THE EFFECTS OF PERFORMANCE FEEDBACK, SELF-ESTEEM, PERFORMANCE STANDARD ON FEEDBACK RECIPIENT'S RESPONSES:
AN ATTRIBUTIONAL ANALYSIS

DISSERTATION

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

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To My Wife
ACKNOWLEDGMENT

The struggle to complete my doctoral program has been supported by many people whom I am deeply indebted.

To my adviser, Dr. H. Randolph Bobbitt, Jr., I extend a special thanks for his valuable insights and suggestions, his patience in editing and warm understanding, and his personal support over the past four and half years.

Members of the reading committee, Dr. Jay S. Kim and Dr. David Greenberger, are acknowledged for their time, interest, and many valuable suggestions as well as for their professional guidance throughout my doctoral program. A special appreciation is due to Dr. Jay S. Kim who helped me conceptualize this research. He certainly deserves to be called co-adviser in this project.

My sincere appreciation is given to all my colleague doctoral students for their allowing me to use their classes for my data collection site.

I would also like to give a very special thanks to my former professors, Dr. Sik-Hyun Kim and Dr. Yoo-Keun Shin at Seoul National University, for their continued moral support.

And to my father and mother, my father-in-law and mother-in-law, and my wife, for their unlimited support and unquestioning faith in me; to my children, Seung-Woo and Joon-Woo, I thank you for understanding my frequent absences.
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CHAPTER I
INTRODUCTION

Statement of the Problem

As an organizational control method, performance appraisal has long been used for personnel decisions such as selection, promotion, transfer, layoff, pay increases, or admission into a training program (Cummings & Schwab, 1973). For these purposes, the formal performance appraisal system has required supervisors to evaluate subordinates' performances on various standard rating forms. The main stream of the typical performance appraisal research has focused on the understanding of the psychometric characteristics of rating forms (for a review, see Landy & Farr, 1980), the effectiveness of rater training (for a review, see Spool, 1978), and the process of how raters' cognitions work when performance ratings are made (for reviews, see DeNisi, Cafferty, & Meglino, 1984; Feldman, 1981; Ilgen & Feldman, 1983; Larson, 1984; Wexley & Klimoski, 1984).

One area of performance appraisal which has not been fully explicated in the literature is the process of how the recipients of feedback respond perceptually to performance feedback within the organizational control context. From an organizational control perspective, the performance appraisal system is considered as an integrated process of performance management involving the following
components: (1) evaluating appraisees' actual performances, (2) comparing them with standard performances, (3) providing appraisees with performance feedback, (4) predicting feedback recipients' cognitive, affective, and behavioral responses, and (5) provoking desirable responses from appraisees (Anderson & O'Reilly, 1981; Taylor, Fisher, & Ilgen, 1984). Nevertheless, most organizational behavior researchers have largely ignored the components of predicting the feedback recipients' responses and the provoking of desirable responses from them. Instead, current research has treated ratees as passive objects in the context of the raters' social environment (Ilgen & Feldman, 1983).

Briefly stated, providing appraisees with performance feedback is a cue indicating that their performances are desired to be controlled. An important issue is how to predict their responses to performance feedback. Feedback recipients often infer different meanings from the same feedback information depending upon which environmental context and internal processes are salient to them (Dunbar, 1981). To understand the complete processes of performance feedback and to elicit desirable responses in the context of organizational control, it is necessary to consider how feedback recipients interpret their performance outcome information independently of its "objective" content (Taylor, Fisher, & Ilgen, 1984).

Past Related Research: Attributional Analysis

Staw (1975) has demonstrated that fictitious performance reports, when given to work groups, could affect the group participants'
perceptions of their interpersonal interactions. In his study, mere knowledge of performance caused participants to attribute one set of characteristics to a high performing group and a different set of characteristics to a low performing group. His finding was replicated by Downey, Cheako, and McElroy (1979) and McElroy and Downey (1982). An important implication of these findings is that feedback recipients have their own "naive" theories as to which relationships are most crucial to performance. Even when people end up with the same "objective" level of performance, they may have different perceptions about the causes of their performance which, in turn, are believed to lead to different reactions (Ilgen & Knowlton, 1980).

Attribution Theory. This line of reasoning has been initiated and elaborated by attribution theory research in social psychology, especially by self-attribute research (i.e., looking for the causes of one's own behavior) rather than other-attribute research (i.e., looking for the causes of others' behavior). Attribution theory, first proposed by Heider (1944, 1958) and developed further by Jones and Davis (1965) and Kelley (1967, 1973), deals with subjective perceptions about the causes of behavior rather than objective actual causes of behavior. To date, there are several different "theories" of attribution (Kelley & Michela, 1980). However, the common ideas are that people interpret information about their own and others' behavior in order to discover the causes of events and this causal explanation affects people's reactions to the behavior. These ideas have been tested and expanded mainly in reference to the Weiner, Frieze, Kukla,
Reed, and Rosenbaum's (1971) model of causal attributions of success and failure in an achievement-related context.

**Attribution Factors.** According to Weiner and his associates (1971), people utilize four factors of attribution to interpret and to predict their performance outcomes. The four attribution factors are ability, effort, task difficulty, and luck. It is assumed that values are assigned to these four factors and that the performance outcome is differentially attributed to these factors. It is also proposed that people's attributional judgement varies primarily along two causal dimensions - locus and stability. Locus of causality concerns whether the causes of behavior are internal or external to the person. Stability concerns whether the causes of behavior are stable or unstable over time. Weiner and his associates have classified each perceived cause into one of the four types which represent the four combinations of the endpoints of the two dimensions. They have assumed that ability is a stable, internal cause; effort is unstable and internal; task difficulty is stable and external; and luck is external and unstable (see Figure 1).

<table>
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<th>Locus</th>
<th>Internal</th>
<th>External</th>
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<td>Stability</td>
<td>High level of ability or Low level of ability</td>
<td>Easy task or Difficult task</td>
</tr>
<tr>
<td>Stable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unstable</td>
<td>High level of effort or Low level of effort</td>
<td>Good luck or Bad luck</td>
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**Figure 1. Classification of Causal Attribution Factors**
The Current Study.

The above attributional framework has provided a common basis for testing a variety of attributional theories of performance in the areas of social, educational, and industrial psychology for more than a decade. Such attributional analysis of performance also has several major implications for the study of organizational behavior in dealing with people's responses to performance feedback. Three areas need to be investigated for that purpose.

First, attributional analysis can be used to delineate the causal relationship between performance feedback and feedback recipients' subjective attributional perceptions. Performance feedback itself is believed to be an important cue for feedback recipients to infer the causes of performance feedback.

Second, as the differential attributions for success and failure have been frequently investigated as a function of other interactive variables (see Zuckerman, 1979, for a review), performance feedback is believed to interact with some individual difference and situational variables to make differential attributions.

The third major implication is related to the attribution research findings that show that causal attributions affect people's feelings about their performance feedback and their expectations about future ones. Cognitive theories of motivation generally indicate that the intensity of aroused motivation is affected by both the expectancy and the attractiveness of the outcome (Weiner, 1980). In this regard, causal attributions inferred following performance feedback are believed to be an intervening cognitive factor that affects performance expectancy and affect.
Performance Feedback. Concerning the main effects of performance feedback on feedback recipients' attributions, a substantial number of researchers have shown that people tend to attribute their successes to their internal factors such as ability and effort, and their failures to external factors such as task difficulty and bad luck (Snyder, Stephan, & Rosenfield, 1978). This asymmetric attribution phenomenon has typically been termed self-serving attribution (for reviews, see Bradley, 1978; Miller & Ross, 1975; Zuckerman, 1979). Greenwald (1980) suggests that this self-serving attribution phenomenon is one of the best established findings in social psychology.

Self-Esteem. Some researchers have shown that individual differences such as self-esteem (Brochner & Guare, 1983; Fitch, 1970), depression (Kuiper, 1978; Rizley, 1978), initial confidence (Feather, 1969; Feather & Simon, 1971), locus of control (Gilmor & Minton, 1974; Lefcourt, Hogg, Struthers, & Holmes, 1975; Phares, Wilson, & Klyver, 1971), achievement motivation (Kukla, 1972; Weiner & Kukla, 1970), age (Nicholls, 1979), and sex (Halperin & Abrams, 1978; Heilman & Guzzo, 1978) moderate the relationship between performance feedback and causal attributions.

Self-esteem has long been considered as one individual difference variable that would likely have important implications for feedback responses (Brochner & Guare, 1983). Self-esteem deals with the evaluative and affective aspects of self concept (Wells & Marwell, 1976). Self concept can be defined as an "organization (structure) of various identities and attributes, and their evaluations, developed out of the individual's reflexive, social, and symbolic activities" (Gecas, 1982, p. 4). Most research on the self concept focuses on the
evaluative and affective dimension so that sometimes self concept is treated like self-esteem (Wells & Marwell, 1976).

In the relationship between self-esteem and attributions, it is generally proposed that high self-esteem people are engaged in more self-serving attributions than low self-esteem people (Ickes & Layden, 1978; Zuckerman, 1978). To be specific, high self-esteem people have been found to internalize success and externalize failure more than low self-esteem people. An early study by Stollard, Thorely, Thomas, Cohen, and Zander (1957) revealed that high self-esteem people reacted to their experiences in a group in such a way that they protected themselves from unfavorable evaluation whereas low self-esteem people reacted to their experiences in a way that made it difficult to improve their self-esteem. In their study, high self-esteem people tended to evaluate their performance more favorably after a failure than low self-esteem people. This tendency is consistent with the proposition that high self-esteem people are more likely to make self-serving attributions than low self-esteem people. Recent studies have fully or partially confirmed this tendency (e.g., Adler, 1980; Ames, 1978; Arkin, Appleman, & Burger, 1980; Fitch, 1970; Kuiper, 1978; Watkins & Astina, 1980).

Performance Standard. In addition to self-esteem as an individual difference variable, the type of performance standard as a situational variable may influence performance feedback recipients' attributions for success and failure. A performance standard can be defined as the level of performance goal which appraisees are required to achieve (Bernardin & Beatty, 1984). In setting the performance goal to make it tied to organizational rewards such as promotions and salary increases
(Locke, 1976), organizations generally use two types of performance standards: comparative procedure and absolute standard (Carroll & Schneier, 1982; Cummings & Schwab, 1973; Wexley, 1979). In comparative procedures, the appraisal is made by comparing an appraisee against others within a work unit on one global dimension. Thus, comparative procedures involve interpersonal competition and result in a ranking of appraisees. Absolute standards involve evaluating each appraisee's performance against a preestablished criterion.

Chacko, Stone, and Brief (1979) have noted that attribution theory can be applied to the study of examining the effect of goal setting types on performance feedback recipients' perceptual responses. In fact, there have been some empirical studies that investigated the impacts of assigned versus participative goal setting method on attributions (e.g., Chacko & McElrcey, 1983; Dossett & Greenberg, 1981). Little research, however, has directly investigated the critical role of comparative versus absolute standards in determining what effects performance feedback has upon feedback recipients' attributions.

**Performance Expectation.** Some attribution researchers have proven that causal attribution for performance outcomes is an important determinant of performance expectancy (e.g., Fontaine, 1974; Valle & Frieze, 1976; Weiner, Nierenberg, & Goldstein, 1976). The concept of expectancy can be defined as "a momentary belief concerning the likelihood that a particular act will be followed by a particular outcome." (Vroom, 1964, p. 17). Expectancy has played a central role in cognitive theories of motivation (e.g., Porter & Lawler, 1968; Vroom, 1964). However, the actual performance level on a task in an organizational setting can be a function of a number of factors besides
a particular act. Therefore, it appears that people's expectancies are affected by their explanations of how the various factors cause their performance outcomes in a given situation (Campbell & Pritchard, 1976).

In general, it has been suggested that performance expectancy shifts after success and failure are dependent upon the perceived stability of the cause of the performance outcome (Weiner et al., 1971; Weiner, 1979, 1980). Stated specifically, attributions for performance outcomes to stable factors bring about greater expectancy shifts than do attributions to unstable factors. For example, failure attributed to low ability or a difficult task decreases the expectation of future success at the same task more than failure attributed to lack of effort or bad luck. In the same vein, success attributed to high effort or good luck results in lesser increases in the performance expectancy at the same task than success attributed to high ability or an easy task (Weiner, 1979).

Affects. A related area of research which has also focused on the consequences of attribution after success and failure is the affective reactions to causal attributions. Affects or feeling states are induced by pleasant or unpleasant experience (Clark & Isen, 1982) and involve labeling or interpretation (e.g., Schachter & Singer, 1962). In this regard, individuals' attributions are believed to affect how the perceived value (i.e., valence) of success or failure might change (Campbell & Pritchard, 1976). Initially, Weiner et al. (1971) proposed that locus of causality is associated with the affective reactions to success and failure: that is, affective reactions are maximized given internal attributions for success and minimized given external attributions.
In fact, researchers have found that feelings of pride and competence would be most experienced given internal rather than external attributions for success. Internal attributions for failure produced the affects of guilt and resignation (e.g., Weiner, Russell, & Lerman, 1978, 1979).

Objective of the Study

The purpose of the present study is to apply attribution theory research to the study of the performance feedback process by investigating how performance feedback interacts with both self-esteem and the types of performance standard to affect attributions which, in turn, affect performance expectations and affect. More specifically, the present research will study the main effects of performance feedback and the interaction effects of self-esteem and the types of performance standard on a feedback recipient's attributions for positive and negative outcomes. Additionally, this research will test a relationship between a feedback recipient's attributions and other variables such as performance expectation and affect. The graphical summary of the relationships among the major variables of interest in the present study is shown as follows:

[Diagram showing the relationships between Self-Esteem, Performance Feedback, Performance Expectation, Performance Standard, Attributions, and Affects]
Overview of Research Design and Methodology

This study consists of a pilot study and a main study. Both studies were conducted in the laboratory settings in which college students were involved in proofreading tasks. The pilot study explored and determined the attribution factors to which subjects ascribe their success and failure performances in the context of proofreading tasks. The main study examines (1) the effects of performance feedback, self-esteem, and performance standard on attributions, and (2) the relationships of attributions to performance expectation and affect.

Scope, Limitations, and Implications

Other factors, such as the perceived accuracy of feedback, the perceived credibility of feedback source, and the perceived fairness of feedback system, may affect feedback recipients' affective and cognitive responses (Taylor, Fisher, & Ilgen, 1984). However, this study confined its investigation to the effects of feedback, self-esteem, and the types of performance standard on attributions and their effects on affects and performance expectation. In addition, predicting feedback recipients' behavioral responses is beyond the scope of this study. The findings of this study concerning the cognitive and the affective responses, however, have important implications for the attribution retraining or the attribution therapy which assumes relationships between cognitive and affective responses and behavioral responses (Fiske & Taylor, 1984).

Attribution retraining centers on directing undesirable, unrealistic attributions toward more desirable, realistic sources (Mattinko & Gardner, 1982). It is well documented that people making
internal attributions for response-outcome independence frequently show learned helplessness syndrome (e.g., Klein, Fencil-Morse, & Seligman, 1976). Learned helplessness is the notion that people learn after repeated failure that responding is futile and then generalize this expectancy even to future controllable situations (Abramson, Seligman, & Teasdale, 1978). Therefore, if low self-esteem people make internal attributions for failure in situations in which self-blaming is clearly inappropriate, the external attribution manipulation will enable them to perform better. In sum, qualitatively different attributions will be the bases of different cognitive strategies from the organizational control perspective of performance appraisals and feedback systems.

Overview of the Presentation

Chapter II reviews the relevant literature which generates the major hypotheses for the study. Chapter III discusses the research design and methodology employed. Chapter IV reports the findings as related to the experimental hypotheses. Chapter V interprets and discusses the findings in terms of the hypotheses and other relevant theories. Chapter VI integrates the findings and the interpretations in terms of theory, practical implication, and future research.
CHAPTER II
REVIEW OF THE LITERATURE

In this chapter, a review of the literature pertinent to this study is presented. The chapter is divided into six sections: the effects of performance feedback on attributions; self-esteem as an individual difference moderating variable; performance standard as a situational moderating variable; the effects of attributions on performance expectation; the effects of attributions on affects; and the hypotheses.

