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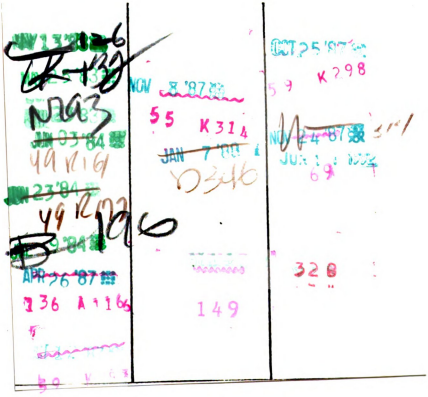

THE EFFECTS OF INTERNAL-EXTERNAL LOCUS OF CONTROL AND ATTRIBUTION OF CAUSALITY FOR SUCCESS AND FAILURE ON ACHIEVEMENT PERFORMANCE IN COMPETITIVE AND NON-COMPETITIVE SITUATIONS

By

Cosandra Irene Douglas

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ABSTRACT

THE EFFECTS OF INTERNAL-EXTERNAL LOCUS OF CONTROL AND ATTRIBUTION OF CAUSALITY FOR SUCCESS AND FAILURE ON ACHIEVEMENT PERFORMANCE IN COMPETITIVE AND NON-COMPETITIVE SITUATIONS

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The present study was an attempt to explore the processes involved in how people account for their successes and failures by investigating the effects of internal-external locus of control and by investigating evaluation of prior performance on subsequent performance and attributions of causality in competitive and non-competitive situations. Male and female undergraduates were assessed for internality-externality using Rotter's personality measure for locus of control (1966). One hundred and twenty subjects who were identified as Internals or Externals, were randomly assigned to one of three experimental conditions. They competed against either a trained male confederate, a trained female confederate, or performed alone on an anagrams task. Upon completion of one set of trials, subjects received either success or failure feedback and then performed again. This procedure yielded a factorial design whose dimensions were 2

(Internal-External) x 2 (Success-Failure Feedback) x 2 (Male-Female) x 3 (Competition with same-sexed opponent, competition with opposite-sexed opponent, or performance in the alone situation).

Three types of dependent measures were employed in this research to test the effects of the independent variables on achievement performance: (1) correct responses on an anagrams task, which served as a measure performance before and after success or failure feedback; (2) a subjective perception questionnaire, which assessed attributions of causality for successes and failures; and (3) a subject reaction questionnaire, which measured subjects' reactions to their performance on the task.

The following predictions were made regarding subjects' attributions of causality: (1) Men and women, external in their locus of control would attribute either their success or their failure to forces beyond their control (i.e., luck, chance, situational factors) and (2) Men and women, internal in their locus of control, would attribute their performance (success or failure) to personal forces (i.e., high ability and/or trying hard. As predicted, these hypotheses were supported as there was a significant internality-externality main effect in the predicted direction. In addition, the analyses revealed a number of non-predicted effects for these measures.

A second set of hypotheses addressed how subjects would perform in the various experimental conditions: (1) Following success feedback, internal women would try to increase their performance when competing against a male opponent; (2) Following failure feedback, internal women would try to increase their performance under all experimental conditions (i.e, when competing against a male, a female, or in the alone condition); (3) Following success feedback, external women would decrease their performance when competing against a male opponent; (4) Following success feedback, external women would try to increase their performance when competing against another female or in the alone condition; (5) Following success feedback, internal men would try to increase their performance under all of the experimental conditions; (6) Following failure feedback, internal men would try to increase their performance under all conditions; (7) Following success feedback, external men would try to increase their performance when competing against a female opponent; and (8) Following failure feedback, external men would try to increase their performance when competing against a female. Taken together these hypotheses led to the prediction of a significant four-way internality-externality x success-failure feedback x sex of subject x social context interaction. This effect, however, was not significant, nor was the pattern of means as expected. The analysis did

reveal a number of effects for performance, which although not predicted specifically, were intriguing. For example, the data indicated that subjects performed best on their second trial when they competed against a male coworker.

The results of the research and aspects of the design were discussed. Tentative explanations for these results were presented and implications of this analyses were discussed in terms of future research.

Approved by Thesis Committee:

Dr. Lawrence Messe', Chairman _____

Dr. Elaine Donelson _____

Dr. Jack Wakeley _____

Date: _____

DEDICATION

This thesis is dedicated to

MY FAMILY

ACKNOWLEDGEMENTS

It is with a tremendous amount of gratitude and appreciation that I would like to thank those who have contributed to the completion of this thesis. I would like to offer my sincerest and deepest thanks to my parents and siblings (Beth, Dianna, Sylvester and Floyd) who have always encouraged and believed in me. Without your emotional and financial support this thesis would not have been possible. All of your sacrifices were heartfelt and most graciously appreciated.

This research is further dedicated to the memory of my great grandmother, Dinah Webb Davis and her son, my uncle Benjamin "Jake" Davis. Both their immense spiritual regard and philosophies of life have contributed significantly to the person I have become.

Sincere thanks are extended to Dr. Larry Messe', who served as my thesis chairman. I can never quite relay to him what his patience and support has meant to me. Special thanks, too are extended to my committee members Dr. Elaine Donelson and for stepping in on last minute's notice, thanks to Dr. Jack Wakeley.

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Finally, my heart goes out to that very special man in my life, Theodore J. McWilliams, Jr., whose unselfish support, encouragement, and patience have provided me with the stamina needed to complete this project.

And above all, I lift up mine eyes unto the heavens and give thanks to God from whence cometh all!

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CHAPTER I

INTRODUCTION

While it has been suggested that individuals with internal rather than external orientations respond differently under a variety of situational manipulations, the issue of whether men and women utilize differing attributions of causality to explain their performance when competing either against a member of the same sex, a member of the opposite sex, or working individually on an achievement task has not been decided. The present study investigated just how consistent with their answers on a standardized personality measure of locus of control are attributions made under the above mentioned conditions. It was hypothesized that subjects would make attributions to explain their successes and failures in such a manner as to be consistent with their sex role and their locus of control. Within this framework, a number of predictions can be developed with regard to how internally- and externally-oriented women and men perform as a function of feedback about earlier performance, and to what factors they attribute their success or failure. Before specific hypotheses are developed, however, a review

of the relevant empirical and theoretical literature is necessary.

Research involving perceived internal versus external locus of control as a personality variable has grown tremendously in the past fifteen years. Since the publication of two major review articles (Lefcourt, 1966b; Rotter, 1966) an increasing number of research investigations have been reported. Throop and McDonald (1971) have compiled a bibliography containing 339 separate entries of immediate relevance to the locus of control construct appearing through 1969. McDonald has since compiled four additional supplements attesting to the continuous growth of research in this area. It is estimated that the number of published articles dealing with some aspect of internal versus external locus of control (also sometimes referred to as internal versus external control of reinforcement) is well over 600. The number of unpublished investigations, master's theses and doctoral dissertations dealing with the topic are impossible to estimate.

Studies in this area are concerned either with performance generated in situations that give rise to internal versus external ascriptions about causality (for example, skill or internal versus chance or external task structures), or with the behavioral effects of individual differences in perceived internal versus external

control of reinforcements. In addition, to the above mentioned review articles there have been three separate review articles studying various aspects of locus of control since the publication of the first two reviews (Joe, 1971; Lefcourt, 1966a; Minton, 1967), and there are at least ten different tests of locus of control, as well as revisions of some in use (Battle and Rotter, 1963; Bialer, 1961, Crandall, Katkovsky and Crandall, 1965; Dean, 1961; Dies, 1968; Gozali and Bialer, 1968; Harrison, 1968; Norwicki and Strickland, 1973; Rotter, 1966; Levinson, 1974).

Stemming partly from Heider's (1958) analysis of phenomenal causality, a great deal of research is now being focused on the conditions which influence the tendency to ascribe responsibility of an achievement related event to personal forces (e.g., ability and effort) or to impersonal forces over which the individual has little control (e.g., situation and luck). One of the first attempts at measuring the internal-external control dimension as a personality variable in social learning theory was reported by Phares (1955). Phares designed a scale to measure a general attitude or personality characteristic of attributing the occurrence of reinforcement to chance rather than one's self.

