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>BXD</td>
<td>2</td>
<td>0.238</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>CXD</td>
<td>2</td>
<td>2.380</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXB XD</td>
<td>2</td>
<td>1.004</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXC X D</td>
<td>2</td>
<td>30.712</td>
<td>5.801</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>BXC X D</td>
<td>2</td>
<td>11.154</td>
<td>2.107</td>
<td>&lt;.10</td>
</tr>
<tr>
<td>AXBXC XD</td>
<td>2</td>
<td>0.054</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Error (Within)</td>
<td>144</td>
<td>5.294</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F.95(1,72) = 3.95   F.90(2,144) = 2.35   F.99(2,144) = 4.74
F.99(1,72) = 7.00   F.95(2,144) = 3.06
In general, the elimination of subjects who gave intermediate estimates of GE had the net effect of increasing the level of statistical significance for those factors which had attained significance in the initial analysis of the paired-associate data. This finding suggests that the subjects with intermediate generalized expectancies were less affected by the experimental conditions than those with extreme estimates. Thus, it would appear that those subjects with an intermediate GE, regardless of locus of control, are more accurate in appraisals of their own ability levels, and thus, less easily influenced by external evaluations, be they positive or negative.

The only evidence for the influence of GE on learning performance is suggested by the weak interaction (p.<.10) of GE, teacher expectancy, and blocks of trials. Inspection of this interaction by means of Newman-Keuls comparison procedures revealed that the only significant performance difference occurred on the block 2 learning trials with higher performance shown by Ss with low GE in the positive teacher expectancy condition than by Ss with low GE exposed to negative teacher expectancy (F = 5.122, df = 1/38, p.<.05). No other comparisons approached significance. Thus, it appears that among subjects with more extreme ratings of GE, perceived locus of control and situational expectancy (teacher expectancy) are more powerful determinants of behavioral performance, with the effects of GE being relatively negligible.
Alterations in Expectancy Statements

In addition to investigating the influence of teacher expectancy statements on actual learning performance, the present study was also concerned with the effects of teacher expectancy on the expectancy statements of the subject. The two measures of general expectancy used in the present study are described in Chapter 4. Subject ratings on the first measure were collected four times; twice before and twice following the introduction of biasing teacher expectancy statements. This procedure enabled the collection of data regarding the interaction of teacher expectancy and subject generalized expectancy. The second measure of expectancy was administered to subjects prior to each of the nine learning trials of the paired-associate task. This procedure enabled the analysis of the number of unusual expectancy shifts for each subject.

Interaction of GE and TE.

Two related hypotheses regarding the effects of teacher expectancy and subject generalized expectancy were tested in the present study. Hypothesis 2.1 stated that prior to exposure to teacher expectancy, externally controlled subjects make significantly more extreme initial expectancy statements than internally controlled subjects. This hypothesis was based on the rationale that ELC subjects in a reinforcement situation tend to be more sensitive to the external
source of reinforcements and, consequently, are less aware of their own behavioral capacities. Hypothesis 2.2 stated that externally controlled subjects alter initial expectancy statements significantly more (in both magnitude and direction) than internally controlled subjects. This hypothesis was based upon previous research which suggests that ELC subjects are more conforming to external authority than ILC subjects.

In order to test the predicted changes in magnitude and direction of subject expectancy as a function of locus of control and teacher expectancy, subject ratings of expectancy, obtained prior to the incidental and intentional learning tasks, were analyzed by means of a $2 \times 2 \times 2 \times 4$ analysis of variance for repeated measures. The results of this analysis are summarized in Table 7.

The analysis revealed significant main effects for locus of control ($p < .10$), teacher expectancy ($p < .01$), as well as for the subject rating's of performance expectancy ($p < .01$). Significant simple main effects were obtained for locus of control by teacher expectancy ($p < .05$) and for teacher expectancy by subject ratings ($p < .01$). Finally, a significant interaction occurred for locus of control by teacher expectancy by subject ratings ($p < .01$). Table 8 presents the mean expectancy ratings of the four treatment groups (combined by sex) across the four ratings.
TABLE 7

Summary of Analysis of Variance of Subject Expectancy Following Teacher Expectancy

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject Sex (A)</td>
<td>1</td>
<td>36.878</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Locus of Control (B)</td>
<td>1</td>
<td>172.003</td>
<td>3.426</td>
<td>&lt;.10</td>
</tr>
<tr>
<td>Teacher Expectancy (C)</td>
<td>1</td>
<td>10,805.649</td>
<td>215.243</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>AXB</td>
<td>1</td>
<td>3.189</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXC</td>
<td>1</td>
<td>59.377</td>
<td>1.183</td>
<td></td>
</tr>
<tr>
<td>BXC</td>
<td>1</td>
<td>339.377</td>
<td>6.760</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>AXBXC</td>
<td>1</td>
<td>25.525</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Error (Between)</td>
<td>88</td>
<td>50.202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expectancy Ratings (D)</td>
<td>3</td>
<td>104.357</td>
<td>8.564</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>AXD</td>
<td>3</td>
<td>20.822</td>
<td>1.709</td>
<td></td>
</tr>
<tr>
<td>BXD</td>
<td>3</td>
<td>19.475</td>
<td>1.598</td>
<td></td>
</tr>
<tr>
<td>CXD</td>
<td>3</td>
<td>1178.357</td>
<td>96.706</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>AXBXD</td>
<td>3</td>
<td>14.857</td>
<td>1.219</td>
<td></td>
</tr>
<tr>
<td>AXCXD</td>
<td>3</td>
<td>19.836</td>
<td>1.628</td>
<td></td>
</tr>
<tr>
<td>BXCXD</td>
<td>3</td>
<td>63.308</td>
<td>5.196</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>AXBXCXD</td>
<td>3</td>
<td>21.065</td>
<td>1.729</td>
<td></td>
</tr>
<tr>
<td>Error (Within)</td>
<td>254</td>
<td>12.185</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F.90(1,88) = 2.77
F.95(1,88) = 3.95
F.99(1,88) = 6.94
F.99(3,264) = 3.86

TABLE 8

Mean Expectancy Ratings of the Experimental Groups

<table>
<thead>
<tr>
<th>Locus of Control</th>
<th>Teacher Expectancy</th>
<th>Rating I</th>
<th>Rating II</th>
<th>Rating III</th>
<th>Rating IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILC</td>
<td>Positive</td>
<td>7.87</td>
<td>4.79</td>
<td>4.21</td>
<td>2.62</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>8.96</td>
<td>14.13</td>
<td>14.39</td>
<td>17.04</td>
</tr>
<tr>
<td>ELC</td>
<td>Positive</td>
<td>8.37</td>
<td>3.46</td>
<td>3.58</td>
<td>1.92</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>8.71</td>
<td>19.37</td>
<td>17.29</td>
<td>21.92</td>
</tr>
</tbody>
</table>
Individual comparison tests (Newman-Keuls method) reveal no significant differences among the various treatment groups on the initial measure of subject generalized expectancy (Rating I). Therefore, Hypothesis 2.1 must be rejected. ELC subjects demonstrated no greater tendency to make extreme initial estimates of performance expectancy than did ILC subjects. The mean initial estimates of both groups tended to be positive and in the upper one-third of the range of possible expectancy ratings. Thus, the present results fail to support an earlier study by Battle and Rotter (1963) who found that ELC subjects report a significantly lower mean expectancy for success than do ILC subjects.

