THE RELATIONSHIP OF EXPECTATIONS AND OTHER MOTIVATIONAL VARIABLES TO ACADEMIC OUTCOME

By

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Abstract of Dissertation Presented to the Graduate Council of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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This project was a two-part investigation conducted to investigate hypotheses and predictions based on a modified version of Rotter's (1954) social learning theory. In the first part of the investigation, the association of motivational variables, particularly expectations, to academic outcome was explored. The second part of the project was an experiment aimed at raising student expectations and determining whether the expectations were a causal factor in academic outcome.

Expectations of final examination grades in introductory psychology and other motivational variables were measured by questionnaires administered to students in class subsequent to their taking the second midterm and prior to

the out-of-class sessions. Outside class, students were administered the Satz-Mogel short form of the Wechsler Adult Intelligence Scale and an interview. Both experimental and control group subjects also participated in the experimental part of the project by taking a bogus test in these sessions. Experimental group subjects were exposed to an expectations-raising intervention. Subsequent to the out-of-class sessions, expectations and other motivational variables were then reassessed.

Results from the first part of the project indicated that, although expectations tended to be related to academic outcome, they were not the only motivational variable associated with final examination grades. It was found that perhaps placing a low value on the exam score (low reinforcement value) and certainly being satisfied with only a high exam mark (high minimal goal level) were predictive of good grades. High minimal goal level was the most efficient predictor. In the experimental part of the investigation, the intervention was found to raise expectations. Yet, final examination scores were not significantly different for experimental and control group subjects. Consequently, expectations were not considered to be a determinant of academic outcomes.

CHAPTER I
INTRODUCTION AND HYPOTHESES

Theoretical Background and Current Status of Work in the Area

Theoretical Background

The construct of expectation

The construct of expectation or some similar concept is included in many behavior theories, both those specific to achievement (Atkinson, 1957; Atkinson & Reitman, 1956; Crandall, Katkovsky, & Preston, 1960) and those which can be applied to this and other areas of behavior (Brunswik, 1943; Edwards, 1955; Lewin, 1935; Rotter, 1954; Tolman, 1949). Subjects may state their expectations of outcome either in situations in which the outcome is independent of their actions or contingent upon them. For subject-determined outcomes, operationally an expectation is an estimate by the subject of the reinforcement's strength or frequency as a result of his behavior. The predictions of scores on new tasks, the number of chips or candies earned, and report card grades are examples of estimates of expectation. When a person believes his behavior determines his outcome, his statement of expectation is his evaluation of his own goal-directed behavior (Crandall & McGhee, 1968).

Rotter's social learning theory of personality

The theoretical basis for the relationship between expectations and outcome which has been provided by Rotter (1954), in his social learning theory, is the primary source from which the hypotheses and predictions of this dissertation project were drawn. This is a learning theory dealing with expectations. The emphasis of social learning theory is on the individual's interacting with his environment and using certain behaviors to achieve satisfaction and to avoid frustration. In attempting to understand behavior, Rotter (1954) uses the basic concepts of behavior potential, expectation (termed "expectancy" in his theory), reinforcement value, and the psychological situation. A simplified version of the main formula is:

$$BP = f\ (E\ \&\ RV)$$

It may read: behavior potential (BP) is a function of expectancy (E) and reinforcement value (RV). Behavior potential (BP) is the existing potential of a behavior to occur in a particular situation. An expectation (E) is the subjective probability an individual has of success, the probability he has that certain behavior of his will cause a certain reinforcement in a particular situation.

Theoretical Constructs and Related Research

Expectation

Generalized expectations. An E is composed of generalized expectations and expectations specific to the

situation. Generalized expectations are determined by the history of reinforcement which the person has in situations similar to the present one. An individual comes to expect that behaving in a certain similar way in particular other new situations will cause him to receive reinforcements which are similar to, or the same as, those reinforcements he obtained in the previous situations. It should be made clear that the situations to which expectations generalize are viewed as being similar or related to the original specific situation (Rotter, 1954).

Rotter's (1954) contention that the generalization of expectations is a function of the gradient of similarity of skill or task receives support from the investigations of Chance (1959), Crandall (1951, 1955), Heath (1959), and Jessor (1954). As Rotter, Chance, and Phares (1972) have noted, reinforcing one behavior affects other behaviors in proportion to the extent that the other behaviors are perceived as leading to similar reinforcements.

From their review of the results of five studies of theirs as well as those of Battle's (1966) investigation, Crandall and McGhee (1968) proposed that the gradient of generalization of expectations explained the varying predictive accuracy of subject Es in the different studies. A basically linear increase in predictive accuracy was noted as the reinforcements for which Es were stated became more similar to the criteria of grades and achievement test scores.

In one of Crandall and McGhee's (1968) studies, college students in an introductory psychology course predicted their final course grades during the second week of the quarter. At that time, the students had no feedback on course performance. Consequently, since this was also the subjects' first psychology course, Crandall and McGhee (1968) pointed out that their Es were determined by their history of academic reinforcements in other courses.

In another of Crandall and McGhee's (1968) studies, high school seniors made estimates of their "true or native ability" (p. 641) in particular courses, including math, social science, English, and natural science. Crandall and McGhee (1968) thought that these Es were mainly founded upon the students' past grades in courses in the same subject areas. They contended that such past reinforcements were more similar to the criterion measures of achievement test scores and grades than the past reinforcements of the introductory psychology class were to the final course grades.

One criticism of the Crandall and McGhee (1968) study which used students' estimates of their "true or native ability" (p. 641) in certain subject areas is that such estimates may be quite different from Es of grades or achievement test scores. It is quite possible that a student may consider himself to have great potential in an area, but be unwilling to engage in behaviors to achieve in the particular discipline. It could also be that reporting high ability might serve an

ego-defensive function. The person might actually have limited ability, but be unwilling to admit this, perhaps even to himself.

Crandall and McGhee (1968) pointed out that of all those studies they considered in their review, reinforcement similarity was the greatest in Battle's (1966) study. In Battle's (1966) investigation, students stated Es of final course grades in English and math courses they were taking. Their Es were measured several months after the beginning of the courses. Consequently, the students had already received feedback on their performance in these courses. Their Es could well have been based on their past performance in the courses under consideration (Crandall & McGhee, 1968).

Crandall and McGhee (1968) noted that basically as reinforcement similarity increased, the positive relationship between Es and academic outcome criterion measures became more and more pronounced. However, they were also quick to indicate that the judgments which they made of the degree of similarity of reinforcements were made post hoc. An alternative explanation they gave was that it was possible that the differential results in the various studies might have been a consequence of systematic differences in the samples of subjects. Still, Crandall and McGhee (1968) were unaware of any such differences and did note that subjects in the experiment in which Es were based on reinforcements most similar to the academic outcomes being predicted came from communities essentially like those from which subjects in the

experiment in which Es were based on the least similar reinforcements came.

Crandall and McGhee (1968) contended that past Es of grades are a major determinant of present grade Es. They pointed to the consistency of students' academic performances. Still, they did consider that the relationship between past and present Es is decreased in proportion to the increase in importance of other determinants of present Es.

Specific expectations. Generalized expectations are typically more of a determinant of an individual's Es than specific expectations in novel situations. However, with experience in a situation, Es are progressively more determined by specific expectations than by generalized expectations. Es are then based on feedback from what happens in the specific situation (Rotter, 1954).

There is much evidence that there is a gradient of generalization of expectations and that subjects do predict outcome of one situation based on another. The predictive accuracy of their Es becomes greater as the situations and reinforcements about which the Es are formed become more similar to those on which such previous Es were based. The effect of generalized expectations decreases and that of specific expectations increases along with experience in a particular situation.

Reinforcement value

The other major construct of Rotter's (1954) formula is reinforcement value (RV), the subjective importance of a reinforcement to an individual, that is, the extent of his preference for a particular reinforcement under the circumstances that the probability of occurrence of all reinforcements is the same. No precise mathematical relationship between RV and E has been developed, although it is assumed that the relationship is a multiplicative one.

According to Lewin, Dembo, Festinger, and Sears (1944), RV increases and E decreases as goal achievement becomes more difficult. Worell (1956) pointed out that this contention has received support, that people do make statements of low Es when their RVs for the goal are high. Individuals are probably less sure of achieving more highly valued reinforcements because, in their histories of goal attainment, much ability and effort have been required to achieve goals for which RVs are high. However, Worell (1956) also pointed out the alternative possibility of Es' becoming higher when RVs are high. In our society, the ideal situation is considered to be one in which an individual engages in goal-oriented behaviors directed toward the attainment of highly valued goals and believes that he will be able to attain them. Which of the two alternatives is the appropriate explanation must be empirically determined.

Research has turned up conflicting results in regards to the relationship between E and RV (Bayton, 1943; Frank,

1935; Holt, 1945; Marks, 1951). Worell (1956) proposed that the inconsistency in the findings might be resolved by looking at achievement versus nonachievement situations. Outcomes in achievement situations are ability-determined, in contrast to outcomes in nonachievement situations. Therefore, an individual's feelings of competence are not involved in nonachievement situations. Consequently, extra RVs are present in the achievement situations. Therefore, RV should affect E differently in achievement than in nonachievement situations.

The differentiation of situations into achievement or nonachievement categories seems to help explain different findings of such studies as those done by Marks (1951) and by Worell (1956). In Marks' (1951) investigation in a nonachievement situation, increased RVs resulted in increased Es. By contrast, data from Worell's (1956) study, which was done in an achievement situation, showed that increased RVs were associated with lowered Es in basically new situations. Yet, Worell (1956) noted that this explanation was a post hoc one, the validity of which could only be assessed through future research.

It should be noted that Marks' (1951) study dealt with a nonachievement situation, a gambling type of situation. In the experiment, the child subjects in essence were stating what they wished would occur. Outcomes were not ability-determined. It should also be noted that people typically take risks more in gambling kinds of situations.

In Worell's (1956) investigation, performance and ability were related. Es based on the subject's achievement history were perceived as being applicable.

Worell (1956) noted that RV has some influence on statements of E and pointed out that this is the finding of greatest consistency, considering the mixed results of other investigations researching the influence of RV upon E. In summary, Worell (1956) found an association between high RVs and low Es. Even though with experience RVs tended to more uniformly influence Es, high RVs were still associated with low Es. Worell (1956) suggested that further research in this area in which there were more and varying amounts of experience would be valuable.

More light has been shed on the construct of RV by Mischel and Masters (1966). They found that initially people overevaluated a positive reinforcement which they could not achieve. However, Mischel and Masters (1966) also pointed out that eventually people attempted to justify their failure by lowering the RV they placed on the reinforcement in question. They recommended that further research be done under conditions in which dissonance could be produced, conditions in which the dissonance and frustration resulting from it were caused by the individual's own actions. They suggested that under such conditions it would be useful to determine whether a positive association existed between the RV of a goal and the probability of achievement of the goal.

There does indeed seem to be much inconsistency among the findings pertaining to RV, particularly regarding the relationship between E and RV. Yet, according to Rotter's (1954) social learning theory, high RVs should be associated with positive outcomes. Since Rotter's (1954) theory classifies RV as a determinant of behavior, it may well affect academic achievement and, thus, be worthy of investigation.

Even though alternative explanations are available, Es typically decrease and RVs typically increase as goal attainment becomes more difficult. Yet, the relationship between RV and E does vary, perhaps as a result of the achievement or nonachievement nature of the situation being investigated. Still, RV has been shown to have some influence on statements of E. Many factors may influence this relationship, including the amount of experience in a situation.

Situation

The concepts of Rotter's (1954) formula are considered in relation to a specific situation. An individual's behavior may be much affected by the situation. The psychological situation is considered to be important in the understanding and prediction of behavior.

Minimal goal level

Rotter (1954) described another social learning theory concept, minimal goal level (MGL). Originally, he

related MGL to freedom of movement (FM), which is a broader construct of E. However, MGL was discussed in relation to E by Battle (1965, 1966) and was thus applied to this experiment. MGL is defined as the lowest-valued goal an individual can attain and be satisfied. Thus, MGL is the weakest reinforcement which would be followed by an increase in behavior potential.

Battle (1966) suggested that sometimes performance is more accurately predicted by a combination of Es and MGLs than by either variable alone. Individuals with high MGLs, but low Es might show little task persistence because of discouragement that they could achieve such high goals. Persistence might also be limited and, consequently, grades low for students with low MGLs. Battle (1966) viewed low standards as hindering performance and a combination of high MGLs and Es as facilitating performance. She contended that performance was hindered by a combination of high MGLs and low Es. Indeed, in her 1965 investigation, when MGL was greater than E, task persistence was lower than when MGL and E were approximately equal.

In a later study by Battle (1966), the relationship between students' MGLs for English and math grades and actual outcome (i.e., grades in these areas) was investigated. Generally, higher grades were earned by students with higher MGLs. Yet, this relationship was mainly determined by those students who obtained high grades.

In her 1966 study, when Es were for "above average" grades, higher MGLs were associated with better outcomes, a contrast to the situation in which MGLs were high, but in which Es were for "below average" grades and in which performance was poorer. The relationship between E and MGL was also important to prediction in Uhlinger and Stephens' (1960) investigation with college student subjects. They noted that, in the area of academic achievement, the more that Es exceeded MGLs, the better were the grades earned.

It should be noted that the research emphasizes the importance of the relative standing of E and MGL to each other in the prediction of academic outcome. Little seems to have been established about prediction exclusively from MGL.

Battle (1965) pointed out that accuracy of prediction from stated MGLs may be more limited than prediction based on E statements. She contended that a student may be quite vague as to how much work is necessary for him to achieve his MGL. He may receive much less feedback applicable to his MGL than to his E. Thus, he will have much less information to serve as the basis for his making adjustments in his MGL than in his E. Grades received on examinations and report cards serve as feedback by which Es can be adjusted. His MGL may be for a different grade than he expects. Grades he has earned may have always been either higher or lower than his MGL. Consequently, the student may be unaware of the quantity of work necessary to attain

his MGL. If, for example, a subject continuously received performance feedback while still engaging in a task in an experimental situation, it would make more sense to then examine the relationship between MGL and task persistence.

Lack of correspondence between MGL and task persistence could occur if the individual is trying to achieve at a higher level than his MGL. Such a relationship may also be limited if the MGL statement represents an individual's attempt to defend himself against public failure, his reluctance to admit to himself that he has or will fail, or his conformance to societal standards.