Social learning theory is a molar theory of personality in that it attempts to synthesize two diverse

but significant trends in American psychology, namely, the stimulus response, or reinforcement, theories on the one hand and the cognitive, or field theories on the other. It tries to deal with the complexity of human behavior without yielding the goal of utilizing operationally definable constructs and empirically testable hypotheses.

The concept of internal versus external control of reinforcement developed out of social learning theory (Rotter, 1954; Rotter, Chance and Phares, 1972). The variable was developed because of a persistent observation that increments and decrements in expectancies following reinforcement appeared to vary systematically depending on the nature of the situation and also as a consistent characteristic of the particular individual who was being reinforced. The concept is defined as follows:

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When a event is interpreted in this way by an individual, we have labeled this a belief in external control. If a person perceives that the event is contingent upon his own relatively permanent characteristics, we have termed this a belief in internal control (Rotter, 1966, p. 1).

There are four classes of variables in social learning theory: behaviors, expectancies, reinforcements, and psychological situations. In its most elementary

form, the general formula for behavior is that the potential for a behavior to occur in any specific psychological situation is a function of the expectancy that the behavior will lead to a particular reinforcement in that situation and the value of that reinforcement.

Social learning theory hypothesizes that when an organism perceives two situations as similar, then his expectancies for a particular kind of reinforcement, or a class of reinforcements, will generalize from one situation to another. This is not to say that the expectancies will be the same in the two similar situations, but the changes in the expectancies in one situation will have some small effect in changing expectancies in the other. Expectancies in each situation are determined not only by specific experiences in that situation but also, to some varying degree, by experiences in other situations that the individual perceives as similar. One of the determinants of the relative importance of generalized expectancies versus specific expectancies developed in the same situation is the amount of experience in the particlar specific situation.

Within the theory's framework, then the relative importance of generalized expectancy goes up as the situation is more novel or ambiguous and goes down as the individual's experience in that situation increase.

The internal-external control construct is an expectancy variable rather than a motivational one. In Rotter's social learning theory (Rotter, 1954), the potential for any behavior to occur in a given situation is a function of the person's expectancy that the given behavior will secure the available reinforcement, and the value of the available reinforcements for that person. Within Rotter's theory, the control construct is considered a generalized expectancy, operating across a large number of situations, which relates to whether or not the individual possesses or lacks power over what happens to him.

In the first expository paper dealing with the control dimension (Rotter, Seeman, and Liverant, 1962) the construct was described as distributing individuals according to the degree to which they accept personal responsibility for what happens to them. As a general principle, internal control refers to the perception of positive and/or negative events as being a consequence of one's own actions and thereby under personal control and external control refers to the perception of positive and/or negative events as being unrelated to one's own behavior in certain situations and therefore beyond personal control.

There are many possible reasons why a particular success or failure might occur and therefore many causal attributions which can be made (Heider, 1958). When

making causal judgements in achievement-related contexts, it has been suggested that success or failure at an achievement task is attributed primarily to ability, effort, task difficulty, and luck (Heider, 1958; Weiner, Fieze, Kukla, Reed, Rest, and Rosenbaum, 1971). This is to say that when one explains the outcome of an achievement action, an individual assesses his own or another's level of ability, the amount of effort expended, the difficulty of the task, and the magnitude and direction of experienced luck. It is believed that values or weights are assigned to these causal sources, and success or failure at the task differentially ascribed to these four factors. Thus, a person may succeed at a task because of his or her high ability and/or trying hard as well as because of good luck or the fact that the task was relatively easy. Failure may result from low ability, not trying sufficiently hard, bad luck or task difficulty.

In presenting a classification scheme of the attributional model within the context of achievement related actions the four most frequently perceived causes of success and failure (ability, effort, task difficulty and luck) can be comprised not only within the locus of control (internal or external) causal dimension but within the stability (fixed or variable) dimension as well.

Considering the dimension of stability, it is postulated that one's perception of his general ability, as well as his beliefs about specific ability after sufficient engagement in an activity, are relatively invariant or stable over time. Similarly, task difficulty is conceptualized as an unchanging (stable) factor. Effort and luck, on the other hand, are assumed to be variable (unstable) factors. Exertion may increase or decrease from moment to moment or from one task to another; just as luck may be good at one time and poor at still another. Thus, it is postulated that ability is an internal, fixed factor; effort an internal, variable factor; task difficulty and external, fixed factor; and luck an external, variable factor.

The perception of an achievement task is assumed to reintegrate past experience with the task, and array of other pertinent information. This knowledge allows for the calculation of inferences about the causal determinants of the outcome, as well as the expectancies.

Ability Inferences.--It is postulated that general ability is inferred from the number, percentage, and pattern of success experiences at prior achievement activities, considered in conjunction with the perceived difficulty of the attempted tasks. Thus, if a task is perceived as reflecting a general level of ability, then

immediate success or failure at the task is not likely to significantly alter one's perception of ability. This outcome then becomes one more bit of evidence in the entire life history of the organism, all of which is used to infer ability level. Thus, consistency and generality of performance are salient cues for ability attributions (Kelley, 1967). The temporal pattern of past outcomes also influences attributions about ability. Jones, Rock, Shaver, Goethals, and Ward (1968) found for example, that subjects performing well on early trials of a problem solving task are perceived as more intelligent than those receiving a random pattern of success or performing well on later trials. It appears thus, that a primacy effect operates in ability inferences. Maximum performance on prior occasions also affects ability attributions, presumably because an individual who does well on one occasion has the capability to do well again. Weiner and Kukla (1970) found evidence in support of the number, percentage and pattern of immediate performance at the particular task confronting the individual, and tasks similar to it being heavily weighted in reaching inferences regarding specific task ability.

Beckman (1970) in an investigation of person perception has demonstrated that the pattern as well as the level of immediate performance is an important cue for ability inferences.

An unpublished study by Rosenbaum has demonstrated still another performance cue for ability inferences. Rosenbaum compared the judged ability of two hypothetical individuals varying in their maximal performance scores and found that the subjects judged ability greater where the maximal performance score was higher.

Effort.--The conditions necessary to attribute an outcome to effort are somewhat more difficult to determine. Covariation of performance with incentive value, or covariation with cues such as perceived muscular tension or task persistence, conceivably will lead to the inference that effort was a dominant behavioral determinant. Such covariations are also expected to minimize attributions of the outcome to luck. An interesting and apparently reliable finding is that individuals employ outcome information to infer how hard they tried; that is, "effects often play the role of data through which we learn to know about origins" (Heider, 1944, p. 365). Weiner and Kukla (1970) for example, had subjects attempt to solve a digit-sequence task in which the numbers were randomly arranged (although this was unknown to the subjects). Subsequent ratings revealed that effort is judged greater after success than following failure. Jenkins and Ward (1965) reported similar findings.

The pattern of performance also gives rise to effort attributions. Jones et al. (1968) reported in an experiment where subjects received ascending, descending, or random patterns of success that subjects in the ascending condition believed that they tried significantly harder than subjects in the other conditions. It must be remembered that the outcome was entirely under experimental control and independent of actual effort.

It also remains probable that external manifestations of effort, such as muscular tension, sweating, persistence of behavior, and the like, result in effort attributions. In addition, perhaps covariation of performance with the incentive value of the goal will result in causal ascriptions to effort. In general, it is contended that if a task is perceived as skill determined and the environment is constant, then variation in performance is likely to be ascribed to motivation.

Task Difficulty.--It is assumed that task difficulty is inferred from social norms indicating the performance of others at the task. If the norms convey that many others succeed, the task is perceived as "easy"; if few others in the comparison group solve the problem, it is "difficult". Of course, characteristics of the task, such as length, complexity, or novelty can also influence initial judgements of difficulty. But this information receives relatively little weight in relation

to outcome data. If everyone correctly performs a task, then it is of little importance that it "appears" to be difficult. Perhaps task characteristics are most important in judgements of outcomes at clearly difficult activities, for the assumption is made that "ordinary" individuals could not perform the task. It is postulated, however, that information concerning outcome primarily determines final task appraisal. For, in many studies of achievement motivation, level of difficulty is conveyed by merely telling subjects, "Our norms indicate that _____% of the other subjects have been able to solve this task"; Feather (1961); Weiner (1970); Karabenick (1976).