Effects of Performance Feedback on Attributions

In the organizational control context of a performance appraisal system, the appraisees' performances are compared to those of other individuals or against standard performances. Two performance feedbacks are possible. The comparison may indicate that the standard has been positively matched (i.e., success), or that there is a negative difference between the actual performance and the standard (i.e., failure). These performance feedbacks are proposed to affect recipients' cognitive, affective, and behavioral responses (Taylor, Fisher, & Ilgen, 1984).

One area of research guiding this line of reasoning is based on the attribution frameworks developed by Heider (1958) and Kelley (1967) and expanded by Weiner and his associates (1971). In general, there exist two competing, but in a sense complementary, lines of research in
attribution studies concerning causal judgement after performance feedback of success and failure (Ross, 1981). One is associated with logical attribution principles (e.g., Kelley, 1967). The other covers motivational self-serving attributions (e.g., Snyder, Stephan, & Rosenfield, 1975).

As a normative, logical attribution principle, Kelley's (1967) covariation model suggested that people as naive scientists analyze and combine three types of information (i.e., consensus, distinctiveness, and consistency) to infer the causes of their behavior. Consensus is concerned with information comparing their behavior with that of others. Distinctiveness compares their behavior with their other relevant behavior. Consistency deals with the similarity of behavior across time and situations. These three types of information can assume one of two values (i.e., high or low). Thus, eight ($2 \times 2 \times 2$) information combinations are possible. Kelley (1967) concentrates on only two of these combinations; his theory predicts that the combination of high consensus, high distinctiveness, and high consistency leads to external attributions (e.g., task difficulty) whereas the combination of low consensus, low distinctiveness, and high consistency leads to internal attributions (e.g., low ability).

The validity of Kelley's logical model was empirically supported by McArthur (1972). Orvis, Cunningham, and Kelley (1975) replicated and extended McArthur's (1972) results to various patterns of incomplete information. Kelley's model has been criticized because of several important limitations. First, Kelley's model has been supported only by the studies of other-attribution (e.g., Fontaine, 1975, Study 1; Hesketh, 1984, Laboratory study; McArthur, 1972; Orvis,
Several recent studies which used a self-attribution paradigm failed to support Kelley's model (e.g., Fontaine, 1975, Study 2; Hesketh, 1984, Field study; Stevens & Jones, 1976; Tillman & Carver, 1980).

Second, Kelley's model assumes that people use complete information on the possible causes of their or other's behavior (Feldman, 1981; Schneider, Hastorf, & Ellsworth, 1979). Contrary to this assumption, Major (1980) found that subjects were willing to make attributions with less than 25 percent of the available information and tended to do so without consensus information. Concerning the use of consensus information, similar findings were reported by Nisbett and Borgida (1975) and Hansen and Donoghue (1977).

Thirdly, predictions from Kelley's model ignored the role of the attributor's own success and failure outcomes. It was assumed wrongly that the same attributions would be made symmetrically for success and failure (Marsh, Cairnes, Relich, Barnes, & Debus, 1984). Self-attributions for success and failure may be independent as suggested by numerous studies of self-serving or defensive attribution research (Stevens & Jones, 1976).

Overall, it may be suggested that people may not use Kelley's three types of information in the way predicted by Kelley when the information is embedded in the natural flow of everyday experience rather than explicitly presented by experimenters with a questionnaire format as well as when people make attributions about their own behavior rather than others' (Hesketh, 1984). This speculation raises some doubt to a degree on the conceptualization of the lay person as a naive scientist, actively acquiring and processing information to infer
the causes of behavior. As a result, interest in elaborating further the logical attribution principles has recently declined sharply whereas researchers have increasingly shifted their attention to motivational factors which may bring bias into attributions (Ross, 1981). Nevertheless, Wells and Harvey (1977) have argued, based on their own empirical study, that a "no effect" conclusion regarding Kelley's model may be premature because of inadequate operationalization of the major variables.

In fact, a majority of researchers have focused on the possibility of a consistent motivational bias: a tendency for individuals to enhance self-esteem by taking credit for success and to protect self-esteem by avoiding blame for failures. This tendency has been variously labeled as ego-defensive, ego-protective, ego-biased, or self-serving attributions (for reviews, see Bradley, 1978; Miller & Ross, 1975; Zuckerman, 1979). The basic assumption is that individuals are motivated to maintain the best possible opinion of themselves (Festinger, 1954; Heider, 1944). Stated specifically, it has been hypothesized that individuals attribute their success to internal causes such as ability and effort, and they attribute their failure to external causes such as task difficulty and luck.

There exists ample empirical evidence which supports the notion of asymmetric self-serving attributions. For example, some researchers have found that people see effort as more causally active for their success than for failure, whereas task difficulty or luck or both attributions are stronger following failure than following success (e.g., Luginbuhl, Crowe, & Kahan, 1975; Miller, 1976; Wortman, Costanzo, & Witt, 1973). Others have found that ability is seen as a
more important cause following success than failure, whereas task difficulty or luck, or both attributions are more important following failure than following success (e.g., Feather, 1973; Silmor & Minton, 1974; Snyder, Stephan, & Rosenfield, 1976).

There are also reports of both ability and effort attributions being more important for success than failure, whereas task difficulty or luck, or both attributions are more important following failure than following success (e.g., Larson, 1977; Stephan, Rosenfield, & Stephan, 1976; Stevens & Jones, 1976). In addition, another group of researchers have provided evidence for self-serving phenomenon using a global measure of the internal-external dimension (e.g., Arkin, Gleason, & Johnston, 1976; Arkin & Maruyama, 1979; Fitch, 1970; Tillman & Carver, 1980). These global measures produce an internality score which consists of the sum of the attributions to internal factors (ability, effort) minus the sum of the attributions to external factors (task difficulty, luck).

There also exist studies that have failed to support self-serving attributions. Fontaine (1975) found that self-serving phenomenon exists only in a success situation. Feather and Simon (1971b, 1973) found that task and luck attributions are stronger following success than following failure. Nicholls (1975) found that ability attribution is seen as an important cause of failure. Bar-Tal and Daron (1979) found success people attributed more to ease of task whereas failure people attributed more to lack of effort, which is the opposite trend of self-serving attributions. Miller and Ross (1975) questioned the empirical support for self-serving attributions. They were especially skeptical about the tendency toward external attributions after
failure, pointing out that more support can be found for internal attributions after success.

Even for the internal attributions after success, Miller and Ross (1975) have argued that nonmotivational interpretation for these phenomena can easily be offered. Thus, they initiated the debate on the underlying psychological mechanisms of self-serving attributions. In fact, some researchers have already demonstrated that self-serving attributions result from the processing of nonmotivational information such as prior expectations for success (Feather, 1969; Feather & Simon, 1971a) or reinforcement histories (Chaikin, 1971; Streufert & Streufert, 1969).

Miller and Ross (1975) have suggested three nonmotivational processes which may account for the tendency of individuals to make more internal attributions for success than for failure. First, people intend and expect success and are more likely to make more internal attributions for expected than for unexpected outcomes. Second, consistent with Kelley's (1971) covariation model, a perceived covariation between an individual's behavior and outcomes is more likely with success. Thirdly, individuals tend to associate personal control with the occurrence of desired outcomes.

Despite Miller and Ross' (1975) contest against motivational explanation of self-serving attributions, some researchers failed to refute empirically the motivational account of self-serving attributions. For example, Stevens and Jones (1976) have attempted to sort out the nonmotivational from the motivational factors. In their study, subjects performed on four tasks, with controlled success and failure feedback on each, and then learned how others had done on the
last task. Following Kelley's (1967) model, they manipulated information (i.e., distinctiveness, consistency, and consensus) that would affect subjects' attributions on the last task. According to Kelley's model, for example, failure subjects would make internal attributions when they learned about others' success (i.e., low consensus). The results demonstrated, however, that these subjects made more external attributions than those who learned about others' failure. Therefore, subjects' attributions were more consistent with the motivation to protect self-esteem than with Kelley's logical information processing model.

Miller's (1976) study also failed to disconfirm the motivational explanation of self-serving attributions. He investigated the effect of ego-involvement on the attribution for success and failure on a social-perceptiveness task. Subjects worked on a task that was presented as a well-established test of social perception (i.e., high ego-involvement condition) or as a recently devised unvalidated measure (i.e., low ego-involvement condition). Consistent with the motivational explanation of self-serving attributions, subjects assumed more personal responsibility for success than failure. In addition, high ego-involvement subjects assumed more responsibility for their success than did low ego-involvement subjects. This finding suggests that self-esteem motive explanation is more and more influential as the valence of a task outcome becomes more and more important to the individual. Conversely, it is also likely that as the task importance becomes lower and lower to the individual, nonmotivational processes discussed by Miller and Ross (1975) are more and more influential in causal attributions.
On the other hand, Bradley (1978) has suggested self-presentational concern as a cause of self-serving attribution tendency. According to Bradley (1978), a desire to maintain and acquire positive public image (i.e., public self-esteem or self-presentation motive) or a motivation to protect and enhance private image (i.e., private self-esteem motive), or both is assumed to mediate self-serving attributions. Recently, Riess, Rosenfeld, Melburg, and Tedeschi (1981) have found, using a bogus pipeline paradigm (Jones & Sigall, 1971), that self-serving attribution may occur both in private perceptions of causality and in the public descriptions of it which are normally collected in attribution research. This study suggests that self-serving attribution phenomenon may be a true representation of private perceptions.

Regarding some variations and conflicting results in evidence for self-serving attributions, Snyder, Stephan, and Rosenfield (1976) have suggested three boundary conditions that serve to elicit these asymmetric attributions. First, there must be at least some ambiguity in assessing the relative importance among attribution factors (e.g., luck versus ability). Second, individuals must perceive no realistic possibilities for future effective action so that being open and objective may not be of instrumental value. Thirdly, the situation must provoke some concern about self-esteem.

Bradley (1978) also has suggested four conditions for self-serving attributions. First, an individual's performance and final outcome on the task must be public; that is, known to others. Second, people must believe that they have much choice in performing and, thus, feel that they are responsible for the performance outcome. Thirdly, the task
environment must be designed to bring about high ego-involvement. Situations are ego-involved when interpersonal competition, especially on valued tasks, is a basis of performance evaluation (Miller, 1976; Nicholls, 1975). Fourthly, the task environment must be designed to bring about high objective self-awareness. Objective self-awareness is a state of self-focused attention "in which the person takes himself to be an object" (Wicklund, 1975, p. 234).

Overall, the underlying psychological mechanisms of self-serving attributions have been ascribed to self-esteem maintenance (Snyder et al., 1978), self-presentation processes (Bradley, 1978), and nonmotivational sources (Miller & Ross, 1975; Ross, 1981). Some researchers argue that self-serving attribution represents a deliberate distortion (that is, attribution based on personal motives to look good), whereas others maintain that the phenomenon may be "rational" and not represent a "bias" at all (Marsh, Cairns, Relich, Barnes, & Debus, 1984).

In reference to this line of conflicting arguments, Heider (1958) suggests: "since one's idea includes what 'ought to be' and 'what one would like to be' as well as 'what is', attribution and cognition are influenced by the mere subjective evidence presented in the raw material" (p. 120-121). It appears to be reasonable to see attribution process as neither purely cognitive nor purely motivational, but as containing both factors (Shaver, 1975). Therefore, one promising research area is to investigate how and under what conditions self-serving attributions will emerge following performance feedback and what the consequences of those attributions will be (Bradley, 1978).
Self-Esteem as an Individual Difference Moderating Variable

Self-esteem has long been hypothesized to affect an individual's behavior and attitudes in organizations. Generally, high self-esteem has been viewed as having favorable consequences whereas low self-esteem has been considered to be associated with undesirable outcomes (Gecas, 1982). According to Tharenou's (1979) review on employee self-esteem, low self-esteem individuals are believed to be associated with several characteristics which seem to inhibit creativity, performance, and effective social skills in organizational settings. He argues that low self-esteem individuals tend to (1) show anxiety, depression, and neurotic behaviors; (2) behave less optimally under a stressful situation and failure; (3) have poorer interpersonal skills; (4) be more susceptible to persuasion and conforming; (5) lack initiative and assertiveness; and (6) have lower level of aspirations and expectation of success.

Brockner and Guare (1983) have argued that low self-esteem individuals usually have poorer performance not because of their lack of ability, but because of their cognitive processes in achievement settings which seem to mediate the subsequent performance deficit. Korman (1967, 1970) hypothesized that self-esteem will moderate the correlation of self-attributes such as needs and abilities with attitudes and behavior.

In line with the above reasoning, researchers have focused on the moderating effect of self-esteem on attributions. Within attribution theory, the emergence of the self-esteem effect is most evident in discussion of self-serving attributions. The self-esteem literature provides two major motives which are associated with the attribution
process following performance feedback: the self-enhancement motive and the self-consistency motive.

Self-enhancement motive theory (e.g., Jones, 1973) assumes that people have the motivation to enhance or maintain their self-evaluations irrespective of their chronic self-esteem level. Self-enhancement theory predicts that both high and low self-esteem individuals would attempt to enhance or maintain their self-esteem by making internal attributions for success and external attributions for failure. This motive is evident in self-serving attribution phenomenon. According to Gecas (1982), this motive is activated through such mechanisms as selective perception (Rosenberg, 1979), reconstruction of personal experience (Greenwald, 1980) and some of the classic ego-defensive mechanisms (Hilgard, 1949).

On the other hand, self-consistency motive theory (e.g., Korman, 1967, 1970, 1976) posits that people are motivated to perceive events in a way which creates and maintains a consistent cognitive state with respect to their chronic self-esteem level. Self-esteem, therefore, has been proposed to moderate stimulus-response contingencies. People who differ in self-esteem maintain different but consistent cognitive responses with respect to their evaluations of themselves because of the tendency for cognitions to achieve congruency with reality (Tharenou, 1979). Specifically stated, this theory predicts that high self-esteem people make internal attributions for success and external attributions for failure, whereas low self-esteem people make external attributions for success and internal attributions for failure. According to Jones (1973), this cognitive consistency motive is due to economy in the organization of one's perceptions (Heider, 1958), the
reduction of dissonance (Festinger, 1957), or avoiding cognition with conflicting implications for action (Jones & Gerard, 1967).

Overall, there is no difference between the predictions of the two theories for high self-esteem people. But, with low self-esteem people the two theories tend to make opposing predictions (Dipboye, 1977; Krauss & Critchfield, 1975). Several investigators have tested these predictions.

Fitch (1970) obtained partial support for both self-enhancement and self-consistency theory predictions in a laboratory experiment. He separated subjects into high and low self-esteem groups based on the Tennessee Self-Concept Scale (Fitts, 1964) scores and asked them to ascribe causality for performance outcome in a dot-estimation task to internal (i.e., ability and effort) and external (i.e., chance and subjects' physical or mental condition) sources. Consistent with self-serving attribution predictions, success outcomes were attributed internally more often than failure outcomes. Following self-consistency predictions, low self-esteem failure subjects attributed significantly more causality to internal sources than did high self-esteem failure subjects. Low self-esteem success subjects, however, did not make more external attributions than high self-esteem success subjects. This tendency is contrary to the self-consistency hypothesis. Based upon these findings, Fitch (1970) has speculated that high self-esteem people may tend to internalize success but not failure outcomes, whereas low self-esteem people may tend to internalize both success and failure.

Arkin, Appleman, and Burger (1980, Experiment 1) examined the relationship between social anxiety and causal attributions. They
selected the subjects who scored the Fenigstein et al. (1977) Self-Consciousness Scale in the highest or lowest third of the distribution. They found low social-anxiety subjects made somewhat more, though not significant, internal attributions in a success condition than in a failure condition, whereas high social anxiety subjects assumed significantly more personal responsibility for the failure outcome than did low social anxiety subjects. This tendency appears to be in line with self-consistency predictions. There were no significant differences between the attributions of high and low social anxiety subjects in a success condition. These findings were replicated with a "bogus pipeline" (Jones & Sigall, 1971) manipulation (Arkin, Appleman, & Burger, 1980, Experiment 2).