Such explanations may be found to apply when goal-setting is investigated. Much level of aspiration research indicated that subsequent to failure individuals generally set goals which were very low or very high (Atkinson, 1957; Cohen, 1954; Frank, 1941; Lewin et al., 1944; Mahone, 1960; Sears, 1941). There are investigators who view this as an ego-defensive action (Frank, 1941; Holt, 1946; Sears, 1941). Archibald (1974) explained this by saying that a person who sets extremely high standards may later be able to rationalize his failure by saying that he failed because his goals were higher than those of others. He actually is more likely to fail because his goals are so difficult to achieve. An individual who sets extremely low goals is more likely to achieve them because they are so low. It is often contended that those who expect to fail often exert less effort and may later rationalize their failure by saying that they did not

really try and could have succeeded had they done so (Archibald, 1974).

In general, there is evidence that predictive accuracy increases when both MGL and E are considered, rather than either variable alone. High MGLs have been shown to hinder performance when Es are low. The possibility of a student's receiving less feedback relevant to his MGL than to his E might point to a sometimes lower predictive utility of MGL than E. A strong positive relationship between MGL and task persistence is lacking at such times as those in which MGL statements merely serve an ego-defensive function.

Minimal goal certainty

The research points to a detrimental effect on performance when an individual does not expect to do well. The person who does not expect to be able to experience at least minimal satisfaction may engage in few goal-oriented behaviors. Consequently, the confidence he has that he will be able to achieve at least his minimal goal could be extremely important to behavioral prediction.

The subjective probability an individual holds for attaining his minimal goal is referred to as his minimal goal certainty (MGC). Battle (1965) proposed that a student who was extremely persistent would probably have a high MGC in addition to a high MGL. She contended that the individual's MGC, as well as his MGL, would influence task persistence. It was felt that the greater the MGC, the greater would be the task persistence. Battle (1965) did indeed

find a significant positive relationship between MGC and task persistence for her total group of subjects ($r = .42$, $p < .001$). She also noted that with a higher MGC, the E is less exceeded by the MGL. The greater the extent to which the MGL exceeds the E, the less the chance of attaining the MGL and the lower the task persistence. Support for this was provided by the results of Battle's (1965) study. The study demonstrated that under circumstances in which MGL was higher than E, the less the discrepancy, the greater the MGC. Children who believe that they can be at least minimally satisfied will probably be more strongly motivated to exert effort than children who are not certain of being able to attain any gratification.

Generally, performance is facilitated by high MGL. However, this is not true when E is low. With low expectation that he will succeed (low E), an individual's having a high MGL is unrealistic and hinders performance. In such a situation, MGC is low (Battle, 1965, 1966). In Battle's (1966) investigation, the relationship between MGC and performance was stronger for students with grades which were below average in math and English than for students whose grades were above average in these subjects. The greater the MGCs of the below-average students, the better their performances in comparison to the performances of the other students with below-average grades.

Overall, a positive relationship between MGC and task persistence has been found. MGC serves a motivational function, with an individual who is more certain that he is able to achieve at least minimal satisfaction showing greater task persistence. The relationship of MGC with MGL and E is also important. When an individual has a low E and an unrealistically high MGL, his MGC is low and so is his task persistence. Task persistence is greater when E is less exceeded by MGL and MGC is higher.

Locus of control

Locus of control is another expectational factor which may be related to outcome. The term locus of control (LOC) refers to an individual's perceptions of reinforcements as being due to his own efforts (internal locus) or being determined by external forces, such as destiny, luck, or other powerful people in his life (external locus). Extreme positions on the internal-external continuum are basically unrealistic (Rotter, 1966). People who hold unrealistic positions (extreme LOCs) may be less likely to accurately predict outcomes of their behavior than those who hold more moderate, realistic positions.

The need for achievement is a concept related to the construct of LOC (Rotter, 1966). Results of the work done mainly with adults by McClelland, Atkinson, Clark, and Lowell (1953) suggest that individuals with high need for achievement probably believe at least somewhat that their

outcomes are self-determined. Rotter and Mulry's (1965) study also provided evidence that internals have greater motivation in situations involving achievement.

Rotter (1966) contended that the relationship between achievement motivation and internality well might not be linear. An individual may not be equal on both dimensions. There may be internals who have a low need for achievement.

Although it is logical that internals would be more overtly achievement-oriented than externals, such is not always the case. College students and adults, especially males, may be defensive externals, individuals who initially were extremely competitive, but who adopted an external LOC to defend themselves against feelings of or the appearance of failure. They may even engage in achievement-oriented behavior when situations are both competitive and clearly structured. However, they attribute their failures to external forces. Such attribution of failure is rather defensive (Rotter, 1966).

In addition to defensive attribution, there may be a decline in performance after failure. Crary (1966) found that when subjects with high intellectual-esteem failed on intellectual tasks, as compared to a confederate's performance, they exhibited defensive behavior and also displayed a decrease in certain problem-solving skills.

Research by Phares, Wilson, and Klyver (1971) demonstrated that subsequent to failure, individuals with an

external LOC tended more than internals to blame others and to decrease the RV of the reinforcement they did not receive.

According to Lahaderne (1967), students who are experiencing dissatisfaction with school may deny responsibility for outcomes. They may project this responsibility onto other people and other sources. Such a projection may be a reflection of perceived powerlessness. Seeman (1959) contended that this type of alienation is present when a person experiences no sense of internal control over his life, when he does not feel that he can achieve the results he wants through his own actions.

Merton (1946) contended that a person's believing in luck serves the defensive function of helping him to maintain his self-esteem in failure situations. Merton also considered such a belief to encourage passivity and decreased effort and persistence.

There is much evidence that LOC is predictive of achievement as assessed by achievement test scores and grades (Crandall, Katkovsky, & Crandall, 1965; Crandall, Katkovsky, & Preston, 1962; McGhee & Crandall, 1968). In Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, and York's (1966) large scale research project (i.e., The Coleman Report), internality of United States school children was a significant predictor of academic achievement. Chance (1972) found that children's internality for intellectual achievement, as measured by the Crandall Children's Achievement Responsibility Questionnaire (known as the Intellectual

Achievement Responsibility Scale) was positively related to achievement test scores. She pointed out that future achievement-oriented behavior, such as goal-setting and studying, will vary depending upon the LOC an individual has.

An individual's views on achievement and his ability to cope with failure and to perform can be influenced. For Dweck's (1975) experiment, school personnel classified twelve 8-to-13-year-olds as exhibiting learned helplessness, as overreacting to failure. Subjects were exposed either to a procedure in which they were exclusively successful or to one in which they were taught to cope more effectively with failure, becoming aware that they were responsible for the failure and that it resulted from limited effort on their parts. The students trained with the latter procedure increasingly perceived lack of effort, instead of low ability, as causing the failure. Their performances also improved or at least stayed the same, in contrast to the lowered performances of the other students when later experiencing failure.

It is quite possible that individuals with moderate LOC positions more accurately predict their outcomes. Although the need for achievement is related to the construct of LOC, there is not necessarily a linear relationship between internality and achievement motivation. Some people who may have once been quite competitive may espouse external LOC positions in order to defend against the feelings or

appearance of failure. These people blame external forces for their failure. Still, according to The Coleman Report, internality is a significant predictor of academic achievement. It should be noted that students can be taught to accept responsibility for their academic failures, a lesson with perhaps positive academic results.

Locus of control and expectation

Performance is sometimes most improved when there is a combination of internal LOC and high E. In the investigation of Mathis and James (1972), subjects were 60 male college students taking a reading improvement course. The most improvement for students with internal LOCs was achieved when their Es were high. It should also be noted that subjects with external LOCs performed poorly.

It may also be that Es influence perceptions of the determinants of outcome, including an individual's tendency to attribute results to himself. In Feather and Simon's (1971) experiment, an anagram test was administered to 85 male high school students. It was arranged that, prior to the test administration, half of the subjects performed well on practice anagrams and half performed poorly. The former group was classified as having high Es and the latter as having low Es. Ability, or the lack thereof, was later perceived as more of a determinant than luck in expected success or failure than in unexpected success or failure. With success, effort and task difficulty were more likely to be considered as determinants than with failure.

In Feather and Simon's (1972) study, college freshmen stated degree of E that they would pass their first examination in an introductory psychology class prior to taking the examination. Post examination, they made performance ratings and ratings of effort, difficulty, ability, and luck as determinants of outcome. After learning their actual grades, they again rated causal factors. Bad or good luck was seen as a determinant of unexpected actual grades, but not of grades estimated post examination. There was a positive relationship between pre-examination Es and actual outcomes.

In another investigation by Simon and Feather (1973), prior to taking an examination, college students made self-ratings of E, ability, difficulty of task, and preparation. Post examination, the students rated as causes of outcome: ability, difficulty of task, preparation, and luck. Data analysis indicated that ratings of E were most influenced by preparation and next most influenced by ability. Students tended to perceive outcomes consistent with their Es as being caused by preparation and outcomes inconsistent with their Es as being caused by bad or good luck.

Dweck and Reppucci (1973) investigated the effects of the variables of low E and external LOC specific to academic achievement situations. LOC was assessed by the Intellectual Achievement Responsibility Scale prior to the experiment. In the pretest phase, one adult experimenter administered to the 40 fifth grade subjects solvable block designs, similar to those on the Wechsler Intelligence Scale

for Children, and a different experimenter administered unsolvable block designs to them. It was possible to solve all the problems presented in the test portion of the experiment. However, many of the students did not complete problems which they were administered by the experimenter under whom they had previously failed. Yet, they still solved the problems under the experimenter who was associated with prior success. Students who felt least personally responsible for their performances and who attributed outcomes to ability instead of effort had the most decline in performance. Effort was viewed as a more important determinant of outcome by those who persisted, in spite of failure experiences.

It has been demonstrated that performance may improve most with a combination of internal LOC and high E. Es may influence the perceptions of the determinants of outcome, including the tendency to make self-attributions. Expected outcomes are more often considered self-determined and unexpected outcomes more frequently attributed to good or bad luck. Performance is better for those who feel personally responsible for outcomes.

Summary of theoretical background

Thus, the theoretical basis of this project has been discussed, in addition to some related research. In summary of Rotter's (1954) theoretical position, with slight modification by Battle (1965, 1966), the potential of a given

behavior or set of behaviors in a particular situation (BP) is a function of two main variables--(1) the subjective probability of success (E), including the expectation of a specific outcome, the expectation of obtaining the minimum acceptable reinforcement (MGC), and the expectation (LOC) of how reinforcements are determined by internal and/or external forces, and (2) the subjective importance of the reinforcement (RV) and the minimum acceptable reinforcement (MGL).

Expectation and ability

The motivational variable, E, is the social learning theory construct most emphasized in this project. It has long been known that ability is a major determinant of academic outcome. The part which motivational variables contribute to such outcome is much less known, thus remaining an open and important area of investigation. Since intelligence, as reflected by IQ scores, has already been established as a significant predictor of academic success, motivational factors need to improve such prediction over and above that made by intelligence (Battle, 1966).

For the experimental subject, ability has been considered to be necessary for task persistence (Kremer, 1942; Nelson, 1931; Rethlingshafer, 1942; Ryans, 1939; Thornton, 1941). Data indicated a low relationship between task persistence and intelligence. Yet, an individual's ability self-assessment was more predictive of persistence

(Thornton, 1939). In Battle's (1965) study, IQ and task persistence were not even significantly related. The child's task persistence was considered to be dependent on his E. In Battle's (1966) study, performances of students with low Es and above average intelligence were inferior to those of students with high Es and below average intelligence ($t=2.12$, $p < .05$). Battle considered this proof that Es, as compared with intelligence, are the more potent performance determinant.

Other researchers have considered the relationship between outcome and the combination of E and ability. In investigating the effect of Es on academic performance in college students of both low and high ability, Schmitt and Reeves (1975) found a significant interaction of E, ability, and test period and a significant main effect for ability. High ability students with high Es had slight increases in performance in all test periods. Es and ability were perceived as having an additive effect on performance.

Battle (1965) considered a child's E of academic outcome to be the child's assessment of his own ability. The grades which the child expects are a determinant of his confidence that he can achieve minimal, and possibly even maximal, gratification.

Rotter et al. (1972) noted that correlations between Es and academic performance are frequently much like those between IQ and academic performance. They pointed out that stated Es are such accurate predictors partially because

they tend to be based upon a person's history of reinforcement. They indicated that the Es would probably be most predictive when the individual who stated them had been successful--either by attaining societal goals or his own MGL.

It has long been known that ability is a major determinant of academic outcome. Correlations between Es and academic performance are much like those between ability and academic performance. Some research has suggested that Es are more of an influence on task persistence than is intelligence. Also, Es and ability have been considered to have an additive effect on task persistence.

Motivational function of expectation

Crandall and McGhee (1968) have discussed the motivational function of Es. They noted that an individual's confidence that he can perform the task in question well might facilitate the intellectual processes involved in good task performance. They stated that low Es might interfere with effective intellectual functioning, thus resulting in poor performance, particularly in public or stressful situations.

Both Battle (1965) and Feather (1966) provided evidence that the performances of those with low Es were inferior to those of individuals with high Es. Lenney (1977) pointed out that this had important implications for those who underestimated their own ability and performance. Lenney

contended that lowered initiative may be a consequence of low Es, as well as poor performance resulting from low Es. Support for her contention is provided by Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum's (1971) research, in which persons with low Es avoided achievement activities, chose easier tasks, and were more easily discouraged by failure than those with high Es.

Yet, students may tend to overestimate course grades (Murstein, 1965; Pervin, 1966; Pickup & Anthony, 1968). For example, in Murstein's (1965) research, subjects predicted their grades both early in the term and shortly before the final examination. Subjects were from four educational psychology classes. In addition to stating his E, each student also indicated what grade he believed he really deserved. Actual grades were obtained. Chi square analyses were performed separately on the data from the whole group and from subjects with grades of A or B (high subjects) and subjects with grades of C or lower (low subjects). Es and grades indicated deserved by high subjects were realistic in comparison with actual grades. In contrast, low subjects tended to have unrealistic Es both early and later in the term. The majority of the low students indicated that they thought they deserved a B on the course.

Still, even inaccurate statements of Es are predictive of academic outcome because they say something about the individual's approach behaviors toward the goal. They give information about how persistent he will be (Rotter et al.,

1972). In Feather's (1963) research, college students whose Es were initially high had greater task persistence on a difficult problem of perceptual reasoning than did those whose Es were initially low. In Mitchell and Nebeker's (1973) study, data from rating scales filled out by 60 male college students indicated that there was a relationship between academic effort and Es of achieving highly valued outcomes.