Inspection of the mean performance expectancies of the four treatment groups on subsequent ratings II, III, and IV (see Table 8) suggests that both ILC and ELC subjects alter initial expectancy ratings in the direction of teacher expectancy following exposure to the biasing statement of the teacher. Newman-Keuls comparison procedures reveal that on rating II, both ILC and ELC subjects exposed to positive teacher expectancy demonstrated a significantly higher expectancy for success than either ILC subjects in the negative expectancy condition ($F = 96.39$, $df = 1/46$, $p < .01$; $F = 125.89$, $df = 1/46$, $p < .01$) or ELC subjects in the negative condition ($F = 235.32$, $df = 1/46$, $p < .01$; $F = 280.32$, $df = 1/46$, $p < .01$). Similar results occurred on ratings III and IV, with the obtained $F$ ratios again exceeding the
.01 level of significance. The findings suggest that teacher expectancy is a more powerful determinant of subject expectancy than is perceived locus of control.

Comparison procedures reveal that no significant differences in mean subject expectancy occurred between ILC and ELC subjects in the positive teacher expectancy condition on ratings II, III, and IV. This finding suggests that both groups were equally influenced by the statement of teacher expectancy and provides additional support for the position that ELC subjects may develop situational ILC tendencies in positive or success-oriented situations.

However, significant differences in mean ratings of performance expectancy did occur between ILC and ELC subjects in the negative teacher expectancy condition. Subjects with an ILC attitude demonstrated significantly higher expectancies for success than ELC subjects on rating II ($F = 30.50, df = 1/46, p < .01$), rating III ($F = 9.96, df = 1/46, p < .01$) and rating IV ($F = 26.30, df = 1/46, p < .01$). The results indicate that even though ILC subjects in the negative teacher expectancy condition modify their initial estimates in the direction of teacher expectancy, they are significantly less influenced than ELC subjects exposed to the same teacher expectancy.

In general, the analysis of changes in subject expectancy as a function of teacher expectancy provides partial support for Hypothesis 2.2. In terms of the magnitude
of changes in expectancy, ELC subjects in the negative teacher expectancy condition lower their initial expectancy for success significantly more than ILC subjects in the same treatment condition. Under conditions of positive teacher expectancy, both ILC and ELC subjects tend to make equal alterations in their initial expectancy levels. In terms of the direction of changes in expectancy, both ILC and ELC subjects significantly alter their initial expectancy for success in the direction of the teacher expectancy statements. Therefore, as regards the direction of modifications in expectancy statements, teacher expectancy is a more powerful influence than locus of control.

Unusual Expectancy Shifts

Hypothesis 2.3 stated that internally controlled subjects in both teacher expectancy conditions and externally controlled subjects in the positive teacher expectancy condition demonstrate significantly fewer unusual shifts in expectancy than externally controlled subjects in the negative expectancy condition. The hypothesis was based on previous research by Battle and Rotter (1963), Feather (1966), James (1957), Liverant and Scodel (1960), and Simmons (1959) which reported that ELC subjects demonstrate a greater tendency than ILC subjects to manifest the "gambler's fallacy" (i.e., raise expectancy after failure, lower expectancy after success) in risk-taking situations. ELC subjects in the positive teacher expectancy situation were expected to develop
situational ILC tendencies and, consequently, demonstrate fewer unusual expectancy shifts than ELC subjects receiving negative teacher feedback.

In the present study, each subject provided an estimate of his expected level of success immediately prior to each of the 9 trials of the paired-associate learning task. This series of expectancy ratings was used for the assessment of the number of unusual expectancy shifts. An unusual expectancy shift was operationally defined as raising one's estimate of expectancy after failure to meet the level stated on the preceding trial or lowering one's expectancy after reaching the level stated on the preceding trial. A subject's score was defined as the total number of such shifts across the 9 learning trials. The scores were analyzed by a 2X2X2 analysis of variance in order to evaluate the effects of subject sex, locus of control, and teacher expectancy on the number of unusual expectancy shifts. The results of this analysis are presented in Table 9. The mean number of unusual expectancy shifts for each treatment group (combined by sex) are presented in Table 10.

The results of this analysis reveal that no significant differences occurred among the various treatment groups in terms of the number of unusual expectancy shifts. Therefore, Hypothesis 2.3 must be rejected. The present study fails to provide support for previous research which has reported that ELC subjects demonstrate significantly more un-
TABLE 9

Summary of Analysis of Variance of the Number of Unusual Expectancy Shifts

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Sex (A)</td>
<td>1</td>
<td>0.166</td>
<td>&gt;1</td>
<td>ns</td>
</tr>
<tr>
<td>Locus of Control (B)</td>
<td>1</td>
<td>5.041</td>
<td>1.658</td>
<td>ns</td>
</tr>
<tr>
<td>Teacher Expectancy (C)</td>
<td>1</td>
<td>2.666</td>
<td>&gt;1</td>
<td>ns</td>
</tr>
<tr>
<td>AXB</td>
<td>1</td>
<td>0.168</td>
<td>&gt;1</td>
<td>ns</td>
</tr>
<tr>
<td>AXC</td>
<td>1</td>
<td>0.376</td>
<td>&gt;1</td>
<td>ns</td>
</tr>
<tr>
<td>BXC</td>
<td>1</td>
<td>0.001</td>
<td>&gt;1</td>
<td>ns</td>
</tr>
<tr>
<td>AXBXC</td>
<td>1</td>
<td>1.041</td>
<td>&gt;1</td>
<td>ns</td>
</tr>
<tr>
<td>Error</td>
<td>88</td>
<td>3.040</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F.05(1,88) = 3.95

TABLE 10

Mean Number of Unusual Expectancy Shifts by Treatment Group

<table>
<thead>
<tr>
<th>Locus of Control</th>
<th>Teacher Expectancy</th>
<th>Unusual Expectancy Shifts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>Positive</td>
<td>3.083</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>2.750</td>
</tr>
<tr>
<td>External</td>
<td>Positive</td>
<td>3.542</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>3.208</td>
</tr>
</tbody>
</table>

usual expectancy shifts than ILC subjects.

