

ACHIEVEMENT ORIENTATION AND PERCEIVED CAUSALITY
AS PREDICTORS OF AFFECTIVE REACTION
AND ANTICIPATED PERFORMANCE
CHANGE

By

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DOCTOR OF PHILOSOPHY
December, 1973

MAR 13 1975

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Thesis Approved:

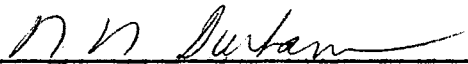


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ACKNOWLEDGMENTS

The writer would like to express his indebtedness to the many people whose contributions and inconveniences aided the completion of this dissertation. Appreciation is expressed for guidance and assistance to my dissertation committee chairman, Dr. Roy Gladstone, as well as to the remaining members of my committee, Drs. Bob Helm, William Scott, and Edgar Webster. My thanks to Phillip Finney and Lynn Shank who graciously relinquished class time for data collection in their introductory psychology sections. Special thanks is also expressed to Dr. Bob Helm who served as the experimenter in the writer's two introductory psychology sections. Appreciation is gratefully acknowledged to a number of student colleagues in social psychology who critically responded to some of the writer's early circumlocutions.

Mrs. Brenda Cook typed an early draft and the final copy of this dissertation. In addition to a first rate typing job, Brenda also gave unselfishly of her time in order to complete the dissertation on the writer's schedule.

To my wife, Barbara, and my son, Bradford, the writer can express, in this formal way, only a small portion of his felt gratitude. It is sufficient to say that during the course of this dissertation patience, encouragement, and affection were bountiful.

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CHAPTER I

INTRODUCTION

Attribution theory is concerned with the way an individual interprets or attributes the causes of events in his environment. Since causes are not observable, individual differences emerge in the perceived causes of external events. Heider (1958), an early leader in attribution theory, proposed that the factors utilized by the person to attribute causality to an achievement or failure related outcome fall under two main categories: 1) environmental or external, and 2) personal or internal. Further, he pointed out that internal attributions are to ability and/or effort, while external attributions are to task difficulty and/or luck. Therefore, the four most commonly perceived causes of success or failure at achievement tasks are ability, effort, task difficulty and luck. For example, success or failure at a college examination could be perceived as due to factors within the person (ability or amount of time spent studying) or factors in the environment (examination ease or difficulty).

Heider's cognitive attribution model assumes the following event sequence: 1) a stimulus outcome is perceived, 2) a particular causal cognition is assigned to the stimulus outcome, and 3) a resulting affective experience occurs and a subjective expectancy for future outcomes at similar tasks emerges. An important feature of Heider's

work is the postulate that only ascriptions to internal or personal causality will result in that action being perceived as "intentional." Influences from the environment are not seen as under the person's influence, and therefore, cannot be controlled. Consequently, differential allocation of causes to internal or external factors results in disparate affective responses and disparate future expectations.

Recently, Weiner (1972, Ch. 6) has developed an attribution model for explaining achievement behavior which closely parallels Heider's model. Weiner's attribution model is outlined in Figure 1 presented below. The model assumes that a history of achievement related tasks,

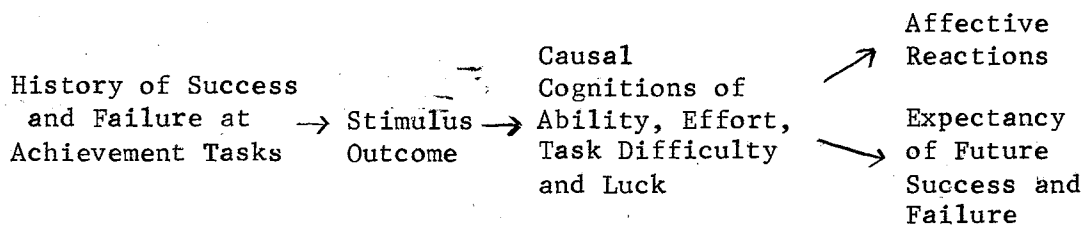


Figure 1. Weiner's Attributional Model of Achievement Behavior

and subsequent outcomes, gives rise to two general goal directed orientations. A history of successful outcomes in achievement situations produces an approach tendency toward later achievement tasks, while experiences with unsuccessful outcomes results in a general avoidance tendency toward achievement tasks. Each person's

achievement history includes both positive and negative outcomes so that the individual has both approach tendencies (anticipation of future success) and avoidance tendencies (fear of future failure). The relative strengths of these two tendencies determine an individual's resultant achievement motivation, which becomes a relatively stable feature of the person across achievement situations. In achievement situations, these differences in achievement motivation predispose individuals toward either internal or external attributions of causality. These perceptions of the causes of achievement or failure outcomes in turn engender positive or negative affective responses and expectancies of success or failure at future tasks.

CHAPTER II

REVIEW OF THE LITERATURE

Resultant Achievement Motivation

The concept of resultant motivation is traceable to Lewin's (1951) and Miller's (1944) conflict models, but the most comprehensive application of this concept to achievement behavior was developed by Atkinson (1964). In the simplest of terms, Atkinson feels that all achievement-related behavior is the result of tendencies to approach or avoid achievement tasks. The approach tendency is defined by three factors: a motive for success (M_s), the subjectively perceived probability of success (P_s), and the incentive value of success (I_s). The M_s is a relatively stable personality disposition to strive for success, defined in terms of the capacity to feel pride in accomplishment; the P_s denotes a cognitive expectancy that a response made to a stimulus will lead to a goal; and the I_s is directly related to the desirability or valance of the goal.

The determinants of the avoidance tendency are also three in number and are analogous to those in the approach tendency: a motive to avoid failure (M_{af}), the subjectively perceived probability of failure (P_f), and the incentive value of failure (I_f). The M_{af} is a relatively stable personality disposition to avoid failure; P_f is

an environmentally related factor determined by the perceived difficulty or ease of the task; and each achievement-related situation has a negative incentive for failure (If). The negative affect associated with not attaining an achievement-related goal is shame.

The resultant tendency to approach or avoid achievement-related activity (TA) is summarized by Atkinson in the following equation: $TA = (Ms \times Ps \times Is) - (Maf \times Pf \times If)$. The affective anticipations of hope of success and fear of failure basically determine whether an achievement-related goal is approached or avoided. Therefore, the achievement motive as defined by Atkinson is mainly an affective disposition. Atkinson defines the achievement motive as a "capacity for experiencing pride in accomplishment" (1964, p. 214). Moreover, the Is, which is revealed in the actual affective reaction to a stimulus, is a complement of the achievement motive which is an affective disposition or capacity to experience pride in achievement (Weiner, 1972, p. 198).

Traditionally, some version of McClelland's (1958) Thematic Apperception Test (TAT) scoring procedure has been used to assess the strength of Ms, while the Mandler-Sarason Test Anxiety Questionnaire (TAQ), (Mandler & Sarason, 1952) has been employed to define operationally the strength of Maf. By transforming scores on both the TAT and TAQ to standard scores, the relative strength of these two tendencies can be determined. More recently, Mehrabian (1968) has developed the Achievement Orientation Scale which measures tendencies to approach or avoid achievement-related tasks with a single instrument.

Achievement Motivation and Attribution Theory

Generally, Weiner (1972) assumes that achievement motivation, as defined by Atkinson, is a predisposing influence on the development of the recognition of ability, effort, task difficulty, or luck as causal factors. Weiner feels that individuals high in achievement motivation will be more prone to attribute achievement outcomes to themselves, while individuals low in achievement motivation will be more prone to attribute achievement outcomes to external circumstances. These mediating causal cognitions then result in differential influences on affect and expectancy. It will be recalled that Atkinson felt that achievement-related goals are approached or avoided as a result of affective anticipations which, in turn, are a result of the individual's complex perceptions of the situation. However, a major problem with Atkinson's conception has been that individuals classified as high in resultant achievement motivation often experience greater shame following failure than do individuals classified as low in resultant achievement motivation. Weiner accounts for this finding by suggesting that affective reactions are primarily determined by tendencies to attribute achievement outcomes to the internal or external causal factors. Since individuals high in resultant achievement motivation are more prone to attribute achievement outcomes to themselves, it becomes clear why these individuals experience more intense shame following failure.

Weiner and Kukla (1970), Kukla (1970), and Weiner and Potepan (1970) have conducted a series of studies to determine the relationships between individual differences in achievement motivation and causal

attribution. Weiner and Kukla (1970) speculated that the direction of achievement needs would be related to the attribution given to an achievement outcome. These investigators felt that individuals high in resultant achievement motivation would be more likely to ascribe success to themselves than would individuals low in resultant achievement motivation. Their resultant achievement motivation measure was a difference score obtained from the standard TAT procedure (need for achievement) and the Mandler-Sarason Test Anxiety Questionnaire (anxiety about failure). Two hundred fifty eight high school and 3-6 grade elementary school male subjects were classified into high and low achievement motive groups following a median split on the resultant achievement motivation scores. The Intellectual Achievement Responsibility scale developed by Crandell, Katkovsky, and Crandell (1965) was used to determine the students' tendency to give internal (ability or effort) or external (task difficulty or luck) causes, following successful outcomes. The results of this correlational study indicated that, as predicted, subjects high in resultant achievement motivation were more prone than were those low in resultant achievement motivation to ascribe successful outcomes to ability or effort causes.

Weiner and Potepan (1970) also investigated the relationship between achievement motivation and causal attributions to achievement outcomes. Their study is of particular interest because it attempted to relate achievement motivation and causal attributions following actual academic performance. The Achievement Orientation Scale (Mehrabian, 1968) and a modified version of the Intellectual Achievement Responsibility scale were given to college students

after they had received feedback on a mid-term examination. For students who had a positive outcome on the mid-term examination (A or B grade), a positive relationship ($r = .35$, $p < .01$) was found between high achievement orientation and ability attributions. However, unlike the Weiner and Kukla study, these investigators found a negligible correlation ($r = .12$) between high achievement orientation and effort attributions.

In a final study, Kukla (1970) attempted to validate the hypothesized relationship between high achievement motivation and internal attributions in an experimental setting. He had high and low achievement oriented male subjects estimate the causes of performance when the causes of success or failure were ambiguous. The subjects merely estimated whether a 0 or 1 would be the next digit in a number series. Following each trial, the individuals judged the extent to which they felt ability, effort, task difficulty or ease, and luck had influenced their performance. The numbers were actually randomly arranged and perceived success or failure at the task defined the outcome conditions. Although the statistical support was weak, this study found that, following a success outcome, individuals high in achievement orientation are more likely to attribute the outcome to the internal factor of ability ($p < .10$) than are the individuals low in achievement orientation. A negligible relationship ($p < .20$) was found between high achievement orientation and ascriptions to effort, following a success outcome. Following failure, the results showed that the high motive group perceived their failure as due to low effort, while the low motive

group, unlike Weiner's prediction, attributed their failure to the internal factor of low ability.