In summary, an individual's confidence that he can perform the task in question might facilitate the intellectual processes involved in good task performance. There is evidence that low Es result in poor performance. Empirical support has been provided for the contention that those who underestimate their own ability and performance have lowered initiative, in addition to poor performance. It has been demonstrated that students with low grades have unrealistically high Es of grades, in contrast to the realistic Es of students with high grades. Yet, even unrealistic Es say something about outcome because they tell of goal-oriented approach behaviors.

Motivational variables and task persistence

Battle (1965) investigated the persistence of 74 junior high school student subjects of both sexes on a difficult math problem. The major predictor variables were E, MGL, and attainment value. MGC, social class, "inner-other direction," and the difference between E and MGL were also

independent variables. MGL, attainment value, IQ, and social desirability were not significantly related to persistence. There was a positive association between social class and persistence of males. Greater task persistence was exhibited by students categorized as "inner-directed" than by those who were "other-directed." E, MGC, and the difference between E and MGL were positively associated with task persistence.

Crandall and McGhee (1968), operating under the assumption that academic success has a high RV for most pupils, proposed that the student with a high E will exert more goal-oriented intellectual effort than the student with a low E. An individual who places a high RV on academic success, but has a low E of goal attainment may well consider it futile to engage in goal-oriented approach behaviors. Consequently, the person with a low E will exhibit fewer approach behaviors than one with a high E. Those individuals who do engage in more approach behaviors, such as frequent and concentrated studying, will probably learn more and develop better problem-solving skills.

Crandall and McGhee's (1968) assumption of a high RV for most students is perhaps inaccurate. Only by assessing the RVs of the subjects in question can the magnitude of the RVs be determined.

As noted, research indicates a positive association between task persistence and some of the motivational

variables, considered singly or sometimes as the discrepancy between two motivational variables, such as E and MGL. The possession of high levels of motivational variables is perceived as being reflective of an individual's goal-oriented approach behaviors.

Expectations and academic outcome

There is evidence of a positive relationship between Es and academic outcome (Adelman, 1969; Gregg, 1972; Parsons & Ruble, 1972; Wlodkowski, 1973). Even expecting to be tested may positively influence academic outcome. Data from Reynolds' (1968) research suggested that students expecting to be tested on analytical concepts performed better than those expecting only to transmit such concepts either to a peer or to a six-year-old boy.

Research by Binder, Jones, and Strowig (1970) indicated that adding the variable of student Es to multiple regression equations helped the equations to account for a greater proportion of the variance in academic achievement of samples of twelfth graders than was explained without this variable.

The experimental work which has been done in the area of expectations and their relationship to outcome of academic behavior is well represented by the research of Crandall and McGhee (1968). In their article, Crandall and McGhee (1968) presented findings of five studies which they had done on Es of reinforcement and academic performance.

In all these studies, Es were significantly related to academic performance. These studies were originally meant to investigate other issues and were run at various different times. These different foci might be a criticism of the studies.

Not all of the tasks in the five studies were of a strictly academic nature. Samples and tasks were chosen according to each study's focus. Grades were obtained for the term during which the experiment took place and the following term for subjects in four out of the five samples. Three out of the five schools from which samples were drawn also furnished subjects' achievement test scores. The achievement test scores which were considered in the data analysis were from tests given within six months of the time at which Es were measured. It was predicted that Es would be positively associated with grades and/or achievement test scores. This prediction was based on the assumptions that previous grades are a determinant of Es and that Es are a motivational determinant of goal-oriented approach behaviors.

In Crandall and McGhee's (1968) five studies, statements of Es were positively associated with all of the academic performance measures considered. Correlations achieved significance at equal to or better than the .05 level and varied from .26 to .64. Crandall and McGhee (1968) also pointed out that Battle's (1966) investigation was done from the same laboratory as their studies. The highest correlation between grades and Es was from Battle's (1966) study.

In all of the studies in question, the hypothesized relationship of higher Es with academic success was confirmed for both sexes. The hypothesized relationship between Es and academic competence was based on two processes: Es' being determined at least in part by history of grades and Es' motivationally determining at least in part goal-oriented approach behaviors. It was noted that Es became increasingly more predictive as reinforcement similarity increased between the criterion measures and those reinforcements upon which the stated Es were based. They also noted that they were not able to say what proportion of the results was attributable to Es as determined by history of grades and what proportion to Es as motivationally determining goal-oriented approach behavior. They proposed that both of these processes contributed to the resulting relationships and that the extent of the contribution of each process varied among the different studies.

There is significant research on the relationship between Es and academic outcome. It has been demonstrated that even expecting to be tested has a positive influence on academic outcome. The addition of Es to multiple regression equations helps to account for an increased proportion of the variance in academic achievement. There is evidence that Es relate to a variety of academic performance measures, such as grades and achievement test scores. It has been contended that Es are related to academic success because of Es' being at least partially based on history of grades and

because of Es' motivational function. Increased predictive accuracy follows increased reinforcement similarity between criterion measures and those reinforcements upon which statements of E were based.

Motivational variables and underachievement

The study done by Todd et al. (1962) was an investigation of nonintellectual variables in underachievement. The study was limited to bright underachievers and bright normal achievers. It was assumed that underachievement was probably a result of the interaction of intelligence and other factors. There were 244 college student subjects, 67 of whom were underachievers and 177 of whom were normal achievers. Underachievers were compared with bright normal achievers with regards to four variables related to social learning theory. The four variables in question were E of academic success, the expectation that doing particular academic work would result in goal attainment, the possession of long-term goals, and need for affection versus need for recognition. It was hypothesized that underachievers would have lower academic Es and a lower academic achievement need, that they would probably not have already-formed vocational goals, and that they would probably consider coursework to be less related to goal attainment than would normal achievers. The various hypotheses received differing degrees of support. Still, results did to an extent separate underachievers from normal achievers on the four variables of E for success, goals, needs, and the expectation that specific

behavior would result in the attainment of particular goals. One of the findings most relevant to this project was that students with higher academic Es were more often normal achievers rather than underachievers.

Uhlinger and Stephens (1960) investigated both underachievement and theory and assessment of achievement motivation. Their study investigated the relationship between academic achievement and achievement motivation. Seventy-two Special Merit Scholarship freshmen served as subjects. They were considered to be basically homogeneous in aptitude, socioeconomic status, and history of achievement. The composition of the sample was predominately male freshman engineering students. Student subjects stated their Es of grade point average and their MGLs. In general, high achieving students had higher academic Es and higher MGLs for grades than did their low achieving counterparts. Consequently, both of the statements were good predictors of academic achievement. Therefore, the variable of E is significant in motivational theory. MGL was considered by Uhlinger and Stephens to be more important to academic success than need value for achievement.

Higher Es for academic outcome were found for normal achievers than for underachievers. Research has further indicated that MGLs, as well as Es, were higher for high achievers than for low achievers and, consequently, were predictive of academic success.

Motivational variables and academic outcome

Battle (1966) pointed out that academic outcome might be more efficiently predicted by a combination of variables from social learning theory. She backed up this contention by results from her 1965 study which indicated that persistence was low among children with higher MGLs than Es. These children felt satisfied only with much task success, but expected to perform poorly. Consequently, they quickly stopped trying to attain a goal which they did not even expect to be able to attain. On the other hand, students with high Es and MGLs, the attainment of which would be in line with their Es, felt that achievement of their goals was a good probability and persisted longer to achieve what they felt was within their reach. Thus, it seems that looking at discrepancies and combinations of this type might serve as a valuable addition to prediction, along with the consideration of variables separately.

One of the most relevant studies is the investigation by Battle (1966). The theoretical basis for the investigation was a modified version of Rotter's (1954) social learning theory. The main objective of Battle's (1966) study was to investigate the predictive efficiency of the motivational variables (expectations, attainment values, and standards) in the prediction of academic outcome. Results of Battle's (1966) study indicated that it is possible to describe children's attitudes about their academic achievement and to

effectively predict their academic outcome with variables such as expectations, standards, and values.

In Battle's (1966) study, prediction was made for the course grades of junior high school student subjects in English and math. E, relative and absolute attainment values, MGL, and MGC were the major independent variables. Separate measures of each of these variables were made for English and math. Also considered were the variables of sex, social desirability, IQ, and the difference between E and MGL. There were positive relationships found between academic outcome and each of the major independent variables. The relationship between E and MGL also seemed to influence outcome. Academic performance was facilitated when both were high and was interfered with when E was low, even though MGL was high. Prediction of academic outcome was increased over that which was accounted for by IQ by all of the motivational variables, except for the relative value of doing well in English. Data from Battle's (1966) study with junior high school subjects resulted in correlation coefficients of from .74 to .85 for the relationship between Es for English and math grades and actual grades in these courses. Es were more predictive of grades than IQ. Males and females differed in their attitudes toward English, but not toward math. There were no differences in efficiency of prediction of academic performance for males and females by the motivational variables. Social desirability did not influence attitudes or performance.

For efficient prediction of academic performance for children who earned good grades, consideration of Es, attainment values, and MGLs was more applicable. Predictive efficiency was increased more for the poor academic performer when MGC was considered. This speaks to the importance to the low achiever of feeling confident that he can at least attain his minimal goals and achieve some satisfaction (Battle, 1966).

In general, not only E, but also other motivational variables have been shown to be related to academic outcome. Discrepancies between and combinations of motivational variables have been shown to aid in prediction. It was found, for example, that the levels of MGL and E were important relative to each other, and not just when considered separately.

Hypotheses

This project was a combination of a study and an experiment which investigated both--

1. the relationship between E of outcome and actual outcome, and

2. the effect on the actual outcome of the intervention designed to change E of outcome.

The major focus of this project was the E of outcome and its relationship to the actual outcome. In the first part of the investigation, the specific aim was to determine the correlation between these two factors--E of outcome and

the actual outcome, while controlling for intelligence. In the second phase of this investigation, the specific aim was to determine the effect of E on the actual outcome by intervening to raise E.

In the first part of the investigation, two classes of undergraduate students were given a packet of questionnaires. Included in these questionnaires were measures of the student's E of his grade on the final examination, the RV of this grade, his MGL, and his MGC. Students who volunteered for the part of the experiment outside of class were administered the Satz-Mogel short form of the Wechsler Adult Intelligence Scale (the S-M WAIS) and then--to the experimental and control group subjects--a bogus test which was described as an interest test. The grade on the final examination was obtained from the instructor. The relationship between E and outcome was statistically investigated.

In the experimental part of this project, after the administration of the S-M WAIS, there was an intervention which was designed to raise the subject's E of outcome (final examination grade). After the intervention, the same packet of questionnaires was given again. There was a control group which was given both packets of questionnaires, the S-M WAIS, and the bogus test, but which had a neutral interview unrelated to expectations.

For the experimental part of the project, the difference in the results of the two questionnaire administrations and the difference in results on the second questionnaire

between the experimental and control groups was investigated to determine whether the intervention actually raised Es. The purpose of the intervention was to raise E and to investigate the possibility of there being a causal relationship between E and the actual outcome.

The theoretical basis of both parts of this study is found in Rotter's (1954) social learning theory. The formula which he presents,

$$BP = f(E \ \& \ RV)$$

can be applied to both phases of this investigation. Drawn from this formula, the major hypothesis for the first part of the investigation was:

> Expectations of outcome are related to the actual outcome.

The central hypothesis for the experimental part of the project--also drawn from Rotter's formula--was:

> Expectations of outcome are a major determinant of the actual outcome.

From these hypotheses, Rotter's (1954) social learning theory, and Battle's (1966) work, the following predictions were made:

Predictions for the First Part of the Project

1. Subjects' Es of their final examination grades are correlated with the actual grades when IQ is partialed out.

2. When subjects' IQs are controlled for, a combination of high Es, RVs, MGLs, MGCs, and moderate LOCs is associated with high final examination grades.

3. With subjects' IQs controlled for, a combination of low Es, RVs, MGLs, MGCs, and extreme LOCs is associated with low final examination scores.

4. When subjects' IQs are adjusted for and there is a combination of extreme LOCs, low Es, and low MGCs, with high RVs and high MGLs, final examination grades are poor.

5. With IQs controlled for, the Es of final examination grades and actual final examination grades are more strongly related for subjects who have a moderate LOC than for subjects whose LOC is either extremely internal or extremely external.

Predictions for the Experimental Part of the Investigation

1. Es of their final examination grades for subjects in the experimental group are higher than for those in the control group.

2. The final examination grades for subjects exposed to interventions are higher than for those in the control group, after adjusting for IQ.

CHAPTER II
METHOD

Design

First Part of the Project

The primary independent variables were E of the final examination grade, RV, MGL, MGC, and LOC. Another independent variable was IQ. The major dependent variable was the final examination grade. The actual number grade on the final examination was obtained for each subject.

The first part of the present study used a partial correlation between Es and final examination grades to test the first prediction. Intelligence, as reflected in the IQ scores on the Satz-Mogel short form WAIS, was the variable which was partialed out. A multiple regression model was used to test the second, third, and fourth predictions. For the fifth prediction, the two partial correlations (between Es of final examination grades and the actual scores) for the two groups (moderates versus extremes in LOC) were compared.

Experimental Part of the Project

For the experimental part of this project, the independent variable was the experimental manipulation--either a neutral interview (for the control group subjects) or an expectations-raising intervention (for the experimental

subjects). To test whether the Es for subjects in the experimental group were higher than for those in the control group, an analysis of covariance was performed on the results of the second questionnaire, using the scores on the first questionnaire as the covariate. To test the second prediction for this part of the project, an analysis of covariance was performed, using IQ as the covariate.

Subjects

Two University of Florida undergraduate psychology classes were chosen as the source of subjects. Participation in the project was one means of fulfilling a course requirement. From the two classes combined, 27 females and 48 males participated in the experiment. Their ages ranged from 18 to 41, with a mean age of 20.2 years. Twenty of the subjects were in the AB group, which was composed of students each with a combined average of A or B from the midterm examinations. Fifty-five students from the lower portion of the classes--as determined by their scores on the midterms--participated in the experimental part of the project. Twenty-seven of these 55 students constituted the control group and the other 28 the experimental group in the experimental part of the project.

By using two classes, instead of one, data from a much larger number of subjects were available. It was felt that the larger N was needed to be adequate for purposes of data analysis. It is also possible that the use of both

classes provided a subject sample more representative of college students, at least at the University of Florida.

The distributions of combined midterm grades in each of the classes separately and in both of them together are shown in Table 1. In one of the classes, the mean of the combined midterm grades was 147 and in the other, the mean was 152. There was not a statistically significant difference between these means ($t = 1.20$, $.10 < p < .50$). As can be seen in Table 1, 73 percent of the subjects in the project had a score of C or lower on the first and second midterm examinations.

The distributions of ages in each class separately and in both together are shown in Table 2. The mean age of subjects in one of the classes was 19.9 years and 20.5 years in the other. These means were not significantly different ($t = 1.66$, $.10 < p < .50$).