The reasons for this apparent failure to support earlier research findings are not immediately clear. However, three factors are suggested. First, the locus of control scale used in the present study differs from the measurement devices used in previous research. The scale used in the present study, the IAR, is a measure of the extent to which the subject accepts responsibility for success or failure in
intellectual achievement situations. The locus of control measures used in previous research purport to reflect a subject's degree of internality-externality in a wide range of situations. Consequently, the IAR and other scales may not reflect the same measure, and perhaps lead to a different ordering of subjects. (Some evidence to support this contention is available. Measures on the Bialer Locus of Control Scale (1961) were also available for approximately 50 of the subjects. A scattergram which was plotted using the Bialer and the IAR scores suggested only a low positive relationship between the two measures).

In addition to differences in the locus of control scale used, the present study differs from previous research in the type of performance task used and in the nature of performance feedback available to the subject. Previous research has tended to use game-like performance tasks (e.g., ring-toss game, level of aspiration board, etc.), while the present study involved a verbal learning task as a performance variable. Even in the absence of direct feedback from the experimenter, subjects may be able to more accurately judge the quality of performance on game-like tasks as compared to the verbal-learning type of task. The theoretically predicted differences between ILC and ELC subjects may be more apparent in situations where the subject is able to accurately assess his performance level. In the present study, subjects may not have been able to judge their performance
accurately and therefore, may have been more variable in their statements of expectancy for success. The resultant variability may have led to a masking of actual differences in expectancy shift behavior of ILC and ELC subjects.

Finally, the present study used younger subjects than have been used in previous research. In line with the above interpretation, younger subjects may be less able to accurately assess their performance and therefore, be more variable in their expectancy shift behavior. The present results would therefore suggest that one should be cautious in attempting to generalize previous findings regarding expectancy shift behavior across age and performance tasks.

Post Session Ratings

Following completion of the experimental session, each subject was asked to judge task difficulty, task attractiveness, and teacher fairness, on separate 5-point rating scales (Appendix G). For the task difficulty scale, the end points were defined as very hard - very easy; for task attractiveness, the end points were very much fun, like to play--not very much fun, didn't like to play; and for teacher fairness, the end points were defined as very fair - very unfair.

Hypothesis 3.0 stated that both task and teacher are rated significantly more favorable by subjects in the positive expectancy condition than by subjects in the negative
expectancy condition. The hypothesis was based on the rationale that subjects would tend to reciprocate the expectancy rating given them by the special teacher. That is, subjects given a favorable expectancy for success would tend to rate the task and teacher in a favorable fashion, while those exposed to negative expectancy would be more likely to evaluate the task and teacher unfavorably.

A score of 5 was assigned to the end point of the scale deemed to be most favorable (very difficult, very much fun, like to play, and very fair). A 2X2X2 analysis of variance was performed on the scores in order to assess the influence of subject sex, locus of control, and teacher expectancy. The mean ratings of task attractiveness and teacher fairness were so obviously similar that a complete analysis was not performed on the scores of either scale. Tables 11 and 12 present the mean ratings of task attractiveness and teacher fairness.

TABLE 11
Mean Ratings of Task Attractiveness by Treatment Group

<table>
<thead>
<tr>
<th>Locus of Control</th>
<th>Teacher Expectancy</th>
<th>Task Attractiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>Positive</td>
<td>4.79</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>4.67</td>
</tr>
<tr>
<td>External</td>
<td>Positive</td>
<td>4.71</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>4.79</td>
</tr>
</tbody>
</table>
TABLE 12
Mean Ratings of Teacher Fairness by Treatment Group

<table>
<thead>
<tr>
<th>Locus of Control</th>
<th>Teacher Expectancy</th>
<th>Teacher Fairness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>Positive</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>Negatiive</td>
<td>4.79</td>
</tr>
<tr>
<td>External</td>
<td>Positive</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>4.96</td>
</tr>
</tbody>
</table>

The mean ratings of task difficulty did appear to vary enough to warrant a complete analysis. The results of this analysis are summarized in Table 13.

TABLE 13
Summary of Analysis of Variance of Subject Ratings of Task Difficulty

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Sex (A)</td>
<td>1</td>
<td>8.167</td>
<td>3.132</td>
<td>.10</td>
</tr>
<tr>
<td>Locus of Control (B)</td>
<td>1</td>
<td>0.167</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>Teacher Expectancy (C)</td>
<td>1</td>
<td>7.042</td>
<td>2.700</td>
<td></td>
</tr>
<tr>
<td>AXB</td>
<td>1</td>
<td>0.042</td>
<td>&lt;1</td>
<td></td>
</tr>
<tr>
<td>AXC</td>
<td>1</td>
<td>2.666</td>
<td>1.022</td>
<td></td>
</tr>
<tr>
<td>BXC</td>
<td>1</td>
<td>5.999</td>
<td>2.300</td>
<td></td>
</tr>
<tr>
<td>AXBXC</td>
<td>1</td>
<td>7.043</td>
<td>2.701</td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>88</td>
<td>2.608</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$F_{.90(1,88)} = 2.77$

The results of the analysis of subject ratings of task difficulty revealed that no significant differences occurred among the various treatment groups. The main effects for subject sex did reach the .10 level of significance,
with boys tending to rate the task as slightly more easy (X = 2.50) than girls (X = 3.10).

The obtained results indicate that Hypothesis 3.0 must be rejected. There were no significant differences among the various treatment groups in terms of rated task difficulty, task attractiveness, or teacher fairness. The failure to find significant differences may have resulted from the fact that all subject ratings were completed in the presence of the teacher. The presence of the special teacher may have invoked such powerful social desirability response tendencies in the subjects that any real differences in perceived task difficulty, task attractiveness, or teacher fairness were attenuated. Perhaps the hypothesis of reciprocal interpersonal evaluation would be supported by a more sensitive (e.g., anonymous) measurement procedure.

**Summary of the Results**

The results of the present study can be said to provide partial support for the general hypothesis that locus of control plays a mediational role in determining a subject's degree of susceptibility or responsivity to teacher expectancy. Under conditions of positive teacher expectancy ELC subjects demonstrated a level of performance on the paired-associate learning task approximately equivalent to that of ILC subjects. In addition, both ILC and ELC subjects made highly similar alterations in their initial
statements of generalized expectancy for success following exposure to positive teacher expectancy. This set of findings was interpreted as providing support and cross-situational generalization for previous research by Gardner (1958), Lefcourt and Ladwig (1965), and Miller (1961) which suggests that ELC subjects may develop situational ILC tendencies when given a positive set for success.

However, under the negative teacher expectancy condition, the behavior of ILC and ELC subjects differs significantly. As hypothesized, externally controlled subjects demonstrate a significantly lower level of performance on the paired-associate learning task and made significantly greater alterations in their statements of generalized expectancy for success following exposure to negative teacher expectancy than do internally controlled subjects. For ILC subjects, the negative teacher expectancy appears to have a motivating influence with the result that this group of subjects attains a significantly higher level of performance on the paired-associate task than any other treatment group. This outcome was interpreted in terms of cognitive dissonance theory (Festinger, 1957).