As with the previous studies cited, Kukla's findings provide some support for the notion that individuals high in achievement motivation are more likely to attribute success to internal causes, and therefore assume personal responsibility for the outcome, than are individuals low in achievement motivation. The Weiner prediction that individuals low in achievement motivation would attribute outcomes to the external causal factors did not receive support in the Kukla study. The relationships found in this series of studies, however, still remain to be tested in a real life situation where the achievement outcomes are important to the individual. In the studies by Weiner and Kukla and Weiner and Potepan, the subjects gave attributions to achievement-related outcomes described in the Intellectual Achievement Responsibility scale and not to an actual achievement outcome. In the Kukla study, the subjects simply gave attributions following success and failure experiences at a simple laboratory task. The extent to which these relationships will hold following success or failure outcomes at a real life and ego-involving task, such as a college examination, remains to be determined.

Causal Attribution and Expectancy Shifts

Most of the theoretical and empirical work in attribution theory has placed a strong emphasis on the locus of control dimension. Rotter's (1966) instrument designed to assess perceived internal and external control of reinforcement, and Kelley's (1967) proposal

that perceived responsibility covaries with the individual's hypothesis regarding internal and external causality, have provided the basis for much of this work. Recently, however, Weiner (1972) has argued that research in attribution theory has overlooked the dimension of outcome stability. He argues that the perceived causes of success or failure in achievement situations (ability, effort, task difficulty, or luck) can be viewed within both the locus of control (internal or external) and the stability (stable or unstable) dimensions. The stable factors are those which appear to be consistent over time, whereas the unstable factors are those which are variable. Figure 2 summarizes Weiner's (1972, p. 356) perceived causes of success and failure. It can be seen that within the locus of control dimension,

Stability	Locus of Control	
	Internal	External
Stable	Ability	Task Difficulty
Unstable	Effort	Luck

Figure 2. Perceived Causes of Success and Failure

both ability and effort are classified as internal determinants, while task difficulty and luck are classified as external determinants, as Heider proposed. Considering the dimension of stability, however, it can be seen that ability is not only an internal factor, but it,

like task difficulty can be classified as a stable factor. Similarly, effort and luck can now be grouped together under the unstable factors. The 2 x 2 table presented by Weiner shows that ability is an internal, fixed factor; effort is an internal, unstable factor; task difficulty is an external, stable factor; and luck is an external, unstable factor.

One area of research in attribution theory has related the control dimension to expectancy shifts. These studies have attempted to determine the relationship between causal ascription following a task outcome and the resulting anticipated change in performance on a future task. Several investigators (Phares, 1957; Rotter, Liverant & Crowne, 1961) have reported that expectancy shifts following success or failure outcomes are greater in magnitude if they attribution is to skill (ability) rather than chance (luck). Rotter (1966) has stated that such evidence supports the relationship between locus of control and expectancy of future success. Weiner (1972), however, has argued that these earlier studies on expectancy shifts have confounded the locus of control and stability dimensions. He contends that differences observed in anticipated performance change are due primarily to the stability dimension rather than the control dimension.

Meyer (1970) was the first investigator to include the dimension of stability in an achievement-related context. He classified subjects into high and low groups (median split) on a single causal attribution, and found that decreases in anticipated future success, following failure, were greatest when subjects had ascribed their outcomes to low ability or task difficulty (stable factors).

Increases in anticipated future success, following failure, were greatest when the subjects had ascribed their outcomes to lack of effort or bad luck (unstable or changeable factors). In other words, expectancy of future success decreases when the person believes that the causes of failure are the stable factors of either low ability or a hard task, but does not decrease following failure if the person feels the outcome was due to low effort or merely bad luck, the changeable factors.

Weiner, Heckhausen, Meyer and Cook (1972) have also studied the relationship of causal ascription following a failure outcome and expectancy change. Subjects in their study experienced continual failure on a digit-symbol substitution task. Following each failure trial, each subject made outcome attributions in terms of percentages to each of Heider's perceived components of causality, distributing 100% of causality across the four factors. The results show that expectancy of future success following failure was greater when individuals gave higher ascriptions to effort or luck (variable factors). Furthermore, persons who perceived their failure as due mostly to low ability or a hard task tended to decrease their anticipation of future success. These results were thus in agreement with those reported by Meyer (1970).

These findings appear to support Weiner's contention that expectancy change is determined primarily by ascriptions to stable or unstable factors. Attribution of an achievement outcome to task difficulty, an external factor, or to ability, an internal factor, could produce apparently similar expectancy shifts because both are stable factors. Moreover, attribution of an achievement outcome to

stable ability might result in a different degree of expectancy shift than a variable effort attribution, although both are internal factors.

Causal Attribution and Affective Reaction

Another aspect of Weiner's approach which is applicable to the present investigation is the suggested relationship between causal attribution and affective expression. Weiner (1972) postulates that "...within achievement related contexts, affect is determined primarily by attributions to internal versus external factors" (p. 374, italics his). The emotional reactions of shame for failure or pride for success are at their greatest whenever outcomes are attributed to internal elements of ability and effort. Weiner speculates, however, that of the two possible internal attributions following success or failure, ascription to effort will produce greater affective reaction than ascription to ability. Little affective reaction tends to follow from the two external attributions of task difficulty and luck. Failure or success attributed either to task difficulty or task ease, or bad or good luck should provide equally small affective reactions in achievement situations.

Some empirical research is available which bears on the relationship between causal attribution and affective responses. Lanzetta and Hannah (1969) had "teachers" reward or punish "pupils" during a discrimination task. Two amounts of money served as the rewards and two intensities of shock were the punishments. The teachers were given information regarding the students' ability (either higher or low) and the difficulty or ease of the task. The

results showed that the teachers always gave high money rewards for success at the task, regardless of the level of ability or task difficulty. Following a failure outcome, however, intense shocks were administered to pupils who failed at the easy task, while weaker shocks were given to pupils who failed at a more difficult task. Also of interest was the finding that pupils high in ability who failed an easy task were given the greatest amount of punishment. The investigators interpreted this to mean that the teachers reacted more negatively to pupils who failed as a result of low effort than when the failure was perceived as due to low ability or task difficulty.

Beckman (1970) employed a somewhat different procedure, but obtained essentially the same results. He led actual grade school student teachers to believe that they were presenting math material to real students behind a one-way mirror. The teachers were told that after each of several training sessions, the students would be tested to determine if they showed any improvement in math understanding. In reality, no students were behind the mirror, and the investigator manipulated the test-feedback information given to the teachers. The examination feedback produced four experimental conditions. The teachers were led to believe that particular students had consistently done well on the exams, had consistently done poorly on the exams, had descended from high to low on the exams, or had ascended from low to high on the exams. The teachers were then asked to respond to questions regarding the causes of the pupils' performance, and to make recommendations as to how much praise or punishment should be given to the pupils. The attributional data showed that the

teachers felt the pupils who performed consistently high had the highest ability, while the consistently poor performers were judged to have the lowest ability. However, the teachers felt that the students who had increased their performance were most deserving of praise. In other words, the teachers felt the students who had shown an increase in motivation should receive higher praise than the students who had done well on exams merely because they were bright.

Weiner and Kukla (1970) asked student teachers to estimate, on a simple rating scale, how they felt they would react emotionally to success or failure outcomes, assuming certain conditions prevailed. The subjects were asked to judge their reactions assuming they did or did not have sufficient ability, or did or did not expend sufficient effort, and the outcomes ranged from excellent to clear failure. They found that pride in success and shame for failure is most extreme when ascriptions are to high effort and low effort, respectively. Affective reactions, however, were also high when ability attributions were combined with success and failure outcomes. Regardless of the effort expended, low ability was associated with high positive affect for success and high negative affect for failure. These findings again indicate that greatest pride in success occurs when effort attributions are given, and the greatest shame follows when the failure outcome is perceived to be caused by low effort. Moreover, relatively intense affect is experienced when ability attributions are made as well.

The studies cited above do appear to be in agreement with Weiner's formulation that feelings of pride and shame following success or failure are mediated by internal vs. external causes. Although the

findings from the laboratory-based studies do provide generally consistent results, there is still a need to determine if the same principles can be identified in a real life setting.

CHAPTER III

STATEMENT OF THE PROBLEM

Little research has been conducted on the relationship between perceived causality and a student's academic performance. Most of the research has involved non-academic related achievement tasks, and the studies have relied heavily on contrive situations in which the subject is asked to make judgments about a hypothetical stimulus person. Lanzetta and Hannah (1969), for example, asked subjects to imagine they were teachers assigning a grade to a student based on certain information known about his ability and past academic performance. In the Beckman (1970) study, actual teachers were asked to assess the performance of unseen students, while Weiner and Kukla (1970) asked teachers to imagine themselves as students in an achievement situation. In other studies (e.g., Kepka & Brickman, 1971; Frieze & Weiner, 1971; Weiner, Heckhausen, Meyer & Cook, 1972; Karabenick, 1972; and McArthur, 1972), subjects in a laboratory setting have been asked to attribute causality to a hypothetical person or persons. In many of these experimental studies, attributions are made to outcomes on a simple motor task, where there is perhaps little involvement on the part of the subjects. Weiner and Potepan (1970) did utilize real college students who were either successful or unsuccessful on a mid-term examination, but causal attribution was not

studied relative to examination outcomes, but rather to achievement outcomes described in the Intellectual Achievement Responsibility scale.

For the most part, Weiner's theoretical approach to attribution theory is quite recent, and much in the way of empirical support is needed to determine its usefulness and application to real life achievement situations. What appears to be needed in the attribution-achievement literature are more studies where the subjects are highly involved in the achievement related tasks, and where the performance outcomes have long range significance for the individuals.

This investigation consisted of two studies which attempted to test Weiner's theoretical formulations in an actual classroom situation. Study I examined the responses of perceived causation of a mid-term examination performance, affective reaction to the examination performance, and anticipated performance change on a final examination as a function of individual differences in achievement motivation. Study II examined affective reactions to the examination performance and the anticipated performance change on a final examination as a function of ascriptions to each of the four perceived causes of the mid-term examination performance.

Hypotheses for Study I

Weiner has speculated that individuals high in achievement motivation will be more prone to attribute achievement outcomes to internal factors, while individuals low in achievement motivation will tend to attribute achievement outcomes to external factors. In addition to testing the extent to which this relationship held for college

students following feedback regarding their mid-term examination performance, this study also attempted to determine if levels of achievement motivation within a success or failure outcome was related to affective reaction and anticipated performance change. If, as Weiner has hypothesized, individuals high and low in achievement motivation attribute outcomes to internal and external factors, respectively, then both their affective reactions to the outcomes and anticipated performance change should also be related to achievement motivation levels. Although the experimental study by Kukla (1970) indicated that individuals low in achievement motivation tend to attribute failure outcomes to the internal factor of ability, the hypotheses in Study I will follow from the theoretical predictions formulated by Weiner regarding achievement motivation and perceived causality of achievement-related outcomes.