Table 1

Distributions of Combined Midterm Grades in Each Class Separately and in Both Classes Together

	Grades of Subjects														
		A		B		AB		C		D		E		C and Below	
	N	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Class 1	35	1	3	7	20	8	23	17	49	8	22	2	6	27	77
Class 2	40	3	7.5	9	22.5	12	30	17	42.5	11	27.5	0	0	28	70
Classes Together	75	4	5	16	21	20	27	34	45	19	25	2	3	55	73

Table 2

Distributions of Ages in Each Class Separately and in Both Classes Together

	Class 1 Subjects		Class 2 Subjects		Classes Together Subjects	
Age	N	%	N	%	N	%
18	11	31	7	17.5	18	24
19	11	31	12	30	23	31
20	4	11	12	30	16	21
21	2	6	4	10	6	8
22	1	3	1	2.5	2	3
23	2	6	1	2.5	3	4
24	2	6	0	0	2	3
25	1	3	0	0	1	1
26	1	3	0	0	1	1
27	0	0	1	2.5	1	1
28	0	0	1	2.5	1	1
41	0	0	1	2.5	1	1

Experimenters

There were two female experimenters for this project. One was a female undergraduate student at the University of Florida who administered a set of questionnaires to the subjects on two occasions. The author was the principal investigator. She administered a Satz-Mogel short form of the WAIS and a bogus test to each of the subjects in the experimental part of the project and the intelligence test only to the subjects in the first part of the project. The principal experimenter also had an interview, following the administration of the S-M WAIS and the bogus test, with each of the subjects in the second part of the project and also with those who took the intelligence test and were in the first part of the investigation only. She went to the final examinations to debrief the subjects.

Materials

An experimental laboratory room was the main site of the experiment. In the room there was a table with two chairs facing each other. This room was the setting for the administration of the S-M WAIS and the bogus test and for the interviews with the subjects. The only other places to be used were the classrooms, in which sets of questionnaires were administered.

The set of questionnaires consisted of four separate questionnaires on subject's expectations (including E of

final examination grade and also LOC), authoritarianism (which was a buffer topic), values (including RV, MGL, and, for convenience, the expectation, MGC), and personal data. (See Appendices I-IV). The instruments used to measure E, RV, MGL, and MGC were devised specifically for this experiment, but were quite similar to those used in Battle's (1965, 1966) research. Battle (1965, 1966) gave no reliability or validity information for these devices. However, both the instruments used in her studies and those employed for this project may be said at least to have face validity.

As for the use of Swanson's (1970a) 12-item LOC instrument, administration of the measurement device was much less time-consuming than would administration have been of Rotter, Seeman, and Liverant's (1962) 23-item measure of internal-external control (i.e., the I-E measure). Swanson's (1970a) 12-item measure can be said to have approximately the same validity and even greater reliability than Rotter's device. Using Rotter's (1966) data, Swanson (1970b) computed for Rotter's scale an estimate of .04 for Scott's Homogeneity Ratio, an index of interitem consistency. Swanson (1970b) attributed the low internal consistency of Rotter's device partially to the forced-choice format, to the mixed referents--some items referring to the third person and others to the first person, and to Rotter's external control only through chance and not by powerful external forces. For example, Swanson (1970a) criticized Rotter's I-E measure because of its forced-choice format, which

forced subjects to choose either an internal or external response to each item. According to Swanson, it is possible that both responses to an item are unacceptable and that forcing a subject to choose one of these might alienate the subject. He also noted that general control, with its third person referent, is somewhat less powerful a variable than personal control, with its first person referent. Swanson (1970a) concluded that Rotter's I-E device was as valid as his LOC measure with its single frame of reference, in his prison population. Swanson (1970a) found systematic external control to be a more powerful variable than chance external control, though he believed that such a finding might be attributable to the prison composition of his subject sample.

As for reliability, in his 1970a dissertation project, Swanson used Scott's Homogeneity Ratio and Cronbach's Alpha, two reliability statistics sensitive to internal consistency. Swanson's (1970a) data yielded a Homogeneity Ratio of .24 and an Alpha of .79 for his 12-item LOC device. Swanson also administered Rotter's I-E measure to the same subjects and obtained a Homogeneity Ratio of .11 and an Alpha of .73. These were lower reliability figures than obtained with his own measure, though the Homogeneity Ratio was higher than the one he computed on Rotter's (1966) data. Swanson's (1970a) results indicated that the internal consistency of his LOC device was superior to that of Rotter's I-E measure. In his 1973 project, Swanson reported a

Homogeneity Ratio of .17 and an Alpha of .71 for his 12-item LOC scale.

As for validity, in his dissertation project, Swanson (1970a) explored the predictive validity, the extent to which one variable correlates with related variables--in the case of his project, the correlations between his LOC measure and various personality and behavior variables. There were four types of personality measures, attitude scales. In addition to investigating the predictive validities across various personality measures, Swanson (1970a) also looked at predictive validities of his 12-item LOC device, along with other assessment tools, across three behavioral measures: deviant, avoidant, and self-improvement behavior. The inclusion of the many behavioral and personality variables was aimed at determining the relative validity and usefulness of each LOC measure considered in Swanson's (1970a) project. In Swanson's (1970a) examination of the predictive validity of various LOC scales, including the 12-item LOC scale in the present work, he found that for 80% of the personality and behavioral criteria, there was higher predictive validity for the LOC subscales than for Rotter's I-E device. Yet, the differences in the extent of predictive validity were not significant statistically.

Swanson (1970a) concluded that the results of the validity study for his dissertation project were mixed. In a comparison of the results of his self-report LOC measures administered to an inmate prison sample with staff LOC

ratings, Rotter's I-E device was found to be the most valid scale. Yet, the predictive validity of Swanson's (1970a) LOC measure for most of the dependent variables was slightly greater than was that of Rotter's I-E instrument. In terms of validity, Swanson's LOC measure was basically a more effective predictor than was Rotter's I-E device. However, though correlations between Swanson's LOC device and the dependent variables were usually higher than those between the dependent variables and Rotter's I-E instrument, this finding was not statistically significant, thus only indicating a tendency. Consequently, Swanson (1970a) concluded that the prediction of various dependent variables by his LOC measure was comparable to that by Rotter's I-E device.

The device used to measure intelligence was the Satz-Mogel (1962) short form of the Wechsler Adult Intelligence Scale (S-M WAIS). The S-M WAIS has been proven to be both a reliable and valid instrument. Satz and Mogel (1962) devised an abbreviated form of the WAIS, using all subtests, but eliminating approximately 54% of the items. Correlations of the subtests and scales of the full WAIS with those of the S-M short form of the WAIS were significant ($p < .001$). The correlations were .99 with Verbal IQ, .97 with Performance IQ, and .99 with Full Scale IQ. Correlations were high, even considering varying diagnostic classifications and intellectual levels.

In 1963, Mogel and Satz conducted a study to further validate their short form of the WAIS. Instead of rescoring

full WAIS protocols by short form instructions, as had been done in the 1962 study, their short form of the WAIS was actually administered. Test-retest correlations of the experimental group subjects, who were readministered the short forms, were superior to those of the control group subjects, who were readministered the standard WAIS (Verbal IQ correlation of .98 vs. .90; Performance IQ correlation of .93 vs. .84; Full Scale IQ correlation of .97 vs. .93).

Burns, Elias, Hitchcock, and St. Germain (Note 1) validated the S-M WAIS for use with hospitalized geriatric-psychiatric patients. The score distributions of the standard and short forms had statistically equivalent means and standard deviations. The researchers pointed to test-retest score reliability for the standard and short forms, with a lower short form correlation for only one subtest and only a slight tendency to larger test-retest difference score variances for the short form. The loss in predictive efficiency for subtest scores was considered to have been compensated for by the advantages of having scores on all the subtests, in contrast to other short forms, and of the reduction to one-half the administration time.

The bogus test, which was administered following the S-M WAIS to each subject participating in the second part of the experiment, was described as an interest test. (This test is in Appendix V.)

For the first part of the project, subjects in the AB group were given a five-minute interview after the

administration of the S-M WAIS. (This format is given in Appendix VI.) There were two formats for the sessions with subjects in the experimental part of the investigation. (These formats are given in Appendices VII and VIII.)

Procedure

Two introductory undergraduate psychology classes were selected as the source of subjects. The instructors were consulted and gave permission for a set of questionnaires to be administered to subjects in class twice during the latter part of the quarter. The instructors were not informed as to the hypotheses or the area under investigation.

Several days after the return of the graded, second midterm examinations, the set of questionnaires was administered to the classes by the undergraduate experimenter. She said to the classes,

> This is an experiment for which those who participate will earn one-half hour of experimental credit. The set of papers you will get includes an informed consent form and four questionnaires. The experiment consists of filling out these questionnaires today and an additional packet of questionnaires during the last week of the quarter, both during class time. The purpose of the investigation is to look at attitudes of students at different times during the quarter. If you wish to participate, please fill out and sign the consent form, which is the first sheet, and have a person near you sign as a witness. Put your name beside "Subject's Name" and your address on the next line on the consent form. Please fill out these questionnaires completely, and print your name on each page. No credit will be given for questionnaires which are not completely filled out. You must fill out this set and the set later in the quarter to get any credit. Neither your instructors nor

> anyone else associated with the teaching or grading of this course will obtain <u>any</u> information at all from these questionnaires. You will have 15 minutes to complete the questionnaires. I will then come around and pick them up.

The experimenter then handed out the packets of questionnaires and consent forms and 15 minutes later collected them.

In order to obtain a higher percentage of the classes as subjects, the experimenter returned to the class the next day and announced,

> Anyone who missed yesterday's class and did not get a chance to participate in the experiment by filling out the questionnaires, please stay after class. It will take about 15 minutes. The experiment consists of filling out questionnaires now and later in the quarter and will be worth one-half hour of experimental credit.

The experimenter told the group which remained after class, "If any of you filled out these questionnaires yesterday, please leave. The second set of questionnaires will be given during the last week of classes."

Then the experimenter repeated the same speech which she gave to the whole class the day before, with the exception that she inserted the phrase, "the latter one," instead of the word, "both," in the phrase, "both during class time." At the end of 15 minutes, she collected the questionnaires.

The principal investigator went to the classes two days after the make-up questionnaire session and said to the classes,

> I am a graduate student in psychology and am running an experiment for which I need subjects. The experiment consists of a session

> with me which includes answering oral and written questions and having a short discussion afterwards. In all, the experiment will take between one and one- and-one-half hours. For participating, you will receive one- and-one-half hours of experimental credit. I'll pass around this sign-up sheet, and if you want to participate in the experiment, please print your name next to the time and date that you can come. Remember to make a note of the room number and the time and date that you've signed up for.

She then passed the sign-up sheet around the class and picked it up when everyone who wished to do so had had a chance to sign up.

The next time the classes met, the principal experimenter gave the same speech as above. She added to the end of it, "If you have already signed up for this experiment, please do not sign up again."

She obtained a record of the scores of each student on the first and second midterms. Each midterm counted 100 points, and letter grades were assigned as follows: 90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, 59 or less = E. Those students who had a total from the first two midterms of 159 points or less constituted the population from which the experimental and control groups were selected for the experimental part of the project.

Those students who signed up for the session which was conducted outside of class were divided into three groups--those students with total points from the two midterms above the cutoff point (the AB group), those students with a score at or below the cutoff point who served as controls (the control group), and those students with a score

at or below the cutoff point who participated in the intervention (the experimental group).

The principal experimenter met the subject at the agreed upon time in the experimental laboratory room. She explained to the subject that the experiment involved answering verbal and written questions which constituted an intelligence test (and an interest test--to those in the experimental part of the project) and participating in an interview after the test(s). In addition, the subject was told that there was no shock, threat, or pain involved in the experiment and then signed an informed consent form.

The principal experimenter was seated at the table across from the subject, who was also seated. The Satz-Mogel short form of the WAIS was then administered in a period of approximately 45 minutes. As soon as the S-M WAIS administration was completed, the principal experimenter opened a folded, stapled piece of paper with the subject's name on the outside and the group to which he had been assigned on the inside.

The undergraduate experimenter, prior to the session, had randomly assigned subjects with scores at or below the cutoff point to either the control or the experimental group and had assigned those with scores above the cutoff point to the AB group. After learning to which group the subject belonged, the principal experimenter proceeded accordingly.

If the subject belonged to the AB group, she conducted a short interview of approximately five minutes

covering topics listed in Appendix VI. For subjects in the experimental part of the project (i.e., both those in the experimental and control groups), a bogus test was administered subsequent to the S-M WAIS. This test was described as an interest test (and can be found in Appendix V). After the administration of the bogus interest test, the principal experimenter took the subject's questionnaire, held it in her lap, where the subject could not see it very well, and pretended to score it with a (bogus) scoring key. For those subjects in the control group, there was a 20-minute interview which covered topics in Appendix VII. The experimental group subjects had a 20-minute interview and discussion session (intervention) with her. (See Appendix VIII for the format of this session.) During all the interviews, she took notes on the subjects' responses to the questions. Each subject, in all three groups, was asked not to discuss anything about the session with anyone.

At the beginning of the final week of classes, the undergraduate experimenter returned to the classroom in order to administer the set of questionnaires again. She said to the class,

> This is the second half of the experiment which many of you participated in three weeks ago. If you did not fill out the questionnaires then, do not fill out these today. If you are not sure, I have a list of those who participated in the first half of the experiment. Please print your name on each page, and fill out the questionnaires completely. This experiment, as you were told before, is worth one-half hour of experimental credit. No credit will be given for incomplete questionnaires or for participating

> in just one part of the experiment. You will have 15 minutes to complete these questionnaires, at which time I will come around the room and pick them up.

The experimenter then handed out the packets of questionnaires and 15 minutes later collected them.

In order to obtain a higher percentage of response, the experimenter announced in class the following day, "Will the following people please remain after class today in order to finish, or make arrangements to finish, the experiment they began three weeks ago." Then the experimenter read a list of subjects who completed the first packet of questionnaires, but did not complete the second packet the day before.

Those subjects whose names were called out and who remained after class were asked if they could stay for 15 minutes to fill out the second packet of questionnaires. Those who remained were given the same instructions as the class on the previous day, with the exception of the second and third sentences, which applied only to those who did not take the first set of questionnaires. The experimenter then handed out the questionnaires and in 15 minutes collected them.

For those subjects who participated in the first part of the project, but who could not remain after class to complete the second set of questionnaires that day, arrangements were made for them to complete the packet after class on one of the following two days.