Despite the generally positive nature of the above findings, a number of hypotheses related to the interaction of locus of control and teacher expectancy were not supported by the data. Among the hypotheses failing to receive support were Hypothesis 1.1 regarding incidental learning.
performance; Hypothesis 2.1 regarding unusual expectancy shifts; and Hypothesis 3.0 regarding subject ratings of task difficulty, task attractiveness, and teacher fairness.

In the earlier discussion of the results from the incidental learning task, it was suggested that the failure to obtain significant differences may have been attributable to the overall difficulty of the task. An alternative explanation is suggested by the subsequent analysis of performance on the paired-associate task. On the latter task, no significant main effects or interactions were noted until the completion of the second block of trial, suggesting that the interaction of locus of control and teacher expectancy is gradual and cumulative. In view of the short-term nature (1 trial) of the incidental learning task, the effects may not have been given an opportunity to become operative.

The present results failed to support previous findings regarding the expectancy behavior of ILC and ELC subjects. Thus, contrary to the findings of Battle and Rotter (1963), no significant differences were noted between ILC and ELC subjects in terms of generalized expectancy for success. The present study also failed to support previous findings reported by Battle and Rotter (1963), Feather (1966), James (1957), Liverant and Scodel (1960), and Simmons (1959) which suggest that ELC subjects demonstrate a greater number of unusual expectancy shifts. The failure to support previous research was discussed in terms of procedural differences in
instrumentation, age of subjects, and type of performance
task employed.

No significant differences were obtained in regard to
subject ratings of task difficulty, task attractiveness, or
teacher fairness. Consequently, the hypothesis of recip­
rocal interpersonal evaluation was rejected. While the null
hypothesis of no differences cannot be rejected by the pre­
sent data, it was suggested that a more sensitive measure­
ment procedure might support the experimental hypothesis.

A somewhat surprising result of the present study was
the general failure to find significant sex differences on
any of the performance variables. Previous research, while
far from definitive, suggests that opposite-sex experimenter
subject dyads frequently lead to higher performance levels
than same-sex dyads. (e.g., Stevenson, 1961; Stevenson and
Knight, 1962; Stevenson and Allen, 1964). On the basis of
this reasoning, one might have expected female subjects to
demonstrate higher levels of performance in the present
study. It is not immediately apparent why the sex of sub­
ject-sex of experimenter interaction failed to occur.

In summary, the present findings, although providing
support for the role of locus of control as a mediating
variable in the teacher expectancy process, must be inter­
preted with caution. While the process of random assignment
to treatment groups provides a methodological means of con­
trol of all but the experimental variables, the possibility
exists that one or more subject variables associated with locus of control, rather than locus of control per se, accounted for the observed findings. For example, previous research findings regarding the relationship of locus of control and intelligence have been ambiguous. Consequently, it might be hypothesized that individual differences in intelligence, rather than locus of control, accounted for the variation in learning performance. In order to examine this possibility, it was decided to determine the degree of relationship between locus of control and intelligence, and between intelligence and learning performance within the present sample of subjects. Calculation of the Pearson product-moment correlations revealed a low, positive relationship between IAR scores and WISC Full Scale IQ (r = .212, p < .05, N = 96) and a low, insignificant relationship between IQ and paired-associate performance (r = .143, p = ns, N = 96). Further, the $F_{max}$ test for homogeneity of variance (Winer, 1962) revealed that the experimental groups did not differ significantly in intelligence ($F = 2.852, k = 8, df = 11, p = ns$). Thus, it appears that within the present sample, the measures of locus of control and intelligence reflect somewhat different dimensions, and further, that intelligence did not account for any significant amount of variation in learning performance. Nevertheless, other factors associated with locus of control may have been operative in the present study. Consequently, final con-
clusions regarding the role of locus of control in the teacher expectancy process will require additional research.
Summary and Conclusions

The purpose of the present study was to explore the nature of the teacher expectancy process by investigating individual differences in the degree of responsivity or susceptibility to teacher expectations as a function of two subject variables: (1) a status variable (subject sex); and (2) a personality variable (locus of control). The general hypothesis was that the learning performance of elementary school children in a teacher expectancy situation is influenced by the joint interaction of teacher expectancy and student generalized expectancy, as mediated by the subject's perceived locus of control. It was proposed that subjects with an ILC attitude would be less influenced by statements of teacher expectancy and would rely more upon their own generalized expectancy. Conversely, it was predicted that subjects with an ELC attitude, expecting their reinforcements to be under the control of external forces, would be more influenced by teacher expectancy and would rely relatively less upon their own generalized expectancy. The predicted differences between ILC and ELC subjects in terms of susceptibility to the teacher expectancy process were ex-
pected to be manifest in performance on an incidental and an intentional learning task, on subject expectancy statements following exposure to teacher expectancy, and on post-session ratings of task difficulty, task attractiveness, and teacher fairness.

To test the experimental hypotheses, subjects were classified by locus of control and sex, and were randomly assigned to either a positive or negative teacher expectancy condition. Subjects were exposed to the experimental tasks in a simulated teaching-learning situation conducted by one of three male experimenters who had been previously introduced to the children as "special teachers" interested in children's learning performance. Subjects in the positive teacher expectancy condition were consistently given statements of positive performance expectancy, while subjects in the negative condition received an equal number of negative expectancy statements. No other statements relative to subject performance were given the subject during the experimental session. Factorial analysis of variance procedures were used to analyze performance data regarding incidental learning, number of unusual expectancy shifts, and post-session ratings of task difficulty, task attractiveness, and teacher fairness. The data obtained from the intentional paired-associate learning task were inspected through separate analysis of variance for repeated measures techniques.
The results provide partial support for the hypotheses of the study. As predicted, subjects with an ELC attitude demonstrated significantly lower learning performance on the intentional learning task under the negative teacher expectancy condition than did ILC subjects exposed to the same condition. The prediction that ELC subjects would make significantly lower estimates of generalized expectancy than ILC subjects following presentation of the negative teacher expectancy statement was also supported. Both ELC and ILC subjects in the positive teacher expectancy condition behaved similarly in terms of actual learning performance and in terms changes or alterations in stated expectancies for success. An unexpected finding of the present study was the fact that ILC subjects in the negative teacher expectancy condition attained a significantly higher level of performance than did either ELC or ILC subjects in the positive teacher expectancy condition.

The results failed to support hypothesized differences between ELC and ILC subjects in terms of the level of incidental learning, initial generalized expectancy for success, or in the number of unusual expectancy shifts. Also, the predicted main effects of teacher expectancy condition on post-session ratings of task difficulty, task attractiveness, and teacher fairness failed to occur. Finally, no significant sex differences were found in the present study.