Kuiper (1978) investigated the effects of depression on causal attributions for success and failure. Subjects were divided into depressed and nondepressed groups on the basis of Costello-Comrey Depression Scale (Costello & Comrey, 1967) scores. Consistent with self-serving attribution predictions, nondepressives made internal attributions for a success outcome and external attributions for a failure outcome. However, depressives made internal attributions for both success and failure outcomes. As predicted from self-consistency theory, depressives made more internal attributions in a failure condition than nondepressives. Yet, contrary to self-consistency theory, depressives also made internal attributions in a success outcome.

Watkins and Astilla (1980) examined the relationship between self-esteem and attribution for future success or failure. Subjects were
Filipino university students who were scored on the Coopersmith Self-Esteem Inventory (Coopersmith, 1967) in the top 25 percent or the bottom 25 percent of the distribution. They found that consistent with self-serving attribution, high self-esteem subjects attributed success outcome more internally than failure outcome. In addition, consistent with self-consistency theory, high self-esteem subjects made more internal attribution in a success outcome condition than low self-esteem subjects. But, contrary to self-consistency theory, low self-esteem subjects did not differ significantly in their attributions for success and failure.

In a somewhat different, but related context, Adler (1980) applied attribution theory to predict how individuals explain the causal factors that produce their job satisfaction and dissatisfaction. Subjects were Israeli university students who were divided into high and low self-esteem groups based on the Coopersmith Self-Esteem Inventory (Coopersmith, 1967). Adler found that high self-esteem subjects made more internal attributions for satisfaction than for dissatisfaction. However, contrary to self-consistency theory, low self-esteem subjects also made more internal attributions for satisfaction than for dissatisfaction. In addition, low self-esteem subjects made more external attributions for satisfaction, but not more internal attributions for dissatisfaction than high self-esteem subjects.

Overall, high self-esteem people tend to make more internal attributions in a success condition than in a failure condition (Adler, 1980; Kuiper, 1978; Watkins & Austilla, 1980). However, there exist conflicting results as to whether low self-esteem people also tend to
make more internal attributions in a success condition than in a failure condition. For example, consistent with self-consistency theory, Arkin, Appleman, and Burger (1980) found that low self-esteem subjects assumed more personal responsibility in a failure condition than in a success condition. Adler (1980) found that low self-esteem subjects attributed their incidents of job satisfaction more internally than for their incidents of job dissatisfaction. This tendency is in line with self-enhancement theory. On the other hand, Kuiper (1978) and Watkins and Astiila (1980) found no significant differences in low self-esteem subjects' attributions for both success and failure outcomes—contrary to both self-consistency and self-enhancement theories. Therefore, it may be reasonable to suggest that high self-esteem people are more consistently engaged in self-serving attributions than low self-esteem people.

Some researchers have found that self-consistency theory is working primarily after failure outcome. In other words, they have found that low self-esteem people tend to make more internal attributions in a failure condition than high self-esteem people (e.g., Arkin, Appleman, & Burger, 1980; Fitch, 1970; Kuiper, 1978). Others have found that self-consistency theory is working mainly after success (e.g., Adler, 1980; Watkins & Astilla, 1980). They have found that low self-esteem people tend to make less internal attributions in a success condition than high self-esteem people.

In addition, Tharenou (1979) suggested that predictions from expectancy theory and self-consistency theory are more likely to be confirmed with the measure of task-specific self-esteem. In this sense, it is worthwhile to concentrate on associations between

To summarize, the research indicates strongly that high self-esteem people make more internal attributions in a success condition than in a failure condition. The attribution of low self-esteem people in the two conditions, however, is problematic.

Performance Standard as a Situational Moderating Variable

One method of evaluating an individual's performance for organizational control purpose is to measure outcomes or results achieved (Ouchi & Maguire, 1975). There are three basic types of outcomes measures: physical units (e.g., quantity of product produced or sold); time-related measures (e.g., meeting deadlines); and monetary outcomes (e.g., sales, costs, profits) (Locke & Latham, 1984). These outcome measures are so objective and explicit that every individual knows what to accomplish. Given such outcome measures, however, an organization must set a performance goal (that is, performance standard) to differentiate successful and poor performers. Two frequently used performance standards are comparative procedures and absolute standards (Cummings & Schwab, 1973; Wexley, 1979).

Absolute standards accommodate the setting of specific goals which can lead to performance increase in a certain condition (see Locke, Shaw, Saari, & Latham, 1981, for a review of goal setting research).
For example, Locke (1968) found that specific, challenging goals lead to higher output than no specific, ambiguous goals such as "do your best." With absolute standards, rewards given to an individual are independent of how other performers have done in relation to the standard. All individuals can win with absolute standards (Garibaldi, 1979).

This absolute standard condition is considered as a task-involving situation if individuals are allowed to continue to perform to accomplish the preestablished performance goal until they exhaust their appraisal opportunities (Covington & Omelich, 1984). In task involving situations, an individual's attention is focused on the task rather than on the self and, thus, focused on the instrumentality of one's behavior for achieving task mastery. Thus, absolute standards, provided with multiple opportunities for accomplishing the performance goal, appear to focus individuals on effort or trying (Ames, 1984).

On the other hand, the comparative procedure for performance standards produces a competitive atmosphere among fellow workers with respect to performance evaluation. The findings concerning the relationship between peer competition and employee performance (Steers & Porter, 1974) are contradictory. Despite the lack of clear evidence for the motivational benefits of comparative procedures, organizational constraints sometimes compel an organization to adopt this evaluation method. For example, organizations may have such limited available resources to offer for merit-based pay, training opportunity, or promotion that they are forced to use the comparative ranking method to limit the amount of reward allocated and, thus, limit the number of reward recipients (McCall & DeVries, 1977). In addition, Thompson (1967) has suggested that norm referenced performance standards (i.e.,
comparative procedures) need to be used when standards of desirability are ambiguous.

With such comparative procedures, rewards are restricted so that the probability of a given individual's achieving success is reduced by the presence of other able individuals. Such interpersonal competition is similar to an ego-involving situation (Nicholls, 1984). In ego-involving situations, an individual's attention is focused on the self, and such self-awareness is associated with a heightened concern about the others' performance (Carver & Scheier, 1980). In addition, opportunities to succeed are directly related to one's ability in ego-involving situations (Ames, 1984).

There has been some indirect evidence which supports the argument that such different characteristics of the two types of performance standards may induce individuals to interpret their performance feedback differently. For example, Ames, Ames and Felker (1977) found that subjects who succeeded in a competitive condition evaluated themselves as more deserving of reward and feeling more satisfied than did those who succeeded in a noncompetitive condition. On the other hand, subjects who failed in a competitive condition evaluated themselves less capable and less deserving of reward and experienced more negative affect than did those who failed in a noncompetitive condition. They have suggested that failure is an important factor causing negative self-evaluations, but interpersonal competition seems to give more importance to the negativism in self-attributions and affective responses.

Thus, competition is expected to increase the perceived positive value of a success outcome and the negative value of a failure outcome.
in comparison to noncompetition. In other words, the absence of strong social comparison cues in absolute standard conditions is expected to elicit less extreme attributions and evaluative judgements (Ames & Felker, 1979).

Ames and Felker's (1979) study which directly investigated the effect of competition versus noncompetition (i.e., comparative procedure versus absolute standard) on attributions did not find significant difference between the two conditions. However, the major limitation of this study is that they used the "paper people" paradigm (Fiedler, 1982; Ilgen & Favero, 1985). In their study, an achievement situation was not real, but made up of a form of a story presented to each subject. This might have made the attributional judgement task purely semantic rather than empirical and, thus, confounded the result.

On the other hand, Ames (1984) found that subjects made more ability attributions in a competitive than in a noncompetitive goal structure, whereas subjects made more effort attributions in noncompetitive than in competitive conditions. They also found that effort attributions were made more often in a noncompetitive condition following success, but not following failure. Ames and Ames (1981) found that subjects attributed their outcomes more to effort in noncompetitive than in the competitive conditions and more to luck in the competitive than in the noncompetitive conditions.

In addition, Ames (1978) reported that there was a performance feedback by self concept by performance goal structure interaction on ability ratings. She found that in the competitive conditions, high self concept subjects rated their ability higher than low self concept subjects following success, but lower than low self concept subjects
following failure. She also found that there was a marginal tendency for high self concept subjects to rate their ability higher after success in competitive than in noncompetitive conditions. The ability ratings of the low self concept subjects did not differ between the two conditions.

In sum, there is some evidence to suggest that people in a comparative procedure condition will make more internal attributions after success than people in an absolute standard condition. On the other hand, people in a comparative procedure condition will make more external attributions after failure than people in an absolute standard condition. There is also evidence that people emphasize ability and luck when interpreting their success outcomes in a comparative procedure condition, whereas people emphasize effort and task difficulty when interpreting their failure outcomes in a noncompetitive conditions.

Effects of Attributions on Performance Expectation

From the cognitive approach to motivation, the concept of performance expectation has been considered as an important explanatory variable in predicting eventual performance. There have been three different theories as to the relationship between performance expectation and eventual performance.

First, Vroom's (1964) expectancy theory states that expectancies interact with total valence to produce a person's aroused motivation. Thus, people with high expectancies that task behaviors will lead to task success are believed to perform those behaviors and, thus, achieve higher levels of performance (Motowidlo, Loehr, & Dunnette, 1978).
Second, according to Locke's goal setting theory (1966, 1968), specific, hard goals lead to higher productivity given that the goal is accepted. Since a difficult goal is considered as having low expectancy, low expectancy is believed to vary positively with performance. Third, Atkinson's (1964) achievement motivation theory sees subjective probability of success as an important determinant of performance. His model predicts that an intermediate level of success probability will lead to higher performance. Thus, curvilinear relationships exist between success probability and performance moderated by relative strengths of motives to avoid failure and seek success (Atkinson & Raynor, 1974).

However, relatively few studies have dealt with the antecedents of expectancies (Campbell & Pritchard, 1975). The first systematic study about the determinants of expectancies was conducted by Tolman (1932). He identified success and failure as determinants of expectancy shifts: that is, following success, expectancy generally rises, whereas after failure it typically falls (Weiner, 1980). Rotter (1966) also has demonstrated that expectancy shifts differ between skill (internal locus of control) and chance (external locus of control) settings. After a success outcome in a skill-related situation, expectancy rises much more than it does after a success outcome in a chance-related setting. In a similar vein, decrease in expectancy after a failure outcome is much more in a skill-related setting than in a chance-related setting (Weiner, 1980).

More recently, attribution researchers have proven that attributions for past performance are an important determinant of performance expectancies. Weiner (1974) is critical of the Rotter type
distinction between internal and external control because it is confounded with the stability dimension. Thus, Weiner and his associates (e.g., Weiner, Heckhausen, Meyer, & Cook, 1972) have proved that attribution of causality to stable factors (i.e., ability and task difficulty) results in much greater change in subsequent expectancy judgment than attributing causality to unstable factors (e.g., effort and luck). In other words, failure attributed to low ability or difficult task results in more decrease in future performance expectation than failure attributed to bad luck or lack of effort. In a similar vein, success attributed to good luck or high level of effort results in less increase in future performance expectation than success attributed to high ability or an easy task. A graphical summary of the proposed relationship between attributions and performance expectancy shifts is shown in Figure 2. The figure indicates that the

![Diagram](image)

**Figure 2.** Magnitude of Expectancy Change as a Function of Attributions for an Outcome (Adapted from Weiner, 1980, p. 352)
differential shifting of expectancies as a function of the stability of
the attributions is made given both internal and external attributions.
One noteworthy point is that attribution to effort produces more shifts
than do attributions to luck. This is because luck is seen as less
stable than effort (Weiner, 1980).

A substantial number of attribution studies have supported the
predictions of the relationship between the stability dimension and
performance expectation (e.g., Fontaine, 1974; Kovenklioglu &
Weiner, Nierenberg, & Goldstein, 1976). For example, McMahan (1973)
gave subjects five trials of repeated success or failure at an anagram
task. Before each trial, subjects estimated their future performance
expectations as well as attributions for the past outcomes.
Attributions were measured by paired-comparison questions (e.g., do you
succeed because you tried hard or because you were lucky?). They
found, as hypothesized, that attributions to ability and task were
associated with high expectancies following success and with low
expectancies following failure, whereas attributions to effort and luck
were associated with low expectancies following success and with high
expectancies following failure.

Weiner, Nierenberg, and Goldstein (1976) also demonstrated that
expectancy changes are related to the stability dimension and are not
associated with the locus of causality dimension. Subjects were
randomly assigned to one of six conditions (0, 1, 2, 3, 4, or 5
successes) at a block-design task. Following each success outcome,
success expectancy and attributions were measured. The data revealed
that within both the internal and external causes, expectancy increase
was positively associated with the stability dimension of the attribution: that is, there were higher expectancies given ability and task attributions than given effort or luck attributions. Comparing locus of causality differences within either stable or the unstable attributions revealed that the high versus low groups did not differ in success expectancy.

However, there also exists some disconfirming evidence as to the proposed relationship between the stability dimension and performance expectations. In a field correlational study, Porac, Ferris, and Feder (1983) surveyed registered nurses working in a large hospital. Ten attribution factors were generated in their pretest. Subjects were then asked to rate how much each of the 10 attribution factors caused their perceived level of performance. Performance expectation for the next day was measured by asking subjects to check one of the three possible response categories: that is, go down, the same as the present level, and improve. The results showed that the correlation between the global stability score (i.e., subtracting the sum of the unstable attributions from the sum of the stable attributions) and performance expectations was not significant. Bailey and Gladstone (1975) also failed to confirm the proposed relationship in their field experiment study.

Concerning the conflicting results on the proposed relationship between the stability dimension and performance expectancy, Weiner (1983a) has recently argued that the primary error in the pertinent research has been the unquestioned acceptance of the Weiner et al. (1971) categorization. Thus, he suggested that "it is best to have subjects rate the cause in question on perceived stability, thus
capturing their phenomenology" (p. 538). In line with Weiner's (1983a) argument, Ronis, Hansen, and O'Leary (1983) attempted to predict success expectancy with two indices: a "direct" measure of causal stability, and an "indirect" measure, which consisted of attributions to the presumed unstable factors of effort and luck subtracted from the assumed stable factors of ability and task difficulty. They revealed that only the direct measure predicted the proposed relationship.

**Effects of Attributions on Affects**

Social psychologists have produced a growing body of evidence which shows that people's affective states are important determinants of their social behavior. According to Clark and Isen's (1982) review, for example, a positive affect has been believed to lead people to reward themselves more generously, to help others more, to choose to consider positive rather than negative self-relevant information, to report greater liking for others and more positive conceptions of people, to be more prone to persuasive communications, and to approach strangers for information. On the other hand, Clark and Isen (1982) have suggested that the effects of negative affects on behavior are mixed. That is, sometimes they are the opposite of the effects of positive affects whereas sometimes negative affects cause the same kind of behavior produced by positive affects.

Although some organizational theorists also have recently begun to emphasize and investigate the affective side of organizational life (e.g., O'Connor, Peters, Pooyan, Weekly, Frank, & Erenkrantz, 1984; Pfeffer, 1982), the evidence of the effects of affective states on behavior in organizations has yet to be accumulated in detail. Despite
the lack of evidence as to the relationship between affects and eventual performance, there exist some studies which suggest how performance feedback influences feedback recipients' affective responses. For example, Weiner et al. (1971) have speculated that the effects which causal attributions have on expectations for future success or failure outcome may be mediated by affective states.

Specifically, Weiner et al. (1971) have proposed that locus of causality dimension of attributions influence affective responses in achievement-related contexts. This proposition was supported by Weiner, Russell, and Lerman (1978). In their study, a dictionary list of about 250 potential affective reactions to success and to failure was compiled, and the dominant attributions for performance outcome also were measured. This study used the "paper people" paradigm, in which subjects are presented with written information about the focal person. In their subsequent research (Weiner, Russell, & Lerman, 1979), subjects reported a critical incident in their lives in which they actually succeeded or failed for a particular reason (i.e., attributions). Both studies provided similar findings as shown below.