As the students left the classrooms where the final examinations were given, the principal investigator asked them if they participated in the experiment with her. If they said, "Yes," she said to them,

> Some of you took an interest test, and I told you that you had a knack for psychology and interests which were similar to those of successful psychologists. In reality, the test was a fake and did not test any interest patterns or reveal any presence or absence of a knack for psychology. The purpose of telling you that the test did show such interest patterns and also a knack for psychology was to raise your expectations of doing well on the final exam. Also, this experiment was connected to the questionnaire experiment in class. The purpose of this experiment was to see the effect of expectations on grades. However, as you were told, your instructors were not informed of the results of any of the tests or questionnaires. I will answer any questions you have about the experiment.

Lists of the scores and the letter grades on the final examinations for the classes were obtained from the instructors. An objective, multiple-choice test format was used. It should be noted that, although grading methods were the same for the two classes, the final examinations were indeed composed of different items and made up by different instructors. Although no specific determinations of the validity of the final examinations were made, they did seem to have face validity (i.e., appeared to be valid, Crano & Brewer, 1973). They were based on lecture and text material. Lectures were drawn from psychology textbooks, which were written by experts. The introductory psychology course content could be considered to be a good sample of the general field of psychology. The examinations may be said to have

content validity. Since the classes' instructors constructed the examinations and made them comprehensive, it could well be assumed that test items were a representative sample of the course content (Crano & Brewer, 1973).

CHAPTER III
RESULTS

First Part of the Project

The major hypothesis for this part of the project was:

> Expectations of outcome are related to the actual outcome.

The prediction drawn from this hypothesis was:

1. Subjects' Es of their final examination grades are correlated with the actual grades when IQ is partialed out.

The hypothesis and the prediction of a relationship between subject Es and final examination grades was tested by performing a correlation. Through the use of two administrations of a packet of questionnaires in class, Es were measured both shortly after the second midterm (i.e., pre-test Es), and shortly prior to the final examination (i.e., post-test Es). Experimental, control, and AB group subjects participated in previously-described testing and interview sessions outside class between the two administrations. For purposes of the analysis, the Es, as measured at the post-test administration, were used. The partial correlation between Es and final examination grades with IQ partialed out was .521 ($df = 72$, $p = .001$).

The correlation between Es and final examination grades was only moderately high. Consequently, it may be

said that, although Es and final examination grades were positively related, there might well have been other meaningful parameters involved which were associated with final examination grades. In searching for these parameters, difference scores of predictor variables were correlated with final examination grades. Partial correlations, controlling for IQ, were performed. No statistically significant results were found. There was only a tendency ($r = -.188$, $df = 72$, $p = .055$) for the change in MGC to be negatively associated with final examination grade.

It should also be noted that the range of IQs was 96 to 136, with a mean of 115.387 and a standard deviation of 8.092. Correlations between IQ and the variables were computed. Only three of these values were statistically significant, and even these values were rather low. These significant values were correlations between IQ and final examination grade ($r = .255$, $p = .049$), IQ and MGL ($r = .232$, $p = .043$), and IQ and the change in MGL ($r = .252$, $p = .028$).

The predictions for this part of the project about the relationship between the independent variables and the dependent variable were:

2. When subjects' IQs are controlled for, a combination of high Es, RVs, MGLs, MGCs, and moderate LOCs is associated with high final examination grades.

3. With subjects' IQs controlled for, a combination of low Es, RVs, MGLs, MGCs, and extreme LOCs is associated with low final examination scores.

4. When subjects' IQs are adjusted for and there is a combination of extreme LOCs, low Es, and low MGCs, with high RVs and high MGLs, final examination grades are poor.

In order to test the predictions regarding the associations between the independent variables and the dependent variable, final examination grades, a multiple regression analysis was performed using the Statistical Analysis System regression program (Service, 1972). The following variables were included in the model: IQ, E, RV, MGL, MGC, and LOC. IQ scores were obtained from the administrations of the Satz-Mogel short form of the WAIS to subjects in the testing sessions outside class. The other predictor variable scores were from the second administration of the questionnaire packets.

As can be seen from the overall regression analysis (Table 3), knowledge of some of the independent variables did aid in the prediction of academic performance, specifically of the final examination grades obtained. The largest contribution to the prediction of a high final examination grade was made by MGL, with E's being the next most important predictor, even though only a nonsignificant tendency for E's contribution was indicated. Neither MGC nor IQ contributed much. Although not statistically significant, low RVs tended to contribute to the prediction of high final examination grades. Consequently, it may be said that high MGLs possibly along with high Es and low RVs were the combination which was maximally predictive of high final examination grades. (Refer to Table 4).

Table 3

Test for Overall Regression of Final Examination Grade as a Function of IQ, E, MGL, MGC, RV, and LOC

Source	DF	SS	MS	F	Prob. > F	R-Sq.
Regression	6	4040.224	673.371	7.865	.0001	.410
Error	68	5821.562	85.611			
Corrected Total	74	9861.787				

Table 4

Tests of Coefficients in Regression Equation

Source	B Values	T for Ho:B=0	Prob. > /T/
IQ	.182	1.299	.198
E	4.531	1.884	.064
MGL	5.824	2.595	.012
MGC	.892	.594	.554
RV	-3.027	-1.696	.094
LOC	- .361	-1.484	.142

A multiple regression was also performed with the variable, "Extreme" substituted for the general LOC variable. This variable was the /score -44/. It was a measure of how far from the mean the subject was. The mean of the LOC range was 44, with a standard deviation of 5. Consequently, the subjects with extreme LOCs had scores less than 39 or greater than 49. Scores of the subjects with moderate LOCs ranged from 39 to 49. The students with moderate LOCs comprised two-thirds of the subjects.

As for the test for the overall regression using the variable, "Extreme," approximately the same amount of variance was accounted for as when the general LOC variable was used (42% with "Extreme" versus 41% with LOC). (See Table 5). MGL remained the most important predictor. E's contribution was nonsignificant. Instead of there being only a nonsignificant tendency for low RVs to be predictive of high final examination grades, the result was statistically significant in the analysis. This analysis, unlike the first, also revealed that extreme LOC tended, though not significantly, to be negatively related to final examination grades. Consequently, high MGLs and low RVs and possibly moderate LOCs tended to be maximally predictive of high final examination grades in this analysis. (Refer to Table 6).

Further regression analyses were done to test the predictions regarding the associations between various combinations of the independent variables at different levels and the dependent variable. New variables were created

Table 5

Test for Overall Regression of Final Examination Grade as a Function of IQ, E, MGL, MGC, RV, and Variable, "Extreme"

Source	DF	SS	MS	F	Prob. > F	R-Sq.
Regression	6	4143.714	690.619	8.213	.0001	.420
Error	68	5718.072	84.089			
Corrected Total	74	9861.787				

Table 6

Tests of Coefficients in Regression Equation with Variable, "Extreme"

Source	B Values	T for Ho:B=0	Prob. > /T/
IQ	.129	.948	.349
E	3.380	1.462	.148
MGL	7.241	3.227	.002
MGC	.652	.441	.661
RV	-4.137	-2.357	.021
Extreme	- .686	-1.863	.067

which satisfied the conditions specified in the predictions. These variables were designed to have high values when all conditions were met and low ones when one or more conditions of the predictions were not met. One criticism of such a variable is that if only one condition was not satisfied, the variable had a low value. Yet, the regression analyses performed using these newly created variables did more precisely test the specific predictions made.

The specific prediction of a relationship between a certain combination of particular levels of the independent variables and high final examination grades was:

2. When subjects' IQs are controlled for, a combination of high Es, RVs, MGLs, MGCs, and moderate LOCs is associated with high final examination grades.

To test the prediction that a combination of high Es, RVs, MGLs, and MGCs and moderate LOCs is associated with high final examination grades, when IQ is controlled for, a variable was created which is referred to as "High" because the majority of the predictor variables were hypothesized to have high levels in the prediction. Although the test for the overall regression was statistically significant, little of the variance was accounted for, as can be seen in Table 7. Data in Table 8 only indicated that there was a significant relationship between these predicted conditions and final examination grades. This means little since these conditions accounted for such a limited proportion of the variance.

Table 7

Test for Overall Regression of Final Examination Grade as a Function of Variable, "High"

Source	DF	SS	MS	F	Prob. > F	R-Sq.
Regression	2	1043.738	521.869	4.261	.018	.106
Error	72	8818.049	122.473			
Corrected Total	74	9861.787				

Table 8

Tests of Coefficients in Regression Equation of Final Examination Grade as a Function of Variable, "High"

Source	B Values	T for Ho:B=0	Prob. > /T/
IQ	.348	2.180	.032
High	3.065	2.106	.039

The particular prediction of a relationship between a specific combination of certain levels of the independent variables and low final examination grades was:

3. With subjects' IQs controlled for, a combination of low Es, RVs, MGLs, MGCs, and extreme LOCs is associated with low final examination scores.

A variable was created to test the prediction that, when controlling for IQ, a combination of low Es, RVs, MGLs, MGCs, and extreme LOCs is associated with low final examination scores. This variable is referred to as "Low" because the majority of the predictor variables were hypothesized to have low levels in the prediction.

Another prediction of a relationship between a particular combination of specific levels of the independent variables and poor final examination grades was:

4. When subjects' IQs are adjusted for and there is a combination of extreme LOCs, low Es, and low MGCs, with high RVs and high MGLs, final examination grades are poor.

To test the prediction that, after adjusting for IQ, a combination of extreme LOCs, low Es, and low MGCs, with high RVs and high MGLs is associated with poor final examination grades, a variable designated as "Mixed" was created. It is referred to as "Mixed" because of the mixture of high and low levels of the variables.

Although these latter two predictions regarding the associations between combinations of different levels of the independent variables and final examination grades were also tested using variables created to specifically satisfy the

conditions called for, results of these analyses yielded little useful information. (Refer to Tables 9-12). Probability levels indicated that t-tests on the hypotheses that B=0 for the specially created variables did not reach significance. There were only nonsignificant tendencies revealed by tests for the overall regression models, and little of the variance was accounted for by the overall regression models for either of these two predictions.

The prediction about the relationship between Es of final examination grades and actual final examination grades, when considering different levels of LOC was:

5. With IQs controlled for, the Es of final examination grades and actual final examination grades are more strongly related for subjects who have a moderate LOC than for subjects whose LOC is either extremely internal or extremely external.

To test the prediction that, while controlling for IQ, the Es and actual final examination grades are more strongly related for subjects with moderate LOCs than for those whose LOCs are either extremely external or extremely internal, partial correlations were computed. For the group of subjects with extreme LOCs, the partial correlation was .397 ($df = 14$, $p = .064$). For the group with moderate LOCs, the partial correlation was .610 ($df = 55$, $p = .001$). A comparison of the two partial correlations by means of a t-test revealed no significant differences ($t = .868$, $.05 < p < .25$).

To obtain additional, more specific information regarding groups of subjects with external, moderate, or

Table 9

Test for Overall Regression of Final Examination Grade as a Function of Variable, "Low"

Source	DF	SS	MS	F	Prob. > F	R-Sq.
Regression	2	736.727	368.364	2.906	.060	.075
Error	72	9125.060	126.737			
Corrected Total	74	9861.787				

Table 10

Tests of Coefficients in Regression Equation of Final Examination Grade as a Function of Variable, "Low"

Source	B Values	T for Ho:B=0	Prob. >/T/
IQ	.284	1.731	.089
Low	-3.693	-1.365	.176

Table 11

Test for Overall Regression of Final Examination Grade as a Function of Variable, "Mixed"

Source	DF	SS	MS	F	Prob.> F	R-Sq.
Regression	2	732.753	366.377	2.890	.060	.074
Error	72	9129.033	126.792			
Corrected Total	74	9861.787				

Table 12

Tests of Coefficients in Regression Equation of Final Examination Grade as a Function of Variable, "Mixed"

Source	B Values	T for Ho:B=0	Prob. >/T/
IQ	.283	1.725	.089
Mixed	-3.240	-1.353	.180

internal LOCs, instead of just considering subjects in moderate and extreme LOC groups, a partial correlation was computed for each of the three LOC groups. IQ was the variable partialed out. The partial correlation was .699 (df = 5, p = .040) for externals, .610 (df = 55, p = .001) for moderates, and .364 (df = 6, p = .188) for internals. T-tests were performed to compare the partial correlations of the three groups. Results indicated no significant differences between any of these groups (moderates versus externals: t = .209, p > .25; moderates versus internals: t = .632, p > .25; externals versus internals: t = .594, p > .50).

Experimental Part of the Project

The major hypothesis for this part of the project was:

> Expectations of outcome are a major determinant of the actual outcome.

The prediction about Es' being raised by the experimental manipulation was:

1. Es of their final examination grades for subjects in the experimental group are higher than for those in the control group.

To test the prediction that subjects in the experimental group would have higher Es than those in the control group, analysis of covariance was performed on the second questionnaire scores, using the scores from the first questionnaire administration as the covariate. As shown in Table 13, Es for the two groups were significantly different.

Table 13

Analysis of Covariance with
Pre-Test Es as the Covariate

Source	DF	SS Adjusted for the Covariate	F Value	Prob. > F
Group	1	2.215	6.159	.016
Pre-Test E	1	6.266	17.427	.0001

Means adjusted for the covariate, pre-test Es, were higher for experimental group subjects (4.018) than for control group subjects (3.611).

The prediction about grades for subjects in the experimental group versus those for subjects in the control group was:

2. The final examination grades for subjects exposed to interventions are higher than for those in the control group, after adjusting for IQ.

Analysis of covariance was also performed to determine if, as predicted, after adjusting for IQ, subjects in the experimental group earned higher final examination grades than did those in the control group. As indicated by the data in Table 14, final examination grades were not significantly different for the subjects in the two groups. Means were adjusted for IQ, the covariate. The experimental group adjusted mean was 75.705, and the control group adjusted mean was 75.120.

Table 14

Analysis of Covariance with IQ as the Covariate

Source	DF	SS Adjusted for the Covariate	F Value	Prob. > F
Group	1	4.492	.041	.840
IQ	1	464.060	4.234	.045

CHAPTER IV
DISCUSSION

Much behavior has been effectively predicted by Es and other constructs which are drawn from or based on social learning theory (Rotter et al., 1972). Academic performance is one type of such behavior. Even though the motivational variables do not account for most of the variance, they do help to make the explanation of academic achievement more nearly complete (Duncan, Featherman, & Duncan, 1972). Any knowledge about an area as important as that of academic achievement can be considered to be a welcome finding.