Study I was designed to examine college students' perceptions of causality of a mid-term examination performance, their affective reactions to the performance, and their anticipations regarding future performance on a final examination as a function of their levels of achievement motivation. These relationships were investigated within a group of students who received an A or B grade (Success classification) on the mid-term examination and within a group of students who received a D or F grade (Failure classification) on the mid-term examination. Within each performance outcome (Success or Failure), the predictor variable was achievement motivation levels, as measured by Mehrabian's Achievement Orientation Scale, and the criterion variables were ascriptions to the internal-external causal factors, the affective

reactions, and the anticipations of performance change. The specific hypotheses tested were:

1. Within the Success classification, it was predicted that students in the high achievement motive group would give more ascriptions to the internal causal factors, would have higher positive affect, and would be more confident of an increase in future performance than would students in the low achievement motive group.
2. Within the Failure classification, it was predicted that students in the high achievement motive group would give more ascriptions to the internal causal factors, would have higher negative affect, and would be more confident of an increase in future performance than would students in the low achievement motive group.

Hypotheses for Study II

Study II attempted to validate Weiner's postulated relationships between the control and stability dimensions and the resulting affective reactions and expectancy shifts. It was noted earlier that Weiner believed the affect experience to be primarily influenced by attributions to the internal or external causes, while expectancy of future performance was felt to be primarily influenced by attributions to the stable or unstable causes. To test these predictions within the two performance classifications (Success and Failure), students were assigned to one of four attribution groups based on their indication of which of the Heiderian factors they perceived to be the primary influence on their mid-term examination performance. The

students in the Success classification (A or B grade) were requested to attribute their outcome to one of the four perceived causes of success (high ability, high effort, examination ease, or good luck), while the students in the Failure classification (D or F grade) were requested to attribute their outcome to one of the four perceived causes of failure (low ability, low effort, examination difficulty, or bad luck). Each student within a performance outcome classification was then assigned to the appropriate cell of the 2 x 2 attribution table developed by Weiner (See Chapter II, p. 10). For both the Success and Failure outcome levels, it was hypothesized that affective reactions would be greater when summed over the two internal factors (ability and effort) than when summed over the two external factors (good or bad luck and examination ease or difficulty). Also at each performance outcome level, it was predicted that the expectancies of future examination performance would be greater when summed across unstable factors (effort and luck) than when summed across the two stable factors (ability and examination difficulty or ease). More specifically, following a successful outcome (A or B grade) on the mid-term examination, it was predicted that:

1. Students who attributed their performance to high ability would experience high positive affect and would be moderately confident of an increase in final examination performance.
2. Students who attributed their performance to high effort would experience the highest positive affect, and would be moderately confident of an increase in final examination performance.

3. Students who attributed their performance to examination ease would experience low positive affect and would be highly confident of an increase in final examination performance.
4. Students who attributed their performance to good luck would experience low positive affect and would be moderately confident of a decrease in final examination performance.

Following a failure outcome (D or F grade) on the mid-term examination, it was predicted that:

1. Students who attributed their performance to low ability would experience high negative affect and would anticipate little change in performance on the final examination.
2. Students who attributed their performance to low effort would experience the highest negative affect and would be highly confident of an increase in final examination performance.
3. Students who attributed their performance to examination difficulty would experience low negative affect and would anticipate little change in performance on the final examination.
4. Students who attributed their performance to bad luck would experience low negative affect and would be moderately confident of an increase in final examination performance.

As a result of the data analysis in Study I and Study II, an important and highly consistent set of relationships was discovered between the two performance outcome levels (success and failure) and the attributional, affective, and expectancy responses. Therefore, although not part of the stated objectives of this investigation, these relationships were reported and their significance discussed.

CHAPTER IV

METHOD

Study I: Achievement Orientation

Procedure and Measures

Approximately two weeks prior to a mid-term examination, students in five sections of introductory psychology at Oklahoma State University completed the Achievement Orientation Scale (Mehrabian, 1968). This instrument is a self-rating scale which allows individuals to express approach and avoidance tendencies in achievement contexts. Mehrabian (1968) and Weiner and Potepan (1970) have reported validity data indicating that the AOS does differentiate between individuals with high and low achievement motivation and that it can serve as a reliable measure of resultant achievement motivation. The AOS is composed of 34 items and the person indicates his strength of agreement or disagreement with each item on the scale from +3 to -3. The positive and negative items are then summed algebraically to give a total score.

On the class period following the mid-term examinations, the course instructors posted on the blackboard the range of examination scores for that particular section along with a letter grade conversion. The instructors returned to each student his examination answer sheet, which had recorded on it the number of multiple choice test items.

correct out of the total possible test items and the letter grade received. Students were allowed a short period to look over the answer sheets, and then, without discussing the examination, the instructor collected the answer sheets. Immediately following the collection of answer sheets, the instructor introduced the investigator¹ as a member of the Psychology Department at OSU who was conducting a research project designed to investigate some of the factors which students might feel contributed to their examination performance. The investigator then distributed to each student a Grade Evaluation Booklet. The students were instructed to read the two paragraphs on the cover page of the booklet, and after a short period the investigator read the paragraphs aloud to the students.

The introductory statements on the cover page of the Grade Evaluation Booklet were as follows:

You recently took an examination in this psychology section. Enclosed in this booklet is the letter grade that you received on this examination along with the number of test items that you got correct. As part of a research project that I am conducting this semester, I would like for you to respond to a questionnaire which includes certain questions about your recent examination performance: More specifically, I would like you to evaluate some of the possible factors which may have had an influence on your exam performance as well as to express how you presently feel about your performance.

Your responses to this questionnaire will in no way influence your grade in this course, so please be candid and honest in your judgments.

¹Dr. Bob Helm served as the investigator in the writer's two introductory psychology sections; the writer served as investigator in the other three sections.

Grade Evaluation Booklet

The GEB was comprised of five sections and the students completed the sections in the order presented in the booklet.

- a. General Information Sheet. Students were asked to provide general information regarding age, sex, and classrank.
- b. Perceived Success or Failure Rating. (See Appendix A).
At the top of the second page of the GEB, the students' letter grade on the psychology exam was given as well as the number of correct items out of the total number of examination items. Each student then indicated the extent to which he perceived his examination performance as successful or unsuccessful in one of six categories: Extremely Successful, Successful, Slightly Successful, Slightly Unsuccessful, Unsuccessful, and Extremely Unsuccessful.
- c. Attribution Rating Scale. (See Appendix B). Instructions for the ARS requested the student to indicate the extent to which he felt his mid-term grade was influenced by the factors of ability, effort, exam ease or exam difficulty, or luck. The student who marked one of the perceived success categories on the previous page was asked to indicate which of Heider's four categories (high ability, high effort, exam ease, or good luck) contributed most to examination success. The student who marked the perceived failure categories on the preceding page was asked to indicate which of Heider's four categories (low ability, low effort, exam difficulty, or bad luck) contributed most to examination failure.

- d. Affective Reaction Rating Scale. (See Appendix C). On the fourth page of the GEB, students expressed experienced affective reaction to the mid-term exam grade. The ARRS was composed of four semantic differential rating subscales which included the following bipolar adjectives: satisfied - dissatisfied, bad - good, happy - sad, and ashamed - proud. The four bipolar subscales provided each student an opportunity to express affect ranging from an extremely positive reaction (+4) to an extremely negative reaction (-4) on any particular subscale item. The total score on the 4-item affect scale ranged from +16 to -16. A neutral score (0) was assumed to indicate no affective reaction to the mid-term examination grade.
- e. Confidence Estimate of Expected Performance Change. (See Appendix D). On the last page of the GEB, students indicated the certainty of their belief that the raw score on the final examination would be higher, lower or the same as the raw score on the mid-term examination, assuming a final examination of the same degree of difficulty with the same number of test items. The confidence rating scale consisted of seven categories, corresponding to scores ranging from +3 to -3. The positive categories were anchored with the words, "I am certain that my score will be higher," while the negative categories were anchored with the words, "I am certain that my score will be lower." The students were instructed to mark the zero (0) category if they were

confident that their scores on the final examination would not change.

Comparison of Grading

The examinations given in the five psychology classes were all of the multiple choice variety with the number of test items varying from 45 items to 60 items. Instructors used individual standards for assigning letter grades, and the grade distribution frequencies for the classes varied slightly. For each of the psychology classes, the percentage of students in each letter grade category (A through F) can be seen in Table I.

TABLE I
PERCENTAGE OF STUDENTS IN THE VARIOUS
LETTER GRADE CATEGORIES

Section	<u>N</u>	Letter Grade				
		A	B	C	D	F
1	72	12	29	42	10	7
2	39	13	23	28	23	13
3	73	32	25	15	15	13
4	61	16	25	33	18	8
5	73	20	24	36	11	9

It has been suggested that task difficulty may be determined by social norms indicating how others have performed at the task (Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971). As can be seen in Table I, the percentage of students within particular grade categories suggests that normative feedback from the examinations was probably similar but not identical across the sections. The notable exception was in Section 3, where the percentage of students receiving the grade of "A" (32%) was somewhat larger than the other sections. Also the percentage of students receiving the grade of "C" was smaller for Section 3 than for the other sections (although these students were not included in the data analyses). However, although it may appear that students in this section were given feedback suggesting an easy examination, such feedback was not evident in the frequency of attributions to exam ease. Of all the successful students included in the final data analysis, only eight gave an examination ease attribution. Four of these students were in Section 3. However, when considered relative to the total number of successful students in Section 3 giving attributions (N=21), the four students attributing their successful performance to examination ease was a small proportion (19%).

Comparisons between perceived exam difficulty and grading in the Failure classification are informative with respect to variability in grade assignment. For example, of the eleven failing students in Section 1, seven (64%) indicated that they attributed their exam performance to exam difficulty, although Section 1 had the smallest proportion of failing grades of all the sections. Moreover, in Section 2, where the largest percentage of D's and F's were given, only one

student out of twelve (8%) attributed his failing grade to exam difficulty. These attributions are not consistent with the Weiner, et al. (1971) assumption that task difficulty is primarily determined by social norms growing from others' performance at a similar task. These data do seem to suggest, however, that the cues utilized by the student to estimate exam difficulty or ease are complex and probably multi-determined. It is very likely that students rely on a wide range of information, other than normative feedback, to assess exam difficulty (e.g. hearsay from students previously enrolled in the course, the teacher's assessment of the difficulty of his examination, the emotional stress involved in actually taking the exam, etc.). Attribution theorists, however, have generally indicated that lawful relationships between perceived causal elements and subsequent behaviors can be investigated without spelling out the complex influences which may have given rise to the attributions. Therefore, the noted variation in grade frequencies was assumed to be of indeterminable but probably minor significance.

Subjects

Subjects in Study I were 163 students who had taken the Achievement Orientation Scale, the Grade Evaluation Booklet, and who had received either a grade of A, B, D, or F on the mid-term examination. Of this number, eight were excluded from the study because of their perceived success or lack of success ratings were discrepant with the operationally defined success and failure categories based on letter grades, (See Appendix G and H), while an additional six students were excluded because they had zero scores on the AOS. The remaining 149 students

were then assigned to a Success (A or B grade; n=105) or Failure (F or D grade; n=44) classification. Within the two performance outcome classifications, students who scored in a positive direction on the AOS were assigned to a high achievement motive group (Hi Ach; n=70), while students who scored in a negative direction on the AOS were assigned to a low achievement motive group (Lo Ach; n=79). The sample sizes for the four groups were: Success-Hi Ach=53, Success-Lo Ach=52, Failure-Hi Ach=17, and Failure-Lo Ach=27.