Knowledge of social norms must be considered in conjunction with personal performance if one is to reach conclusions concerning outcome causality. This is to say, that if performance is consistent with the norms, success when others succeed or failure when others fail, the outcome is attributed to the external factor of task difficulty, and insufficient information is provided for self-evaluation. On the other hand, performance at variance with social norms, that is success when others fail or failure when others succeed, is likely to give rise to internal attributions and self evaluative judgements (Weiner and Kukla, 1970 ;Frieze and Weiner, 1971).

Luck.--In psychological experiments luck ascriptions are usually induced by specific instructions; subjects are merely informed that the outcome at a task is entirely due to chance (Phares, 1957). But generally, the most salient cue for luck attributions is the structure of the task. Flipping a coin, drawing a playing card from a shuffled deck, or guessing where the ball will drop in a roulette wheel, logically result in luck ascriptions for success and failure. The more valid information for luck ascriptions, however, are the patterns of outcomes. Independence and randomness of outcomes indicate that luck is the causal determinant. If a coin repeatedly turns up heads, or a card player consistently draws an ace, then luck will cease to be perceived as the sole causal outcome determinant despite the task structure.

Earlier information relevant for the formulation of ascriptions to the two stable (ability and task difficulty) determinants was outlined. Concerning the unstable elements, it is postulated that luck is inferred from the patterns of prior reinforcements; the more random or variable the pattern of outcome, the higher the probability that luck will be perceived as a causal influence. Bennien (1961) presents data supporting this contention.

In studying the process of assigning causality researchers have come to understand significantly more phenomena which previously had not been interpretable

within the framework of existing theories (DeCharms, 1968; Jones, et al., 1972). Within the achievement domain, the causal attributions one makes have implications for one's expectations, degree of pride and shame experienced and future behavior undertaken (Weiner, et al., 1971).

Research which has focused on the significance of expectancies and attribution theory for sex differences in achievement behavior has focused on three major areas. Numerous studies have documented that higher expectancies for personal success are held by men and boys than by women and girls within our society. Several studies suggest that men and women habitually make different causal attributions about their own successes and failures. And, attributions made by others about men and women also differ. This is related to the fact that evaluations and expectations held by other people vary according to the sex of the person being assessed. It is believed that these three types of sex differences might account for some of the differences in expectations and consistent attributional patterns which have been found for men and women.

In considering the theory of achievement motivation, it is important to remember that it finally evolved in studies concerned with the relationship between performance and individual differences in strength of achievement

motive as inferred from the thematic apperceptive measure of n Achievement developed by McClelland, et al.

The theory of achievement motivation attempts to account for the determinants of the direction, magnitude, and persistence of behavior in a limited but very important domain of human activities. It applies only when an individual knows that his performance will be evaluated (by himself or by others) in terms of some standard of excellence and that the consequences of his outcomes will be either a favorable evaluation (success) or an unfavorable evaluation (failure). It is, in other words, a theory of acheivement oriented performance.

In addition to the clues provided in the study of how expectancy of winning a monetary prize influences the level of performance and in McClelland's exploratory risk-taking in children, there were a number of other significant facts from earlier studies which began to fit compactly together. Winterbottom (1958), for example, found that boys who scored high in n Achievement were rated by their teachers as showing more pleasure in success than boys who scored low in n Achievement. This suggested that the disposition called achievement motive might be conceived as "a capacity for taking pride in accomplishment" when success at one or another activity is achieved.

While following the outline of the theoretical conception developed by Tolman (1932) it is assumed that

the impact of important situational factors should be conceived in terms of two variables. First, to what extent does the individual, in sizing up the task before him, expect that his performance will lead to the goal of success. Second, how attractive does success at the particular activity appear to the individual, that is how much of an incentive does it present? McClelland (1961) has emphasized that for the motive to achieve to be aroused in performance of some activity, the individual must consider himself responsible for the outcome (success or failure), there must be explicit knowledge of results so that the individual knows when he has succeeded, and there must be some degree of risk concerning the possibility of success.

A major variable in the study of achievement motivation has been the concept of subjective probability of success (P_s). Atkinson's (1958, 1964) models of achievement behavior assumes that as a consequence of past experience in situations similar to the one he now confronts, an individual's expectancy of success may be very strong, moderately strong or very weak. When thinking of the strength of expectancy of success (P_s), it provides numbers ranging from 0 to 1.00 in terms of which variations in the degree of expectancy of success can be specified. This is to say, that when an individual is almost certain

of success, the subjective probability (P_s) of success is very high, for example, .90 versus when expectancy of success is very weak, perhaps a value of .10. And, when an individual is uncertain as to whether or not he will succeed, the (P_s) may be represented as approximating .50.

Achievement-oriented behavior is seen as a function of the resultant of one's desire for success as compared to one's fear of failure multiplied by $P_s \times (1-P_s)$. However, in all actuality, the subjective probability is usually replaced by some objective probability estimate. This often takes the form of norms for success and since there is evidence which demonstrates that males and females do have different initial expectancies for success (or P_s) the practice of exchanging an objective success estimate for the subjective P_s variable may well be one of the reasons Atkinson's models have not been more useful in explaining female achievement behavior as suggested in an article by Gjeome (1973).

In turning now to the matter of the value of the incentive or what happens when an individual sizes up the task, interest is focused upon how much pride of accomplishment does the individual anticipate if he achieves his goal. We know that certainly there is much less of a sense of accomplishment in completion of certain

tasks than others. As a consequence of past experience in which success has been acclaimed and pride actually experienced, the individual should be able to assess the potential value of certain accomplishments in relation to others. This suggests that a third variable, the incentive value of success at a particular task must be considered as one of the immediate determinants of strength of motivation to achieve at that task.

It is important to remember that the concept of expectation has been shown to have widespread implications for understanding individual differences in achievement-related behavior, as well. Tyler (1958), for example, has found that when people are randomly assigned to high and low expectancy groups, the high expectancy group tends to perform better than the group to which low expectancies are assigned. Rosenthal and Jacobson (1968) in another type of study, demonstrated that teacher expectancies influenced student performance in a situation where the teachers had been given randomly assigned high or low expectancies about their students. What may in fact have occurred is that these teacher expectancies may have been communicated and internalized by students, and therefore caused changes in their performance in a way similar to Tyler's findings. Several studies too, have verified that people who expect to do better on an achievement task actually do perform at a higher level

(Battle, 1965; Feather, 1966). These expectancies may be the result of generalizations from past success or failure experiences. In general, though more competent people, or people who have experienced more success expect to do better than less competent or less successful people (Diggory, 1966; Montanelli and Hill, 1969) and it is difficult to know how much of their superiority is due to their higher ability and how much is the result of the expectancies themselves.

Differential expectancies in explaining sex differences in achievement behavior have been appreciated for some time and demonstrated by an extensive series of studies by Crandall (1969). Her research provides evidence for the generally low expectancies of girls and women in a variety of tasks, ages and settings. The results were consistent. That is, males had generally higher initial expectancies than did females. And, when objective ability estimates were available, males tended to overestimate their future success relative to their ability level while females tended to underestimate their future performance.

Crandall's results have been replicated in a number of studies by other researchers using a variety of age groups and tasks. Boys expect to do better than girls at marble dropping games (Montanelli, 1972) and "sex-less" concept identification tasks (Small, et al.,

1973). These differences appear as early as kindergarten. Similarly, high school boys anticipate more favorable performance than their female classmates on addition tasks (McMahon, 1972) and verbal intelligence tests (Brim, et al., 1969), while college males have higher expectancies for anagrams (Feather, 1969; Rychman and Sherman, 1972; Bar-Tal and Frieze, 1973), addition problems (McMahon, 1972) and for grades in a statistics class (Frieze, 1973b). Also, in a related study Veroff (1969) demonstrated that elementary and high school boys choose more difficult taks than girls, which may be due to their higher initial expectancies.