First, there was a set of outcome-dependent, attribution-independent affective responses regardless of the attributions for the performance outcome. Feelings of pleasure, happiness, satisfaction, and goodness, were reported independently of attributions after a success outcome, whereas feelings of being uncheerful, displeased, frustrated, and upset were reported independently of attributions after a failure outcome. The outcome-dependent affects for both success and failure were stated as being most intensely experienced and also of short duration (Weiner, 1983b).
Second, there also were affective responses discriminably related to specific attributions. Table 3 describes four dominant attributions as related to some specific affects felt after success and failure. The linkages for success are: ability - competence and confidence; long term effort - relaxation; others - gratitude; and luck - surprise. For failure, ability, effort, others, and luck are related to incompetence, guilt and shame, anger, and surprise respectively.

Table 1. Relations Between Attributions and Affective Responses (Adapted from Weiner, 1983b, p. 169)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Success</th>
<th>Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>Competence</td>
<td>Incompetence</td>
</tr>
<tr>
<td>Long-Term effort</td>
<td>Relaxation</td>
<td>Guilt (Shame)</td>
</tr>
<tr>
<td>Others</td>
<td>Gratitude</td>
<td>Anger</td>
</tr>
<tr>
<td>Luck</td>
<td>Surprise</td>
<td>Surprise</td>
</tr>
</tbody>
</table>

Thirdly, they found that dimensions of attribution also played an essential role in affective responses. Given internal attributions for success, subjects reported the affects of "pride", "competence", and "satisfied" more frequently than when external attributions were given. On the other hand, attributions for failure generated "guilt", "regret", "aimless", and "humble." Thus, particular affects clustered within the internal causes for both success and failure outcomes. Conversely, anger and thankfulness were most frequently expressed given external attributions (Weiner, 1979, 1980). Weiner et al. (1978) also found that stability dimension of attributions influenced affective responses; that is, the affects of depression, apathy, and resignation
were reported primarily when attributions for failure were internal and stable.

With regard to the effect of specific attribution on affect, some researchers have focused on whether ability or effort attributions are more important as predictors of people's affective responses after performance feedback. Initially, Weiner and Kukla (1970) have demonstrated that subjects feel the greatest pride when they attribute their success to high effort, whereas they feel the greatest shame when they attribute their failure to lack of effort. Thus, they suggest that effort attributions are more important in guiding personal affective reactions than ability attributions.

However, other researchers have found evidence that ability attributions also are associated with individuals' affective responses. For example, Nicholls (1975) revealed that one's feeling of pleasure about success was associated with attributions to high ability, high effort, and easy task. Sohn (1979) found that pride and shame were associated with effort attributions as hypothesized by Weiner and Kukla (1970), but that when a global positive affect (i.e., happiness) was measured, no significant affective differences were found between subjects who reported ability versus effort attributions. McFarland and Ross (1982) also found that affective reactions after success and failure reflected the extent to which performance outcomes are attributed to ability.

To reconcile the above conflicting results, Nicholls (1984) has suggested that the meanings of ability and effort are not fixed, and differ in task- and ego- involvement, and thus, the relationship among perceptions of effort, ability, and affects also vary. He argued that
when people are task-involved, high effort means greater learning and competence - thus, high effort attributions after success produce feelings of competence and positive affect. He cites Ames, Ames, and Felker's (1977) study as evidence for his argument. In addition, he has argued that, if the meaning of ability and effort can change, the relationships between attributions and affects might also change. For example, as found in Brown and Weiner (1982), low effort would enhance perceived ability and thus minimize the embarrassment in ego-involvement situations. At the same time, low effort would generate guilt. Thus, effort would be a two-edged sword (Covington & Omelich, 1979) in ego-involvement situations. Jagacinski and Nicholls (1984) confirmed these predictions. Overall, in interpersonally competitive, ego-involvement situations, people are faced with the choice of exerting more effort and experiencing greater embarrassment following failure or applying less effort and experiencing more guilt. In self-referenced, task-involvement situations, effort minimizes both guilt and embarrassment.

In sum, it appears that in performance feedback situations there are at least three sources of affective responses; that is, affects are partly responses to performance outcomes, specific attributions, and the dimensions of attributions (especially internal attributions). Weiner (1983a) has already indicated that the traditional classification of the dimensionality of attributions is questionable. Thus, he suggested that researchers ask subjects to note the perceived causes on locus to capture their phenomenology. He has also suggested that multiple attributions and affects should be examined to understand fully the links between causal thinking and feeling since a wide
variety of affects are experienced in achievement-related situations and attributions and affects are interrelated in unique ways.

**Hypotheses**

Based on the literature review, following six hypotheses were generated in this study.

**Hypothesis 1:** Performance feedback (i.e., success versus failure) will have a significant main effect on attributions. Specifically, subjects in a success condition will make more internal attributions than those in a failure condition.

**Hypothesis 2:** There will be a significant two-way interaction effect between performance feedback and self-esteem on attributions. Specifically, internal attributions will be associated positively with self-esteem for success outcomes; but not for failure outcomes.

**Hypothesis 3:** There will be a significant two-way interaction effect between performance feedback and performance standard on attributions. Specifically, subjects in the comparative procedure condition will make more internal attributions after success than those in the absolute standard condition, whereas subjects in the comparative procedure condition will make more external attributions after failure than those in the absolute standard condition.

**Hypothesis 4:** There will be a significant three-way interaction effect among performance feedback, self-esteem, and performance standard on attributions. Specifically, internal attributions will be associated positively with self-esteem for a success outcome in the comparative procedure condition, but not in the absolute standard condition.
Hypothesis 5: (a) There will be a significant two-way interaction effect between performance feedback and stable attributions on the expectancy of success. Specifically, high expectancy of success will be associated positively with stable attributions for success outcomes, but negatively for failure outcomes.

(b) Performance expectancy shift will be associated positively with stable attributions for performance feedback.

Hypothesis 6: Internal attributions for success outcome will be positively associated with the positive affective responses, whereas internal attributions for failure outcomes will be positively associated with the negative affective responses.
CHAPTER III
RESEARCH DESIGN AND METHODOLOGY

This chapter describes the research design that was used for this study and how the design was carried out in both a pilot study and the main experiment. In addition, the result of the pilot study is reported in the first section of the chapter. This study becomes the basis of the methodology for the main experiment.

Pilot Study

Before the main experimentation, a pilot study was carried out to explore and to determine what categories of attributions would be used by subjects when making attributions after receiving feedback about their proofreading performance. This procedure was necessary because Weiner (1983a) has recently suggested that the categories most frequently utilized in the previous studies (i.e., ability, effort, task difficulty, luck) may not comprehensively represent the possible causal perceptions or may even be completely inappropriate in the situations which are not achievement related.

**Design and Procedure.** Seventy-two college students (35 males and 37 females), enrolled in introductory organizational behavior courses, participated in the pilot study. Briefly stated, 72 subjects were randomly assigned to performance standard conditions (i.e., comparative versus absolute standard), and to performance feedback conditions (i.e., success versus failure). Subjects received the falsified
feedbacks on the proofreading tasks which lasted 15 minutes. Following feedback, subjects were instructed to list any important causes they might consider in explaining their success or failure performances. At the same time, they were instructed to rank order all the causes they listed on the basis of their relative importance (see Appendix D). With the exception that the attribution questionnaires given to subjects after performance feedback were open-ended, the design and the procedure used in the pilot study were identical to those used in the main experiment which will be described in detail in the next section.

Results: Categorization of Attribution Factors. The first step for the content analysis of self-generated attributions was to list the most influential cause mentioned by each subject. Though each subject was asked to rank order all the causes they mentioned, only one top priority cause was taken for the preliminary content analysis. This procedure produced seventy-two causes. The preliminary categorization included only seventy causes which were mentioned by at least two subjects.

Seventy causes mentioned by subjects more than once were combined to make eight categories: ability, immediate effort, typical effort, task characteristics, experimental setup, mental condition, physical condition, strategy. Ability includes experiences and skills in writing, reading, proofreading, and English background. Immediate effort includes motivation, concentration, and trying. Typical effort includes liking reading, writing, and proofreading. Task characteristics include boring/interesting, unchallenging/challenging, unfamiliar/familiar, and difficult/easy task. Experimental setup includes time limit, instructions, manuscript, and testing environment.
Mental condition includes nervous/relaxed, uneasy/not pressured, and in a bad mood/in a good mood. Physical condition includes lack of sleep/awake and tired/alert. Strategy includes time management and slow/fast reading.

A summary table for the frequency distribution of the most influential self-generated attribution by eight attribution categories under different performance feedback, performance standard, and sex conditions appears in Table 2. Table 2 shows how often each of the eight categories of attributions was mentioned by subjects. The most frequently mentioned attributions were ability, experimental setup, and immediate effort. This result is somewhat different from Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum's (1971) original categorization of attribution factors (i.e., ability, effort, task difficulty, luck). Luck was never mentioned as a top priority cause in the present study. Task difficulty was mentioned only once. Thus, it was combined with other task-related causes (e.g., challenging or dull task) to make an overall category of task characteristics. The task characteristics category ranks only sixth in terms of overall frequency. Instead, strategy and mental condition seem to be more salient to subjects. In addition, typical effort and physical condition became categories in the present study but they were the least frequently mentioned categories among eight factors.

The next step for the content analysis of self-generated attributions was to check the validity of the above categorization by classifying all the causes mentioned by subjects using the above eight factors. The total number of causes mentioned by 72 subjects was 214. Therefore, the average number of causes mentioned by each subject was
Table 2. Frequencies of the Most Influencial Self-Generated Attribution Factor by Categories and Various Conditions

<table>
<thead>
<tr>
<th>Attribution Categories</th>
<th>Success</th>
<th>Failure</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comp. M</td>
<td>Abs. M</td>
<td>Sub Total</td>
</tr>
<tr>
<td>Ability</td>
<td>7  6  6  7  26  4  2  2  3  11  37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immediate Effort</td>
<td>0  1  1  2  4  0  1  2  0  3  7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical Effort</td>
<td>0  0  1  0  1  0  0  1  0  1  2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Characteristics</td>
<td>0  0  3  1  1  0  0  1  1  2  3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental Setup</td>
<td>1  0  0  0  1  4  1  1  4  10  11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Condition</td>
<td>0  0  0  0  0  2  1  0  1  4  4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Condition</td>
<td>0  0  0  0  0  0  1  0  1  2  2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategy</td>
<td>0  0  0  0  0  1  1  0  2  4  4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>0  0  0  1  1  0  0  1  0  1  2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Comp. = Comparative Procedure Condition  
  Abs. = Absolute Standard Condition  
  M = Male  
  F = Female  
** Total N = 72
Table 3. Frequencies of the Total Self-Generated Attribution Factors by Categories and Various Conditions

<table>
<thead>
<tr>
<th>Attribution Categories</th>
<th>Success</th>
<th></th>
<th></th>
<th>Failure</th>
<th></th>
<th></th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comp. M</td>
<td>F</td>
<td>Abso. M</td>
<td>F</td>
<td>Sub. M</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>Ability</td>
<td>15</td>
<td>12</td>
<td>16</td>
<td>15</td>
<td>58</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Immediate Effort</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>9</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Typical Effort</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>11</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Task Characteristics</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Experimental Setup</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Mental Condition</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Physical Condition</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Strategy</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* Comp. = Comparative Procedure Condition
* Abso. = Absolute Standard Condition
* M = Male
* F = Female
* ** Total N = 214
2.97 (= 214/72). Table 3 shows the frequencies of the total self-generated attributions by categories and various conditions. Again, the three most common attributions overall were ability, experimental setup, and immediate effort. The rest of the attribution categories maintain the pattern described in Table 2.

Research Design and Procedure for Main Experiment

**Subjects.** The subjects for the main experiment were 100 male and 100 female undergraduate students from introductory organizational behavior courses (i.e., Bus-Mgt 701 and Bus-Mgt 500) at The Ohio State University. These students volunteered to participate in the experiment in return for a small reduction in required class work. On the second week of classes, students were asked to complete the self-esteem measure, that is, the self-assurance scale of Ghiselli's (1971) Self-Description Inventory and a schedule card (see Appendix A). Among 256 potential volunteers who completed the self-esteem scale, 100 males and 100 females were randomly selected for the study, and the rest of these volunteers were used as a hold-out sample. The average age of the subjects was 23.6 and the range was 33 (from 18 to 51).

**Design.** Among one hundred males and 100 females who were randomly selected from the subject pools, half of the male subjects and half of the female subjects were assigned to the comparative procedure condition, with the other half of each group assigned to the absolute standard condition. After subjects were randomly assigned first to performance standard conditions (i.e., comparative versus absolute standard), subjects were randomly assigned then to performance feedback
conditions (i.e., success versus failure). Sex was controlled for because there has been evidence that attributions have been made differently by males and females (e.g., Deaux & Emswiller, 1974; Heilman & Guzzo, 1978; Nicholls, 1975). This study treated the self-esteem measures as continuous variables rather than categorical ones for the following reasons. Firstly, the conventional categorization of self-esteem variables into high and low self-esteem groups using median split is arbitrary. This categorization is sample-specific. There are no firm principles to guide this categorization. Secondly, such arbitrary categorization leads to a loss of information and a less sensitive analysis (Humphreys, 1978; Pedhazur, 1982). The overall design is summarized graphically below:

<table>
<thead>
<tr>
<th>Comparative Procedure</th>
<th>Absolute Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Success</td>
</tr>
<tr>
<td>Male</td>
<td>N = 25</td>
</tr>
<tr>
<td>Female</td>
<td>N = 25</td>
</tr>
</tbody>
</table>

**Task.** The task used in the experiment was a proofreading task. The task involved proofreading a three-page manuscript in which the subjects were required to check for errors in sentence structure, spelling, punctuation, and grammar as well as typographical mistakes. The subjects' task was to detect such errors and simply checkmark them. On the average, one error was embedded in every two lines (see Appendix F). Pilot testing showed that college students considered the proofreading task as moderately important (M = 4.12, S.D. = 1.72), moderately interesting (M = 3.95, S.D. = 1.56), and moderately
challenging (M = 4.33, S.D. = 1.30) when they were asked to respond to a 7-point Likert scale (i.e., 1 = not at all, 7 = very much important, very much interesting, and very much challenging, respectively). The subjects were given 15 minutes to finish the task since the pilot testing showed that this time limit was appropriate for the proofreading of the three-page manuscript. This kind of proofreading task had been used by Chacko and McElroy (1983) in their attributional analysis of goal setting theory.

Procedure. Experimentation was administered by the same male experimenter in a like-sex group of ten subjects on the average, with each member of the group working simultaneously but independently on the proofreading task. Groups were formed with the following restrictions: (a) members of each group were of the same sex and (b) they were assigned to the same performance standard conditions. When subjects reported to the experiment, they were given verbal instructions and handed booklets. A booklet contained an informed consent form, written instructions, and a manuscript to be proofread. The proofreading task continued 15 minutes. After the proofreading task, the subjects were asked to fill out task-specific self-esteem scales and the experimenter evaluated each subject's performance on the spot. However, subjects were given randomized falsified feedback in written forms as already designated regardless of their actual performance. Subjects assigned to different feedback conditions filled out different questionnaires. Following the completion of the questionnaires, all subjects were debriefed regarding the true nature of the study and asked not to discuss the experiment with other subjects (see Appendix K).
Manipulated Independent Variables

There were two manipulated independent variables in this study: performance standard and performance feedback.

**Performance Standard.** Performance standard manipulation was established by testing subjects on a proofreading task in 20 groups of an average membership of 10 subjects each. For the comparative procedure manipulation, subjects were told that only the top half of them would be selected as "senior proofreaders" who would be entitled to help check the others' work. Subjects were also told that the selection would be based on the ranking of each subject's actual performance outcome in terms of the number of errors correctly detected in the proofreading task. For the absolute standard manipulation, subjects were told that those who would detect at least 75 percent of errors embedded in the proofreading task would be selected as "senior proofreaders" who would be entitled to help check others' work. Subjects were also told that the selection would be based on each subject's actual performance outcome in terms of the percentages of errors correctly detected in the proofreading task (see Appendix E for detailed instructions). Greenberg and Ornstein (1983) have shown that providing college students with high status job title such as "senior proofreader" constitutes a valued job outcome in a laboratory setting.