The mean scores on the AOS for the four groups are presented in Table II. For the Success classification, the Hi Ach group had a

TABLE II

AOS MEANS FOR THE FOUR GROUPS

Outcome	<u>AOS</u>	N	\bar{x}
Success	Hi	53	12.79
	Lo	52	-13.87
Failure	Hi	17	16.41
	Lo	27	-17.59

mean of 12.79 and the Lo Ach group a mean of -13.87. For the Failure classification, the Hi Ach group had a mean of 16.41, while the Lo Ach group's mean was -17.59. A simple analysis of variance on the achievement scores for the four groups is presented in Table III.

TABLE III
ANALYSIS OF VARIANCE OF AOS SCORES

Source	SS	df	MS	F
Groups	31222.22	3	10407.41	88.08*
Error	17133.42	145	118.16	

*p < .0001

The F-value of 88.08 (df=3,145; p < .0001) indicated a highly significant group effect existed. A Newman-Keuls test on the achievement motive groups' means revealed that the high achievement motive groups in both the Success and Failure classifications differed substantially from the low achievement motive group at each outcome level (p < .001): Success-Hi Ach > Success-Lo Ach and Failure-Lo Ach; Failure-Hi Ach > Success-Lo Ach and Failure-Lo Ach. Insignificant differences were found between the two high achievement motive groups (Success-Hi Ach=Failure-Hi Ach) as well as between the two low achievement motive group (Success-Lo Ach=Failure-Lo Ach).

Although the AOS mean scores indicated that the high and low achievement groups were equated across the two performance outcome levels, a chi-square analysis was conducted to determine if the number of students in the high and low achievement groups were the same at the two performance outcome levels. These data are reported in

TABLE IV
 NUMBER OF HI ACH AND LO ACH STUDENTS IN THE
 SUCCESS AND FAILURE CLASSIFICATION

Outcome	Achievement Orientation	
	Hi	Lo
Success	53	52
Failure	17	27

Note = $\chi^2 = 7.94$, $df = 1$, $p < .01$.

Table IV. The chi-square value of 7.94 ($p < .01$) indicated that the frequency of students in the two achievement orientation categories differed markedly at each performance outcome level. It can be observed that within the Success classification a fairly equal breakdown of students occurred in the high and low achievement oriented groups, while for the Failure classification a disproportionately large number of students was represented in the low achievement motive group.

Additional information regarding the students' characteristics are presented in Appendices E-H. Appendix E has summarized the percentage of males and females represented in each of the four achievement groups. Generally the groups were similar in the percentage of males and females represented in each group, although a visual inspection of the frequencies indicated that the Success-Lo Ach group may have had a significantly larger number of females (69%) than

males (31%). Appendix F has presented the percentage of students in the four achievement groups according to classrank. The samples were mainly composed of freshman and sophomore students. Further, a F-test ($F=.03$) on the achievement groups' mean ages revealed them to be essentially the same average age: Success-Hi Ach = 19.62; Success-Lo Ach = 19.65; Failure-Hi Ach = 19.65, and Failure-Lo Ach = 19.30.

The extent to which the success and failure students within each achievement orientation group perceived their outcomes as successful or unsuccessful can be seen in Appendices G-H. For the most part Appendices G and H show that there was a tendency for the students in the Success classification to perceive their A and B grades as "Slightly Successful" or "Successful," while the students in the Failure classification tended to perceive their D and F grades as "Unsuccessful" or "Extremely Unsuccessful." One interesting comparison appeared in the Failure groups, where the Hi Ach students, when compared to the Lo Ach students, tended to have a higher percentage of students reporting their performance as "Extremely Unsuccessful": Failure-Hi Ach = 59% and Failure-Lo Ach = 37%.

CHAPTER V

RESULTS

Achievement Orientation and Locus of Control

It was hypothesized in Study I that within both the Success and Failure classification the Hi Ach group would have a disproportionately high number of students making internal attributions when compared to the Lo Ach group. Table V presents the percentage of high and low achievement oriented students at each performance outcome making ascriptions to the Heiderian causal factors. The frequency of high and low achievement oriented students within the two control categories (internal vs. external) for the Success classification is given in Table VI. Table VI shows that 43 students in the Hi Ach group gave internal attributions, while 10 Hi Ach students gave external attributions. However, contrary to the prediction, the Lo Ach group had a distribution remarkably similar to the Hi Ach group. The chi-square of .96 with one degree of freedom was far from significant, indicating the difference between the two achievement oriented groups on the dichotomous control dimension could be attributed to chance.

The frequency of high and low achievement oriented students within the two control categories for the Failure classification is given in Table VII. The Hi Ach and Lo Ach groups' frequency distributions

TABLE V
 NUMBER OF HI ACH AND LO ACH STUDENTS
 WITHIN EACH ATTRIBUTION CATEGORY

Group	AO	N	%	Total N	Total %
Success					
Hi Ability	Hi	17	16	31	29
	Lo	14	13		
Hi Effort	Hi	26	25	56	53
	Lo	30	28		
Exam Ease	Hi	3	3	5	5
	Lo	2	2		
Good Luck	Hi	7	7	13	13
	Lo	6	6		
Failure					
Lo Ability	Hi	2	4	4	8
	Lo	2	4		
Lo Effort	Hi	7	16	17	39
	Lo	10	23		
Exam Difficulty	Hi	6	14	18	41
	Lo	12	27		
Bad Luck	Hi	2	5	5	12
	Lo	3	7		

TABLE VI
 NUMBER OF HI ACH AND LO ACH SUCCESS
 STUDENTS WITHIN THE TWO INTERNAL-
 EXTERNAL ATTRIBUTION CATEGORIES

Achievement Orientation	Attribution Category	
	Internal	External
Hi	43	10
Lo	44	8

*Note = $X^2 = .96$, $df = 1$, n.s.

TABLE VII
 NUMBER OF HI ACH AND LO ACH FAILURE STUDENTS
 WITHIN THE INTERNAL-EXTERNAL
 ATTRIBUTION CATEGORIES

Achievement Orientation	Attribution Category	
	Internal	External
Hi	9	8
Lo	12	15

Note - $X^2 = .30$, $df = 1$, n.s.

across the two locus of control dimensions were very similar ($X^2 = .30$, $df = 1$, n.s.), again negating the hypothesis of achievement motive group differences.

The above findings indicate that the achievement orientation classification was unrelated to the internal-external attributions made by the subjects in the Success and Failure classifications. However, the two performance outcome levels were significantly related to the I-E categories. As can be seen in Table VIII, the Success students tended to attribute their A or B grades to internal factors, while the Failure students tended to have an even split between the two control categories. The frequency of internal vs. external attributions given within each performance outcome was shown to be highly dependent upon the success or failure experience ($X^2 = 19.17$, $df = p < .001$). An examination of Table V reveals that the

TABLE VIII
 NUMBER OF SUCCESS AND FAILURE STUDENTS
 WITHIN THE TWO INTERNAL-EXTERNAL
 ATTRIBUTION CATEGORIES

Outcome	Attribution Category	
	Internal	External
Success	87	18
Failure	21	23

Note - $\chi^2 = 19.17$, $df = 1$, $p < .001$

majority of the Success group (82%) attributed their success to internal factors of either high effort (53%) or high ability (29%), while the Failure group's major attributions were to low effort (39%), an internal factor, and exam difficulty (41%), an external factor. Not surprisingly, the subjects in this sample were thus less likely to claim personal responsibility for failure than for success.

Achievement Orientation and Affective Reaction

It was hypothesized that within the Success classification, the Hi Ach students would report experiencing higher positive affect, following examination feedback, than would the Lo Ach students. However, in the Failure classification, it was felt that the Hi Ach students would report higher negative affect following examination feedback than would the Lo Ach students. The Affective Reaction Rating Scale mean

scores for the four achievement groups are presented in Table IX. The mean affect scores were: Success-Hi Ach = 5.58, Success-Lo Ach = 7.00, Failure-Hi Ach = -11.35, Failure-Lo Ach = -11.70. High positive scores indicate reports of high positive affective reactions, while high negative scores indicate reports of high negative affective reactions. A simple analysis of variance on the affect scores for the groups is presented in Table X. The analysis on the affect scores indicated that

TABLE IX
MEAN AFFECT SCORES FOR THE GROUPS

Outcome	AO	N	\bar{x}
Success	Hi	53	5.68
	Lo	52	7.00
Failure	Hi	17	-11.35
	Lo	27	-11.70

a highly significant group effect was present ($F = 121.51$, $df = 3,145$, $p < .0001$). A Newman-Keuls test on the groups' means showed that the group effect was accounted for by highly significant differences between the Success and Failure classifications. In other words, the two achievement motive groups within the Success classification, while not differing from each other, did differ significantly from

TABLE X
ANALYSIS OF VARIANCE OF THE AFFECT SCORES
FOR THE FOUR ACHIEVEMENT GROUPS

Source	SS	df	MS	F
Groups	9983.60	3	3327.87	121.51*
Error	3971.07	145	27.39	

*p < .0001

the two achievement motive groups within the Failure classification. Likewise, the two Failure groups did not differ (Failure-Hi Ach = Failure-Lo Ach), but these two groups did differ substantially from the Success-Hi Ach and Success-Lo Ach groups. These data failed to support the contention that the two achievement groups (Hi Ach vs. Lo Ach) would differ on the ARRS ratings at each performance outcome level, although again differences were in evidence between the Success and Failure classifications when achievement orientation was discounted. The magnitude of the means, indicated that the success students tended to experience moderate positive affect following examination feedback, whereas the failing students tended to experience extreme negative affect. This finding was consistent with data describing students' perceptions of the extent of success or failure of their performance (See Appendices G and H).

Achievement Orientation and Expected
Future Performance

It was predicted that within the Success classification, the Hi Ach students would have higher estimates of increased future performance on the final examination than would the Lo Ach students. In the Failure classification, it was also felt that the Hi Ach students would have higher confidence estimates of increased final examination performance than would the Lo Ach students. The mean confidence estimates on expected future score change for the four groups are given in Table XI.

TABLE XI
MEAN CONFIDENCE RATINGS ON EXPECTED PERFORMANCE
CHANGE FOR THE FOUR GROUPS

Outcome	AO	N	\bar{x}
Success	Hi	53	1.57
	Lo	52	1.29
Failure	Hi	17	2.41
	Lo	27	2.37

The analysis of variance on the confidence estimates of performance change for the four achievement groups is presented in Table XII. A highly significant group effect was found ($F = 8.77$, $df = 3, 145$, $p < .001$).

TABLE XII
ANALYSIS OF VARIANCE OF ESTIMATES OF
PERFORMANCE CHANGE

Source	SS	df	MS	F
Groups	30.47	3	10.16	8.77*
Error	168.11	145	1.16	

*p < .001

A Newman-Keuls test indicated that the Success-Hi Ach groups ($\bar{x}=1.57$) differed significantly from the two Failure achievement oriented groups (\bar{x} 's = 2.41 and 2.37; $p < .01$). Also the Success-Lo Ach students ($\bar{x} = 1.29$) differed from the Failure-Hi Ach students ($\bar{x} = 2.41$; $p < .05$) and the Failure-Lo Ach students ($\bar{x} = 2.37$; $p < .01$). Within a performance outcome level, the high and low achievement oriented groups did not differ. These findings were again not in line with the predictions. Thus, although evidence was present indicating sizeable differences between the outcome levels on each criterion measure, there was no evidence establishing a functional relationship between achievement orientation scores and the criterion measures.