There are many variables which influence academic achievement other than those motivational ones held by students and focused on in this project. Such a variable may be teacher attitudes toward the student, particularly teacher expectations of the academic achievement of the pupil and the differences in teacher-student interaction which may result from the variability of teacher expectations for the different pupils (Clark, 1965; Rosenthal & Jacobson, 1968; Rubovits & Maehr, 1971). However, these factors were not considered here. It was thought that they might be less important in large lecture classes of college-age students than they would be, for example, in smaller elementary school classes. The two college classes from which subjects were

drawn were much larger than the typical elementary school class. The larger size would reduce the chance that the instructors would get to know the individual students well. Consequently, the college instructors should have less clearcut expectations for pupil performance than would their elementary school counterparts. There would probably also be fewer differences in interactions between the instructors and various students in the college classes than in the elementary school classes. Such a lack of differential interactions could be at least partially attributed to the probably vague expectations instructors would hold for the students in the large college classes. Similarity in instructor-student interactions from student to student might also be less likely to affect expectations students held for themselves. It is also believed that the possible impact of instructor expectations on instructor evaluation of student performance in terms of grades was virtually eliminated by the nature of testing and grading, that of objective, multiple-choice examinations.

Another factor which has been considered to affect the validity of outcome measures, such as examinations, is response bias or response set (Crano & Brewer, 1973). For example, some individuals might tend to choose multiple choice answer "a" most frequently, some "b," and so on. However, the sample should include a random mixture of such individuals, and the varying response sets should

balance out, thus eliminating any threat to validity which the response sets might have been assumed to pose.

Although motivational variables have been considered in this project, the variable of student motivation has not been directly studied here. A pupil with greater achievement motivation is more likely to set higher goals for himself. College students with high achievement motivation have been found to make higher grades than those with equal ability, but low achievement motivation (Gellerman, 1963). It has been suggested that motivation is a dimension and a determinant of expectations and that those individuals with the greatest need for their expectations of a favorable outcome to be fulfilled have the highest level of motivation and the most positive expectations (Goldstein, 1962). Even though Goldstein was referring to the psychotherapeutic situation, his contention may also be said to hold true for the academic realm of behavior. Expectations seem to be a more specific, easily understandable, and easily measurable variable.

Weitz and Wilkinson (1957) have investigated educational experiences and family conditions, and Baldwin, Kalhorn, and Breese (1945) and Winterbottom (1953) explored the association of underachievement with early training and experience. Much research has focused on the differentiation of underachievers from normal achievers in regards to personality characteristics (Burgess, 1956; Gebhart & Hoyt, 1958; Merrill & Murphy, 1959). Yet, Todd et al. (1962)

have pointed out that much of this work is not based on theory and that consequently, the research findings cannot be interpreted from a single theoretical position. This project generally has a less intrapsychic basis and excludes consideration of the above-mentioned nonintellectual areas, focusing instead on specific variables primarily drawn from Rotter's (1954) social learning theory, with modifications by Battle (1965, 1966).

Rotter's (1954) social learning theory does give a sound theoretical basis to this research. The theory fits the criteria for a good theory, as discussed by Shaw and Costanzo (1970). The theory is logical and internally consistent, agrees with data available before and after it was created, is testable, has simple, clearly defined, and relatively few constructs, is externally consistent, is easy to interpret in terms of its applicability to practical events, and is useful in stimulating research.

First Part of the Project

Expectations and Academic Achievement

The major hypothesis for the first part of the investigation was that expectations of outcome would be related to the actual outcome. Five predictions were made for this phase of the project. The first was that, when IQ was partialled out, subjects' Es of their final examination grades would be correlated with the actual grade. The partial correlation computed to test this relationship was

both moderately high and statistically significant. Thus, this prediction, which was also the major hypothesis, was confirmed. This confirmation was consistent with Rotter's (1954) social learning theory and with much earlier-mentioned research in expectations and academic performance. However, some related predictions for this project were not supported by the results. Consequently, although Es were associated with academic achievement, other variables were also related to it.

Motivational Variables and Academic Success

Further predictions were made which did point to the relationships of other variables, as well as Es, to final examination grades. IQ was controlled for in all these predictions. One of these predictions was that a combination of high Es, MGLs, MGCs, and RVs, and moderate LOCs was associated with high final examination grades. This prediction was only partially supported. The regression analysis using a newly created variable to satisfy all the conditions of the prediction, though statistically significant, accounted for little of the variance. Other regression analyses were performed which indicated that MGL was the most important predictor. Contrary to prediction and theory, low RVs were shown to be positively related to the dependent variable in one of the two regression analyses, and in the other there was a nonsignificant tendency for this association. There was a nonsignificant tendency for high Es to be

positively related to the dependent variable in one of the regression analyses and a nonsignificant tendency in the other regression analysis for a positive association between moderate LOCs and final examination grades. The implications are that many factors are involved in the prediction of academic achievement, and it may be quite difficult to specify the variables and conditions involved.

In general, high MGL and perhaps low RV pointed to a high final examination grade. The striving, achievement-oriented student might be satisfied only with a high grade. He might well be aware that to obtain his goal he must engage in productive behaviors and might be aware of what these behaviors are. It is quite possible that a college student would be willing to study for an exam, but might not actually feel that a good grade would be that rewarding. Instead, foremost concerns might be avoiding parental disapproval or withdrawal of financial support and avoiding having to take the course over or another in its place. While success in the specific course in question might not be overwhelmingly important to an individual, academic achievement in general might be. Or perhaps the recognition from such success and the possibly increased educational and career opportunities might be urgent considerations. A student capable of and used to making high marks might be dissatisfied with any grades other than very high ones. Yet, his failure to do well on one specific exam may not be particularly important to him. He might not be satisfied, but

might feel that he could always do well in his other courses and still obtain his long-range goals.

Motivational Variables and Poor Academic Performance

It was also predicted that a combination of low Es, MGLs, MGCs, and RVs and extreme LOCs would be associated with low final examination grades. The test for the regression with the variable created to fulfill these specific conditions did not achieve statistical significance. As already described, the other regression analyses which were also used to test this prediction did not support this prediction in toto. Yet, low MGLs were associated with low final examination grades. In one of the analyses, low Es tended to be related to poor outcomes, and in the other analysis, extreme LOCs tended to be associated with low grades, though neither of these results was statistically significant. High, not low, RVs were related to low exam marks--a finding statistically significant in one regression analysis, though indicating only a nonsignificant tendency in the other.

Generally, low final examination grades were made by students whose MGLs were low and whose RVs were high. Just valuing a high mark on a psychology examination might well not be a sufficient motivating factor for students to engage in the goal-oriented behaviors necessary to obtain such positive reinforcements. Those who could be satisfied by achieving low minimal goals might not have been willing to exert more effort than they thought was necessary to achieve these low MGLs.

It might be that the individual who made a poor final examination grade engaged in maladaptive behaviors, rather than goal-oriented approach behaviors. It is quite possible that his nonproductive behaviors were not actually manifestations of maladjustment. Instead, lack of learning might be the appropriate explanation. The desirable behaviors might not be contained in the person's behavioral repertoire. The students in an introductory psychology class might have poor study habits, particularly in regards to studying for a final examination in psychology.

Another prediction was that with a combination of extreme LOCs, low Es, and low MGCs, along with high Rvs and high MGLs, final exam grades would be poor. This prediction was not supported by results from either the regression with the variable created to fulfill these particular conditions or from the other regression analyses. According to the theoretical background for this project, poor grades should have been obtained by those who valued the reinforcement of a good exam grade and would be satisfied only with such a positive outcome, yet who had a low level of expectation for receiving either the lowest grade with which they could be satisfied or for doing well at all on the exam and even felt that their efforts would contribute little or almost totally determine their outcomes. However, such was not the case. Perhaps just having a high MGL served as a sufficient motivating factor. The student who could be satisfied with only a particularly high grade might well have engaged in behaviors

appropriate to earning such a grade, in spite of his doubts that he would succeed.

Good Predictors: MGL and RV

Overall, the results seemed to indicate that MGL was the most efficient predictor and that RV was the second most predictive variable. High MGLs and possibly low RVs were shown to be associated with good final examination marks in this experiment.

Low RVs and Success

It might well be suggested that subjects actually placed a high value on good final examination grades in their psychology course, but merely stated low RVs. It is possible that students who perhaps did so were defensive externals. These individuals might have once been intensely competitive, but might have become much less so due to failures. Their failures might have not seemed like failures to others, but their achievements might have been unsatisfactory to them, particularly if their MGLs were high. They might still be competitive and achievement-oriented in clearly structured, achievement situations. They might be willing to engage in goal-oriented approach behaviors, such as studying for the examination. However, they might be reluctant to admit that their RVs for their exam performances were high. To claim to value a reinforcement which they might not achieve might pose a threat to their self-esteem.

Low RVs by successful students might be explained by considering another viewpoint. RVs might initially be high. However, with failure to achieve the reinforcement, the individual might well become frustrated. The more frequently the person became frustrated, the lower his RV for the goal would be. The individual might be able to resolve the dissonance he might possibly be experiencing by stating that he placed little value on the goal. Another course of action for the person might be for him to say that his behavior was not responsible for attainment or lack of attainment of the goal. However, extremely external subjects in this project did not have high final exam grades.

It might be that when individuals state their RVs that they are comparing the importance of earning high psychology final examination grades to the value of achieving other particular reinforcements. For example, a student may place much greater value on obtaining a good score on an exam in another course. He may not be a psychology major, and the other course may be one in his major field. Or the individual may consider his social life to take precedence over his studies. Still, he may earn a good grade. High achievers may value social recognition more than do low achievers.

Phares (1972) also noted that a person may often place a high value on different kinds of reinforcements. Achieving one reinforcement may be incompatible with achieving the other, thus producing conflict. Because of

such conflict, the individual might engage in maladaptive behaviors. It is possible that, in an effort to resolve such conflict, he could either perceive his different goals as compatible, rather than incompatible or could come to value one of the reinforcements much more than the other. If he chose the latter alternative and if the reinforcement he chose to value less were his final exam grade, then he might state a much lower RV for that reinforcement than he might have, perhaps even a short time prior to assessment of the RV. It is possible that if the lowering of his RV were recent, he might still be engaging in the goal-oriented approach behaviors associated with the higher former RV.

A general point is: "It is assumed that often the individual is unaware of the goals (or the meaning) of his behavior and of the expectancies of achieving these goals" (Rotter, 1971, p. 60). He might also be unaware of the value he actually places on certain reinforcements. His lack of awareness might be one reason that motivational variables do not more successfully predict achievement.

The Relationship Between MGL and RV

Because of the interesting finding of high MGLs' and low RVs' being predictive of high final examination grades, the relationship between MGL and RV bears much further investigation. As noted earlier, there is much inconsistency in the evidence about the relationship between RV and E in the literature. Worell (1956) emphasized

the importance of specifying what type of setting is involved in the research. It would indeed seem quite necessary to distinguish achievement from nonachievement situations and not to try to generalize from one situation to another too hastily. The amount of experience in a situation is also relevant. Standards, values, and expectations of students for exam grades in an introductory psychology course may be quite different from those of students in more advanced psychology courses.

MGL: The Most Important Predictor

In this project, MGL seemed to make the most important contribution to academic outcome of all the nonintellectual variables. MGL may well serve the motivational function which Crandall and McGhee (1968) attributed to E. If MGL is indeed a motivational determinant of academic performance, its efficiency as a predictor is not surprising. Even inaccurate statements of MGL might be valuable in prediction. MGL statements--whether accurate or inaccurate--may be relevant to prediction because they may say something about the goal-oriented approach behaviors which will be exhibited by the individuals who gave the MGL statements. Although there was not a significant positive relationship between task persistence and MGL in Battle's (1965) investigation, further research might well indicate such a positive association, at least for college students. Because of the results of her 1965 study, Battle contended that prediction was not as efficient from MGL statements as from E

statements. She thought that her subjects did not have sufficient feedback relative to their MGLs. She believed that their history of feedback about Es was much more informative. Data from this dissertation experiment seemed to contradict these conclusions of Battle (1965). It is probable that college students have a more accurate idea of the type and amount of the particular behaviors necessary to achieve their MGLs. Their increased understanding may be due to their age and experience. They are older and more experienced than Battle's (1965) junior high school subjects. These factors could lead to their increased awareness of what is required to achieve their MGLs.

The predictive importance of MGL is consistent with Uhlinger and Stephens' (1960) data, which also pointed to MGL's contribution to prediction. In their study, MGL was more important than was the need value for achievement. In this dissertation project, MGL was a more effective predictor than RV. Subjects in Uhlinger and Stephens' (1960) research, like those in this project, were college students.

Much further investigation is warranted on the effects of motivational variables on academic achievement among college students. These students may have a clearer idea of what they want to achieve in life and how to go about achieving their goals than do younger, less educated individuals. There is the suggestion from this project that MGL may be a more important variable in achievement than is E. Consequently, efforts may be more wisely spent in influencing MGL than E.

LOC and Academic Outcome

It was predicted that, when IQs are controlled for, subjects with moderate LOCs would have Es of final examination grades which would be more strongly related to the actual grades than would subjects whose LOCs were either extremely internal or extremely external. This prediction was not supported. No significant differences were noted between the groups. It is quite possible that the range of LOC scores was not broad enough for LOCs to be significantly different for subjects classified as extreme versus moderate on this variable. College students might comprise such a homogeneous group that small differences in LOC might mean little. It might also be that defensive externals might exhibit competitive, achievement-oriented behavior in the structured achievement context of an examination. Particularly if they have achieved what they considered to be success on recent examinations, they may be especially studious prior to the final examination in their introductory psychology course. These individuals were at one time probably generally quite competitive and may have been quite internal, becoming defensive externals only after failure experiences. Subsequent to success, they may behave much more like moderate than external LOC subjects.

Experimental Part of the Project

The basic hypothesis for this portion of the project was that expectations of outcome would be a major determinant of the actual outcome. Two predictions were made. The first was that experimental group subjects would have higher Es than those in the control group. This prediction was confirmed by the results. Thus, it may be said that the experimental manipulation to raise Es was successful. It may be that pointing out supposed similarities between an individual and a known reference group increases his E that he can do well on a specific task (i.e., the exam) which could possibly be influenced by such similarities.

Uhlinger and Stephens (1960) pointed out that particularly since the Space Age began to influence the educational system, there has been much concern about high ability college students who do not achieve up to their potential. They believed that there is much which still needs to be determined about the prediction of academic performance by nonintellectual factors.