In terms of the general hypothesis of an interaction
between subject locus of control and teacher expectancy, the findings appear to warrant at least the tentative conclusion that such an interaction does occur and is manifested in actual learning performance and overt statements of expectancies for success. However, the potential mediating role of the locus of control variable in the teacher expectancy process is subject to several important qualifications. First, the interaction effect appears to be stronger in terms of its influence on verbal statements of subject expectancy than on actual learning performance. While changes in subject expectancy are of general theoretical interest, actual learning performance is the criterion measure which is of greater theoretical, as well as practical interest. Secondly, the interaction does not occur immediately, but appears to develop in a gradual and cumulative fashion, with the differences in learning performance between ELC and ILC subjects increasing across trials. This feature obviously precludes any predictions regarding the interaction of locus of control and teacher expectancy on short-term tasks. Finally, the observed interaction between locus of control and teacher expectancy may be a result of a subject factor associated with locus of control, rather than being directly attributable to locus of control. While the experimental design employed in the present study provided a means for methodologically controlling such external factors, the possibility cannot be totally discounted.
Despite the preceding qualifications, the results are promising and would appear to warrant further research effort regarding the role of locus of control and other individual differences measures in the teacher expectancy process.

Implications of the Study

The results of the present study can be seen to have important implications for theory, research, and/or practice in three broad areas of educational and psychological interest. These areas are the teacher expectancy process, general personality theory and research, and general educational practice. The implications of the present findings will be considered below for each of the three areas.

Teacher Expectancy Process

In terms of the teacher expectancy process, the present findings can be interpreted as providing supportive evidence for Rosenthal's general hypothesis that a teacher's expectancies and attendant behaviors have a measurable influence on a child's classroom performance. The present study extends previous teacher expectancy research by demonstrating that actual learning performance can be significantly influenced by exposure to direct statements of teacher expectancy. In this study, the impact of teacher expectancy was noted with exposure to only two direct statements of expectancy. Further research is needed to assess both the fre-
quency and influence of direct and indirect statements of teacher expectancy in the actual classroom situation.

However, the present findings also suggest that the teacher expectancy effect may not be as pervasive as has been suggested. For example, in the present study, there was no evidence of a significant main effect for the teacher expectancy condition alone. Rather, the significant effect noted was for the interaction of the teacher expectancy condition with the subject variable, locus of control. Thus, the present findings provide empirical support for previous research suggestions that individuals differ in the degree of susceptibility to teacher expectancy and that such differences may mediate the subject's performance in the expectancy situation (e.g. Anderson and Rosenthal, 1968; Conn et al., 1968; Evans and Rosenthal, 1968). The present study has investigated the mediating influence of only one of the variables potentially involved. Future research should concentrate on identifying other subject variables which may contribute to an individual's degree of susceptibility to teacher expectancy. The general social influence paradigm presented in Chapter 1 may be useful in serving as a framework for the logical and theoretical isolation of subject variables which might be involved as mediators of the teacher expectancy process.

The present study, while providing evidence for the interaction of locus of control and teacher expectancy, fails
to provide an understanding of the manner in which learning performance is influenced. At least two hypotheses are tenable — response inhibition vs. response arousal. For example, the discrepancy between subject expectancy and teacher expectancy may lead to an arousal of anxiety which in turn, leads to a reduction in learning rate. Or, as Kagan (1967) proposes, the resultant low expectancy for success may lead to a withdrawal of attention and consequently, result in reduced learning. Further research will be required to clarify the exact manner in which teacher expectancy influences learning rate and level.

General Educational Practice

In view of the fact that the present study was conducted in a simulated teaching-learning encounter, caution must be exercised in generalizing the results to the actual classroom situation. Nevertheless, the findings appear to have some general implications for educational practice.

Festinger (1954, p. 164) has proposed that "there exists in the human organism a drive to evaluate his opinions, abilities, and emotions." Such a learned need for social comparison may partially account for the significant impact which teacher expectancy appears to have on some individuals. In the classroom, which is institutionally structured to encourage competition and comparison with others, the child is likely to be closely attuned and attentive to any and all sources of evaluative information. The teacher represents
a principal source of evaluative information and is perhaps the chief dispenser of rewards and/or reinforcements. As such, it is reasonable to expect the child to be particularly attentive to her for evaluative cues.

However, the present findings suggest that individuals differ either in receptivity or reaction to the evaluative comments or acts of the teacher. On the basis of the present findings, it appears that the child characterized by a low feeling of power or control over his environment is more likely to acquiesce to the expectancies of the teacher, while the child with an internal locus of control is more likely to respond to his own expectancies for success.

There is a note of optimism in the present findings which suggest that learning performance may be enhanced by providing the child with adult statements of positive expectancy. Consistent communication of positive teacher expectancy may, therefore, be instrumental in enabling children, particularly those in inner-city schools, to develop situationally internal expectancies for academic success, and may ultimately lead to increased academic performance.

Personality Theory and Research

Traditional trait-state conceptions of personality have recently been the subject of vigorous attack by behaviorally-oriented theorists (e.g., Mischel, 1968) who argue that behavior in a given situation is more directly a function of the situation than of any underlying, central trait or state
of the individual. The present study, conceptualized largely within the framework of social learning theory and incorporating both a situational variable (teacher expectancy) and individual difference variable (locus of control), has important implications for the controversy.

In the heat of the debate, there has been a tendency to polarize into diametrically opposed viewpoints, with one side attributing behavior to situational determinants, and the other side accounting for behavior by means of personal traits. Practically neglected, or given only passing notice in the controversy is the interaction between the person and the situation. Speaking to this question, Ford and Urban (1965, p. 61) suggest that "the degree to which behavior can be conceptualized as generalized and situationally independent on the one hand, and particular and situation-specific on the other, is open."

In social learning theory (Rotter, 1954), the unit of investigation is held to be the interaction of the individual with his meaningful environment. Influenced by Lewin (1935) and Kantor (1922), Rotter referred to the psychological situation as the environment to which the subject is responding and the particular meanings that the subject gives to the situation. As might be predicted, Rotter allows for both the person and his past history and for the situation. The incorporation of the expectancy construct within the theory is reflective of a shift in emphasis from a histori-
cal explanation of behavior to a greater recognition of the situational conditions operating at a given time.

In the present study, both the influence of a situational variable (teacher expectancy) and an individual difference variable (locus of control) were investigated. The individual difference variable, locus of control, was viewed not so much as a stable, enduring, or unchanging trait, but rather as a general attitudinal tendency to characterize new situations as being under the control of internal or external forces. The results of the study provide evidence for the interaction of individual and situational variables. For example, the effect of the situational variable, teacher expectancy, was significant only in interaction with the locus of control variable. Similarly, several hypotheses based on previous locus of control research in situations different from the present, were not supported in the teacher expectancy situation.