These generally consistent trends with regard to these sex-related expectancy differences have been countered by a number of recent studies. McMahon (1972) found no differences in the expectancies for boys as compared to girls in any of his age groups when asked to predict their performance on an anagrams task. Also, Feather and Simon (1971) failed to show expectancy differences between males and females for anagrams solutions in a replication of Feather's (1969) original study. Parsons and Ruble (1972) also failed to find the predicted expectancy differences for young children on a figure-matching task. And while there are a number of reasons which may conceivably account for some of the conflicting

results of these studies, (e.g., the possibility that sex differences in expectancies are generally decreasing), several studies suggest that sex-role relatedness of the task must be considered in assessing expectancies (Hoffman and Maier, 1966). Montemeyer (1972) has found that labeling of a task as masculine or feminine affects the performance of individuals such that girls tend to do better at "feminine" tasks and boys do better at "masculine" tasks, even when the content of the task is objectively the same. Similarly, girls do better at arithmetic problems with feminine content (Milton, 1959), but boys are generally better at any math problems, this being consistent with the perception of math as a masculine content area (Stein and Smithell, 1969). Expectancies are also directly affected by the sex-role appropriateness of the task. Stein, et al. (1971) found that girls expected to do better at tasks labeled as one where "girls generally do better" while, boys expected to do better at the "boys" tasks. These differences were found even though the content of the task was, again, objectively the same. Not only are expectancies about one's own performances affected by the sex-appropriateness of the task, but expectancies about other's are affected similarly. Deaux and Enswiller (1972) found that males were expected to do better at tasks labeled as "masculine" and females were given relatively higher expectancies by others for

"feminine" tasks. However, it might be added that males were expected to perform at a higher level when expectancies for the two types of tasks were averaged.

One rarely finds the concept of competition missing in discussions of interpersonal and intergroup relations. While playing a key role in the writings of many social theorists and despite the obvious significance of the concept for understanding the control of social process, there has been little in the way of explicit theorizing and virtually little experimental work with respect to the effects of competition upon social process. Work in this area has primarily been concerned with the effects of the individual's motivation to achieve under competitive conditions.

May and Doob (1937) have compiled extensive writings on competition for the literature up until 1937; only a few studies of significance have been reported since then. In addition to indicating the prominence of the concept of competition in social and economic theory, May and Doob have developed an elaborate theory. Their theory focuses primarily on the conditions for, and the forms of competition. Their basic postulate with respect to competition is as follows: "On a social level individuals compete with one another when: (a) they are striving to achieve the same goal which is scarce; (b) they are prevented by the rules of the situation from

achieving this goal in equal amounts; (3) they perform better when the goal can be achieved in unequal amounts; and (d) they have relatively few psychologically affiliative contacts with one another.

Margaret Mead's survey of competition among primitive peoples accepted the following definition: "Competition: the act of seeking or endeavoring to gain what another is endeavoring to gain at the same time."

Maller in his classic study of both cooperation and competition among school children (1939) defined a competitive situation as one which stimulates the individual to strive against other individuals in his group for a goal object of which he hopes to be the sole or principal possessor.

Deutsch (1949) has conducted an extensive empirical study of the effects of competition upon group functioning. He defines a competitive social situation as one where "the goals for the individuals or sub-units in the situation under consideration have the following characteristics: the goal-regions for each of the individuals or sub-units in the situation are defined so that if a goal-region is entered by an individual or sub-unit, the other individuals or sub-units will to some degree, be unable to reach their respective goals in the social situation under consideration. It requires

only a brief consideration of the definition of competition to observe that under competitive conditions goal achievement by one individual to some extent hinders the goal achievement of another.

Shaw (1958) attempted to separate the effects of task requirements and motivational requirements in competitive and cooperative situations and found that when members of dyads were led to believe they were competing, cooperating, or working individually (their performance score actually depended upon their own efforts) satisfaction was rated higher in the competitive situation.

Given the theoretical and empirical work performed to date, the following specific hypotheses were advanced and tested in the present study.

Attributional Hypotheses

(1) Men and women, external in their locus of control, following success feedback, would attribute their success to forces beyond their control (i.e., luck, chance, situational factors).

(2) Men and women, external in their locus of control, following failure feedback, would attribute responsibility for their failures to forces beyond their control (i.e., low

ability, not trying sufficiently hard, bad luck or task difficulty).

(3) Men and women, internal in their locus of control, following success feedback, would attribute their success to personal forces (i.e., high ability and/or trying hard).

(4) Men and women, internal in their locus of control, following failure feedback, would attribute their failure to personal forces (i.e., low ability, not trying sufficiently hard).

Performance Hypotheses

(1) Following success feedback, internal women would try to increase their performance when competing against a male opponent.

(2) Following failure feedback, internal women would try to increase their performance under all conditions (i.e., when competing against a male, female or in the alone condition).

(3) Following success feedback, external women would decrease their performance when competing against a male opponent.

(4) Following success feedback, external women would try to increase their performance when competing against another female or in the alone condition.

(5) Following success feedback, internal men would try to increase their performance under all of the conditions.

(6) Following failure feedback, internal men would try to increase their performance under all conditions.

(7) Following success feedback, external men would try to increase their performance when competing against a female.

(8) Following failure feedback, external men would try to increase their performance when competing against a female.

CHAPTER II

METHOD

Subjects

Rotter's 23-item I-E scale (Rotter, 1966) was administered to several large sections of introductory psychology courses at Michigan State University. Subjects for this research were chosen from the top and bottom third of this distribution based on their scores on the I-E scale with the cut off points being 0-7 for internals and 16-23 for externals. An equal number of males and females who were scored as internal or external in their locus of control served as subjects in this study. Half of the internal subjects and half of the external subjects were randomly assigned to receive success feedback and the remaining halves received failure feedback. This procedure yielded a factorial design whose dimensions were 2 (internal-external) x 2 (success-failure) x 2 (male-female) x 3 (competition with same-sexed opponent, competition with opposite-sexed opponent, or individually).

Confederates

Three male and three female upper level psychology students who received advanced research credits were

trained to serve as confederates in this study. A co federate arrived at the experimental room at approximately the same time as the "real subject" had been asked to arrive, was treated by the experimenter as a subject himself/herself and performed at the task competing against either a male or female subject after having received appropriate instruction. Subjects were debriefed following collection of all materials and not one subject reported any suspicions that the confederate was not a "real" subject.

Performance Session

Task.--The subjects performed on an anagrams task. The anagrams were selected from a larger set which had been previously presented for solution to a group of male and female subjects in order to obtain information about their difficulty (Mendelsohn and Griswold, 1966). The 30-item single solution, 5-letter anagrams were printed on a 8-1/2 x 11 inch sheet of paper. Subjects were given 5 minutes to unscramble as many anagrams as they could.

Performance Procedure.--Performance sessions were held in a room with a table. Two chairs were placed at opposite ends of the table.

When subjects entered the room, they were seated across from either a male confederate a female confederate,

or no one, according to a prearranged order to control for seating effects. When seated the experimenter introduced himself/herself and handed out the materials. Subjects were then asked to read the following instructions along with the experimenter:

Competitive Instructions.--"The task you are about to perform is called an anagrams task. It requires that you rapidly and accurately unscramble as many of the disarranged letters so that they form meaningful words as you can. Performance on these tasks involves abstract thinking ability and taps skills in the analytical reasoning area. It has been shown that performance on this task is related to how well you do in college and a variety of professional and business contexts that you might find yourself in when you leave college. Thus, performance on this task is related to how well you might do in the future compared with other students. Please do the best that you can so that your performance can be taken as a true measure of your ability and potential."

Subjects were then asked if they had any questions and specific task instructions followed:

"To give you an idea of how well you are doing, you will each receive feedback regarding your performance after a 5-minute trial period. Your performance will be compared with that of the person seated across from

you and the one of you who does best will be contacted and given an opportunity to compete against another subject for a cash prize of $10.00."

Subjects then completed as many of the anagrams in the 5 minute period as they could. The experimenter afterwards collected the materials while announcing that the tasks would be scored so as to provide the promised feedback.