Barnett and Baruch (1976) pointed out that others can influence a student's values and hopes. Although their focus was that of occupational choice, they did stress the importance other people can play for a student. They were concerned that all high ability students have a supportive figure in their lives, such as a counselor. They felt that even students from the lower classes would have more of a

chance of realizing their potential if others showed an interest in them and used their influence to help these students do so. It is possible that interventions specifically meant to raise influential motivational variables could be much more useful in helping a student achieve academic success than would more general sessions with him.

The second prediction was that, with IQ adjusted for, experimental group subjects would make higher final examination grades than would control group subjects. This prediction was not supported by the data. Consequently, it seems that raising an individual's E does not ensure that he will engage in those behaviors necessary for high academic achievement. Thus, it may also be said that the major hypothesis for this part of the investigation was not confirmed.

Since E was not shown to be the most efficient predictor of academic achievement among the motivational variables, it is certainly not surprising that it is not a determinant of outcome and, therefore, probably not of the goal-oriented approach behaviors that go along with making higher final examination grades. However, conducting the expectations-raising intervention did have some value. It demonstrated that the level of a motivational variable could be increased significantly. Since MGL was the motivational variable most predictive of academic achievement, it would probably be more beneficial to focus intervention strategies on MGL than E.

CHAPTER V
SUMMARY AND CONCLUSIONS

It can be said that Rotter's (1954) social learning theory does provide a good framework for studying the variables which affect academic achievement. The theory does fulfill the criteria for a good theory, which were discussed by Shaw and Costanzo (1970). Because the hypotheses and predictions were drawn from social learning theory, the results of the project are more meaningful and more easily interpretable.

There are many factors involved in the prediction of academic achievement, and it may be quite difficult to specify all--or even the major--variables and conditions involved. Ability and motivation have been variables typically considered. This researcher did control for student ability, as assessed by the Satz-Mogel short form of the Wechsler Adult Intelligence Scale. Motivation was not specifically studied. Expectations seemed to this author to be a more easily measured, understandable, and specific construct, particularly when viewed from a social learning theory orientation. Yet, it was noted that motivation is a dimension and determinant of expectations (Goldstein, 1962). Also, motivation seems to have or be an action component of expectations.

This project has demonstrated that although Es may tend to be related to academic achievement, there are variables which may well have a much stronger association with such outcome. Data from this project indicated that high MGLs and perhaps low RVs were predictive of good exam scores. The finding of the association between high MGLs and positive outcomes is consistent with Battle's (1965, 1966) research and Rotter's (1954) social learning theory. MGL, in particular, seemed to bear a significant relationship to academic outcome. An individual may be more likely to engage in certain goal-oriented behaviors if the minimum reward with which he is satisfied is high. MGL statements, even inaccurate ones, may be descriptive of the goal approach behaviors which a person will exhibit, at least a college student. In this project, MGL seemed to be more important in the prediction of academic achievement than was E.

However, the positive relationship between low RVs and high final examination grades is contrary to the social learning theory orientation. A possible explanation for this unexpected finding is that an achievement-oriented student is satisfied only with a high grade, but might not feel rewarded by a good grade on one particular exam. On the other hand, the pupil might be defensively external and state a low, instead of a high RV because claiming a high RV for a reinforcement he might not achieve might be potentially ego-deflating. Another explanation is that the student who initially had a high RV lowered it after lack of goal

attainment. Yet, still another reason could be that even though the individual may value a high psychology final examination grade, he might place a much higher value on doing well on an exam in another course or on spending his time in social activities. If he has high RVs for several different reinforcements, he may be unable to achieve them all. Conflict results and may cause the individual to engage in maladaptive behaviors. Or the student might even be unaware of the value he actually assigns to a good final examination score.

As for low exam scores, low MGLs and perhaps high RVs were good predictors. The prediction of low grades for pupils with low MGLs is consistent with the theoretical basis of this project. Students who are satisfied with low grades may only exert enough effort to earn low marks. Holding a high RV, and thus valuing a high score on a psychology examination may not be a sufficiently motivating factor for the student to engage in the goal-oriented behaviors necessary to achieve such a grade.

Poor grades are sometimes a consequence of the student's engaging in maladaptive, rather than goal-oriented, behaviors. The maladaptive behaviors could result from lack of learning, conflict, or personal maladjustment. If lack of learning is the origin of the nonproductive behaviors, the appropriate behaviors may not be found in the pupil's behavioral repertoire. He may have poor study habits and/or poor class attendance and/or he may not take good class notes.

It is possible that the student is unaware that regular class attendance would help him earn a better grade. Perhaps he does not know how to take good notes or what good study habits are.

The maladaptive behaviors may be due to the conflict the student experiences if he has high RVs for several reinforcements and considers his goals to be incompatible. If he resolves his dissonance by deciding that the goals are compatible and lowers the RV he holds for a high final examination grade in his psychology course, he will then hold a low RV for the exam grade. Yet, if he did not lower the RV in question until after the last measure of RV is taken, he would actually have a low rather than a high RV. However, even if a low RV is admitted to in assessment, a confused RV might actually be present.

Personal maladjustment may result in maladaptive behaviors. Rather than viewing personal maladjustment as an internal disease entity, the social learning theory orientation would consider it to consist of learned abnormal behavior. The behavior is maladjusted because the techniques learned for minimizing punishments and maximizing rewards are inappropriate. Perhaps the student has failed to achieve reinforcements in an area important to him. Consequently, he might engage in rather maladaptive behaviors, which are also behaviors chosen to avoid failure and the ensuing unpleasant emotional state (Phares, 1972). The student who has made exam grades which are unsatisfactory to him in his psychology

course may exhibit such maladaptive behaviors as excessive worrying and lack of attention and concentration, particularly when attending class and/or studying.

Grades of those with moderate versus extreme LOCs did not differ significantly. The finding may be accounted for by the homogeneity of college students in regards to the LOC variable or by achievement-oriented behavior from defensively external students. In order to determine which of these explanations is accurate, in future research, more history needs to be obtained on student subjects. The histories could be drawn from interviews with the student subjects, from questionnaires administered to the students, and--given appropriate legal consent--from records of student academic performance. A more meaningful locus of control assessment device would be one created to measure the more specific locus of control construct particularly aimed at the academic area. It is quite possible that the locus of control of a person may be extremely internal in certain areas of his life, excessively external in some, and moderate in others (Swanson, 1970a). Such a measurement device might help to eliminate the possible irrelevant influences on the results of at least some of the defensively external subjects. Pupils might even be defensively external in other courses, but not in the psychology course in question, especially if they have made good grades on the exams they have already taken in the course. Those with defensively external LOCs

might exhibit competitive, goal-oriented approach behaviors in the structured, achievement context of an examination.

In addition to considering possible explanations for the findings of this project, it is also relevant to look at a variety of intervention strategies which could be employed to change the levels of one or more of the motivational variables and to point out the most important variables upon which to focus. In the experimental part of the project, it was shown that although Es can be raised in a laboratory setting, having higher Es does not necessarily influence outcome. At least in a university population, variables other than Es may be more important to the determination of academic success. Intervention strategies focused on MGL, rather than E, might be more beneficial since high MGL is the best predictor of high academic achievement. Perhaps determining how to inspire a student to set and to be satisfied with only a high academic goal would be the basic step in fostering academic success. Yet, Phares (1972) has emphasized the importance that an individual not be encouraged to set unrealistically high MGLs. Setting excessively high MGLs tends to be associated with maladjustment and may result in failure. The higher the MGLs, the more difficult it is to achieve them. However, college students, especially the more intelligent ones, should be able to achieve even high MGLs. Intelligence and aptitude tests could be administered to students to determine for each the level of intellectual functioning and

aptitude in specific areas of study. Preliminary assessments of the level of motivational variables should be made available, with the appropriate consent, to a therapist or an academic counselor, along with the intellectual and aptitude test results. Each individual should be encouraged to set his MGLs as high as his potential would indicate realistic. Perhaps the therapist or academic counselor could conduct sessions for feedback and interpretation of test results and later sessions aimed at helping the students optimize the levels at which they set their motivational variables and then achieving outcomes consistent with these levels.

One important feature of the intervention sessions would be to give specific feedback to each student about what goal-oriented approach behaviors were needed to achieve his MGL. Battle (1965) believed that feedback to her junior high school subjects was more applicable for E than for MGL. However, Uhlinger and Stephens' (1960) data suggest that feedback regarding MGL might be clearer to older students, such as their college student subjects, since MGL was a more efficient predictor in their study than was need value for achievement. A positive step in research on academic achievement would be to determine and relay even more accurate feedback to student subjects about their MGLs. According to Gellerman (1963), the type of feedback an individual receives matters in terms of influencing his achievement. Those with strong achievement needs (and high MGLs) will probably work more diligently if they are given specific information

about which of their behaviors are productive and which are maladaptive. They will not modify their behaviors if given imprecise, though affectively positive, descriptions of their efforts.

However, such comments would positively influence those with stronger needs for affiliation than for achievement. Such individuals would respond more productively to such affective statements than they would to task-oriented ones. Yet, Gellerman (1963) considers most Americans to have a balanced combination of need for achievement and need for affiliation. However, the validity of his contention is difficult to determine.

Because some students may be predominantly achievement-oriented, some basically affiliation-oriented, and others approximately equal in needs for achievement and affiliation, it may be quite difficult to decide on the most effective strategies for change. For example, for the intervention to raise expectations in this project, subjects were told that their interests were similar to those of successful psychologists. On the one hand, the intervention might have been successful because subjects believed that they thought like successful psychologists and, consequently, might think they could perform well on the psychology course final examination. This might have sounded like very positive information to achievement-oriented subjects. On the other hand, affiliative subjects may have received such information as an affectively positive message. Furthermore, they might

have believed that they were perceived as being similar to members of a particular reference group by someone (i.e., this graduate student experimenter) who was closely connected to the reference group. Or the intervention could be considered to have been directed toward both those with a high need for affiliation and a high need for achievement. If one of the two needs were much more predominant in an individual, it would seem more appropriate to create an intervention aimed at the salient need. However, if both needs were approximately equal in importance to the subject, an intervention which appealed to both would be the most desirable. Further research needs to be done on classifying people as achievement-oriented, affiliative, or an equal mixture of both and on creating effective interventions to optimize the levels of their motivational variables.

For basically affiliative students, employing an intervention strategy which focused on affective factors to a greater extent than the one used in this project might be even more effective. Also, such individuals might experience conflict between needs for social and academic achievement. They might value both areas. Their need to succeed academically might be in part a need to achieve academic recognition from others and to receive social approval. Such individuals might benefit from looking at the differing values they placed on the various areas of their lives, perhaps in psychotherapy. In therapy, the ways in which they approached goals could be explored. It might be that they engaged in

avoidant behaviors, perhaps especially in relation to achieving academic goals. It might also be that they have concentrated so much of their energy on fulfilling their affiliative needs that they do not even know the behaviors necessary for academic success. Because they are approval-seeking, they may even state high MGLs and low RVs. That way they appear to set sufficiently high achievement goals for themselves. However, if they say that they do not really value achievement, they will not lose face if they do not achieve their goals. These individuals might become more achievement-oriented if they received more specific feedback about how to achieve their MGLs. Without such specific feedback, they might focus even more on their need for affiliation than they otherwise would.

It might also be quite worthwhile to view LOC data along with extensive data about the behaviors in which an individual engages when he is trying to achieve a particular academic goal. If the individual is engaging in avoidant behaviors and/or exhibits insufficient effort to achieve such a goal, he may need help in sorting out his priorities and in learning appropriate goal-oriented approach behaviors. It may be that those who engage in maladaptive behaviors also make less accurate LOC statements and are generally less accurate in regards to self-report data. These people may become so frustrated regarding academic achievement that they become defensively external. If they can be taught appropriate goal approach behaviors, they may even become

more moderate in LOC. They may also, with greater knowledge of what is required of them to achieve specific academic outcomes, give more accurate and realistic statements of the various motivational variables. As a result, the motivational variable statements may become more specifically meaningful and more efficiently predictive.

Both in assessment and intervention, it seems important to distinguish between achievement and nonachievement situations. Worell (1956) has pointed out that the type of situation influences the relationship between such variables as E and RV and the motivational variables themselves. Some individuals, particularly those exhibiting maladaptive behaviors in achievement situations, may need much practice of appropriate, efficient behaviors in such situations. Increased and appropriate practice in achievement situations could provide valuable feedback to students and result in motivational variable statements becoming increasingly better predictors.

With achievement-oriented individuals, identifying their avoidant behaviors and lack of learning might be even more valuable. These individuals might benefit much from academic counseling. It might be wise to focus on teaching them good study habits, efficient and effective note-taking, and the importance of regular class attendance. They might be extremely motivated to engage in goal-oriented behaviors effectively once they learn how to do so. Again, along with taking such steps, motivational variables should become increasingly more effective predictors.

APPENDICES

APPENDIX I
(Expectations Questionnaire)

Questionnaire I

Name_____

Date_____

1. For this course, Psychology 201, circle one of the letters below which is the letter grade which you expect (not just want) on the final examination (not the final course grade).

A B C D E

2. Circle below which portion of this psychology class you are most likely a part of, based on your first two midterm scores.

top 1/3 middle 1/3 bottom 1/3

3. Circle below which portion of this psychology class you think you will fit in, based on the final course grade.

top 1/3 middle 1/3 bottom 1/3

(Questions #2 and #3 are filler items.)

(Locus of Control Questionnaire from Swanson, 1970a)

Questionnaire I (Cont.)

JUDGMENTS ABOUT YOURSELF AND YOUR LIFE

In this questionnaire, we have listed a number of statements about yourself and how you get along in your life. We would like you to show your agreement or disagreement with each statement. If you strongly agree with a statement, you can show this by circling STRONGLY AGREE. When you strongly disagree with a statement, you can show this by circling STRONGLY DISAGREE. If you feel somewhere in between, circle one of the answers in between. They are AGREE, NEITHER AGREE NOR DISAGREE, and DISAGREE.

Each question should be answered by itself. Don't worry about how you have marked other questions.

1. My misfortunes have resulted from the mistakes I have made. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

2. Most of the unhappy things in my life have happened because I was unlucky enough to be in the wrong place at the wrong time. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

3. The grade I get on the final exam in this course will really depend on how things just happen, such as which questions are asked and how they are phrased on the test. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

4. Getting what I want out of life really depends on whether the right people like me or not. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

5. Getting what I want out of life depends mainly on getting the breaks and having the right people on my side. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

6. Luck has had very little to do with what I have gotten out of life. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

7. Generally when I say that the cards are stacked against me, it's just an excuse for the fact that I didn't really work for the things I wanted. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

8. In the long run what I do doesn't really determine what happens to me. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

9. What happens to me is really a matter of luck. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

10. I know that if the right people don't like me, it doesn't matter what I'll do, I'll never win. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

11. Getting what I want out of life depends upon working to get it. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

12. How well I do on the final exam in this course will really depend on me and not just my luck. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

13. I sometimes say things happen to me because of the breaks, but luck has little to do with what happens to me. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

14. In the long run getting what I want out of life doesn't really depend on how well I get along with the people in power. (Circle one)

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

(Statements #3 and #12 are filler items.)