CHAPTER VI

METHOD

Study II: Attribution Analysis

Procedure and Measures

Subjects in Study II were students in five sections of introductory psychology who received a letter grade of A, B, D, or F on the mid-term examination and who had completed the five sections in the Grade Evaluation Booklet on the day the examination results were returned. Except for the omission of the Achievement Orientation Scale, the procedures and measures in Study II were identical to Study I. A description of the Grade Evaluation Booklet is given in the Method section of Study I and Appendices A-D.

Subject Assignment

Of the 105 students in Study I, 103 were also included in Study II, plus an additional 75 students who failed to qualify for Study I by not taking the AOS. Of these students, 13 were excluded from Study II because their self-reported success or failure did not correspond to the operationally defined categories of success and failure based on letter grades. Therefore, the total number of participants in Study II was 178.

Students who received either an A or B letter grade on the mid-term examination (Success classification, N=118) were assigned to one of four groups (Hi Ability, Hi Effort, Exam Ease, or Good Luck) according to their ratings on the Attribution Rating Scale. The sample sizes for the four groups within the Success classification were: Hi Ability = 29, Hi Effort = 66, Exam Ease = 8, and Good Luck = 15. Likewise, students who received either F or D grades on the mid-term examination (Failure classification, N=60) were assigned to one of four attribution groups according to their ARS ratings: Lo Ability = 4, Lo Effort = 28, Exam Difficulty = 23, and Bad Luck = 5.

Subject Characteristics

The classrank, sex, age characteristics of the eight attribution groups are given in Appendices I-K. As in Study I, the students in the eight attribution groups were mainly freshman and sophomores of essentially the same mean age. Within each of the attribution groups, the sex breakdown was similar, although there did appear to be a higher proportion of males (64%) than females (36%) in the Lo Effort group.

Appendices L and M has presented the number and proportion of students within each of the respective successful-unsuccessful rating categories according to outcome level. The perceived success and failure ratings by the subjects in Study II were similar to those in Study I. The Success students tended to rate their performance as only "Slightly Successful" or "Successful," while the Failure students tended to mark the "Unsuccessful or "Extremely Unsuccessful" categories.

CHAPTER VII

RESULTS

Study II attempted to validate Weiner's postulated relationships between causal attribution to achievement outcomes, the resulting affective reaction, and expectancy change. Weiner proposed that affect would be influenced by attributions to internal vs. external factors (control dimension), whereas expectancy of future performance change would be influenced by attributions to the stable vs. unstable factors (stability dimension). More specifically, it was predicted that in the Success classification, students who attributed their exam performance to high ability or high effort would experience high positive affect, while students attributing their performance on exam ease or good luck would experience low positive affect. On the confidence estimates of future performance change, it was felt that the Hi Ability and Hi Effort groups would be moderately confident in an increase in the final examination score. The Exam Ease group was predicted to have high confidence in an increase in the final exam score, while the Good Luck group was predicted to anticipate a moderate decrease.

In the Failure classification, it was hypothesized that the Lo Effort group would have the highest negative affect with the Lo Ability group having the next highest negative affect. The Exam Difficulty and Bad Luck groups were expected to report the lowest

affective reactions. Regarding the score change expectations on the final examination, it was predicted that: the Lo Ability group would have the lowest expected score change; the Exam Difficulty group would have the next lowest anticipated score change; the Bad Luck group would anticipate a moderate increase in score; and the Lo Effort group would be highly confident of an increase in final exam performance.

Causal Attribution and Affect

The mean scores on the Affective Reaction Rating Scale measure for the four Success groups is given in Table XIII. The analysis on

TABLE XIII
AFFECT MEANS FOR THE SUCCESS GROUPS

Groups	N	\bar{x}
Hi Ability	29	6.76
Hi Effort	66	6.89
Exam Ease	8	7.63
Good Luck	15	1.93

the affect scores for the four Success groups is given in Table XIV. A 2 x 2 analysis of variance for unequal cell frequencies (Weiner, 1971, pp. 445-449) was used to evaluate main effects. The analysis of variance on the affect scores revealed a significant main effect

on the Stability dimension ($\underline{F} = 4.30$, $df = 1,114$; $p < .05$), but not the Control dimension ($\underline{F} = 2.33$, n.s.). However, the Stability x Control

TABLE XIV
ANALYSIS OF VARIANCE OF AFFECT SCORES
FOR THE SUCCESS GROUPS

Source	SS	df	MS	F
Stability	131.41	1	131.41	4.39*
Control	71.40	1	71.40	2.33
Stability x Control	143.82	1	143.82	4.70*
Within Error	3482.70	114		

* $p < .05$

interaction was significant ($\underline{F} = 4.70$, $df = 1,114$; $p < .05$) indicating the need to qualify the significant Stability effect. A Newman-Keuls test¹ on the cell means showed that the Stability effect and Stability x Control interaction effect was produced by the Good Luck group's affect mean ($\bar{x} = 1.93$) differing significantly from the mean scores of the other three attribution groups in the Success classification ($p < .05$).

¹All individual comparisons in the Results section of Study II are tested by a Newman-Keuls procedure using a harmonic mean derived from the two most extreme sample n 's. This results in a conservative estimate of group differences.

It was predicted from Weiner's model, that the Control main effect would be significant, while the Stability and Stability x Control interaction would not be significant. However, it can be seen in Table XIV, that the statistical significance was not as predicted. However, it is apparent from the direction and magnitude of the cell means that the main effects were the result of the two external factors being so widely divergent. The Good Luck group had by far the lowest affect mean, as predicted, but the other external group (Exam Ease) had the largest affect mean. Therefore, only one cell mean was not in line with Weiner's predictions -- the Exam Ease group. This unanticipated finding does, however, indicate a need to qualify Weiner's hypothesized relationship between causal attribution and affective responses when the success outcome in a college examination and the subjects studied are college students.

The affect mean scores for the four Failure attribution groups are given in Table XV. The analysis of variance on the affect scores

TABLE XV
AFFECT MEANS FOR THE FAILURE GROUPS

Groups	N	\bar{x}
Lo Ability	4	-10.50
Lo Effort	28	-10.82
Exam Difficulty	23	-11.25
Bad Luck	5	-11.40

at the two Control dimension levels (internal vs. external factors) and the two Stability dimension levels (stable vs. unstable factors) can be seen in Table XVI. No significant main effects were found on the Failure groups' mean affect scores. All of the mean scores were similar and in a high negative direction: Lo Ability=-10.50; Lo Effort=-10.82; Exam Difficulty=-11.25; and Bad Luck=-11.40.

TABLE XVI
ANALYSIS OF VARIANCE OF THE FAILURE
GROUPS' AFFECT SCORES

Source	SS	df	MS	F
Stability	.48	1	.48	-
Control	3.60	1	3.60	-
Stability x Control	.00	1	.00	-
Within Error	1113.44	56	20.24	

Causal Attribution and Expected
Performance Change

The mean confidence estimates on anticipated final examination score change for the four Success groups have been presented in Table XVII. High scores indicate high confidence in an increase in final examination performance. The analysis of variance of the confidence

estimates of future performance change is given in Table XVIII. The analysis showed that the predicted Stability main effect was nonsignificant, as was the Control main effect. However, the Stability x Control interaction, although nonsignificant, did reach the .90

TABLE XVII
MEAN CONFIDENCE ESTIMATES ON EXPECTED
PERFORMANCE CHANGE FOR
THE SUCCESS GROUPS

Groups	N	\bar{x}
Hi Ability	29	1.71
Hi Effort	66	1.20
Exam Ease	8	1.25
Good Luck	15	1.60

probability level. Proceeding without statistical support a visual inspection of the means showed that the prediction of the highest performance increment rating by the Exam Ease group and the prediction of a confident performance decrement rating by the Good Luck group was not supported. Moreover, the Hi Effort group tended to have the lowest confidence in an improved final examination performance, while the Hi Ability group reported the highest confidence in performance increment; the relationship between these means was also inconsistent with the hypothesis.

TABLE XVIII
ANALYSIS OF VARIANCE OF THE PERFORMANCE CHANGE
CONFIDENCE ESTIMATES FOR THE SUCCESS GROUPS

Source	SS	df	MS	F
Stability	.17	1	.17	-
Control	.17	1	.17	-
Stability x Control	3.06	1	3.06	2.83*
Within Error	123.12	114	1.08	

*p < .10

The mean confidence estimates on the expected examination performance change for the Failure groups are in Table XIX. The analysis of variance on the confidence estimates for the four Failure groups is given in Table XX. As with the Success groups, none of the main effects on the confidence estimates were significant. The F value (F = 3.33) for the Stability dimension, however, did approach a significant level ($p < .10$). Although again proceeding without the support of a .95 level of confidence, the magnitudes of the cell means did appear to generally be in the predicted direction. Weiner's model led to the predictions that the students who attributed failure to stable factors (Lo Ability and Exam Difficulty) would have low estimates of anticipated future performance, while students attributing

the performance to the unstable factors (Lo Effort and Bad Luck) would have high estimates of anticipated future performance. The means for the four Failure attribution groups were in the predicted direction. As hypothesized, the mean confidence estimate by the Lo Ability group was the lowest ($\bar{x}=1.50$), whereas, the Lo Effort group had the highest confidence estimate ($\bar{x}=2.60$). Also the Exam Difficulty group ($\bar{x}=2.13$) and the Bad Luck group ($\bar{x}=2.40$) had intermediate mean values as predicted.

TABLE XIX
MEAN CONFIDENCE ESTIMATES ON EXPECTED
PERFORMANCE CHANGE FOR
THE FAILURE GROUPS

Groups	N	\bar{x}
Lo Ability	4	1.50
Lo Effort	28	2.60
Exam Difficulty	23	2.40
Bad Luck	5	2.13

Performance Outcome: Affect and
Expected Performance

Although not part of the stated hypotheses, post hoc statistical analysis were conducted to determine if differences existed between the

TABLE XX
ANALYSIS OF VARIANCE OF THE PERFORMANCE
CHANGE CONFIDENCE ESTIMATES FOR
THE FAILURE GROUPS

Source	SS	df	MS	F
Stability	3.76	1	3.76	3.33*
Control	.40	1	.40	-
Stability x Control	1.36	1	1.36	1.20
Within Error	75.04	56	1.13	

*p < .10

Success and Failure classifications on the affect and expectancy variables. The analysis of variance of the affect scores for the four attribution groups at each performance level is presented in Table XXI. The analysis used was a 2 x 4 design for unequal sample sizes. Table XXI indicates that a highly significant Outcome effect (Success vs. Failure classifications) was present ($F=192.90$; $df=1,170$; $p<.0001$), with the Attribution group's main effect and the interaction term failing to reach statistical significance. The Success attribution group's overall mean score was 5.80, and the Failure attribution groups' overall mean was -10.99. This result indicated that the F and D students experienced a high negative

affect, following examination performance feedback, while the A and B students experienced moderately positive affect. This difference between affect ratings for the two performance outcomes was essentially the same result as reported in Study I.