Forms Distributed to Subjects With Opponents

On the basis of your performance and that of your opponent, you have done:

☐ Much better than your opponent

☐ About the same as your opponent

☐ Much worse than your opponent

After receiving either success or failure feedback, subjects were then given an additional 5 minutes to complete as many of the remaining anagrams as he/she could. (Performance data experimenter was really interested in!)

Non-Competitive Instructions.--"The task you are about to perform is called an anagrams task. It requires that you rapidly and accurately unscramble as many of the disarranged letters so that they form meaningful words as you can. Performance on these tasks involves

abstract thinking ability and taps skills in the analytical reasoning area. It has been shown that performance on this task is related to how well you do in college and a variety of professional and business contexts that you might find yourself in when you leave college. Thus, performance on this task is related to how well you might do in the future compared with other students. Please do the best you can so that your performance can be taken as a true measure of your ability and potential."

Subjects were then asked if they had any questions and specific task instructions followed:

"To give you an idea of how well you are doing, you will receive feedback regarding your performance after a 5-minute trial period. Your performance will be compared to an absolute standard as established by other college students like yourself."

Subjects then completed as many of the anagrams in the 5-minute period as they could. The experimenter collected and scored the materials so as to provide the promised feedback.

Forms Distributed to
Subjects Without Opponents

On the basis of your performance and that of the average college student, you have done:

☐ Much better than the average college student

☐ About the same as the average college student

☐ Much worse than the average college student

After receiving either success or failure feedback, subjects were then given an additional 5 minutes to complete as many of the remaining anagrams as they could.

Post Performance Data

Post Performance data was obtained to gather information about subjects' attributions of causality regarding their performance and also to assess their reactions to their performance outcome (see Appendices).

CHAPTER III

RESULTS

The data collection procedures outlined in the previous chapter yielded five measures of interest: (1) subjects' performance on an anagrams task on the second trial (Perf 2); (2) a summed composite of various responses to statements regarding the subject's perception of his or her own ability and the degree that he or she felt comfortable with the task (ABCF); (3) the degree to which subjects felt luck contributed to their performance outcome (LUCK); (4) subjects' perceptions of their own general ability on various tasks (GNAB); and (5) subjects' perceptions of others' general ability on various tasks (OTHR).

To examine the relationship, if any, between these measures and the independent variables, a 2 (internal-external) x 2 (success-failure feedback) x 2 (sex of subject) x 3 (social context: competition with a male opponent, competition with a female opponent, or performance in an alone situation) multivariate analyses of covariance was conducted. Task performance on trial one served as the covariate in the MANCOVA. The MANCOVA

examined as univariate dependent variables the five measures mentioned above.

All of the dependent variables except performance, were obtained from a questionnaire developed by the experimenter on which subjects responded to various questions regarding their attributions of causality for their task performance. The questionnaire consists of 23 items to which subjects indicated via a semantic differential scale the degree to which they felt ability, effort, task difficulty and luck contributed to their overall task performance as well as indicating their responses to several adjectives describing their overall reactions to their task performance. The internal consistencies (Cronbach's coefficient alpha) of composite measures obtained by summing the responses to the scales that loaded substantially ($\geq$ .5) on a given factor exceeded .85 in all cases.

As noted earlier, subjects' task performance on the first trial served as the covariate in the MANCOVA, since preliminary tests (summarized in Table 1) indicated that initial task performances moderated the impact of the independent variables on three of the five dependent measures. When a multivariate F ratio exceeded a confidence level of .10, associated univariate F ratios for each of the dependent measures were examined. Findings are reported for univariate results that were significant

TABLE 1.--Summary of Effect of Performance 1 as a Covariate for Dependent Measures

Source	SS	df	MS	F
Multivariate		5	--	20.84**
Perf 2	172.934	1	172.934	.001**
ABCF	40.083	1	40.083	.001**
LUCK	2.363	1	2.363	.111
GNAB	1.319	1	1.319	.192
OTHR	1.686	1	1.686	.086*

[a]df for the multivariate error term were 91; for univariate tests they were 95.

*p .08

**p .001

at $p < .10$, or better. Simple effects analyses further investigated any significant interactions and individual comparisons between the three experimental conditions (subject's competing against a male, a female, or performance on the task in an alone situation) were completed where appropriate. These analyses of covariance revealed a large number of significant effects, both some that were predicted and some very interesting, but unexpected findings.

Table 2 presents the F ratios for those significant multivariate comparisons that reflected at least one significant univariate result; the underlying univariate effects are also presented. To present these findings in a reasonably orderly fashion, this chapter is organized as follows. First, I present a discussion of the attributional hypotheses that were predicted and the findings that were relevant to them; second, I present data that were relevant to the performance hypotheses; and third, I summarize the significant findings that were not specifically predicted.

Tests of Hypotheses

Attributional Hypotheses

A number of related predictions were made concerning the relationship between conditions of success-failure feedback and internality versus externality. These

TABLE 2.--Summary of Significant Multivariate and Univariate Results

Source	F	p
Internality-Externality (I)[a]	23.66	.001
LUCK	114.82	.001
Sex (S)[a]	2.14	.07
Perf 2	6.33	.014
ABCF	7.57	.007
Social Context (C)[b]	2.52	.007
Perf 2	5.55	.005
ABCF	6.49	.002
OTHR	3.66	.029
Sex x Social Context (SC)[b]	1.91	.05
OTHR	3.53	.03
Performance x Social Context (PC)[b]	2.61	.005
LUCK	6.32	.003
GNAB	4.74	.011
Internality-Externality x Performance x Social Context (IPC)[b]	2.93	.002
Perf 2	3.50	.03
LUCK	5.42	.006
GNAB	6.71	.002

Note: The first entry in each set summarizes the significant multivariate. The remaining entries, indented to facilitate their identification, summarize the related significant univariate effects.

[a]df for this multivariate comparison were 5/91.

[b]df for this multivariate comparison were 10/182.

hypotheses predicted (1) that men and women who were external in their locus of control would, following success feedback, attribute their success to forces beyond their control (i.e., luck, chance, situational factors); (2) that men and women, external in their locus of control, following failure feedback, would attribute responsibility for their failures to forces beyond their control (i.e., low ability, not trying sufficiently hard, bad luck or task difficulty); (3) that men and women, internal in their locus of control, following success feedback would attribute their success to personal forces (i.e., high ability, and/or trying hard); and (4) men and women, internal in their locus of control, following failure feedback, would attribute their failure to personal forces (i.e., low ability, not trying sufficiently hard). Thus, I expected that the internality-externality multivariate main effect would be significant. Table 2 indicates that, indeed, this was the case. Moreover, the multivariate effect reflected a significant univariate effect for LUCK (see Table 2), whose pattern of means was in the predicted direction; that is, external subjects (M = 3.68) attributed their successes and failures more often to luck than did internal subjects (M = 3.51).[1]

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[1]Where appropriate, as is the present instance, the means reported have been adjusted by the covariate.

Performance Hypotheses

The specific performance hypotheses (1 - 8) made were concerned with the elaboration of the relationship between internality-externality, success-failure feedback, sex of the subject and social context. Male subjects irrespective of internality-externality, success-failure feedback, or social setting were expected to always try to improve or increase their performance outcome on the anagrams task under all experimental conditions. For female subjects, I predicted that internal women, irrespective of success-failure feedback and social setting would not try to decrease their performance; while in contrast external women, following success feedback, were expected to try to increase their performance when competing against another female, but, when competing against a male opponent, were expected to decrease their performance on the task. Although these hypotheses (eight in total) were all stated separately, taken together they led to the prediction of a significant four-way (internality-externality), (success-failure feedback), (sex of subject), (social context of social setting) interaction. However, this effect was not found to be significant $F\ (10,182) = 1.18$, $p > .30$).