APPENDIX II
(Buffer Questionnaire on Authoritarianism,
Adorno, Frenkel-Brunswik, Levinson,
and Sanford, 1960)

Questionnaire II

Indicate the degree of your agreement or disagreement with the following statements by circling the appropriate phrase after each question.

1. Although many people may scoff, it may yet be shown that astrology can explain a lot of things.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

2. America is getting so far from the true American way of life that force may be necessary to restore it.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

3. It is only natural and right that women be restricted in certain ways in which men have more freedom.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

4. It is more than a remarkable coincidence that Japan had an earthquake on Pearl Harbor Day, December 7, 1944.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

5. Familiarity breeds contempt.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

6. He is indeed contemptible who does not feel an undying love, gratitude, and respect for his parents.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

7. Reports of atrocities in Europe have been greatly exaggerated for propaganda purposes.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

8. Homosexuality is a particularly rotten form of delinquency and ought to be severely punished.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

9. It is essential for learning or effective work that our teachers or bosses outline in detail what is to be done and exactly how to go about it.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

10. No matter how they act on the surface, men are interested in women for only one reason.

STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE

APPENDIX III
(Values Questionnaire)

Questionnaire III

The following items apply to this course, Psychology 201.

1. How important is it to you to do well on the final exam? (Circle the one number which best indicates your opinion.)

1	2	3	4	5
not important at all	relatively unimportant	neither important nor unimportant	relatively important	extremely important

2. Circle the lowest grade which you could receive on the final examination (not the final course grade) and still be satisfied. (Circle one)

A B C D E

3. How certain are you that you will make at least the grade you indicated in item #2 above on the final examination (not the final course grade)? (Circle the one number which best indicates your opinion.)

1	2	3	4	5
not certain at all	somewhat uncertain	neither certain nor uncertain	somewhat certain	extremely certain

4. How important is it to you to do well in psychology? (Circle the one number which best indicates your opinion.)

1	2	3	4	5
not important at all	relatively unimportant	neither important nor unimportant	relatively important	extremely important

(Question #4 is a filler item.)

APPENDIX IV
(Personal Data Questionnaire)

Questionnaire IV

Please print.

Name_____ Age_____

Date_____ Circle Sex M F

Telephone Number_____ (If you do not have a telephone, please give some way of contacting you, e.g., a neighbor's phone, your address, etc.)

_____

Class (i.e., 2 UC, etc.)_____

Major_____

If undecided, list probable major._____

Please answer the following questions.

1. Is this the first psychology course you have taken? (Circle one)

   Yes No

   If no, how many others?_____

   List course name(s) and/or number(s)._____

2. What is your approximate grade point average at the University of Florida?

   _____

3. How many quarters, including the present one, have you been enrolled at the University of Florida?

   _____

APPENDIX V

(Bogus interest test, with some items modified from those in the Kuder Preference Record, Vocational, Form CH)

Interest Test

Please respond to each of the items, using the following scale:

1 = Strongly disagree
2 = Disagree
3 = Neither agree nor disagree
4 = Agree
5 = Strongly agree

Indicate the extent of your agreement or disagreement with the following items by crossing out (X) the appropriate number after each question.

1. I intend to notice the people around me when I am traveling.

   1 2 3 4 5

2. I would like to take a calisthenics class.

   1 2 3 4 5

3. I would enjoy interviewing people for an opinion poll.

   1 2 3 4 5

4. It would be interesting to be a member of a public relations firm.

   1 2 3 4 5

5. I would like to attend an exhibit of the paintings of local artists.

   1 2 3 4 5

6. I would like to be an expert on bridge.

   1 2 3 4 5

1 = Strongly disagree
2 = Disagree
3 = Neither agree nor disagree
4 = Agree
5 = Strongly agree

7. I would like to belong to a discussion group whose discussion topic was the problems of modern life.

1 2 3 4 5

8. I tend to keep up with the news on international events.

1 2 3 4 5

9. I enjoy doing research for term papers.

1 2 3 4 5

10. It would be very stimulating to have a job working in a famous medical research laboratory.

1 2 3 4 5

11. I would like to draw a comic strip.

1 2 3 4 5

12. I would enjoy interviewing job applicants.

1 2 3 4 5

13. I would like to perform laboratory experiments.

1 2 3 4 5

14. I would enjoy being the editor of a journal.

1 2 3 4 5

15. I would rather have a job I liked with a low salary than a job I didn't like with a high salary.

1 2 3 4 5

16. I would rather sell tickets for a play than write a play.

1 2 3 4 5

1 = Strongly disagree
2 = Disagree
3 = Neither agree nor disagree
4 = Agree
5 = Strongly agree

17. I think of myself as being more intelligent than artistic.

1 2 3 4 5

18. I like camping.

1 2 3 4 5

19. I usually keep my home neat and clean.

1 2 3 4 5

20. I like to do crossword puzzles.

1 2 3 4 5

21. I would rather be powerful than famous.

1 2 3 4 5

22. I enjoy listening to classical music.

1 2 3 4 5

23. I tend to be liberal in my political views.

1 2 3 4 5

24. I would rather go to a movie than to a banquet.

1 2 3 4 5

25. I like to cook.

1 2 3 4 5

26. I would rather play checkers than chess.

1 2 3 4 5

27. I would rather draw funny pictures of people than paint their portraits.

1 2 3 4 5

1 = Strongly disagree
2 = Disagree
3 = Neither agree nor disagree
4 = Agree
5 = Strongly agree

28. I like participating in sports.

1 2 3 4 5

29. I would rather help people solve their personal problems than sell life insurance.

1 2 3 4 5

30. I would rather be my own boss than work under a supervisor.

1 2 3 4 5

APPENDIX VI
AB Group Subject Interview Format

1. Where did you go to high school?
2. How do you feel about the University of Florida?
3. Why did you decide to come to the University of Florida?
4. Are you in any organizations here?

   If so, which ones?

The principal investigator then said to the subject, "That's the end of the interview. Please do not discuss any part of the test or the interview with anyone else."

APPENDIX VII
Control Group Subject Interview Format

The principal investigator pretended to score the subject's bogus interest test. Then she put away the subject's test and the scoring key.

Next, she said to the subject, "I'm going to ask you some questions, mostly about study habits and grades, so please answer as honestly and as fully as you can."

The subject was asked every question at the beginning of each section, as designated by Roman numerals, as time permitted. The questions which follow a capital letter were questions which were asked, if the subject did not volunteer that information.

I. The principal investigator asked the subject, "What grade do you have so far in Psych 201 (for example, high B, middle C, etc.)?"

II. She asked the subject, "What do you think your grade for the quarter in psych will be?"

III. She asked the subject, "What grade do you realistically want?"

IV. She asked the subject, "How many quarter hours and how many courses are you taking now?"

V. She asked the subject, "What are your grades in the other courses you're taking now?"

VI. She asked the subject, "Do you think your grades show your ability and your interest?"

VII. She asked the subject, "About how many hours a week do you study and read for psychology?"

VIII. She asked the subject, "How do you usually study?"

A. "Where do you usually study?"

B. "Do you study by yourself or with others?"

C. "Do you ever study at the library, and if so, how often?"

D. "Do you often have interruptions by roommate(s) or friends?"

E. "How long can you study continuously, without a break?"

IX. She asked the subject, "Do you take notes in class?" Do you think you take good notes?"

A. "Are you able to take down all the important points, without missing one or two during each class?"

B. "Do you tend to get so involved in taking notes that you don't really listen to what the instructor is saying?"

C. "Do you take notes especially on the points that the instructor emphasizes? Is it usually clear to you which points the instructor emphasizes?"

X. She asked the subject, "Do you generally attend class?"

A. "How many psych classes have you missed this quarter?"

B. "What are your reasons for missing class (for example, a boring lecturer, tests entirely from text, oversleeping, etc.)?"

XI. She asked the subject, "What are your reading habits like for your psychology course?"

A. "Do you usually read all the assigned chapters in the textbook?"

B. "Do you generally read the chapter in the textbook before the instructor lectures on it?"

C. "Do you keep up with the reading assignments, or do you wait until shortly before the test to read the assigned material?"

XII. She asked the subject, "How do you study for a test in your psych course?"

A. "When do you usually start studying for a mid-term or final?"

B. "What is the source that you study most--your notes or the textbook?"

C. "How do you divide your time between studying notes and studying the text?"

Additional Questions for Control Group

1. Where did you go to high school?

2. How do you feel about the University of Florida?

3. Why did you decide to come to the University of Florida?

4. (a) Are you in any organizations here?

(b) If so, which ones?

(c) What do you do in these organizations?

(d) Do you hold any offices in these organizations?

(e) What are they?

(f) Which of these organizations do you like best (better)?

(g) Why?

5. What are you going to do after you graduate? (If the subject said that he was going to get a job),

(a) What kind of job, in what area of work?

(b) Where and with what company or school?

(If the subject said that he was going to attend graduate, medical, or law school),

(c) What university do you plan to attend?

(d) (For graduate school): In what field?

(e) (For medicine or law): What specialty?

(If the subject said that he was going on a vacation),

(f) Where and how long?

6. What are your hobbies?
   Tell me something about them.

7. Do you like sports? (If so),

   (a) Which ones?

   (b) Which ones do you play?

8. Do you play cards? (If so),

   What kind of card games?

9. Who's financing your education?
   (If the subject said that he is),

   (a) What kind of a job do you have?

   (b) Where do you work?

10. Have you ever lived on campus? (If so),

    (a) Which dorm(s)? Which years?

    (b) How many quarters?

    (c) Did you like living on campus?

    (d) What were the best points about living on campus?

    (e) What were the worst points?

11. Do you have a steady girlfriend (boyfriend)? (If so),

    (a) How long have you known him (her)?

    (b) How long have you been dating him (her)?

    (c) How long have you been dating steadily?

    (d) Is your steady presently enrolled in school?

The principal experimenter then said to the subject, "That's the end of the interview. Please do not discuss any part of the tests or the interview with anyone else."

APPENDIX VIII
Experimental Group Subject Interview and Discussion Session Format (Intervention)

The principal experimenter pretended to score the subject's bogus interest test. Then she put away the subject's test and the scoring key and said,

> You might be interested to know that this test indicates whether or not someone's interests are like those of successful psychologists. It also shows whether or not a person has a knack for psychology. The results show that you did quite well on the test and have a knack for psychology. Your test patterns are similar to those of successful psychologists.
>
> I'm going to ask you some questions about study habits and grades, so please answer as honestly and as fully as you can.

The subject was asked every question at the beginning of each section, as designated by Roman numerals, as time permitted. The questions which follow a capital letter were questions which were asked, if the subject did not volunteer that information.

I. The principal experimenter asked the subject, "What grade do you have so far in Psych 201 (for example, high B, middle C, etc.)?"

II. She asked the subject, "What do you think your grade for the quarter in psych will be?"

III. She asked the subject, "What grade do you realistically want?"

IV. She asked the subject, "How many quarter hours and how many courses are you taking now?"

V. She asked the subject, "What are your grades in the other courses you're taking now?"

VI. She asked the subject, "Do you think your grades show your ability and your interest?"

VII. She asked the subject, "About how many hours a week do you study and read for psychology?"

VIII. She asked the subject, "How do you usually study?"

A. "Where do you usually study?"

B. "Do you study by yourself or with others?"

C. "Do you ever study at the library, and if so, how often?"

D. "Do you often have interruptions by roommate(s) or friends?"

E. "How long can you study continuously, without a break?"

IX. She asked the subject, "Do you take notes in class? Do you think you take good notes?"

A. "Are you able to take down all the important points, without missing one or two during each class?"

B. "Do you tend to get so involved in taking notes that you don't really listen to what the instructor is saying?"

C. "Do you take notes especially on the points that the instructor emphasizes? Is it usually clear to you which points the instructor emphasizes?"

X. She asked the subject, "Do you generally attend class?"

A. "How many psych classes have you missed this quarter?"

B. "What are your reasons for missing class (for example, a boring lecturer, tests entirely from text, oversleeping, etc.)?"

XI. She asked the subject, "What are your reading habits like for your psychology course?"

A. "Do you usually read all the assigned chapters in the textbook?"

B. "Do you generally read the chapter in the textbook before the instructor lectures on it?"

C. "Do you keep up with the reading assignments, or do you wait until shortly before the test to read the assigned material?"

XII. She asked the subject, "How do you study for a test in your psych course?"

A. "When do you usually start studying for a mid-term or final?"

B. "What is the source that you study most--your notes or the textbook?"

C. "How do you divide your time between studying notes and studying the text?"

She then said to the subject,

In any case, it is common for some people to do better on the final exam. Your getting into the University of Florida indicates that you're capable of doing the work, and your interest test results show that you have a special knack for psychology. The requirements for each course are different, and your interest test results do suggest that you'll do better in this course than some other people. If you apply yourself, you will probably be surprised at how well you will do on the final.

That's the end of the interview. I'll tell you now that I'm investigating the differences in study habits between people like you, who have interests which are very similar to those of successful psychologists, and those who have dissimilar interests. Please do not discuss any part of the tests or the interview with anyone else.

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BIOGRAPHICAL SKETCH

Kathryn Blaze Harkey was born in Winston-Salem, North Carolina, on December 29, 1951. In June, 1969, she graduated from Vardell Hall Preparatory School. She received the degree Bachelor of Arts in Psychology from the University of North Carolina in May, 1971. She is a member of Psi Chi, the national psychology honorary society, and Phi Beta Kappa.

In September, 1971, she entered the Graduate School of the University of Florida. She received the degree of Master of Arts, with a co-major in social and clinical psychology, in December, 1972. She continued her studies in social and clinical psychology and became a doctoral candidate in psychology in March, 1975. She completed an internship in clinical psychology at The Ohio State University Hospitals in August, 1976. In February, 1977, she joined the staff of Gaston County Mental Health Center in Gastonia, North Carolina.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Marvin E. Shaw, Chairman
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Paul Satz, Co-Chairman
Professor of Clinical Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Richard M. Swanson
Associate Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Theodore L. Landsman
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Roderick J. McDavis
Assistant Professor of Education

This dissertation was submitted to the Graduate Faculty of the Department of Psychology in the College of Liberal Arts and Sciences and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

March, 1979

Dean, Graduate School