TABLE XXI

ANALYSIS OF VARIANCE OF AFFECT SCORES FOR THE
ATTRIBUTION GROUPS (ATTRIBUTION) WITHIN
THE SUCCESS AND FAILURE CLASSIFICATIONS
(OUTCOMES)

Source	SS	df	MS	F
Outcome	5569.78	1	5569.78	192.90*
Attribution	120.78	3	40.20	1.39
Outcome x Attribution	85.74	3	28.58	.99
Within Error	4907.90	170	28.87	

* $p < .0001$

Table XXII has presented the analysis of variance of the expectancy scores for the attribution groups at each performance outcome level. The Success classification overall mean expectancy score ($\bar{x}=1.44$) was found to differ significantly from the Failure classification overall mean expectancy score ($\bar{x}=2.16$). The F value was 9.81 ($p < .0025$). This finding indicated that the F and D students anticipated a greater increase in final examination performance than did the A and B students,

regardless of the attribution category. This finding is again the same as that in Study I where a sizeable mean difference was found between the Success and Failure classifications on the expectancy scores.

TABLE XXII

ANALYSIS OF VARIANCE OF THE EXPECTANCY SCORES
FOR THE ATTRIBUTION GROUPS (ATTRIBUTION)
WITHIN THE SUCCESS AND FAILURE
CLASSIFICATIONS (OUTCOME)

Source	SS	df	MS	F
Outcome	10.69	1	10.69	9.81*
Attribution	3.21	3	.69	-
Outcome x Attribution	7.14	3	2.38	2.18
Within Error	185.30	170	1.09	

*p < .0025

CHAPTER VIII

DISCUSSION

Achievement Orientation: Study I

Based on the previous laboratory studies by Weiner, et al., it was assumed that achievement motivation would be a particularly important motive in perceptions related to examination performance. However, the results of the first study yielded no supporting evidence that achievement orientation, as measured by the Mehrabian instrument, was related to the response variables studied. Students classified as high and low in achievement orientation did not differ in their affect and expectancy rating scores. Further, the achievement orientation classification did not differentiate between students' attributions on the locus of control dimension. Therefore, these results failed to support the prediction that students high in achievement orientation would be more prone to attribute examination outcomes to themselves and thereby assume greater personal responsibility for such outcomes.

Perhaps it is not surprising that achievement needs were not related to affect, expectancy, and causal attributions, since such needs have also been unrelated to college grades, one important index of achievement success. Correlations between achievement needs and grades have generally ranged from negligible to low. The reason often advanced to explain such low correlations between achievement needs

and actual achievement behavior is that grades are tied to hopes for a future, a career goal, of all students whether high or low in achievement needs. Every course, and in a sense every examination, represents a component toward such objectives. Also it has been suggested (Weiner, 1972, p. 227) that performance differences due to motivational factors are confined to students of intermediate ability. Bright students probably do well and dull students do poorly regardless of motivational influences. Only the students with intermediate ability can rely on personality and motivational factors to enhance or decrease performance.

McKeachie (1958) reported a number of years ago that achievement motivation alone is not a good predictor of student achievement in the classroom. Students' motivation for achieving may be related to such a wide range of influences, such as the promise of a new car or eligibility for fraternity or sorority membership, that the prediction of achievement behavior on the basis of a general motivation measure is unrealistic. In any case, after a series of studies on students at the University of Michigan, McKeachie concluded that students work mainly for grade incentives. Whatever is desired or anticipated, "...grades are such universal incentives that general motivation measures are not powerful predictors of achievement in a single typical college class" (p. 583).

Although individual differences in achievement orientation failed to aid prediction on the responses measures employed in the present study, clearcut differences were observed between the successful and failing students. The reader will recall that students who experienced a successful grade outcome tended to perceive their

performance as due to internal factors of effort and ability, whereas the students who experienced a failing grade outcome tended to perceive their performance as caused by low effort or examination difficulty. The affect and expectancy rating scores were also significantly affected by the performance classifications. Students experienced moderately positive affect following success and extreme negative affect following failure, and there was an overall tendency for the failure students to anticipate larger score increments on the final exam than did the successful students. These relationships between outcome and affect and expectancy were replicated in Study II.

These highly reliable relationships between performance outcome and the responses of affect and expectancy, and the failure to obtain an effect of achievement orientation, suggest that affective and cognitive experience in a real life situation are subject to greater influence by external circumstance than by personality predisposition. Subjects in this study were reminded of their relative performance on the test and when asked to react to that event, achievement motivation as a personality trait did not matter. It has already been indicated that the achievement orientation measure may have been irrelevant because college performance is related to a common aspiration. However, even if this were not so, the subject selection procedures employed in this study would more likely group students on a dull-bright continuum than on a high-low achievement needs continuum. It may be that in the "C" grade range, dullness and brightness are more randomly distributed. If so, it might prove fruitful to look for personality effects in these students where success and failure is less related to ability. In any case, the relative influence of

personality predisposition (such as achievement needs) versus cognitive response to situational determinants (such as passing or failing a college examination) in attributional behavior promises to be an important issue in future research.

Attributional Analysis: Study II

In Study II, the most commonly reported cause of A or B grades were high effort (n=66; 56%) and high ability (n=29; 25%) with a relatively small number of students perceiving success as due to good luck (n=15; 13%) or exam ease (n=8; 7%). For the students receiving a F or D grade, low effort (n=28; 47%) was the most used attributional category, followed closely by exam difficulty (n=23; 38%). Low ability (n=4; 7%) and bad luck (n=5; 8%) were less employed categories. Effort, therefore, was the attribution most commonly used to account for the examination outcomes. Similar percentages were found in the Success and Failure classifications reported in Study I (See Table V).

A recent article by Simon and Feather (1973), published subsequent to the present investigation, reported findings similar to those given above. These researchers had college students from the Flinders University of South Australia rate, prior to an examination, their ability, amount of preparation for the upcoming exam (effort), the anticipated difficulty of the exam, and the confidence they had that they would either pass or fail the exam. Following the examination, the students were asked to rate the importance of Heider's four perceived causes of exam performance.

Simon and Feather found that the amount of preparation (or effort) contributed most to initial expectancies of success and failure. Following exam feedback these investigators found a greater appeal to internal factors following success and a greater appeal to external factors following failure. Ability and effort attributions characterized the successful students and task difficulty and bad luck attributions characterized the failing students. Simon and Feather interpreted their findings to mean that students tend to use ego-enhancing maneuvers following success, while failing students tend to rely on externalizing ego-defensive maneuvers. The results of the present investigation are generally in agreement with Simon and Feather's, but unlike Simon and Feather, the present studies did not find a tendency for the failing students to claim bad luck as an important cause of their outcome. Instead low effort and exam difficulty were the most often reported attributions for failure.

Procedural differences in the two studies may also account for this discrepancy. Simon and Feather's subjects predicted future success or failure on an exam in addition to giving pre- and post-exam attributional responses. One must wonder about the extent to which these subjects were confronted with the task of maintaining consistency between their experience and their expectancies. For example, these investigators found that expected outcomes tended to be attributed to stable factors, while unexpected outcomes were attributed to luck, an external and unstable factor. It is conceivable that the importance of bad luck as a perceived cause of failure represents an attempt at maintaining consistency on the part of these students. If, for instance, these students

claimed preparation and anticipated success, they could not with consistency attribute failure to low effort -- the attribution would have to be external. Subjects in the present investigation, however, did not have to maintain response consistency between their expectations and an actual future outcome.

The comparison between the Simon and Feather and the present findings suggest that future research in this area will probably find basic similarities in achievement-related attribution behavior, although some differences may emerge as a consequence of differences in statistics, procedure, and subjects used.

Attributional Analysis: Affect and Expectancy

The prediction that internal or external attributions for success or failure experiences would be significantly associated with affect rating scores was not supported. Emotional reactions were for the most part the consequence of performance outcome rather than the attribution given. In the Success classification, students who attributed their outcome to high ability, high effort, or exam ease tended to report experiencing similar positive affect. In other words, receiving a high mid-term exam grade which was perceived as due to an external circumstance, such as exam ease, produced essentially the same degree of positive feelings as a high grade perceived as due to the internal factors of ability or effort.

Students who attributed their successful grades to good luck reported substantially lower affect than did the other Success groups following an A or B grade. Why would students who employed the two external attribution categories of exam ease and good luck have such

disparate affective scores? Weiner's formulations indicate that exam ease and good luck attributions should result in similarly low affect reactions. However, the luck factor may have been perceived by the students as a truly external event, determined by chance or complete randomness, while students claiming exam ease may have perceived some personal influence over the ease of the exam. For example, a test may have been perceived as easy because one has completely mastered the material (effort or preparation) or because of a superior capacity to handle the exam material (ability). If so, then these results are not inconsistent with Weiner's basic postulate that success experiences which are attributed to internal factors will yield higher positive affect than will success experiences which are attributed to external factors.

The predicted difference between the internal and external control categories on the affect scores was also not supported for the Failure classification. In fact, the four Failure attribution groups experienced essentially the same negative affect. No matter whether the students saw their failure outcome as internally or externally caused, an F or D grade was reported on the semantic differential subscales of the Affective Rating Scale as bad, sad, dissatisfying, and shameful. Failing students also had a universal tendency to rate their exam performance as "unsuccessful" or "extremely unsuccessful."

The message from the affect data obtained from students in this investigation was thus clear; A or B grades were a pleasant experience for students, while F or D grades were an unpleasant experience. Moreover, these emotional experiences characterized the students regardless of their perceived cause of the performance outcome. The

relative absence of a relationship between affect and attributions to internal versus external factors, except for the qualifications noted, highlights the need to take into account the setting in which the subjects are studied as well as their involvement in the task. Earlier studies reported laboratory-based investigations where affective reactions followed success or failure at simple laboratory tasks. The difference in emotional response produced by failing a simple experimental task in which the outcome probably does not extend beyond the laboratory itself, versus failing a college examination in which long range career goals may be jeopardized, may account for these discrepant results. Weiner has assumed that, following performance outcomes, causal perceptions precede and determine the experienced affect. However, in the present situation, in which students were assumed to be ego-involved in a highly relevant task, it did not appear as though causal cognitions mediated affective experience. Rather it was as if the experiences themselves--- especially failure, and to some extent success---elicited a conditioned emotional response. It may be that after thirteen or fourteen years of conditioning in the educational process, grades serve as reliable cues of success or failure, thereby triggering autonomic emotional reactions. Cognitive interpretation or rationalization of performance outcomes may then follow such experiences, rather than the other way around.

No significant effects on the expectancy data were found for the successful or failing students. The predicted difference between the stable and unstable causal factors was not statistically supported, although an interaction effect approached significance within the

Success classification ($p < .10$) and the Stability effect approached significance within the Failure classification ($p < .10$).