Presently, it appears that neither the situational nor the trait-state approach is alone sufficient for the accurate prediction of behavior. For example, research suggests that the mere availability of a reinforcement is no guarantee of eliciting a pre-determined response from an individual. Subjects have been shown to respond differently to a given reinforcement as a function of the incentive value of the reinforcement and individuals have been found to report rather stable reinforcement preferences across situ-
ations (Staats and Staats, 1963; Zigler and Kanzer, 1962). Similarly, there is ample evidence that human behavior is characterized by considerable situational variation. (Mischel, 1968).

The fact that a single response disposition measure may yield relationships to behavior that show substantial variation across situations can be interpreted as evidence that the construct and its measures are meaningless. However, an alternative explanation may be that a single response disposition influences behavior differently as a function not only of situational variability, but as a result of fluctuations in other response dispositions as well. Evidence of cross-situational variability therefore may not be sufficient grounds for the invalidation of a construct. However, the presence of such evidence makes it imperative that experimental personality research attempt to define the limiting parameters of individual response dispositions. Consequently, it would appear that a complete theory of behavior must account for the interaction of personal and situational variables and that meaningful personality research should involve the systematic manipulation of both situational and chronic and acute response states.

Suggestions for Further Research

The investigation of individual differences in the degree of susceptibility to teacher expectancy would appear to
be a particularly worthwhile area in which to concentrate future research efforts. The nature of the area of investigation requires that attention be directed toward both situational and individual difference variables, and as such, research in the area would seem to hold promise for increased understanding not only of the teacher expectancy phenomenon, but for the complexity of the learning process involved in the classroom situation as well. Further, research in this area should add to basic knowledge concerning the role of personality and/or behavioral characteristics in classroom learning.

The present study represents a preliminary effort to examine the nature of individual differences in the degree of susceptibility to teacher expectancy. The results suggest that such differences do exist and are manifested in the overt learning performance of the subjects. However, certain limitations within the present study require that the conclusions be regarded as tentative until corroborated or refuted by additional research.

For example, the sample utilized in the present study, composed of a group of inner-city, parochial school children is somewhat atypical and places restrictions on the generalizability of the results. As a result of their attendance at a parochial, rather than public school, the subjects cannot be assumed to represent "typical" inner-city children; but due to the generally low socio-economic status of their
parents, the subjects are not representative of "middle-class" children. Consequently, any wide generalization of the findings must await a replication of the study with both public and parochial school children and with subjects from both lower and middle-class backgrounds.

A second set of limitations within the present study stems from the nature of the learning tasks presented to the subjects. For example, the incidental and paried-associate tasks used in this study are somewhat less complex than the academic learning tasks required in the actual classroom situation. While an argument can be made that much of classroom learning involves simple rote and associative memory skills (e.g., Jensen, 1968), future research might use learning tasks which more closely resemble those required of the child in the classroom. In addition, the subjects in the present study were given a fixed number of learning trials (nine), rather than being required to reach an arbitrary learning criterion using an unlimited number of trials. A study should be conducted using the criterion approach in order to determine the effects of teacher expectancy on final learning rate and level.

The extent to which the present findings can be generalized is also limited by the scale used to measure locus of control. The IAR differs from other locus of control measures in that it is concerned with the subject's degree of internality-externality in only a narrow range of intell-
ectual achievement situations. Other locus of control instruments, such as the Bialer Children's Scale (1961), attempt to assess the subject's perception of internality-externality in a wide range of situations. The failure of the present investigation to replicate certain findings (e.g., number of unusual expectancy shifts) of previous research studies which have incorporated other locus of control instruments suggests that caution should be used in making cross-situational generalizations. It is quite conceivable that an individual could vary in his perception of internality-externality as a function of the type of situation encountered. Thus, the locus of control construct may be multidimensional in nature and the IAR may reflect a different factor than the other available instruments.

In order to verify or reject this possibility, the present study should be replicated, using different measures of locus of control. Also, because the available measures of locus of control involve self-reports by subjects, it would be interesting to determine whether children rated as external or internal by teachers respond to the expectancy situation in the same fashion as children who perceive themselves as external or internal.

The present study utilized a factorial design with random assignment to treatment conditions, rather than a repeated measures design. Consequently, one is not able to draw any conclusions regarding the effects of both positive
and negative teacher expectancy on the same subject. In order to resolve the question, a study should be conducted which features a counter-balanced, repeated measures design and which uses an initial period of no teacher expectancy in order to establish a baseline rate for each subject.

The present study differs from typical teacher expectancy research in that the "teachers" or experimenters were not given a prior expectancy as to how subjects would perform on the experimental tasks. Rather, the experimenters conveyed a statement of teacher expectancy directly to the subject in a simulated teaching-learning situation. Thus the present study could be more accurately characterized as a manipulation of subject expectancy rather than teacher expectancy. A study should be conducted in which the expectancies of a group of naive teachers are manipulated prior to their presentation of the experimental procedures used in the present study. Such an experiment would have the advantage of demonstrating whether the subtle behaviors associated with teacher expectancy have a similar effect on actual learning performance as do the direct statements of learning expectancy used in the present study.

Finally, due to the limitations of time and resources, the present study investigated only one of the individual difference variables potentially involved in mediating the subject's response to the teacher expectancy situation. Locus of control is obviously not the only variable which can
be logically or theoretically presumed to influence the subject's reaction to the expectancies of others. A number of behavioral, cognitive, and personality factors might be shown to be involved in the process. However, rather than attempting to define the relationship of each variable to susceptibility to teacher expectancy in separate studies, it would seem to be advantageous to incorporate several such variables, at different levels of intensity, into a single, multi-variate design. The conduct of such a study would, however, be contingent upon the availability of large numbers of subjects and experimenters.
APPENDIX A

THE IAR SCALE

1. If a teacher passes you to the next grade, would it be
   a. because she like you, or
   b. because of the work you did?

2. When you do well on a test at school, is it more likely to be
   a. because you studied for it, or
   b. because the test was especially easy?

3. When you have trouble understanding something in school, is it usually
   a. because the teacher didn't explain it clearly, or
   b. because you didn't listen carefully?

4. When you read a story and can't remember much of it, is it usually
   a. because the story wasn't well written, or
   b. because you weren't interested in the story?

5. Suppose your parents say you are doing well in school, is this likely to happen
   a. because you tried harder, or
   b. because they are in a good mood?

6. Suppose you did better than usual in a subject at school. Would it probably happen
   a. because you tried harder, or
   b. because someone helped you?

7. When you lose at a game of cards or checkers, does it usually happen
   a. because the other player is good at the game, or
   b. because you don't play well?

8. Suppose a person doesn't think you are very bright or clever
   a. can you make him change his mind if you try to, or
   b. are there some people who will think you're not very bright no matter what you do?

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9. If you solve a puzzle quickly, is it
   a. because it wasn't a very hard puzzle, or
   b. because you worked on it carefully?

10. If a boy or girl tells you that you are dumb, is it
   more likely that they say that
   a. because they are mad at you, or
   b. because what you did really wasn't very bright?