**Performance Feedback.** Performance feedback manipulation was achieved by providing the subjects randomly with "falsified" reports as to whether they met the performance standard to be selected as "senior proofreaders." All performance feedback was given individually in the form of a written report (see Appendix F).
Based on the pilot test results, the performance goal for the absolute standard condition was set at 75 percent error detection rate. This figure was slightly above the subjects' average expectation level as shown in the pilot test. In the absolute standard condition, success and failure subjects received the feedback that they accomplished about 85 percent and 65 percent detection rate respectively. In the comparative procedure condition, success and failure subjects received the feedback that they ranked around the third and the seventh among ten participants respectively.

It should be noted that, in the comparative procedure condition, subjects on their own were not able to figure out others' performance outcome. Thus, they were not in positions to predict their success or failure accurately. In the absolute standard condition, the performance standard was set in terms of the percentage rather than the number of errors detected. Therefore, subjects were assumed not to be in positions to predict their success or failure accurately. The subjects might have had a rough idea of the number of errors they detected, but they could not figure out how others did, nor the proportion of this number to the total number of errors in the proofreading task. This line of reasoning supports the plausibility of the false performance feedback (Chacko & McElroy, 1983). In fact, pilot test results showed that the subjects' perceived accuracy of the prediction on their success or failure was moderately low (M = 3.4, S.D. = 1.82) when they were asked to respond to a 7-point Likert scale (i.e., 1 = not at all, 7 = I can predict my success or failure very accurately).
Measured Independent Variable

Self-esteem was a measured independent variable to be used in testing hypotheses 2 and 4 in this study.

Self-Esteem. Both chronic and task-specific self-esteem were measured in this study. Chronic self-esteem was measured by the self-assurance scale of Chiselli's (1971) Self-Description Inventory at least two weeks before main experimentation began. Chiselli's scale is a paper and pencil instrument which is a 31 keyed item, forced-choice, adjective pair scale (see Appendix B). Chiselli (1971) defines self-assurance as follows:

Self-assurance refers to the extent to which the individual perceives himself to be effective in dealing with the problems that confront him. There are some persons who see themselves as being sound in judgment and able to cope with almost any situation, whereas there are others who think of themselves as being slow to grasp things, making many mistakes, and being generally inept. The former are high in self-assurance, and the latter are low (p. 57).

The self-assurance scale has been used by Korman (1966, 1967, 1968, 1970) and others (e.g., Leonard & Weitz, 1971; London & Klimoski, 1975; Lopez, 1982) to measure chronic self-esteem. A reliability coefficient of .88 for the scale was reported by Lopez (1982).

The task-specific self-esteem instrument consists of 12 items extracted from Wagner and Morse's (1975) sense of competence scale (see Appendix C). Some items were rephrased for this study. Typical rephrased items include "No one knows the proofreading task better than I do," "Considering the time spent on the proofreading task in the past, I feel thoroughly familiar with my proofreading task in this study," and "My talents, or where I can concentrate my attention best, are found in areas not related to this proofreading task." A Spearman-Brown split-half reliability coefficient of .73 was attained for the
scale in this study. This scale was measured when subjects reported to
the experiment, but before they received their feedback.

**Dependent Variables**

Following a 15-minute task session, subjects received performance feedback individually and were asked to complete a questionnaire designed to assess their attributions for performance feedback, perceived dimensionality of each attribution factor, performance expectation, and affective responses.

**Attributions.** Attributions were measured according to the eight different factors (i.e., ability, immediate effort, typical effort, task characteristics, experimental setup, mental condition, physical condition, and strategy) which were categorized based on the pilot study results. Subjects received different attribution questionnaires depending on their feedback conditions since the wording of attribution factors for success subjects was different from that for failure subjects (see Appendix A).

The attribution factors for success feedback were worded as follows: "due to your high level of ability (i.e., good experiences and skills in writing, reading, and/or proofreading, good English background, etc.)," "due to your high level of immediate effort (i.e., high motivation, high concentration, repetitive reading, etc.)," "due to your high level of typical effort (i.e., I like reading, writing, self-competing, looking for mistakes, challenging, etc.)," "due to favorable task characteristics (i.e., enjoyable, challenging, easy task, etc.)," "due to favorable experimental setup (i.e., sufficient time, clear instructions, well typed manuscript, cool and quiet place,"
etc.)," "due to your good mental condition (i.e., relaxed, not pressed, in a good mood, etc.)," "due to your good physical condition (i.e., awake, alert, etc.)," and "due to your good strategy (i.e., simply focusing on errors, calm approach, tried to be accurate, fast reading, etc.)."

The attribution factors for failure feedback were worded as follows: "due to your low level of ability (i.e., poor experiences and skills in writing, reading, and/or proofreading, poor English background, etc.)," "due to your low level of immediate effort (i.e., low motivation, low concentration, reading only once, etc.)," "due to your low level of typical effort (i.e., I don't like reading, writing, looking for mistakes, etc.)," "due to unfavorable task characteristics (i.e., boring, unchallenging, unfamiliar, difficult task, etc.)," "due to unfavorable experimental setup (i.e., lack of time, ambiguous instructions, poorly typed manuscript, hot and noisy place, etc.)," "due to your bad mental condition (i.e., nervous, uneasy, in a bad mood, in a hurry to get out, etc.)," "due to bad physical condition (i.e., tired, hungry, lack of sleep, etc.)," and "due to your bad strategy (i.e., too slow reading, too fast reading, time mismanagement, not thorough, etc.)."

Individual influence of each attribution factor was measured by both a scale rating and a percentage assessment. These scores are titled the attributional "influence score" for the purpose of this study. Scale rating methods required subjects to assess directly the perceived influence of each attribution factor on performance feedback. Ratings were indicated on a 7-point Likert scale (1=not at all, 7=strongly). On the other hand, percentage assessment methods required
subjects to allocate causal contribution of each attribution factor by distributing 100 percentage points among all causal factors. Thus, subjects' responses to all the causal factors would sum to 100 percent.

Percentage assessment methods give the clearest indication of the relative importance of each attribution factor, whereas scale rating methods do not force negative correlations among attribution factors. Elig and Frieze (1979) have found that scale rating methods have moderately good intermethod correlations with percentage measures and have good face validity. They also found that percentage assessment methods are seen by subjects as having the least face validity. However, Stevens and Jones (1976) have argued that scale rating methods provide opportunities for systematic rating biases.

The choice between the two methods appears to pose a dilemma. Kelley (1973) suggests that attribution factors are conceptually interdependent. That is, one attribution factor may vary inversely with other attribution factors. Percentage assessment methods recognize this interdependence explicitly by forcing a distribution on the responses, thus having the advantage of theoretical compatibility. However, this method has the disadvantage of making it difficult to consider one attribution factor without considering another inversely covaring attribution factor (Stevens & Jones, 1976). The main report in this study was based on both methods. Some subtle and confusing results suggested by either method should be interpreted in the context of their own theoretical assumptions.

On the other hand, simple measurement of individual influence of each attribution factor either by scale rating or percentage assessment methods does not automatically tell the dimensionality of each
attribution factor. As already indicated, the dimensional classification of the internality and stability of each attribution factor depends on the phenomenology of the respondent (Weiner, 1983a). In this study, subjects' perceived dimensionality of attribution factors was measured by Russell's (1982) causal dimension scale. His causal dimension scale consists of six items, three items each for internality and stability dimensions (see Appendix I).

However, the raw score of the perceived causal dimensionality measured by Russell's (1982) scale does not tell how much influence each attribution factor had on performance feedback. To assess both attributional influence and raw dimensionality together, the influence score was transformed to reflect the direction of internality and stability. In other words, subjects' attributional influence scores (not at all = 0, strongly = 6 for scale rating; from 0 to 100 for percentage assessment) were multiplied by their corresponding dimensionality scores (i.e., external or unstable = -1, neutral = 0, internal or stable = +1). Before multiplying, attributional influence scores measured by the scale rating method were recoded so that "not at all" responses reflected zero influence as shown above. In addition, the original raw dimensionality scores which ranged from 1 (i.e., external or unstable) to 7 (i.e., internal or stable) were trichotomously recoded as external or unstable (1, 2, 3 = -1), neutral (4 = 0), or internal or stable (5, 6, 7 = +1) as shown above.

These final multiplied scores were called "directional influence score" or separately, "internality score" and "stability score" in this study. For example, if person A's influence score measured by scale rating method and raw dimensionality score for internality are 5 and -1
respectively, person A's internality score is +5. However, if person B has the same influence score as person A, but has the opposite direction of raw dimensionality (i.e., -1), person B's internality score is -5. Therefore, when the scale rating method is used, subjects' scores on internality and stability could range from +6 (internal maximum influence or stable maximum influence) to -6 (external maximum influence or unstable maximum influence) with a midpoint of zero (neutral minimum influence). If the percentage assessment method is used, subjects' scores on internality and stability could range from +100 (internal maximum influence or stable maximum influence) to -100 (external maximum influence or unstable maximum influence) with a midpoint of zero (neutral minimum influence).

An analogy can be drawn between the present directional influence score (i.e., internality and stability) and the traditional global measure of internality and stability score. In some previous studies (Arkin, Detchen & Maruyama, 1982; Arkin & Maruyama, 1979; Chacko & McElroy, 1983; Kuiper, 1978; Linginbuhl, Crowe, & Kahan, 1975), an indirect internality score was calculated by subtracting the sum of the attributions to external factors (i.e., task difficulty and luck) from the sum of the attributions to internal factors (i.e., ability and effort). In the same way, an indirect stability score was calculated by subtracting the sum of the attributions to unstable factors (i.e., effort and luck) from the attributions to stable factors (i.e., ability and task difficulty). In both the directional influence score and the traditional global measure of internality and stability score, a positive score will indicate more internal or stable attributions, and a negative score more external or unstable attributions. A score of
zero will indicate an equal or neutral amount of internal and external, or stable and unstable attributions.

**Performance Expectancy.** The expectation of success was measured by asking subjects the following question, using a 7-point Likert scale: "How do you expect you would do on another proofreading task, if you were given another opportunity to perform?" (1 = strongly likely to fail, 7 = strongly likely to succeed).

Performance expectancy shift was measured by asking subjects the following question, using a 7-point Likert scale: "How do you expect your performance would be on another proofreading task as compared to the present performance?" (1=getting lower, 4=unchanged, 7=getting higher). Subjects' responses to this question were transformed to reflect deviations from the present performance. That is, expectancy shift scores were recoded so that subjects expecting that other proofreading task performance to be unchanged were scored as zero, and subjects expecting the next performance to be lower or higher were scored as 1, 2, and 3 (i.e., 1, 7 = 3; 2, 6 = 2; 3, 5 = 1; 4 = 0). This transformation has been used in previous studies (e.g., Porac, Ferris & Fredor, 1983) to test the hypothesis that stable attributions are associated with expectancy shifts.

**Affects.** In relating the causal dimension to affective responses, it is assumed that a variety of affects are experienced given performance feedback. Following a success feedback, one might experience positive affect such as pride, competence, satisfaction, relaxation, and happiness. Following a failure feedback, one might experience negative affect such as shame, guilt, depression, pity, embarrassment, anger, and surprise (Weiner, Russell, & Lerman, 1978,
1979). Therefore, subjects were required to respond to those affects on a 7-point Likert scale (1=not at all, 7=extremely) in the present study (see Appendix J).

Data Analyses

Hypothesis 1 was tested by a series of simple regression analyses. Hypotheses 2, 3, 4, and 5(a) were tested by a series of hierarchical multiple regression analyses. Hierarchical multiple regression analyses test whether a moderator variable interacts with an independent variable in determining a dependent variable (Arnold, 1982). Since self-esteem variables in this study were treated as continuous variable rather than categorical variables, the conventional data analysis method for a factorial design (i.e., ANOVA, MANOVA) cannot be used in testing hypothesis 2. The present study attempts to test the significance of the interaction terms in hypotheses 2, 3, 4, and 5(a). Thus, hierarchical multiple regression analyses are appropriate to test the research questions. Hypotheses 5(b) and 6 were tested by correlational analyses.

In an attempt to investigate the overall relationships between independent and dependent variables concerning hypotheses 1, 2, 3, and 4 at a multivariate level, a series of canonical correlation analyses were conducted. The canonical correlation analyses reveals (1) to what extent a linear combination of dependent variables can be predicted by a linear combination of independent variables, (2) what contribution a single variable makes to the explanatory power of the independent variables to which the variable belongs, (3) to what extent a single independent variable contributes to predicting the composite of
dependent variables, and (4) what relative power different canonical functions have to predict relationships (Thompson, 1984). All statistical analyses were performed using the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). The alpha level was set at .05 for the test of statistical significance in rejecting the null form of the hypotheses.

The following chapter will describe the results of hypotheses testing using the data collected in this laboratory experiment.
CHAPTER IV

RESULTS

This chapter describes the manipulation checks, preliminary analyses, multivariate analyses, test of experimental hypotheses, and supplementary findings.

Manipulation Checks

Responses to the post experimental questions were examined to check the validity of the experimental manipulations. The validity of the success-failure manipulation was checked by asking (a) how subjects rated their performance feedback (1 = very great failure, 7 = very great success), (b) how fair their feedbacks were perceived (1 = extremely unfair, 7 = extremely fair), and (c) how satisfied they were with their feedback (1 = very much unsatisfied, 7 = very much satisfied). Analyses indicated that subjects assigned to the success condition rated their feedback more successful (F(1, 198) = 593.27; p < .001), more fair (F(1, 198) = 18.76; p < .001), and more satisfied (F(1, 198) = 103.64; p < .001) than subjects assigned to the failure condition.

The validity of the performance standard manipulation was checked by asking (a) whether subjects felt the criterion to select "senior proofreaders" was interpersonally competitive (1 = not at all, 7 = very much), (b) how they felt about the definition of their success and failure (1 = individualistic, absolute criterion, 7 = competitive,
relative criterion), and (c) whether they were concerned about others while working on the proofreading task (1 = not at all, 7 = very much). Analyses revealed that subjects assigned to the comparative procedure condition considered their performance standard as more interpersonally competitive \( (F(1, 197) = 63.00, p < .001) \) and more competitive, relative criterion \( (F(1, 197) = 40.95, p < .001) \) than subjects assigned to the absolute standard condition. In addition, the comparative procedure condition subjects were more concerned about others than the absolute standard condition subjects \( (F(1, 197) = 18.12, p < .001) \). These results support the effectiveness of the performance feedback and performance standard manipulations.

Preliminary Analyses

**Use of 8 Attribution Factors.** Of all 200 subjects, 140 subjects (70%) indicated that the 8 attribution factors altogether influenced their feedback in the scale rating method. In the percentage assessment method, 107 subjects (53.5%) indicated that the 8 attribution factors altogether influenced their feedback. All subjects reported that at least 2 attribution factors influenced their feedback in both methods (see Table 4).