Although one might suspect that a "ceiling effect" would characterize the successful students' estimates of future performance, all of the successful students confidently predicted a performance increase on the final examination. Examining the interaction between attributions and future performance expectancies for successful students, it was found that the largest performance increments were anticipated by the students who perceived their examination as caused by high ability or good luck. Smaller increments in future performance were anticipated by the students who attributed their performance to high effort or exam ease.

Unexpectedly, students who attributed their performance to high ability, a stable factor, reported the highest confidence estimates for improved future performance. It is generally assumed by attribution theorists that when ability is employed by a person to account for performance outcomes, his attribution represents a perception of maximum utilization of ability. However, it may be that a person can view a performance outcome as reflecting varying degrees of ability in the same way a person may see outcomes as due to degrees of effort. Or the anticipation of increments in future performance in the high ability group may reflect a willingness to combine high ability with greater effort. In any case, students who attribute an exam outcome to high ability clearly do not assume that an increase in future performance is impossible. Rather they assume that it is more probable.

There is an intuitive appeal to the finding that those attributing high effort to present outcomes anticipated the least improvement in future performance. These are perhaps the students who feel that they have put forth their best effort within the limits of their ability. Although it may be possible for the student to apply some increase in effort in preparation for the final examination, the increase would be small if current effort is near maximum. Thus, the high ability group can anticipate additional improvement via increased effort, but the high effort students cannot anticipate improvement increments through increased ability.

It is most difficult to provide a plausible account for why the good luck group appeared highly confident of performance increments, while the exam ease group reported much lower anticipated increments. This is particularly difficult to understand when the good luck group reported low affective reactions to the performance, while the exam ease group reported high positive reactions. There is, of course, the possibility that the small number of students in the good luck group (n=15) and especially the exam ease group (n=8) resulted in unreliable estimates on either affect or expectancy or both. Or these results may reflect reliable judgments on the part of these students. If so, a possible explanation for these results may be found in the percentage of A and B grades received by these students. An examination of the letter grades showed that in the Good Luck group only 3 of 15 students (20%) received a grade of "A," while in the Exam Ease group, 3 of 8 students (37%) received a grade of "A." It may be that the students who gave a good luck attribution were also the students who had the lower success scores; therefore, while

experiencing less positive reactions to their grades, these students did have the great opportunity to increase their performance. With the Exam Ease group receiving somewhat higher scores, they would naturally experience greater positive affect as well as anticipate less increase in future performance. Further, these students may not really anticipate a final examination of comparable ease, although the instructions in this study asked them to think in these terms.

For the Failure students, the expectancy shift data resulted in a statistical near miss. The Stability dimension main effect was significant at the 90% confidence level. The magnitude of the mean values on the confidence estimates showed that the low ability group had the lowest anticipated increase on the final exam performance with the low effort group having the highest estimates. The exam difficulty and bad luck groups had intermediate values. It should also be pointed out that very few students attributed their performance to low ability ($n=4$) or bad luck ($n=5$), and therefore the generalizability of these data must be questioned. It is interesting to note, however, that although the low ability group had the smallest confidence estimates of future performance, their mean value ($\bar{x}=1.50$) nevertheless reflected an expectation for improved future performance. In fact, of the 178 students who served as subject in Study II, only one student reported an anticipated decrease in performance on the final examination. Such an ubiquitous optimism on the part of both the successful and failing students may reflect a common feeling that extra effort might overcome the obstacles of ability, luck, or examination difficulty. However, as Simon and Feather (1973) indicated,

attributions often represent defensive maneuvers, and may not be intended as valid predictors of actual performance at a future task.

Evaluation of Weiner's Achievement- Attribution Model

Three kinds of research strategies have been employed to test Weiner's achievement-attribution model. One set of studies (Kukla, 1970; Weiner, Heckhausen, Meyer & Cook, 1971) had subjects in a laboratory setting attribute causality to success and failure experiences over a series of trials at a simple motor task. In another approach, Frieze and Weiner (1971) requested subjects to attribute causality to performance outcomes described in scenarios. In one phase of this study subjects were asked to project themselves into the abstract situations, while in another phase of the study the subjects attributed causality to achievement outcomes to hypothetical persons. In a third research approach (Weiner & Potepan, 1970) scores obtained from students on tests of achievement motivation and locus of control were correlated following feedback on a mid-term examination. In all of these studies, attribution of causality was to an achievement outcome in which the subjects probably had little ego involvement.

The empirical findings reported in the above studies generally support Weiner's model, but such findings have mainly been derived from artificial situations. It was the purpose of the present investigation to determine if the Weiner model could be applied to a more real life achievement situation where the subjects were perhaps more highly involved in the achievement outcomes. Therefore,

this investigation set forth to examine the value of Weiner's formulations in predicting achievement-related responses in an actual classroom situation where the achievement task was a college examination.

The findings in this investigation indicated that Weiner achievement attribution model did not adequately predict how college students would respond affectively or cognitively to their success or failure experience following examination feedback. No support was found for Weiner's prediction that causal attribution, affect and expectancy would be a function of individual differences in achievement motivation, while only weak and scattered support was found for the functional relationships between the dependent variables of affect and expectancy and the predictor variables of causal perception.

In part, this discrepancy between the present findings and previous laboratory-based findings may be accounted for in terms of situational and task differences. For instance, there was some evidence in the present study that college students may react more irrationally to examination outcomes than do subjects to an experimental task outcome. In laboratory studies where a subject is given a series of trials to perform the same task, an attribution of high ability to a successful outcome is often followed by estimates of an anticipated moderate increase in future success on later trials. Such confidence in moderate performance increments is reasonable since additional trials at the task may bring improvement via practice. In the present investigation, college students who perceived their success on the mid-term examination as due to their

high ability tended to report high confidence in an increase performance on the final examination.

Such high confidence estimates of future performance increase by the college students seems less reasonable since presumably the final examination would be a totally new task in which no practice effects would be operating. These reactions should signal to future researchers that the importance of the achievement outcome to the individual, as well as the type of task studied, can have an important bearing on the research findings.

One possible modification in Weiner's model, then would be the incorporation of a set of concepts which would provide for the role of task and situational influences in achievement settings. Some tasks are more important to an individual than others. It is felt that a subject's emotional reaction following failure at a digit substitution task cannot be equated with the emotional reaction experienced by a college student following failure on a college examination. Weiner, however, makes no provision for the relevance that the achievement task has for the individual. Yet the most important predictor of affective and cognitive experience found in this study was the examination outcome variable (success or failure). In the only other study (Simon & Feather, 1973) relating Weiner's model to examination outcomes, similar results were found.

Only future research can provide a final determination as to the value of Weiner's model in predicting behavior in real life achievement settings. Certainly the meager support for the model found in this investigation does not preclude the possibility that these theoretical conceptions will find greater application in

different real-life settings. It may very well be that greater predictive power of the model will be found in real life situations in which the task more closely approximates that studied in the laboratory.

Evaluation of the Present Investigation

The self-report instruments for assessing perceived causality reported in the attribution literature have usually consisted of a simple rating scale. Typically, the subject is provided with rating scales which allow him to express the relative contribution of each of the Heiderian causal factors to an achievement outcome. Weiner, Heckhausen, Meyer, and Cook (1972), for instance, had subjects indicate on rating scales the percentage of influence that the four causal factors had on an experimental achievement task. Subjects assigned a percentage to each factor with the restriction that the total percentage must sum to 100%. A subject, for example, might perceive his performance was 50% caused by effort, but then he would have to distribute the remaining 50% over the other factors. Simon and Feather (1973), employing a somewhat different set of ratings, allowed subjects to assign values from 1 to 8 to each of the appropriate causal elements.

In the present investigation, students were requested to mark the one attributional category which they perceived as the primary influence on the academic performance. The potential contribution of the other factors was not determined. There are methodological advantages and disadvantages to both the forced choice procedure and the relative weights procedure. Whenever subjects are allowed to

give weights to each causal factor, the investigator can proceed to assign subjects to high and low groups on a particular attribution. Scores on a particular attribution are usually split at the median to provide operationally defined high and low groups. In both the Weiner, et al. and Simon and Feather studies, for example, subjects who attributed a successful outcome to high ability were divided into upper and lower halves of the distribution. Similar divisions were made for each attribution category.

Unfortunately, such a procedure produces results which are often difficult to interpret. If a person reports his outcome as due to high ability, the significance of his attribution raw score being in the lower half of the distribution becomes unclear. The differences obtained between a high-high ability person and a low-high ability person is hard to interpret in a meaningful way. A similar problem in interpretation occurs if the subjects are assigned to a high or low group based on scores obtained from a scale labeled "low ability," or for any attribution where the scale fails to provide dichotomous response categories. However, even if dichotomous response categories are provided with one end anchored with the word "high" and the other end anchored with the word "low," the subjects at the upper and lower ends of the distribution should only be used in the analysis for the appropriate outcome, e.g., low ability attribution following a failure outcome. The advantage of obtaining such weighted data, however, is that a more complete analysis of the scores can be conducted, such as correlational analysis.

One advantage of employing a forced choice procedure is that the analysis of the attributional data provided by the subjects is

restricted to the most salient perceived influence on the achievement outcome. Each subject then becomes identified with only one attribution. Not only does this procedure result in an analysis of the subject's most salient causal perception, it also allows each subject to be assigned to only one cell in Weiner's 2 x 2 attribution table. The risk in such an approach is that within certain achievement situations, each attribution category will not have equal importance as a perceived cause and drastically unequal cell sizes may occur. For example, in the present investigation, very few students perceived their outcomes as due to exam ease, low ability, or bad luck. Consequently, statistical analysis resulted in a conservative estimate of group differences. Still the most appropriate test of Weiner's formulations would seem to be situations where subjects are assigned to only one attributional category. Otherwise the data obtained on a subject would appear in a number of analyses and such nonorthogonal results would be difficult to interpret.

With the exception of the Achievement Orientation Scale, all of the variables studied in the present research were assessed by an experimental rating scale, designed for this study, for which existing reliability and validity data were thus unavailable. The extent to which the results in Study I and Study II reflected measurement error is unknown, although it appears that the scores obtained adequately measured the conceptual variables under consideration. Although the measures of affective experience and expectancy shifts were unrelated to achievement orientation and only slightly related to attributional responses, success and failure experiences were reliably associated with attributional responses, affective reactions,

and future performance expectancies. These reliable relationships between the two performance outcome levels and the various affective and cognitive responses suggest that the measures were sensitive enough to assess real life experiences among the college students studied and that these measures might be successfully employed in future research.

A question must be raised regarding the potential confounding influence of the sex factor in the present studies. In regard to sex differences in achievement motivation the evidence is fragmented, but important differences have been reported. Weiner and Potepan (1970) found that for college males achievement scores and internal attributions for success were high and positively related. However, relatively weak correlations between these variables were found for females. Crandell, Katkovsky and Preston (1962) have reported inconsistent results on sex differences in their studies of the relationship between the locus of control dimension and achievement needs.

In Study I, the Achievement Orientation Scale (Mehrabian, 1968) was used as the measure of strength of achievement needs. This instrument has been used to assess achievement needs in both sexes, although Mehrabian (1968) has constructed the Resultant Achievement Motivation Scales which allow for separate scoring of achievement needs for males and females. These scales have been employed in recent research on achievement motivation in which sex differences were studied. For example, Raffini and Rosemier (1972) recently used the RAMS as a measure of achievement needs and they reported that high and low resultant achievement motive males and females

differed in the extent to which they could recall correct and missed exam items when tested two weeks after an examination.