11. Suppose you study to become a teacher, scientist, or
    doctor and you fail. Do you think this would happen
    a. because you didn't work hard enough, or
    b. because you needed some help, and other people didn't give it to you?

12. When you learn something quickly in school, is it usually
    a. because you paid close attention, or
    b. because the teacher explained it clearly?

13. If a teacher says to you, "Your work is fine," is it
    a. something teachers usually say to encourage pupils, or
    b. because you did a good job?

14. When you find it hard to work arithmetic or math problems at school, is it
    a. because you didn't study well enough before you tried them, or
    b. because the teacher gave problems that were too hard?

15. When you forget something you heard in class, is it
    a. because the teacher didn't explain it very well, or
    b. because you didn't try very hard to remember?

16. Suppose you weren't sure about the answer to a question your teacher asked you, but your answer turned out to be right. Is it likely to happen
    a. because she wasn't as particular as usual, or
    b. because you gave the best answer you could think of?

17. When you read a story and remember most of it, is it usually
    a. because you were interested in the story, or
    b. because the story was well written?
18. If your parents tell you you're acting silly and not thinking clearly, is it more likely to be
   a. because of something you did, or
   b. because they happen to be feeling cranky?

19. When you don't do well on a test at school, is it
   a. because the test was especially hard, or
   b. because you didn't study for it?

20. When you win at a game of cards of checkers, does it happen
   a. because you play real well, or
   b. because the other person doesn't play well?

21. If people think you're bright or clever, is it
   a. because they happen to like you, or
   b. because you usually act that way?

22. If a teacher didn't pass you to the next grade, would it probably be
   a. because she "had it in for you," or
   b. because your school work wasn't good enough?

23. Suppose you don't do as well as usual in a subject at school. Would this probably happen
   a. because you weren't as careful as usual, or
   b. because somebody bothered you and kept you from working?

24. If a boy or girl tells you that you are bright, is it usually
   a. because you thought up a good idea, or
   b. because they like you?

25. Suppose you became a famous teacher, scientist or doctor. Do you think this would happen
   a. because other people helped you when you needed it, or
   b. because you worked very hard?

26. Suppose your parents say you aren't doing well in your school work. Is this likely to happen more
   a. because your work isn't very good, or
   b. because they are feeling cranky?

27. Suppose you are showing a friend how to play a game and he has trouble with it. Would that happen
   a. because he wasn't able to understand how to play, or
   b. because you couldn't explain it well?
28. When you find it easy to work arithmetic or math problems at school, is it usually
   a. because the teacher gave you especially easy problems, or
   b. because you studied your book well before you tried them?

29. When you remember something you heard in class, is it usually
   a. because you tried hard to remember, or
   b. because the teacher explained it well?

30. If you can't work a puzzle, is it more likely to happen
   a. because you are not especially good at working puzzles, or
   b. because the instructions weren't written clearly enough?

31. If your parents tell you that you are bright or clever, is it more likely
   a. because they are feeling good, or
   b. because of something you did?

32. Suppose you are explaining how to play a game to a friend and he learns quickly. Would that happen
   a. because you explained it well, or
   b. because he was able to understand it?

33. Suppose you're not sure about the answer to a question your teacher asks you and the answer you give turns out to be wrong. Is it likely to happen
   a. because she was more particular than usual, or
   b. because you answered too quickly?

34. If a teacher says to you, "Try to do better," would it be
   a. because this is something she might say to get pupils to try harder, or
   b. because your work wasn't as good as usual?
APPENDIX B

FREQUENCY DISTRIBUTION OF IAR SCORES

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APPENDIX C

DESCRIPTION OF THE SAMPLE

I. Occupational Level of Father

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<td>5. Skilled Trades and Occupations</td>
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II. Educational Level of Father

Number of Years of Education: Range 3-20

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III. Proportion of White-Non-White Subjects

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APPENDIX D

GENERAL INSTRUCTIONS

Hi _______. My name is Mr. _______. As you know, I am one of the special teachers who has been working with the boys and girls here at _______ School. We are interested in finding out how well you and the other students will be able to play some word games that we have made. I have already tried out these games with other boys and girls, so I have a pretty good idea of how well a person will be able to do on them.

Now _______, as you know, some students are able to play word games very well, while other students cannot play as well. How well you can play depends on your ability. If you have less ability than most students your age, these word games will be hard for you; if you have more ability than most students your age, the word games will be easy for you.

I have already learned some things about your ability from the school files, but I need to know a little more about you so that I can tell how hard or easy the word games will be for you. I want to ask you a few questions and then give you a short test which will help me tell how well you are going to play the word games.

First of all, I need to know something about your school work. Tell me, what grades did you get in reading during the last 6 weeks? What grades did you get in math? What were your grades in spelling?

Now here is the short test I mentioned. (E administers and "scores" the Similarities subtest of the WISC).

Now then, _______, I have a very good idea of how well you are going to be able to play the word games; that is, how hard or easy they are going to be for you. But before I tell you how well I think you are going to do, suppose that you show me how well you think you are going to play the word games.

Use this sheet to show me. (Performance expectancy
sheet). Let me explain it for you. Each of these stick figures represents a boy (girl) your age. There are 25 boys (girls) altogether. Let's pretend that I have given the word games to each of the boys (girls) and that you are one of the 25. I would like for you to show me how well you think you will be able to play the word games in comparison with all of the other boys (girls). For example, if you think that you can play the word games the best of all; that is, if you think you will do very well and have no trouble playing the word games, and will have a higher score than all of the other boys (girls), circle this one. He is the very best at playing the word games. Or, if you think you will not be able to play very well; that is if you think you will have much trouble playing and will have the lowest score, circle this boy (girl). He is the very poorest at playing the game. Or, if you think you may have some trouble, but will still play better than some of the boys (girls), circle one of the other figures. For example, if you circle this one, it means you think you will be twelfth best, or if you circle this one, it means you think you will be twenty-fourth, or next to last. Do you understand what I want you to do? Just circle the boy (girl) which shows me how well you think you will be able to play the word game in comparison to the other boys (girls).

(E has S circle the boy with a red pen.)

As you remember, I told you that I have played these word games with many other boys and girls your age. From what you have told me about your grades and from the test I gave to you, I have a pretty good idea about your ability. That is, I am able to tell how well you are going to be able to play the word game in comparison with other boys your age. I am going to circle one of the boys (girls) with this pen which will show you how well I think you are going to play the word game in comparison with the other boys (girls).

(Depending upon treatment condition, E circles either figure #2 or #24. In case the S is in the positive expectancy condition and has already circled figure 2, E should circle figure 1. If S has circled figure 1, E should also circle figure 1 and confirm the S's high expectancy. If S is in the negative expectancy condition and has already marked figure 24, E should mark figure 25. If S has marked #25, E should also mark #25, thereby confirming S's low expectancy. E uses a green pen.)