**Perceived Influence of 8 Attribution Factors.** The mean and standard deviation of the influence score for each attribution factor were calculated along with the numbers of subjects who rated the specific attribution factors as having had no influence at all (see Table 5). The attribution factor with the most "no influence at all" responses was the physical condition which had also the lowest mean value of influence score. The attribution factor with the fewest "no
Table 4. Frequencies of the Number of the Attribution Factors Used

<table>
<thead>
<tr>
<th>Number of Attribution Factors Used</th>
<th>Scale Rating Method</th>
<th>Percentage Assessment Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absolute Frequency</td>
<td>Absolute Frequency</td>
</tr>
<tr>
<td></td>
<td>Relative Frequency</td>
<td>Relative Frequency</td>
</tr>
<tr>
<td></td>
<td>Cumulative Frequency</td>
<td>Cumulative Frequency</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>6.5</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>9.5</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>10.5</td>
</tr>
<tr>
<td>7</td>
<td>26</td>
<td>14.5</td>
</tr>
<tr>
<td>8</td>
<td>140</td>
<td>53.5</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 5. Means and Standard Deviations of Influence Scores and the Number of Subjects Reporting "No Influence At All"

<table>
<thead>
<tr>
<th>Attribution Factors</th>
<th>Influence Scores</th>
<th>Number of Subjects Reporting &quot;No Influence At All&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scale Rating M SD</td>
<td>Scale Rating M SD (N=200)</td>
</tr>
<tr>
<td>Ability</td>
<td>4.54 1.97 30.08 26.27</td>
<td>23</td>
</tr>
<tr>
<td>Immediate Effort</td>
<td>4.63 1.57 14.31 13.71</td>
<td>14</td>
</tr>
<tr>
<td>Typical Effort</td>
<td>4.14 1.78 9.78 10.78</td>
<td>22</td>
</tr>
<tr>
<td>Task Characteristics</td>
<td>4.21 1.47 8.21 9.38</td>
<td>10</td>
</tr>
<tr>
<td>Experimental Setup</td>
<td>3.86 1.63 3.65 12.84</td>
<td>20</td>
</tr>
<tr>
<td>Mental Condition</td>
<td>4.14 1.67 9.08 9.30</td>
<td>18</td>
</tr>
<tr>
<td>Physical Condition</td>
<td>3.78 1.71 7.53 10.14</td>
<td>25</td>
</tr>
<tr>
<td>Strategy</td>
<td>4.76 1.51 11.61 11.63</td>
<td>6</td>
</tr>
</tbody>
</table>
influence at all" responses in the scale rating method was the strategy which had the highest value of influence score. In the percentage assessment method, ability had the highest value of influence score and the second fewest "no influence at all" responses. Immediate effort had the fewest "no influence at all" responses.

Intercorrelations Among Attributional Influence Scores. All the significant correlations among attributional influence scores in the scale rating methods were positive, whereas all the significant correlations, except one, among the attributional influence scores in the percentage assessment were negative (see Table 6). Similar findings have been reported in previous research (Porac, Ferris, & Fedor, 1983). This trend seems to be reasonable since the percentage assessment method forces negative correlations among attribution factors, but the scale rating method does not.

In the scale rating methods, strategy and physical condition had significant positive correlations with all other attribution factors. In the percentage assessment methods, ability had significant negative correlations with all other attribution factors. Among others, ability and typical effort \( r = .50 \), mental condition and physical condition \( r = .52 \), typical effort and task characteristics \( r = .48 \), and immediate effort and task characteristics \( r = .41 \) had somewhat high significant intercorrelations in the scale rating method. In the percentage assessment method, ability had somewhat high significant intercorrelations with immediate effort \( r = .41 \) and task characteristics \( r = -.40 \).

Perceived Causal Dimensionality. The subjects completed Russell's (1982) cuausal dimension scale which measured how the subjects perceived
### Table 6. Intercorrelations Among Attributional Influence Scores

<table>
<thead>
<tr>
<th></th>
<th>Ability</th>
<th>Immediate Effort</th>
<th>Typical Effort</th>
<th>Task Character</th>
<th>Experimen. Setup</th>
<th>Mental Condition</th>
<th>Physical Condition</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>-</td>
<td>.00</td>
<td>.50*</td>
<td>-.08</td>
<td>.09</td>
<td>.13*</td>
<td>.15*</td>
<td></td>
</tr>
<tr>
<td>Immediate Effort</td>
<td>-.41*</td>
<td>-</td>
<td>.27*</td>
<td>.41*</td>
<td>.06</td>
<td>.29*</td>
<td>.31*</td>
<td>.15*</td>
</tr>
<tr>
<td>Typical Effort</td>
<td>-.15*</td>
<td>-.01</td>
<td>-</td>
<td>.48*</td>
<td>.07</td>
<td>.21*</td>
<td>.18*</td>
<td>.16*</td>
</tr>
<tr>
<td>Task Character</td>
<td>-.40*</td>
<td>.11</td>
<td>-.01</td>
<td>-</td>
<td>.19*</td>
<td>.34*</td>
<td>.19*</td>
<td>.13*</td>
</tr>
<tr>
<td>Experimen. Setup</td>
<td>-.32*</td>
<td>-.17*</td>
<td>-.16*</td>
<td>-.02</td>
<td>-</td>
<td>.28*</td>
<td>.26*</td>
<td>.31*</td>
</tr>
<tr>
<td>Mental Condition</td>
<td>-.33*</td>
<td>.02</td>
<td>-.14*</td>
<td>.12*</td>
<td>.09</td>
<td>-</td>
<td>.52*</td>
<td>.37*</td>
</tr>
<tr>
<td>Physical Condition</td>
<td>-.37*</td>
<td>-.00</td>
<td>-.10</td>
<td>-.09</td>
<td>.01</td>
<td>.08</td>
<td>-</td>
<td>.36*</td>
</tr>
<tr>
<td>Strategy</td>
<td>-.35*</td>
<td>-.15*</td>
<td>-.15*</td>
<td>-.04</td>
<td>.07</td>
<td>-.01</td>
<td>.08</td>
<td>-</td>
</tr>
</tbody>
</table>

* = statistically significant (p < .05)
Figures in upper triangle are from scale rating method
Figures in lower triangle are from % assessment method
causal attributions in terms of internality and stability. Raw scores on those causal dimensionality ranged from −3 (external or unstable) to +3 (internal or stable) with a midpoint of zero (neutral). The summary table for those scores for each attribution factor appears in Table 7. Mental and physical conditions were considered as the two most internal factors. Ability, typical effort, strategy, and immediate effort were the less internal factors. Experimental setup and task characteristics were considered as external factors, with experimental setup being the most external factor. Surprisingly, all attribution factors were perceived as relatively unstable although ability and typical effort were the least unstable factors. Immediate effort, physical condition, and mental condition were the most unstable attribution factors. The graphical summary for the raw scores on internality and stability dimensions is shown in Figure 3.

Subjects' raw scores for internality and stability dimensions were recoded to trichotomize their responses. Subjects' scores with the value of less than zero were considered as external or unstable. These scores were given the new value of −1. Subjects' scores with the value of more than zero were treated as internal or stable. Those scores were given the new value of +1. Subjects' scores with the value of zero were treated as neutral again, thus took the same value of zero. Table 8 shows how subjects perceived each attribution factor in terms of the above classification method.

More than 90 percent of the total subjects perceived ability (93.5%), mental condition (92.5%), and physical condition (93.9%) as internal factors. It should be noted that some research (e.g., Fitch, 1970) treated physical and mental condition as external. In addition,
Figure 3. Graphical Summary for the Raw Scores on Internality and Stability Dimension

Table 7. Raw Scores on Internality and Stability Dimension for 8 Attribution Factors

<table>
<thead>
<tr>
<th>Attribution Factors</th>
<th>Raw Scores on Internality Dimension M</th>
<th>SD</th>
<th>Raw Scores on Stability Dimension M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>1.544</td>
<td>.869</td>
<td>-1.201</td>
<td>1.127</td>
</tr>
<tr>
<td>Immediate Effort</td>
<td>-.915</td>
<td>1.195</td>
<td>-1.473</td>
<td>.992</td>
</tr>
<tr>
<td>Typical Effort</td>
<td>1.344</td>
<td>1.027</td>
<td>-.333</td>
<td>1.219</td>
</tr>
<tr>
<td>Task Characteristics</td>
<td>-.318</td>
<td>1.401</td>
<td>-1.907</td>
<td>1.116</td>
</tr>
<tr>
<td>Experimental Setup</td>
<td>-1.494</td>
<td>.970</td>
<td>-.890</td>
<td>1.391</td>
</tr>
<tr>
<td>Mental Condition</td>
<td>1.822</td>
<td>.999</td>
<td>-1.220</td>
<td>1.135</td>
</tr>
<tr>
<td>Physical Condition</td>
<td>1.801</td>
<td>.965</td>
<td>-1.410</td>
<td>.877</td>
</tr>
<tr>
<td>Strategy</td>
<td>1.214</td>
<td>1.071</td>
<td>-.890</td>
<td>1.200</td>
</tr>
</tbody>
</table>
Table 8. The Number of Subjects in Each Trichotomized Causal Dimensional Classification of 8 Attributional Factors

<table>
<thead>
<tr>
<th>Factors</th>
<th>Internality Dimension</th>
<th>Total N</th>
<th>Stability Dimension</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal</td>
<td>External</td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Ability</td>
<td>186</td>
<td>7</td>
<td>6</td>
<td>199</td>
</tr>
<tr>
<td></td>
<td>(93.5%)</td>
<td>(3.5%)</td>
<td>(3.0%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Immed.</td>
<td>145</td>
<td>41</td>
<td>14</td>
<td>200</td>
</tr>
<tr>
<td>Effort</td>
<td>(72.5%)</td>
<td>(20.5%)</td>
<td>(7.0%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Typical</td>
<td>170</td>
<td>12</td>
<td>14</td>
<td>196</td>
</tr>
<tr>
<td>Effort</td>
<td>(86.7%)</td>
<td>(6.1%)</td>
<td>(7.1%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Task</td>
<td>65</td>
<td>113</td>
<td>18</td>
<td>196</td>
</tr>
<tr>
<td>Charac.</td>
<td>(33.2%)</td>
<td>(57.7%)</td>
<td>(9.2%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Experi.</td>
<td>7</td>
<td>187</td>
<td>5</td>
<td>199</td>
</tr>
<tr>
<td>Setup</td>
<td>(3.5%)</td>
<td>(94.0%)</td>
<td>(2.5%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Mental</td>
<td>185</td>
<td>7</td>
<td>8</td>
<td>200</td>
</tr>
<tr>
<td>Condi.</td>
<td>(92.5%)</td>
<td>(3.5%)</td>
<td>(4.0%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Physi.</td>
<td>186</td>
<td>4</td>
<td>8</td>
<td>198</td>
</tr>
<tr>
<td>Condi.</td>
<td>(93.9%)</td>
<td>(2.0%)</td>
<td>(4.0%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Strategy</td>
<td>166</td>
<td>17</td>
<td>16</td>
<td>199</td>
</tr>
<tr>
<td></td>
<td>(83.4%)</td>
<td>(8.5%)</td>
<td>(8.0%)</td>
<td>(100%)</td>
</tr>
</tbody>
</table>
the majority of the total subjects considered typical effort (86.7%), strategy (83.4%), and immediate effort (72.5%) as internal factors. However, more than 90 percent of the total subjects treated experimental setup as external factors. Almost 60 percent of the total subjects considered task characteristics as an external factor (57.7%).

In the classification of the stability dimension, the majority of the total subjects considered all 8 attribution factors as unstable. More than 90 percent of the total subjects considered immediate effort (92.0%) and physical condition (91.0%) as unstable factors. Interestingly enough, slightly more than 50 percent of the total subjects perceived ability as unstable and almost 80 percent of the total subjects perceived task characteristics as unstable. Previous studies have assumed that both factors are stable.

**Self-Esteem Measures.** The mean and standard deviation of Ghiselli's (1971) self-assurance scale was 25.78 and 4.57 respectively and the range was 23 (from 15 to 38). The mean and standard deviation of task-specific self-esteem was 29.58 and 4.37 respectively and the range was 23 (from 17 to 40). The correlation between the two self-esteem measures was .25 (p < .001).

**Multivariate Analyses**

Prior to performing multiple regression analyses to test hypotheses 1 through 4, several canonical analyses were conducted to investigate whether there existed overall meaningful relationships between the set of dependent variables (i.e., influence scores for 8 attribution factors and their corresponding internality scores) and the set of independent variables (i.e., performance feedback, performance
Table 9. Summary of Canonical Analysis for Influence Scores
(Self-Esteem=Chronic; Method=Scale Rating)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Dependent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>-.43</td>
<td>-.97</td>
<td>Ability</td>
<td>-.71</td>
<td>-.89</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>.30</td>
<td>-.14</td>
<td>Imm.Effort</td>
<td>.01</td>
<td>-.16</td>
</tr>
<tr>
<td>Standard</td>
<td>.02</td>
<td>-.10</td>
<td>Tye.Effort</td>
<td>-.33</td>
<td>-.71</td>
</tr>
<tr>
<td>Feed * SE</td>
<td>-.54</td>
<td>-.97</td>
<td>Task Chara.</td>
<td>.07</td>
<td>-.21</td>
</tr>
<tr>
<td>Feed * Stan</td>
<td>-.13</td>
<td>.15</td>
<td>Exper.Setup</td>
<td>-.14</td>
<td>-.18</td>
</tr>
<tr>
<td>SE * Stan</td>
<td>-.46</td>
<td>.15</td>
<td>Mental Con.</td>
<td>-.07</td>
<td>-.34</td>
</tr>
<tr>
<td>F * SE * Stan</td>
<td>.29</td>
<td>.16</td>
<td>Physical C.</td>
<td>.24</td>
<td>-.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategy</td>
<td>.00</td>
<td>-.31</td>
</tr>
</tbody>
</table>

Proportion of Variance Extracted: .28
Redundancy: .14

Squared R = .48 (p < .001)

Table 10. Summary of Canonical Analysis for Internality Scores
(Self-Esteem=Chronic; Method=Scale Rating)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Dependent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>.01</td>
<td>.93</td>
<td>Ability</td>
<td>.62</td>
<td>.77</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>.44</td>
<td>.22</td>
<td>Imm.Effort</td>
<td>.03</td>
<td>.09</td>
</tr>
<tr>
<td>Standard</td>
<td>.11</td>
<td>.21</td>
<td>Tye.Effort</td>
<td>.45</td>
<td>.67</td>
</tr>
<tr>
<td>Feed * SE</td>
<td>.92</td>
<td>.95</td>
<td>Task Chara.</td>
<td>.14</td>
<td>.17</td>
</tr>
<tr>
<td>Feed * Stan</td>
<td>-.12</td>
<td>-.20</td>
<td>Exper.Setup</td>
<td>-.10</td>
<td>-.28</td>
</tr>
<tr>
<td>SE * Stan</td>
<td>-.20</td>
<td>.20</td>
<td>Mental Con.</td>
<td>.15</td>
<td>.41</td>
</tr>
<tr>
<td>F * SE * Stan</td>
<td>-.06</td>
<td>-.22</td>
<td>Physical C.</td>
<td>.18</td>
<td>.43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategy</td>
<td>.09</td>
<td>.28</td>
</tr>
</tbody>
</table>

Proportion of Variance Extracted: .28
Redundancy: .11

Squared R = .39 (p < .001)
standard, self-esteem, and their interaction terms). This procedure has been recommended by Pedhazur (1982) and Thompson (1984).

When self-esteem was measured by chronic self-esteem measures (i.e., Ghiselli’s self-assurance scale) and all dependent variables were measured by the scale rating method, a canonical correlation analysis between the influence scores for 8 attribution factors and their independent variables produced only one significant canonical variates ($R^2_c = .48$, $p < .001$). Table 9 shows the summary of this analysis. Since some authors have suggested that structure coefficients which are larger than .30 be interpreted as meaningful (Pedhazur, 1982), it is concluded that among the independent variables with meaningful structure coefficients were: feedback (.97) and a two-way interaction term between feedback and chronic self-esteem (.97).

Among the dependent variables with meaningful structure coefficients were: ability (.89), typical effort (.71), mental condition (.34), physical condition (.44), and strategy (.31). It appears, then, that the dimension for independent variables reflects that success and its interaction with high self-esteem are important in explaining the dimension for dependent variables. The dimension for dependent variables seems to reflect primarily internal attribution since the above five highly loaded attribution factors were perceived as internal by more than 80 percent of the subjects in the present study (see Table 8). Therefore, it may be concluded that it was possible through a canonical analysis to identify a single dimension of attribution (i.e., internal attribution) that was related to some aspects of the independent variable dimension (i.e feedback and its interaction with chronic self-esteem).
This conclusion was further confirmed when those influence scores were transformed to internality scores which reflected the subjects' perceived dimensionality of influence scores directly ($R^2_c = .39, p < .001$; for the summary of canonical analysis for internality scores, see Table 10). The pattern of the loadings on both the independent and the dependent variable dimensions for influence scores was similar to those for internality scores. However, the square of the canonical correlation for internality scores ($R^2_c = .39$) was somewhat lower than that for influence scores ($R^2_c = .48$). Some authors have suggested that an $R^2_c$ which is larger than .10 be treated as meaningful (Pedhazur, 1982). Based on this criterion, both squared canonical correlations were meaningful.