Some previous studies have also indicated that sex differences exist in ascriptions to the Heiderian causal elements. Feather (1967) found that on the Rotter (1966) I-E scale, college females were higher in external control than were the college males. Feather (1969) has also found that following performance outcomes, females tended to assign greater importance to good and bad luck than did males. McMahon (1971), unlike Feather (1969), found that the sexes did not differ on luck ascriptions, but that a sex difference was observed on ascriptions to ability. Females generally rated ability as a less important influence on outcomes than did males.

The above studies do serve to indicate the inconsistent nature of the research literature, at the same time suggesting that sex differences in achievement needs and attributional behavior is worth consideration. The failure of the present investigation to include sex differences as a treatment or a nuisance variable may account for the failure of the achievement scores to be related to the criterion variables, and may have contributed as well to the overall paucity of results obtained in the attribution study.

Suggested Future Research

A number of possible research directions are available for investigating the role of self perceptions in academic behavior. One interesting question concerns the influence of time on students' perceptions. It may be that the data obtained in the present studies on affect, expectancy and attributions are characteristic of

of perceptions following immediate examination feedback. Conceivably these judgments might undergo considerable change over time so that days or weeks following an examination considerable differences might be found. Additional studies would be required to trace the developmental changes in affect, expectancy and attributions that may occur between performance outcomes.

Future research, hopefully, will also provide a more complete understanding of the educational consequences of disparate teacher-student perceptions of causality of academic performance. Teachers typically view academic performance in terms of effort and ability, both of which are inherently tied to the student. Students, on the other hand, sometimes perceive their performance as due to influences for which they do not feel responsible. In cases where divergent views of a performance outcome exist between the teacher and a student, it is not difficult to understand why teacher-student conferences often fail to produce little change in a student's behavior. Further, the role of interpersonal factors should be expanded to include the possible influences on causal perceptions from classmates and friends. It may be that in some classroom situation that students themselves create a social climate wherein personal responsibility and intrinsically motivated behavior is encouraged. To identify the social factors which maximize personal responsibility in academic behavior would seem to be an initial step in planning strategies that would improve the learning situation.

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APPENDIX A

PERCEIVED SUCCESS AND FAILURE RATINGS

Your letter grade on the recent psychology examination was _____.

You had _____ questions correct on the exam out of a total number
of _____ questions.

I would like to ask you some questions about how you feel about your examination performance. On the rating scale provided below, I would like for you to indicate the extent to which you perceive your examination performance as successful or unsuccessful. Place a "X" in one of the six categories below which best represents how you feel regarding your exam performance.

Overall, I would judge my examination performance as follows:

- _____ Extremely Successful
- _____ Successful
- _____ Slightly Successful

- _____ Slightly Unsuccessful
- _____ Unsuccessful
- _____ Extremely Unsuccessful

APPENDIX B

ATTRIBUTION RATING SCALE

There are a number of factors which can determine how well a person performs on an examination. One factor is ability, since one may or may not have the capacity to do well on the exam. Another factor is effort, since a student can do well or do poorly on an exam because he worked hard or did not put forth sufficient effort. Another factor is luck, since one can do well or poorly just because on that occasion "good luck" or "bad luck" was operating. For example, if many questions on an exam are ambiguous, then the scores obtained by students would primarily be determined by chance. Finally, a person's exam performance may be determined by the exam difficulty or exam ease. A student may perform well or poorly simply because the exam was unusually difficult or unusually easy.

I am interested in determining the extent to which you think your recent exam performance was influenced by the factors of ability, effort, luck, or exam difficulty or exam ease. Below you will be asked to indicate which of these four factors you felt was the most important influence on your exam performance.

ONLY STUDENTS WHO PERCEIVED THEIR EXAM PERFORMANCE AS SUCCESSFUL -- Only students who rated their exam performance on the previous page as extremely successful, successful, or slightly successful, should answer the question below. If you rated one of the "unsuccessful" categories, then go on to the next section below.

I feel my successful exam performance was mainly determined by:

- _____ my high ability
- _____ my extra effort or high motivation
- _____ good luck
- _____ the fact that the exam was easy

ONLY STUDENTS WHO PERCEIVED THEIR EXAM GRADE AS UNSUCCESSFUL -- Only students who rated their examination performance as extremely unsuccessful, unsuccessful, or slightly unsuccessful on the previous page should answer the question below.

I feel my unsuccessful exam performance was mainly determined by:

- _____ my low ability
- _____ my weak effort or low motivation
- _____ bad luck
- _____ the fact that the exam was difficult

APPENDIX C

AFFECTIVE REACTION RATING SCALE

APPENDIX D

CONFIDENCE ESTIMATE OF EXPECTED
PERFORMANCE CHANGE

I would like for you now to indicate the extent to which you feel that your final examination score (not necessarily your letter grade) will be higher or lower than your present exam score. In other words, if the final examination were to have the same number of test items and be of the same degree of difficulty, do you feel you would get a higher number of points, get about the same number of points, or get a lower number of points?

Below is a scale which will allow you to indicate how confident you are that your score in the final exam will be higher, the same or lower. The scale has seven categories, running from +3 to -3. If you feel your score on the final will be higher than your score on the recent exam, mark (with an X) one of the positive categories. Mark the +3 category if you are very confident that your score will be higher and use the +2 and +1 categories if you are less confident. However, if you feel that the number of points that you will receive on the final exam will be lower than the points you received on the recent exam, mark one of the negative categories. Use the -3 category to indicate that you are very confident that your score will be lower. Again use the -2 and -1 categories to indicate lesser degrees of confidence. Use the zero (0) category if you feel that your final exam score will be about the same as your recent exam score.

I am very certain
that my score on
the final will be
higher

+3	+2	+1	0	-1	-2	-3
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I am very certain
that my score on
the final will be
lower

APPENDIX E

SEX CHARACTERISTICS OF GROUPS IN STUDY I

PERCENTAGE OF MALES AND FEMALES
IN THE FOUR GROUPS

Source	AO	N	Males (%)	Females (%)
Success	Hi	53	31 (58)	22 (42)
	Lo	52	16 (31)	36 (69)
Failure	Hi	17	8 (47)	9 (53)
	Lo	27	12 (44)	15 (56)

APPENDIX F
CLASSRANK CHARACTERISTICS OF GROUPS
IN STUDY I

PERCENTAGE OF HI ACH AND LO ACH STUDENTS
AT EACH CLASSRANK

Outcome	AO	N	Freshman (%)	Sophomore (%)	Junior (%)	Senior (%)
Success	Hi	53	27 (51)	14 (26)	9 (17)	3 (6)
	Lo	52	32 (62)	17 (33)	2 (4)	1 (1)
Failure	Hi	17	13 (76)	2 (12)	2 (12)	0 (0)
	Lo	27	15 (56)	10 (37)	1 (3)	1 (3)

APPENDIX G

PERCEIVED SUCCESS RATINGS BY THE
SUCCESS GROUPS

PERCEIVED SUCCESS IN THE SUCCESS GROUPS

Outcome	AO	N	Slightly Successful (%)	Successful (%)	Extremely Successful (%)
Success	Hi	53	27 (51)	23 (43)	3 (6)
	Lo	52	29 (56)	21 (40)	2 (4)

APPENDIX H

PERCEIVED FAILURE RATINGS OF THE
FAILURE GROUPS

PERCEIVED FAILURE IN THE FAILURE GROUPS

Outcome	AO	N	Slightly Unsuccessful (%)	Unsuccessful (%)	Extremely Unsuccessful (%)
Failure	Hi	17	1 (6)	6 (35)	10 (59)
	Lo	27	5 (19)	12 (44)	10 (37)

APPENDIX I

CLASSRANK CHARACTERISTICS OF GROUPS

IN STUDY II

PERCENTAGE OF STUDENTS AT EACH CLASSRANK WITHIN
THE SUCCESS AND FAILURE GROUPS

Group	N	Freshman (%)	Sophomore (%)	Junior (%)	Senior (%)
Success					
Hi Ability	29	17 (59)	9 (31)	1 (03)	2 (07)
Hi Effort	66	41 (62)	19 (29)	4 (06)	2 (03)
Exam Ease	8	5 (63)	2 (25)	0 (00)	1 (12)
Good Luck	15	5 (34)	6 (40)	2 (13)	2 (13)
Failure					
Lo Ability	4	1 (25)	2 (50)	0 (00)	1 (25)
Lo Effort	28	18 (64)	8 (29)	2 (07)	0 (00)
Exam Diff- iculty	23	15 (66)	4 (17)	4 (17)	0 (00)
Bad Luck	5	3 (60)	2 (40)	0 (00)	0 (00)

APPENDIX J

SEX CHARACTERISTICS OF GROUPS IN STUDY II

PERCENTAGE OF MALES AND FEMALES WITHIN THE
SUCCESS AND FAILURE GROUPS

Group	N	Males (%)	Females (%)
Success			
Hi Ability	29	15 (52)	14 (48)
Hi Effort	66	28 (42)	38 (58)
Exam Ease	8	4 (50)	4 (50)
Good Luck	15	7 (47)	8 (53)
Failure			
Lo Ability	4	3 (75)	1 (25)
Lo Effort	28	18 (64)	10 (36)
Exam Diff- iculty	23	10 (43)	13 (57)
Bad Luck	5	2 (40)	3 (60)

APPENDIX K

MEAN AGES OF GROUPS IN STUDY II

MEAN AGES WITHIN THE SUCCESS AND FAILURE GROUPS

Group	N	\bar{x}
Success		
Hi Ability	29	20.38
Hi Effort	66	19.31
Exam Ease	8	18.89
Good Luck	15	19.47
Failure		
Lo Ability	4	19.50
Lo Effort	28	19.21
Exam Difficulty	23	19.22
Bad Luck	5	19.60

APPENDIX L

PERCEIVED SUCCESS RATINGS OF THE
SUCCESS GROUPS

PERCEIVED SUCCESS IN THE SUCCESS GROUPS

Group	N	Slightly Successful (%)	Successful (%)	Extremely Successful (%)
Hi Ability	29	17 (59)	12 (41)	0 (00)
Hi Effort	66	36 (55)	28 (42)	2 (03)
Exam Ease	8	6 (76)	1 (12)	1 (12)
Good Luck	15	4 (27)	10 (66)	1 (07)

APPENDIX M

PERCEIVED FAILURE RATINGS OF THE
FAILURE GROUPS

PERCEIVED FAILURE IN THE FAILURE GROUPS

Group	N	Slightly Unsuccessful (%)	Unsuccessful (%)	Extremely Unsuccessful (%)
Lo Ability	4	0 (00)	2 (50)	2 (50)
Lo Effort	28	5 (18)	8 (29)	15 (53)
Exam Diffi- culty	23	1 (04)	7 (30)	15 (66)
Bad Luck	5	0 (00)	3 (60)	2 (40)

VITA ✓

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Candidate of the Degree of

Doctor of Philosophy

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