Winer (1971, p. 384 ff) notes that when specific hypotheses are to be tested, appropriate comparisons should be performed, irrespective of the magnitude of

the overall effect. To this end, the simple three-way interactions were examined separately for males and females. The hypotheses led to the expectation that this effect would be significant for females, but not for males. The appropriate comparisons, however, revealed that, in fact, the opposite was the case. That is, there was a significant three-way internality-externality x success-failure feedback x social context interaction for males ($F = 3.95$, $p < .03$) but not for females ($F = 1.30$, $p > .25$). Thus, even the pattern of means was not as predicted and as a result, I must conclude that there was little support for the hypotheses made regarding performance. The performance means for females, presented in Table 3, indicated that following failure feedback, internal subjects performed better against a male other and external subjects, when competing against a male other, performed better following success feedback. When competing against a female other, internal subjects performed on the task following success feedback and externals performed slightly better following failure feedback. Both internal and external subjects performed better following success feedback when they performed on the task in the alone condition as opposed to failure feedback in that same experimental condition.

TABLE 3.--Change in Females' Performance (Adjusted) as a Function of Internality-Externality, Feedback, and Social Context

		Social Context		
	Feedback	Male Other	Female Other	Alone
Internal Subjects	Success	.67	1.10	2.31
	Failure	4.84	.28	2.06
External Subjects	Success	4.17	-.80	.60
	Failure	1.09	-.40	-1.928

Note: All means have been adjusted with Performance at trial one covaried out.

Nonpredicted Findings

Sex Main Effect

The significant multivariate main effect for sex, reflected, in part, a significant univariate comparison for subjects' task performance at trial number two (Perf 2) ($F = 6.33$, $df = 1, 95$, $p < .014$). This finding indicated that female subjects ($M = 9.53$) performed better on the anagrams task than did males ($M = 8.96$). Also, the dependent measure related to the subject's perception of his or her ability and the degree to which he/she felt comfortable with task performance (ABCF) was significant ($F = 7.57$, $df = 1, 95$, $p < .007$). These results indicated that female subjects reported their perceptions of their experience with the task as having been slightly more positive ($M = 5.0$) than did male subjects ($M = 4.92$).

Social Context (Social Setting) Main Effect

The significant multivariate main effect for social context reflected significant univariate comparisons for three of the five dependent measures. First, the dependent measure concerned with the subjects' performance on the task at trial number two (Perf 2) was significant ($F = 5.55$, $df = 2, 95$, $p < .005$). Table 4 presents the means for performance at the various levels of social context. The multivariate analyses of covariance also

TABLE 4.--Second Trial Performance and Own and Others Performance Evaluations as a Function of Social Context.

	Social Context		
Dependent Variable	Male Other	Female Other	Alone
Second Trial Performance	10.31^{a}	8.88^{ab}	8.53^{b}
Own Evaluation	5.24^{a}	4.82^{a}	4.85^{a}
Evaluation of Other	4.92^{a}	5.05^{a}	4.71^{a}

Note: Within each dependent variable, means with non-common superscripts were found to be significantly different from each other (via Newman-Keuls Tests).

reflected a significant univariate comparison for the dependent measure concerned with the subject's perceptions of his or her own experience with the task (ABCF) ($F = 6.49$, $df = 2, 95$, $p < .002$).

In addition, the multivariate analyses of covariance reflected a significant univariate comparison for the dependent measure concerned with the subject's perception of others' general ability on various tasks (OTHR) ($F = 3.66$, $df = 2, 95$, $p < .029$). The underlying means are presented in Table 4 as well.

The Newman-Keuls procedure was used to explore the nature of the differences between treatment means that were the basis of the significant overall F ratios. This analysis revealed that only the subjects' performance at trial number two (Perf 2) proved significant for the comparison of subjects paired with a male to that of subjects who competed in the alone condition (see Table 4). Several of the other dependent measures did however approach the value required for significance.

Sex x Social Context Interaction

The multivariate sex x social context interaction reflected a significant univariate effect for subjects' perceptions of others' general ability on various tasks (OTHR) see Table 2. Table 5 presents the means that are relevant to this effect. This interaction was explored

TABLE 5.--Sex of Subject x Social Context Means Summary Table of Semantic Differential Measure of OTHR

	Social Context		
Sex of Subject	Male	Female	Alone
Male	4.62	5.17	4.62
Female	5.23	4.92	4.80

further via simple effects analyses (see Appendix C-1 for a detailed presentation of these tests). This analysis revealed that female subjects' perceptions of others' general ability on various tasks was greater when competing against a male other than was male subjects competing against another male ($F = 6.66$, $p < .05$). When the other person performing at the task was female, it appeared that male subjects perceived others' general ability as greater, although this comparison was not significant ($F = 1.11$). The simple effects test between male and female subjects who performed in the alone condition also was not significant ($F < 1$).

Performance x Social Context Interaction

The multivariate performance x social context interaction revealed two significant univariate effects: subjects' perceptions of the degree to which luck contributed to their performance outcome (LUCK) and subjects' perceptions of their own general ability on various tasks (GNAB) see Table 2. These two interactions were each explored via simple effects analyses (see Appendices C-2 and C-3 for a complete presentation of these results). See Table 6 below.

TABLE 6.--LUCK Means as a Function of Performance Feedback and Social Context

Performance Feedback	Males	Females	Alone
Success	3.60	4.00	3.15
Failure	3.45	3.35	4.00

These tests indicated that individual comparisons between the conditions of performance feedback within the female and alone social settings were appropriate. It appeared that following success feedback, when subjects competed against a female other they attributed their performance outcome to luck more often than following failure feedback. And, when subjects performed on the task in the alone condition, it appeared that they made more LUCK attributions following failure feedback than following success feedback.

Simple effects analyses for the GNAB dependent measure revealed that individual comparisons within the female and alone social settings were appropriate (see Table 7). It appeared that following success feedback, when subjects competed against a female other they perceived their own general ability as having been greater than following failure feedback. And, when subjects performed on the task in the alone condition, it appeared

TABLE 7.--Success-Failure Feedback x Social Context Means Summary Table of Semantic Differential Measure of GNAB

Performance Feedback	Social Context		
	Males	Females	Alone
Success	5.20	5.45	4.95
Failure	5.40	4.95	5.65
F	<1.00	2.72	5.34

that following failure feedback, subjects perceived their own general ability on various tasks as having been greater.

Internality-Externality x Performance x Social Context Interaction

As Table 2 indicates, the multivariate internality-externality x performance x social context interaction reflected significant univariate effects for three of the five dependent measures. These were subjects' performance on an anagrams task at trial number two (Perf 2); subjects' perceptions of the degree to which LUCK contributed to their performance (LUCK); and subjects' perceptions of their own general ability on various tasks (GNAB). Tables 8 to 10 present the relevant cell means for the three dependent measures.

Simple effects analyses were performed for each significant univariate variable. First, with regard to the Perf 2 dependent measure, the analyses revealed than when the opponent was a male, internal subjects performed better on the task following failure feedback than they did following success feedback while the reverse was true for external subjects ($F = 5.71$). No significant differences were found via the simple effects analyses performed for subjects who competed against a female opponent. However, these analyses did reflect a significant internality-externality x success-failure feedback

TABLE 8.--Internality-Externality x Performance x Social Context Interaction Simple Effects for PERF 2

		Social Context		
		Male	Female	Alone
Internal Subjects	Success	9.04	9.00	7.94
	Failure	11.87	10.14	10.48
External Subjects	Success	11.27	8.60	8.90
	Failure	9.08	7.79	6.82
	F	5.71	< 1.00	4.84

TABLE 9.--Internality-Externality x Performance x Social Context Interaction Simple Effects for LUCK

		Social Context		
		Male	Female	Alone
Internal Subjects	Success	2.50	2.70	2.60
	Failure	3.00	2.40	2.80
External Subjects	Success	4.70	5.30	3.70
	Failure	3.90	4.30	5.20
	F	4.55	< 1.00	4.55

TABLE 10.--Internality-Externality x Performance x Social Context Interaction Simple Effects for GNAB

		Social Context		
		Male	Female	Alone
Internal Subjects	Success	5.70	5.00	4.60
	Failure	5.10	5.20	5.60
External Subjects	Success	5.00	5.90	5.30
	Failure	5.70	4.70	5.70
	F	4.60	5.34	<1.00

interaction for those subjects who competed in the alone condition ($F = 4.84$). The pattern of results were the same for subjects who competed against a male opponent; that is, it appeared that internals increased their performance more following failure feedback, whereas externals appeared to perform better following success feedback.