It is interesting to note that there were more meaningful loadings for the dependent variables compared to those for the independent variables. In other words, the canonical variate extracted a larger proportion of the variance of the dependent variable dimension (.28 for both influence and internality scores) as compared with the proportion of variance of the independent variable dimension (.23 for influence scores and .22 for internality scores) extracted by the canonical variate. When the redundancies were calculated for their respective dimensions, the capacity of the dimension for independent variables to account for variations in the dimension for dependent variables was relatively low. The dimension for independent variables accounted for only 11 percent (for influence scores) and 8 percent (for internality scores) of the variance in the dimension for dependent variables while the dimension for dependent variables accounted for 14 percent (for
influence scores) and 11 percent (for internality scores) of the variance in the dimension for independent variables.

On the other hand, there seemed to emerge somewhat different pattern of the loadings when the influence scores were measured by percentage assessment method. Table 11 shows the summary of the canonical analysis for the percentage assessment method ($R^2_c = .39$, $p < .001$). As found for the scale rating method, feedback (.99) and the feedback by chronic self-esteem interaction term (.98) had very large meaningful structure coefficients. However, it is interesting to note that several meaningful loadings on the dependent variable dimension were in the opposite direction of the meaningful loadings on the independent variable dimension. Two exceptions were the loadings for ability and typical effort. This result appears to indicate that feedback and its interaction with chronic self-esteem have positive meaningful relationships with attribution to ability (.82) and to typical effort (.38) and have negative meaningful relationships with attribution to task characteristics (-.52), experimental setup (-.44), immediate effort (-.38), strategy (-.36), and mental condition (-.30). This pattern of loadings seems to be reasonable since the percentage assessment methods assume that one attribution factor may vary inversely with other attribution factors.

When these influence scores measured by the percentage assessment methods were transformed to internality scores which reflected the subjects' perceived dimensionality of influence scores directly, a canonical analysis ($R^2_c = .31$, $p < .01$) showed that meaningful structure coefficients in the dependent variable dimension (ability = .79; typical effort = .45; experimental setup = .45) were again in the
Table 11. Summary of Canonical Analysis for Influence Scores  
(Self-Esteem=Chronic; Method= % assessment)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Dependent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>-.73</td>
<td>-.99</td>
<td>Ability</td>
<td>-.09</td>
<td>-.82</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>.46</td>
<td>.09</td>
<td>Imm.Effort</td>
<td>.41</td>
<td>.38</td>
</tr>
<tr>
<td>Standard</td>
<td>.03</td>
<td>-.11</td>
<td>Tye.Effort</td>
<td>-.21</td>
<td>-.38</td>
</tr>
<tr>
<td>Feed * SE</td>
<td>-.26</td>
<td>-.98</td>
<td>Task Chara.</td>
<td>.46</td>
<td>.52</td>
</tr>
<tr>
<td>Feed * Stan</td>
<td>-.15</td>
<td>.10</td>
<td>Exper.Setup</td>
<td>.46</td>
<td>.44</td>
</tr>
<tr>
<td>SE * Stan</td>
<td>-.37</td>
<td>.08</td>
<td>Mental Con.</td>
<td>.21</td>
<td>.30</td>
</tr>
<tr>
<td>F * SE * Stan</td>
<td>.25</td>
<td>.11</td>
<td>Physical C.</td>
<td>.22</td>
<td>.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategy</td>
<td>.33</td>
<td>.36</td>
</tr>
</tbody>
</table>

Proportion of Variance Extracted .28 .22
Redundancy .11 .09

Squared Rct = .39 (p < .001)

Table 12. Summary of Canonical Analysis for Internality Scores  
(Self-Esteem=Chronic; Method= % assessment)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Dependent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>-.63</td>
<td>-.96</td>
<td>Ability</td>
<td>-.80</td>
<td>-.79</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>-.64</td>
<td>.05</td>
<td>Imm.Effort</td>
<td>.15</td>
<td>.13</td>
</tr>
<tr>
<td>Standard</td>
<td>-.22</td>
<td>-.32</td>
<td>Tye.Effort</td>
<td>-.53</td>
<td>-.45</td>
</tr>
<tr>
<td>Feed * SE</td>
<td>-.31</td>
<td>-.96</td>
<td>Task Chara.</td>
<td>-.15</td>
<td>-.22</td>
</tr>
<tr>
<td>Feed * Stan</td>
<td>.39</td>
<td>.15</td>
<td>Exper.Setup</td>
<td>-.19</td>
<td>-.45</td>
</tr>
<tr>
<td>SE * Stan</td>
<td>.67</td>
<td>.07</td>
<td>Mental Con.</td>
<td>.01</td>
<td>.25</td>
</tr>
<tr>
<td>F * SE * Stan</td>
<td>-.29</td>
<td>.15</td>
<td>Physical C.</td>
<td>-.03</td>
<td>.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategy</td>
<td>-.06</td>
<td>.05</td>
</tr>
</tbody>
</table>

Proportion of Variance Extracted .28 .15
Redundancy .09 .05

Squared Rct = .31 (p < .01)
same direction with those in the independent variable dimension (feedback = .96; feedback by chronic self-esteem = .96; performance standard = .32). Table 12 shows the summary of canonical analysis for internality scores for the percentage assessment method. Therefore, this result seems to be identical to one found for internality scores for the scale rating method. In addition, one supplementary finding here is that the performance standard in the independent dimension had meaningful structure coefficient (.32) though somewhat smaller than other meaningful loadings. However, the redundancies for both independent and dependent variables for the percentage assessment method were smaller than those for the scale rating method. For the percentage assessment method, the independent variable dimension accounted for 9 percent (for influence scores) and 5 percent (for internality scores) of the variance in the dependent variable dimension and the dependent variable dimension accounted for 11 percent (for influence scores) and 9 percent (for internality scores) of the variance in the independent variable dimension.

Up to this point, all canonical analyses were based on the independent variable dimension which included chronic self-esteem. When task-specific self-esteem was involved in such canonical analyses, it was found that the basic patterns of loadings were the same as those found when chronic self-esteem was included (see Table 13, 14, 15, 16). However, loadings for the feedback by task-specific self-esteem interaction were larger than those for feedback when task-specific self-esteem was involved while loadings for the feedback by chronic self-esteem interaction were almost the same as those for feedback when
### Table 13. Summary of Canonical Analysis for Influence Scores
(Self-Esteem=Task-Specific; Method = Scale Rating)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Dependent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>-2.35</td>
<td>.83</td>
<td>Ability</td>
<td>.72</td>
<td>.91</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>-.06</td>
<td>.16</td>
<td>Imm.Effort</td>
<td>.02</td>
<td>.19</td>
</tr>
<tr>
<td>Standard</td>
<td>-.18</td>
<td>-.03</td>
<td>Tye.Effort</td>
<td>.33</td>
<td>.77</td>
</tr>
<tr>
<td>Feed * SE</td>
<td>3.25</td>
<td>.89</td>
<td>Task Chara.</td>
<td>.06</td>
<td>.33</td>
</tr>
<tr>
<td>Feed * Stan</td>
<td>-.07</td>
<td>-.17</td>
<td>Exper.Setup</td>
<td>.16</td>
<td>.20</td>
</tr>
<tr>
<td>SE * Stan</td>
<td>.17</td>
<td>.17</td>
<td>Mental Con.</td>
<td>.11</td>
<td>.33</td>
</tr>
<tr>
<td>F * SE * Stan</td>
<td>-.06</td>
<td>-.18</td>
<td>Physical C.</td>
<td>.08</td>
<td>.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategy</td>
<td>-.07</td>
<td>.26</td>
</tr>
</tbody>
</table>

Proportion of Variance Extracted: .23

Redundancy: .14

Squared R<sub>1</sub> = .62 (p < .001)

### Table 14. Summary of Canonical Analysis for Internality Scores
(Self-Esteem=Task-Specific; Method = Scale Rating)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Dependent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>1.68</td>
<td>-.87</td>
<td>Ability</td>
<td>-.62</td>
<td>-.79</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>.41</td>
<td>-.23</td>
<td>Imm.Effort</td>
<td>-.00</td>
<td>-.05</td>
</tr>
<tr>
<td>Standard</td>
<td>.02</td>
<td>-.14</td>
<td>Tye.Effort</td>
<td>-.44</td>
<td>-.67</td>
</tr>
<tr>
<td>Feed * SE</td>
<td>-2.57</td>
<td>-.92</td>
<td>Task Chara.</td>
<td>-.10</td>
<td>-.13</td>
</tr>
<tr>
<td>Feed * Stan</td>
<td>-.06</td>
<td>.22</td>
<td>Exper.Setup</td>
<td>.13</td>
<td>.34</td>
</tr>
<tr>
<td>SE * Stan</td>
<td>-.64</td>
<td>-.24</td>
<td>Mental Con.</td>
<td>-.23</td>
<td>-.44</td>
</tr>
<tr>
<td>F * SE * Stan</td>
<td>.26</td>
<td>.23</td>
<td>Physical C.</td>
<td>-.09</td>
<td>-.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategy</td>
<td>-.08</td>
<td>-.26</td>
</tr>
</tbody>
</table>

Proportion of Variance Extracted: .26

Redundancy: .11

Squared R<sub>1</sub> = .43 (p < .001)
Table 15. Summary of Canonical Analysis for Influence Scores
(Self-Esteem=Task-Specific; Method = Percentage Assessment)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Dependent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>1.32</td>
<td>-.93</td>
<td>Ability</td>
<td>.04</td>
<td>-.85</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>-.10</td>
<td>.09</td>
<td>Imm.Effort</td>
<td>.49</td>
<td>.38</td>
</tr>
<tr>
<td>Standard</td>
<td>.07</td>
<td>-.14</td>
<td>Tye.Effort</td>
<td>-.12</td>
<td>-.37</td>
</tr>
<tr>
<td>Feed * SE</td>
<td>-2.28</td>
<td>-.97</td>
<td>Task Chara.</td>
<td>.44</td>
<td>.45</td>
</tr>
<tr>
<td>Feed * Stan</td>
<td>-.45</td>
<td>.08</td>
<td>Exper.Setup</td>
<td>.50</td>
<td>.42</td>
</tr>
<tr>
<td>SE * Stan</td>
<td>.22</td>
<td>.09</td>
<td>Mental Con.</td>
<td>.23</td>
<td>.29</td>
</tr>
<tr>
<td>F * SE * Stan</td>
<td>.49</td>
<td>.11</td>
<td>Physical C.</td>
<td>.37</td>
<td>.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategy</td>
<td>.43</td>
<td>.41</td>
</tr>
</tbody>
</table>

Proportion of Variance Extracted: .26  .22
Redundancy: .11  .10
Squared R² = .44 (p < .001)

Table 16. Summary of Canonical Analysis for Internality Scores
(Self-Esteem=Task-Specific; Method = Percentage Assessment)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
<th>Dependent Variables</th>
<th>Standardized Coefficient</th>
<th>Structure Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>-.52</td>
<td>.92</td>
<td>Ability</td>
<td>.74</td>
<td>.81</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>-.43</td>
<td>-.03</td>
<td>Imm.Effort</td>
<td>-.20</td>
<td>-.19</td>
</tr>
<tr>
<td>Standard</td>
<td>.01</td>
<td>.21</td>
<td>Tye.Effort</td>
<td>.44</td>
<td>.40</td>
</tr>
<tr>
<td>Feed * SE</td>
<td>2.45</td>
<td>.96</td>
<td>Task Chara.</td>
<td>.14</td>
<td>.20</td>
</tr>
<tr>
<td>Feed * Stan</td>
<td>.42</td>
<td>-.15</td>
<td>Exper.Setup</td>
<td>.16</td>
<td>.37</td>
</tr>
<tr>
<td>SE * Stan</td>
<td>.40</td>
<td>.01</td>
<td>Mental Con.</td>
<td>-.03</td>
<td>-.28</td>
</tr>
<tr>
<td>F * SE * Stan</td>
<td>-.54</td>
<td>-.18</td>
<td>Physical C.</td>
<td>-.19</td>
<td>-.45</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategy</td>
<td>.07</td>
<td>-.05</td>
</tr>
</tbody>
</table>

Proportion of Variance Extracted: .27  .17
Redundancy: .09  .05
Squared R² = .33 (p < .001)
chronic self-esteem was involved. This result suggests that task-specific self-esteem is more powerful than chronic self-esteem in explaining the contribution of the feedback by self-esteem interaction term compared with that of feedback. In addition, the capacity of the independent variable dimension to account for variations in the dependent variable dimension was higher when task-specific self-esteem was involved than when chronic self-esteem was involved. For example, when attributions were measured by the scale rating method, the independent variable dimension accounted for 14 percent (for influence scores) and 9 percent (for internality scores) of the variance in the dependent variable dimension if task-specific self-esteem was involved and the independent variable dimension accounted for only 11 percent (for influence scores) and 8 percent (for internality scores) of the variance in the dependent variable dimension if chronic self-esteem was involved.

In sum, a series of canonical analyses revealed that there seemed to be single dimension of attribution that is related to some aspects of the independent variables. However, the ability of the independent variable dimension to explain variations in attribution was relatively low, though task-specific self-esteem was relatively more powerful than chronic self-esteem in explaining the variance in the attribution dimension.

**Test of Experimental Hypotheses**

Since a series of canonical analyses revealed that only the first $R^2c$ in each analysis was statistically significant as shown in Tables 9 through 16, only the statistics (i.e., structure coefficients) that were
Table 17. Performance Feedback as a Predictor of Influence and Internality Scores (N=188)

<table>
<thead>
<tr>
<th>FACTORS</th>
<th>Scale Rating Method</th>
<th></th>
<th>Percentage Assessment Method</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Influence Score</td>
<td>Internality Score</td>
<td>Influence Score</td>
<td>Internality Score</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>P</td>
<td>F</td>
<td>P</td>
</tr>
<tr>
<td>Ability</td>
<td>.37</td>
<td>108.4, 000</td>
<td>.19</td>
<td>42.9, 000</td>
</tr>
<tr>
<td>Imm.Eff.</td>
<td>.01</td>
<td>1.0, n.s.</td>
<td>.00</td>
<td>.5, n.s.</td>
</tr>
<tr>
<td>Tye.Eff.</td>
<td>.24</td>
<td>58.4, 000</td>
<td>.16</td>
<td>34.6, 000</td>
</tr>
<tr>
<td>Task Ch.</td>
<td>.02</td>
<td>3.0, n.s.</td>
<td>.02</td>
<td>2.8, n.s.</td>
</tr>
<tr>
<td>Ex.Set.</td>
<td>.01</td>
<td>2.0, n.s.</td>
<td>.02</td>
<td>3.4, n.s.</td>
</tr>
<tr>
<td>Mental</td>
<td>.06</td>
<td>12.2, 001</td>
<td>.07</td>
<td>14.4, 000</td>
</tr>
<tr>
<td>Physic.</td>
<td>.09</td>
<td>19.0, 000</td>
<td>.06</td>
<td>12.4, 001</td>
</tr>
<tr>
<td>Strate.</td>
<td>.03</td>
<td>5.7, 018</td>
<td>.04</td>
<td>8.2, 005</td>
</tr>
</tbody>
</table>

Table 18. Means of Influence and Internality Scores for Eight Attribution Factors by Performance Feedback Condition

<table>
<thead>
<tr>
<th>FACTORS</th>
<th>Scale Rating Method</th>
<th></th>
<th>Percentage Assessment Method</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Influence Score</td>
<td>Internality Score</td>
<td>Influence Score</td>
<td>Internality Score</td>
</tr>
<tr>
<td></td>
<td>Success</td>
<td>Failure</td>
<td>Success</td>
<td>Failure</td>
</tr>
<tr>
<td>Ability</td>
<td>5.74</td>
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associated with them were interpreted. As a result, it was found that feedback and its interaction with self-esteem were more important than other independent variables in explaining attributions. Therefore, it was decided to proceed and investigate both the main effect of feedback and the feedback by self-esteem interaction effect by conducting a series of regression analyses.