See, I think you are going to play the word game much (better or poorer) than you think you will be able to play. Would you like to change your guess now? Make another circle around the person which shows me how well you think you will be able to do now. (If S chooses to change his estimate, have him do so with a black pen.)
INCIDENTAL LEARNING TASK

Here is the first word game we are going to play. I am going to show you some letters. You are to call out the name of each letter as I show it to you. Try very hard to remember the letters, because after we have finished, I shall ask you to tell me all of the letters which were shown to you. Do you understand? (E insures that S understands the task.) Now remember, you are to call out each letter as it is shown and try to remember all of them. OK, let's begin.

(E shows the S the series of letters, one at a time. Each of the letters is printed in one of four colors. Letters are to be exposed at three second intervals. The list is exposed once. S is then asked to call out the color in which each letter was presented. E reads off the letters and writes down the S's response on the incidental learning sheet. Order of recall is from first to last.)

Following completion of the task, the E remarks:

(positive condition) -- Well,__________, just as I expected. You did very well that time. Let's see how well you will do on a new word game.

(negative condition) -- Well,__________, just as I expected. You didn't do very well that time. Let's see how well you will do on a new word game.

PAIRED ASSOCIATE LEARNING TASK

This time I am going to show you some pictures. Each picture will have a partner that always goes with it. For example, here is a picture of an apple, and here is its partner - a green arrow. If this picture were part of the game, your job would have been to learn the partner of apple - green arrow. Do you see how this game is played?

Suppose you show me again how well you think you will be able to play this word game. Do you remember how we marked the sheet? OK, now show me on this sheet how well you expect to play this word game in comparison with the other boys (girls). (E REPEATS THE EXPECTANCY RATING PROCEDURE USING A NEW SHEET.)

Remember, I am going to show you some pictures and their partners. I will show each picture and its partner. You should try to remember them together, like partners. The partners for each picture will be either a circle, a square, or a diamond. Each partner will also be either
red, green, blue, or black. After you have seen them all, then I am going to show you just the picture, and see if you can tell me what the partner is. The partners will always be the same, and you will have plenty of tries to get them right. So, see if you can tell me the color and shape of the partner which goes with each picture, and then we will look and see if you are right. See if you can get them all right in a row. Be sure each time to tell me both the color and the shape that goes with the picture.

(Study trial -- S is given 6 seconds to scan and name both the stimulus picture and the response: Trials 1-9. Stimulus is presented and S is given 6 seconds to recall the correct response. Following S's response, stimulus and response terms are shown together for 4 sex. E should write down responses as they are given in order.) Also, E asks the S to make an X on the (0-9) line which indicates the score S expects to get on the next trial.

Alright, that's the end of the word games. But before we go back to class, I would like for you to do three things for me. OK.

First, I would like you to show me on this rating sheet how hard or difficult the word games were for you. If you thought they were very hard, make an X here; if you thought they were very easy, make an X here; if you thought they were not too hard, but not too easy, make an X here.

Next, I would like for you to show me how much you enjoyed playing the games. If you thought they were fun and enjoyed playing them, make an X here. If you thought they were not fun and you didn't enjoy playing, make an X here. If they were sort of fun, make an X here.

Finally, show me how fair you thought I was in helping you play the word games. If you think I was very fair, make an X here. If you think I was not very fair, make an X here. If you think I was somewhat fair, make an X here.
APPENDIX E

PERFORMANCE EXPECTANCY SHEET

HOW WELL I EXPECT TO PLAY THE WORD GAME IN COMPARISON TO TOEHR STUDENTS MY AGE.
APPENDIX F

Subject

Trial 1

\[0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9\]

Trial 2

\[0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9\]

Trial 3

\[0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9\]

Trial 4

\[0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9\]

Trial 5

\[0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9\]

Trial 6

\[0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9\]

Trial 7

\[0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9\]
APPENDIX G

RATING SCALES

1. TASK DIFFICULTY

<table>
<thead>
<tr>
<th>Very Hard</th>
<th>Somewhat Hard</th>
<th>Very Easy</th>
</tr>
</thead>
</table>

2. TASK ATTRACTIVENESS

<table>
<thead>
<tr>
<th>Much Fun, Like to play</th>
<th>Sort of Fun</th>
<th>Not much fun, Didn't like to play</th>
</tr>
</thead>
</table>

3. TEACHER FAIRNESS

<table>
<thead>
<tr>
<th>Very Fair</th>
<th>Sort of Fair</th>
<th>Not Very Fair</th>
</tr>
</thead>
</table>
APPENDIX H

EXPERIMENTAL LEARNING TASKS

INCIDENTAL TASK

<table>
<thead>
<tr>
<th>Letter</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Red</td>
</tr>
<tr>
<td>Q</td>
<td>Green</td>
</tr>
<tr>
<td>T</td>
<td>Blue</td>
</tr>
<tr>
<td>N</td>
<td>Black</td>
</tr>
<tr>
<td>V</td>
<td>Green</td>
</tr>
<tr>
<td>K</td>
<td>Red</td>
</tr>
<tr>
<td>H</td>
<td>Blue</td>
</tr>
<tr>
<td>B</td>
<td>Black</td>
</tr>
</tbody>
</table>

Order of Presentation

INTENTIONAL PAIRED-ASSOCIATE TASK

<table>
<thead>
<tr>
<th>Stimulus</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td>Red Diamond</td>
</tr>
<tr>
<td>Coat</td>
<td>Black Square</td>
</tr>
<tr>
<td>Bear</td>
<td>Red Circle</td>
</tr>
<tr>
<td>Shoe</td>
<td>Green Square</td>
</tr>
<tr>
<td>Horse</td>
<td>Blue Circle</td>
</tr>
<tr>
<td>Bus</td>
<td>Blue Diamond</td>
</tr>
<tr>
<td>Cat</td>
<td>Green Circle</td>
</tr>
<tr>
<td>Train</td>
<td>Black Diamond</td>
</tr>
<tr>
<td>Hat</td>
<td>Blue Square</td>
</tr>
</tbody>
</table>

Order of Presentation

Trials 1 4 7

145
<table>
<thead>
<tr>
<th>Trials</th>
<th>Stimulus</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 5 8</td>
<td>Shoe</td>
<td>Green Square</td>
</tr>
<tr>
<td></td>
<td>Cat</td>
<td>Green Circle</td>
</tr>
<tr>
<td></td>
<td>Train</td>
<td>Black Diamond</td>
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<tr>
<td></td>
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BIBLIOGRAPHY


Kantor, J.R. "How is a science of social psychology possible?" Journal of Abnormal and Social Psychology, 1922, 17, 62-78.


Pressman, H.J. "Schools to beat the system. Can we open the gates of the ghetto and let the children out?" Psychology Today, 1969, 2, 58-53.


Rotter, J.B. "Generalized expectancies for internal versus external control of reinforcements." Psychological Monographs, 1966, 80, Mo. 1 (Whole No. 609).