Second, with regard to the LUCK dependent measure, it appeared that when the opponent was a male, internal subjects made more luck attributions following failure feedback and external subjects attributed their performance outcome to luck more often following success feedback ($F = 4.55$). When the opponent was a female, simple effect analyses revealed a performance feedback main effect indicating that subjects made more luck attributions following success feedback than following failure feedback ($F = 4.27$). For those subjects who competed in the alone condition, there was a significant internality-externality x performance feedback interaction ($F = 4.55$) indicating that internals differed little in their luck attributions as a function of feedback, while externals more often attributed their performance outcome to luck following failure.

And third, with regard to the dependent measure which was concerned with subjects' perceptions of their own general ability on various tasks (GNAB), it appeared

that when the opponent was a male, simple effects analyses reflected a significant internality-externality x success-failure feedback interaction ($F = 4.60$) such that internals perceived their own general ability as having been greater following success feedback and externals perceived their own general ability as having been greater following failure feedback (see Table 10). When the opponent was a female, there was a significant internality-externality x performance feedback interaction which indicated that internals differed little in their perceptions of their own general ability as having been greater following success feedback ($F = 5.34$). There was no significant interaction for subjects who competed in the alone condition; however, there was a significant main effect for performance feedback ($F = 5.34$), indicating more positive self-evaluation after failure feedback.

CHAPTER IV

DISCUSSION

The present study was an attempt to investigate the complex processes involved in how persons react to and account for their successes and failures in varying performance situations. More specifically, this study investigated the differential effects of internal-external locus of control and attribution of causality for success and failure on achievement performance in competitive and non-competitive situations. Moreover, the causal attributions of male and female subjects, who were either internal or external in their locus of control, to causal attributions (statements) regarding success or failure were also explored.

Attributional Hypotheses

There were four related predictions made regarding the relationship between conditions of success-failure feedback and internality versus externality. Table 2 presents the results of the 2 (internality-externality) x 2 (success-failure feedback) x 2 (sex of subject) x 3 (social context) multivariate analysis of covariance employed to test these attributional hypotheses. As

stated, the hypotheses were supported as there was a significant internality-externality main effect in the predicted direction. This analysis was in agreement with previous research (e.g., Heider, 1958, Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum, 1971) which suggested that success or failure at an achievement task primarily is attributed to four causal factors: ability, effort, task difficulty, and/or luck. When an individual tries to explain the outcome of any achievement action, that individual assesses his own or the others involved level of ability, the amount of effort expended, the difficulty of the task, and the magnitude and direction of experienced luck.

The internal-external control of reinforcement variable, identified by Rotter, 1966 and Lefcourt, 1966, represents a rather generalized expectancy that reinforcement is causally related to one's own behavior, and in this light is recognized as playing a major role in influencing the nature of causal attributions. That is, at one end of the internal-external dimension are the internal individuals who believe that reinforcement is contingent upon their behavior while those at the other extreme, the externals, believe that reinforcement is independent of their actions and is controlled by luck, chance of powerful others.

Again, one might further anticipate that since the I-E variable is construed as a generalized expectancy, internals, as contrasted to externals, would be more inclined to attribute specific task outcomes to personal forces, and that this difference would be relatively unaffected by the nature of the outcomes. When speaking from this perspective, externals, for example, would be expected to attribute responsibility for both successes and failures to forces beyond their control, whereas internals would assign responsibility for these outcomes to personal attributes such as effort and ability. Thus, it seemed logical to assume that the attributions generally associated with internals and externals would generalize to subjects in this study as well. A review of the means does indeed reveal this to have been true. The pattern of means were in the predicted direction with externals ($M = 3.68$) attributing their success and failures more often to luck than did internals ($M = 3.51$).

Recently, it has been suggested that some individuals who obtain externals scores on the Rotter (1966) I-E scale may have developed this particular expectancy for defensive reasons (Rotter, 1966; Hersch and Scheibe, 1967; Davis, 1970). That is, by adopting an external orientation these individuals thus are able to maintain self-esteem by attributing negative events to forces beyond their control. Several studies provide some

support for this notion. Efran (1963) and Phares, Ritchie and Davis (1968) reported greater recall of threatening information by externals. Similarly, Lipp, Kolstoe, James and Randall (1968) found that pictures of physically handicapped persons, when presented tachistocopically, resulted in lower recognition threshholds by handicapped externals than by handicapped internals. These studies, when taken together, suggest that externals have less need to resort to forgetting and denial as defensive strategies since they can readily account for their failures by attributing them to impersonal forces.

It is interesting to note here that the results of the author's research lends further support to the numerous definitive studies in this area and with regard to some of the nonexpected findings obtained in the present study relating to differential inferences made of the degree to which several of the dependent measures were operant in the attributions made by internals, as well as externals, it appeared that several cognitive processes were utilized. More specifically, the significant sex main effect for performance on the task at trial number two indicated that females performed better than males and also reported more positive evaluations of their performance outcome. And while no specific prediction was made in regard to whether or not males

or females would do better on the task, the experimenter found it rather encouraging that the women did not compromise in what they could and did accomplish.

Performance Hypotheses

The eight related predictions made regarding the relationship between internality-externality, success-failure feedback, sex of the subject, and social context were not supported. The MANCOVA produced a non-significant four-way interaction among the variables of interest, however, the three way internality-externality x success-failure feedback x social context interaction did receive statistical support. Despite the absence of support for the predicted four-way interaction, the data does provide some clues as to what occurred during the study, and at the same time raises some interesting questions concerning not only the lines of research initiated in this study but other, more established lines of research as well. One plausible explanation for lack of support for the predicted performance hypotheses may reside in the notion of changing societal norms. That is, it may well be true that while some women are beginning to feel comfortable in positions where they excel beyond their male counterparts, there appears to be yet another group of women who continue to feel the brunt of pressure about doing so which was prevalent in previous decades. Letting

men (or anyone else) do better even when you (as a female) could in fact "beat the other person out: whether it be on the corporate level, playing a game of tennis, or performance in the academic arena may in the decade of the '80s not be "chic" for some women but still others, depending on the cognitive reasoning, may view it as quite "the right thing to do under present circumstances". (Incidentally, these circumstances can run the gamut of not wishing to have to spend lonely weekends without a male partner to suffering mild ostracism.) And, if one considers this explanation in light of previous empirical evidence (Megaree, 1969) that women tend to give up positions of influence to their partners, this research has far-reaching implications for future research in several areas--namely, achievement motivation and a great deal of the literature involving competitive activity. McClelland, Atkinson, Clark and Lowell (1953) have stated that: "Competition with a standard of excellence is perhaps most clear when one of the persons is engaged in competitive activity where winning or doing as well or better than someone else is the primary concern."[1]

In the author's research, subjects were very clearly instructed that they were to perform on the task in competition against their opponent and in the alone setting were given information tht they were to compete

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[1]Weiner, Bernard. Theories of motivation: From mechanism to cognition. Chicago: Rand McNally, 1972.

against a pre-established standard of performance as set by their college-level peers. One might further consider yet another explanation for non-support of the performance hypotheses which is related to the failure on the part of the researcher to consider such variables as interpersonal attraction and impression formation which could have conceivably very much influenced whether or not a given subject would mentally consider apriori if perhaps they may not like a date with the very individual whom they were being asked to compete against. To ignore the multiplicity of environmental cues, as well as personal predispositions and defensive mechanism which guide our interactions and which perhaps affect our performance under a variety of circumstances would certainly be a mistake if in future research efforts one were to assume that conflicts about the causes of success and failure were always immediately clear or agreed upon.

Numerous studies have documented sex differences in achievement-related behavior. This is to say, there exists voluminous literature which shows the concept of expectation to have widespread implication for understanding individual differences in achievement behavior (Tyler, 1958; Rosenthal and Jacobson, 1968; Battle, 1965; Feather, 1966, Crandall, 1965; Diggory, 1966; Montanelli and Hill, 1969; McMahon, 1972). The theory of achievement motivation postulated by Atkinson (1964) is among

those generally classified as an expectancy x value theory, and included among the cognitive approaches to motivation. However, Atkinson's theory virtually ignores the myriad of cognitive processes which might occur in achievement-related situations, such as the expected determinants of success and failure prior to task performance as well as the perceived determinants of the outcome following task performance. It is in this realm that the author sought to minimize some of the conflicting results of the large volume of literature with regard to sex differences in expectancies. Several studies suggest that sex-role appropriateness of the task must be considered in assessing expectancies (Hoffman and Maier, 1966). This is to say, that in the present research, the author recognized that there are many possible choices which can be made with reference to any achievement-related alternative. And, further, each of these alternatives has an associated level of difficulty, as well as a potential payoff. It was hypothesized that if a task could be chosen which would allow both male and female subjects an equal opportunity for having the extent to which their expectancy of success and level of ability were congruent with one another, alternative explanations about results obtained would be kept at a minimum.

Again, while it is not the intent of this discussion to present each conceivable alternative explanation

for non-support of the specific performance hypotheses made, one question which the author remains particularly aware of is the utility of the Rotter I-E scale for the measurement of perceptual orientation. Let it be understood that the question of the validity of the scale is not altogether the issue; in fact, the author is confident (reasonably so) in the scale in terms of its measuring an internal orientation and an external orientation. The I-E scale, however, does require that one has a large N to test (for example, to get the upper third and lower third of a distribution such that N = 120, required the testing of nearly 1,000 subjects!). In trying to meet the criterion established for what would be the most inclusive category for determining internal versus external orientation, the author is further very painfully aware that non-support of the hypotheses may have been due to some marginality equated with the median areas as opposed to extremes.

Originally, when the I-E scale was developed, empirical data supported the unidimensional nature of the items. Hence, results of recent factor analytic studies (Collins, 1974; Kleiber, Veldman, and Menaker, 1973) have indicated the presence of several factors on the I-E scale. Also, since the development of the I-E scale and recent evidence that indicates its multidimensionality, one certainly cannot overlook the

possibility that the seeming discrepancy is a function of changing societal times. Unfortunately, too, because of the forced-choice format of the scale, rejection of the internal items results in a high external score, which is defined as a belief that events are controlled by fate, chance, or powerful others. Again, as mentioned earlier, factor analyses have uncovered several factors which seem to indeed be different from I-E as originally defined by Rotter and also which seem to be quite important in their own right. Yet, despite the fact that the Rotter scale is not as "pure" as it was originally believed to be, the author feels that perhaps had a much larger sample been available so that only those subjects with the most extreme scores used, the predicted performance hypotheses may have been reached.

Finally the question of where this research can proceed has already been mentioned. With the hope that data reported here advances steps in the direction of a cognitive theory of achievement motivation, in which the multiplicity of environmental cues and cognitions other than the subjective probability of goal attainment are investigated, the author feels that great strides can be made toward understanding the effects of locus of control and the specifics related to how one accounts for his or her successes and failures in varying situations.

APPENDICES

APPENDIX A

30-Item Anagrams Task

KEY

Below are thirty single-solution, 5-letter anagrams. You are to unscramble as quickly as possible as many of them as you can.

lnbda	amrjo	linaf
elcna	sldaa	nijot
aedmr	vrgio	nkcko
daync	yldie	iezma
hetiw	gtian	ejelw
snowk	eynar	cithk
rappe	virer	lravo
tasny	eoevk	eonym
alvet	etteh	gieht
earbz	ogedd	eeges

APPENDIX B

Attribution of Causality and Subject Reaction Questionnaire

Attribution of Causality for Success and Failure

In this study some of you succeeded at the task and others of you did not do very well. We are interested in your reasons for why you think you performed as you did. Please indicate the degree to which you feel the following was important in assessing your performance outcome by circling that number which best typifies why you think you performed as you did.

ABILITY

(Did you feel you possessed either high or low ability at this task?)

1 2 3 4 5 6 7

EFFORT

(Did you feel you tried hard or did not try sufficiently hard at this task?)

1 2 3 4 5 6 7

TASK DIFFICULTY

(Did you feel the task was relatively easy or exceptionally hard?)

1 2 3 4 5 6 7

LUCK

(Did you feel that good luck of bad luck affected your performance at this task?)

1 2 3 4 5 6 7

Attribution of Causality for Success and Failure

In this study, some of you succeeded at the task and others of you did not do very well. We are interested in how you feel others performed on this task. Please indicate the degree to which you feel the following was important in assessing their performance outcome by circling that number you feel best typifies how much each of the following contributed to their performance outcome.

ABILITY

(Did you feel they possessed either high or low ability at this task?)

1 2 3 4 5 6 7

EFFORT

(Did you feel they tried hard or did not try sufficiently hard at this task?)

1 2 3 4 5 6 7

TASK DIFFICULTY

(Did you feel the task was relatively easy or exceptionally hard for them?)

1 2 3 4 5 6 7

LUCK

(Did you feel that good luck of bad luck affected their performance at this task?)

1 2 3 4 5 6 7

Attribution of Causality for Success and Failure

Throughout our lives we perform at a number of tasks, some quite similar to the one just completed and others quite different. We are interested in your estimate of how much each of the following contribute to and are important in assessing your performance in a general sense. Please indicate the degree to which you feel the following are important in assessing your general performance on a variety of tasks by circling that number you feel best typifies your response.

ABILITY

(Do you feel you possess either high or low ability at certain tasks?)

1 2 3 4 5 6 7

EFFORT

(Do you feel you try hard or do not try sufficiently hard at certain tasks?)

1 2 3 4 5 6 7

TASK DIFFICULTY

(Do you feel certain tasks are relatively easy or exceptionally hard for you?)

1 2 3 4 5 6 7

LUCK

(Do you feel good or bad luck affects your performance at certain tasks?)

1 2 3 4 5 6 7

Attribution of Causality for Success and Failure

Throughout our lives we perform at a number of tasks, some quite similar to the one just completed and others quite different. We are interested in your estimate of how much each of the following contribute to and are important in assessing others performance in a general sense. Please indicate the degree to which you feel the following are important in assessing others' general performance on a variety of tasks by circling that number you feel best typifies your response about their performance.

ABILITY

(Do you feel others possess either high or low ability at certain tasks?)

1 2 3 4 5 6 7

EFFORT

(Do you feel others try hard or do not try sufficiently hard at certain tasks?)

1 2 3 4 5 6 7

TASK DIFFICULTY

(Do you feel certain tasks are relatively easy or exceptionally hard for others?)

1 2 3 4 5 6 7

LUCK

(Do you feel good or bad luck affects others' performance at certain tasks?)

1 2 3 4 5 6 7

Subject Reaction Questionnaire

Directions: We are interested in your reaction to your performance on this task. Please read each bipolar adjective carefully and rate your reaction on the scales by circling that number which you feel best typifies your opinion about how you performed.

1. Embarrassed ---------- Unembarrassed

   1 2 3 4 5 6 7

2. Disappointed ---------- Pleased

   1 2 3 4 5 6 7

3. Unhappy ---------- Happy

   1 2 3 4 5 6 7

4. Uncomfortable ---------- Comfortable

   1 2 3 4 5 6 7

5. Anxious ---------- Relaxed

   1 2 3 4 5 6 7

6. Shame ---------- Pride

   1 2 3 4 5 6 7

7. Performed Poorly ---------- Performed Well

   1 2 3 4 5 6 7

APPENDIX C

Additional Tables

Appendix C.1

Summary of the analysis of variance for
S x C Simple Effects

OTHR

Source	SS	df	MS	F
SS_S within C_1	7.442	2	3.721	6.656
SS_S within C_2	1.250	2	.625	1.118
SS_S within C_3	.648	2	.324	.579

Appendix C.2

Summary of the analysis of variance for
P x C Simple Effects

LUCK

Source	SS	df	MS	F
SS_P within C_1	.450	2	.225	.242
SS_P within C_2	8.450	2	4.225	4.547
SS_P within C_3	14.450	2	7.225	7.777

Appendix C.3

Summary of the analysis of variance for
P x C Simple Effects

GNAB

Source	SS	df	MS	F
SS_p within C_1	.8	2	.4	.435
SS_p within C_2	5.0	2	2.5	2.723
SS_p within C_3	9.8	2	4.9	5.337

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