Concerning the two-way feedback by performance standard interaction and the three-way feedback by self-esteem by performance standard interaction which were found to be relatively unimportant in explaining attributions, it was also decided to proceed and investigate the effects since specific hypotheses were made in advance based on the previous research. If this were only an exploratory study without having hypotheses, further investigation would not have been warranted.

Test of Hypothesis 1. Hypothesis 1 predicted that performance feedback would have a significant main effect on attributions. More specifically, it was proposed that subjects in a success condition would make more internal attributions than those in a failure condition. To test this hypothesis, a series of simple regression analyses were conducted. In these analyses, performance feedback was considered as a predictor of influence and internality scores. Table 17 summarizes the results of these analyses. Table 18 presents the mean values of influence and internality scores for each attribution factor.

When the scale rating method was used to measure influence scores, success subjects were found to attribute their outcomes significantly more to ability (F = 108.4, p < .001), typical effort (F = 58.4, p < .001), mental condition (F = 12.2, p < .01), physical condition (F =
19.0, p < .001), and strategy (F = 5.7, p < .05). As indicated in Table 8 in the previous section, these five attribution factors were perceived as internal by more than 80 percent of the total subjects in the present study. However, there were no significant differences in influence scores between success and failure subjects concerning immediate effort, task characteristics, and experimental setup factors.

When internality scores which reflected the subjects' perceived causal dimensionality directly were considered as dependent variables, success subjects were found to attribute their outcomes significantly more internally than failure subjects concerning the same above five attribution factors: ability (F = 42.9, p < .001), typical effort (F = 34.6, p < .001), mental condition (F = 14.4, p < .001), physical condition (F = 12.4, p < .01), and strategy (F = 8.2, p < .01). Other attribution factors were not significantly different in internality scores between success and failure subjects. Therefore, it can be concluded that hypothesis 1 is supported by the data at least when attributions to ability, typical effort, mental condition, physical condition, and strategy are concerned.

On the other hand, somewhat conflicting results emerged when the influence scores were measured by the percentage assessment method. In this case, success subjects attributed their outcomes significantly more to ability (F = 67.3, p < .001) and typical effort (F = 11.4, p < .01) while failure subjects attributed their outcomes significantly more to immediate effort (F = 11.7, p < .01), task characteristics (F = 23.5, p < .001), experimental setup (F = 15.9, p < .001), mental condition (F = 5.8, p < .05), physical condition (F = 5.1, p < .05), and strategy (F = 12.4, p < .01). As indicated in Table 8, a majority
of the total subjects considered immediate effort, mental condition, physical condition, and strategy as internal. Thus, it may be suggested that failure subjects also attribute their outcomes to some internal factors when they are required to distribute responsibility by percentage assessment method.

Compared to the above results derived from the influence scores measured by percentage assessment method, however, more supportive evidence for hypothesis 1 was found when those influence scores were transformed to internality scores. Success subjects were found again to attribute their outcomes significantly more internally than failure subjects concerning ability ($F = 38.4, p < .001$), typical effort ($F = 11.7, p < .01$), and experimental setup ($F = 11.7, p < .01$). Only deviation from this tendency was concerned with physical condition factor. With this attribution factor, failure subjects attributed their outcomes significantly more internally ($F = 5.0, p < .05$) than success subjects. It should be noted that ability, typical effort, and experimental setup factors accounted for 17 percent, 6 percent, and 6 percent respectively of the variance in explaining internality scores while physical condition accounted for only 3 percent of the variance. The rest of the attribution factors did not make any significant differences in internality scores between success and failure subjects.

Test of Hypothesis 2. Hypothesis 2 stated that there would be a significant two way interaction effect between performance feedback and self-esteem on attributions. Specifically, it was predicted that internal attributions would be positively associated with self-esteem for success subjects, but not for failure subjects. To test this hypothesis, a series of hierarchical regressions of performance
Table 19. Performance Feedback, Chronic Self-Esteem, and Interactions as Predictors of Influence and Internality Scores (Method = Scale Rating; N=190)

| Attribution Factors | Influence Scores | | | | | | Internality Scores | | | |
|---------------------|------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|                     | sqR   | F | P  | ch.sqR | P   | sqR   | F | P  | ch.sqR | P   |
| Ability             |       |   |    |       |     |       |   |    |       |     |
| Feedback            | .37   | 108.4 | .000 | ---   | --- | .19   | 42.9 | .000 | ---   | --- |
| F + SE              | .37   | 53.9  | .000 | .000  | n.s. | .20   | 23.4 | .000 | .015  | n.s. |
| F+SE+F*SE          | .37   | 36.0  | .000 | .002  | n.s. | .21   | 16.6 | .000 | .011  | n.s. |
| Imm. Effort         |       |   |    |       |     |       |   |    |       |     |
| Feedback            | .01   | 1.0  | n.s. | ---   | --- | .00   | 5.0  | n.s. | ---   | --- |
| F + SE              | .01   | 1.0  | n.s. | .005  | n.s. | .02   | 1.5  | n.s. | .010  | n.s. |
| F+SE+F*SE          | .01   | 1.0  | n.s. | .002  | n.s. | .02   | 1.0  | n.s. | .000  | n.s. |
| Typ. Effort         |       |   |    |       |     |       |   |    |       |     |
| Feedback            | .24   | 58.4 | .000 | ---   | --- | .16   | 34.6 | .000 | ---   | --- |
| F + SE              | .24   | 29.4 | .000 | .002  | n.s. | .16   | 17.6 | .000 | .003  | n.s. |
| F+SE+F*SE          | .27   | 22.2 | .000 | .025  | .013 | .18   | 13.3 | .000 | .019  | .042 |
| Task Charac.        |       |   |    |       |     |       |   |    |       |     |
| Feedback            | .02   | 2.9  | n.s. | ---   | --- | .02   | 2.8  | n.s. | ---   | --- |
| F + SE              | .02   | 1.5  | n.s. | .000  | n.s. | .02   | 2.2  | n.s. | .009  | n.s. |
| F+SE+F*SE          | .02   | 1.0  | n.s. | .000  | n.s. | .03   | 2.0  | n.s. | .008  | n.s. |
| Exp. Setup          |       |   |    |       |     |       |   |    |       |     |
| Feedback            | .01   | 2.0  | n.s. | ---   | --- | .02   | 3.4  | n.s. | ---   | --- |
| F + SE              | .01   | 1.1  | n.s. | .001  | n.s. | .02   | 1.8  | n.s. | .001  | n.s. |
| F+SE+F*SE          | .01   | 1.0  | n.s. | .010  | n.s. | .02   | 1.2  | n.s. | .000  | n.s. |
| Mental Con.         |       |   |    |       |     |       |   |    |       |     |
| Feedback            | .06   | 12.2 | .010 | ---   | --- | .07   | 14.3 | .000 | ---   | --- |
| F + SE              | .06   | 6.2  | .001 | .003  | n.s. | .07   | 7.2  | .001 | .000  | n.s. |
| F+SE+F*SE          | .06   | 4.1  | .008 | .000  | n.s. | .07   | 4.9  | .003 | .002  | n.s. |
| Physical C.         |       |   |    |       |     |       |   |    |       |     |
| Feedback            | .09   | 19.9 | .000 | ---   | --- | .06   | 12.4 | .001 | ---   | --- |
| F + SE              | .09   | 9.5  | .000 | .000  | n.s. | .06   | 6.3  | .002 | .001  | n.s. |
| F+SE+F*SE          | .09   | 6.4  | .000 | .000  | n.s. | .06   | 4.2  | .007 | .000  | n.s. |
| Strategy            |       |   |    |       |     |       |   |    |       |     |
| Feedback            | .03   | 5.7  | .018 | ---   | --- | .04   | 8.2  | .005 | ---   | --- |
| F + SE              | .03   | 3.0  | n.s. | .002  | n.s. | .07   | 6.8  | .001 | .026  | .023 |
| F+SE+F*SE          | .04   | 2.5  | n.s. | .008  | n.s. | .07   | 4.6  | .004 | .002  | n.s. |
Table 20. Performance Feedback, Chronic Self-Esteem, and Interactions as Predictors of Influence and Internality Scores (Method = Percentage Assessment)

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Figure 4. Attributions (Influence Scores Measured by Scale Rating) to Typical Effort as a Function of Feedback by Chronic Self-Esteem Interaction

\[ Y(\text{success}) = 4.02347 + 0.03967X \]

Region of Insignificance:
- 7.5 to 15

Research Range of Interest:
- Chronic Self-Esteem Scores (X)

Figure 5. Attributions (Internality Scores Measured by Scale Rating) to Typical Effort as a Function of Feedback by Chronic Self-Esteem Interaction

\[ Y(\text{success}) = 2.55383 + 0.03770X \]

Region of Insignificance:
- 7.3 to 17

Research Range of Interest:
- Chronic Self-Esteem Scores (X)
feedback, self-esteem, and performance feedback by self-esteem interaction effects on attributions in terms of influence and internality scores were obtained.

Table 19 presents the results of the hierarchical regression for the attributions as measured by the scale rating method and Table 20 presents those as measured by the percentage assessment method. Both Table 19 and Table 20 present the results obtained when self-esteem was measured by Ghiselli's self-assurance scale. With this chronic self-esteem, the interaction terms generally failed to add significant variance in explanations of attributions in terms of influence and internality scores. Only one exception was the typical effort attribution when it was measured by scale rating method (see Table 19).

For the typical effort attribution, the proportions of variance accounted for by the main effects and the interaction term were 26.6 percent in influence scores ($F = 22.2$, $p < .001$) and 17.8 percent in internality scores ($F = 13.3$, $p < .001$). The inclusion of the feedback by chronic self-esteem interaction term significantly increased the variance explained by additional 2.5 percent in influence scores ($F = 6.3$, $p < .05$) and 1.9 percent in internality scores ($F = 4.2$, $p < .05$).

Figures 4 and 5 show graphically how success and failure subjects attributed their outcomes differently depending on their chronic self-esteem level when typical effort was involved. Figure 4 is concerned with influence scores and Figure 5 is concerned with internality scores. The actual range of subjects' chronic self-esteem scores was 23 (from 15 to 38). To determine the regions of significance, the Johnson-Neyman (1936) technique was used. This procedure is analogous to a test of simple main effects in a factorial design. The formula
and the data used to calculate the region of significance appear in Appendix L. This formula was adopted from Pedhazur (1982).

Based on Johnson-Neyman technique, it was found that influence scores for subjects whose scores for chronic self-esteem lay within the range of 7.5 and 15.5 were not significantly different across performance feedback conditions. In addition, internality scores for subjects whose chronic self-esteem level lay between 7.3 and 17.0 were found to be not significantly different across performance feedback conditions. Considering both research range of interest and region of insignificance, it is concluded that subjects whose scores on chronic self-esteem lie within the range of 15.5 and 38 (if influence scores represent attributions) or within the range of 17.0 and 38 (if internality scores represent attributions) are significantly different in the two feedback conditions.

Within this region, although success subjects attributed their outcomes more to typical effort factor than failure subjects, it was relatively more to typical effort at the higher level of the chronic self-esteem scores as shown in Figure 4. It should be noted here that 86.7 percent of the total subjects in the present study considered this typical effort factor as internal (see Table 8). Thus, this result is in line with hypothesis 2. The same phenomenon was found with the internality scores as shown in Figure 5. Therefore, it is concluded that within the above mentioned region, success subjects tend to make more internal attributions than failure subjects and, furthermore, it was relatively more internal at the higher level of the chronic self-esteem scores. This result seems to support self-enhancement theory rather than self-consistency theory since failure subjects were in no
Table 21. Performance Feedback, Task-Specific Self-Esteem, and Interactions as Predictors of Influence and Internality Scores

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Table 22. Performance Feedback, Task-Specific Self-Esteem, and Interactions as Predictors of Influence and Internality Scores

(Method = Percentage Assessment; N=183)

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<tr>
<td>F + SE + F*SE</td>
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<td>Physical C.</td>
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<tr>
<td>F + SE</td>
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</tr>
<tr>
<td>F + SE + F*SE</td>
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<td>7.3</td>
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<td>Strategy</td>
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<tr>
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<td>.06</td>
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<tr>
<td>F + SE</td>
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<td>6.2</td>
</tr>
<tr>
<td>F + SE + F*SE</td>
<td>.09</td>
<td>5.5</td>
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</tbody>
</table>
instance more internal than success subjects within the above common range of research interest and significance.

When task-specific self-esteem was involved, more interaction terms added significant variance in explanations of attributions. Table 21 presents the results for each attribution factor when attributions were measured by scale rating method. Table 22 presents those results when attributions were measured by percentage assessment method.

When the scale rating was involved, the interaction terms for three attribution factors were found to add significant variance in explaining attributions in both influence and internality scores as shown in Table 21. The main effects and the feedback by task-specific self-esteem interaction terms accounted for 47.9 percent (F = 54.3, p < .001), 38.2 percent (F = 36.4, p < .001), and 9.3 percent (F = 6.1, p < .01) of the variance in explanations of the influence scores for ability, typical effort, and task characteristics respectively while accounting for 26.2 percent (F = 20.9, p < .001), 18.2 percent (F = 13.1, p < .001), and 6.1 percent (F = 3.6, p < .05) of the variance in explanations of the internality scores for those three factors respectively. The inclusion of the interaction terms significantly added the variance explained by additional 10.0 percent (F = 34.2, p < .001), 10.3 percent (F = 29.7, p < .001), and 7.2 percent (F = 14.2, p < .001) in influence scores of ability, typical effort, and task characteristics respectively while adding the variance explained by additional 7.8 percent (F = 18.7, p < .001), 1.9 percent (F = 4.2, p < .05), and 3.3 percent (F = 6.2, p < .05) in internality scores of these factors respectively.
Concerning the ability factor, Figures 6 and 7 show how feedback and task-specific self-esteem interact to affect influence scores and internality scores respectively. The actual range of subjects' task-specific self-esteem scores was 23 (from 17 to 40). Based on Johnson-Neyman technique, the regions of insufficiency were from 19.9 to 22.7 for influence scores and from 21.2 to 25.1 for internality scores (see Appendix L for detailed calculation). In both Figure 6 and Figure 7, the regression line for success subjects and the regression line for failure subjects cross within the common range of interest and significance.

In other words, success subjects attributed their outcomes more to the ability factor in terms of influence scores and more internally in terms of internality scores at the higher level of task-specific self-esteem (from 22.7 to 40, and from 25.1 to 40 respectively), and failure subjects attributed their outcomes more to ability factor in terms of influence scores and more internally in terms of internality scores at the lower level of task-specific self-esteem (from 17 to 19.9, and from 17 to 21.2 respectively). The ability factor was considered as internal by 93.5 percent of the total subjects in the present study (see Table 8). Thus, in both influence and internality terms, this result is in line with hypothesis 2. However, this result seems to favor self-consistency theory explanation rather than self-enhancement theory since failure subjects made more internal attributions than success subjects when those subjects' task-specific self-esteem scores were relatively very low.

Concerning the typical effort factor, Figure 8 and Figure 9 present graphically how feedback and task-specific self-esteem interact
Figure 6. Attributions (Influence Scores Measured by Scale Rating) to Ability as a function of Feedback by Task-Specific Self-Esteem Interaction

Influence Scores (Y) (Scale Rating)  
7 I  I  Y(success) = 2.49536 + .10576X  
6 I  I  (21, 3, 4, 8)  
5 I  I  
Attribute to Ability  
4 I  I  Y(failure) = 8.75000 - .18750X  
3 I  I  Region of Insignificance  
2 I  I  19.9 -- 22.7  
1 I  I  0 I  I  
0 I  I  Research Range of Interest  
Task-Specific Self-Esteem Scores (X)

Figure 7. Attributions (Internality Scores Measured by Scale Rating) to Ability as a function of Feedback by Task-Specific Self-Esteem Interaction

Internality+6 I  I  Y(success) = -.57944 + .15517X  
6 I  I  (23.2, 3.0)  
5 I  I  Y(failure) = 7.04302 - .17371X  
4 I  I  Region of Insignificance  
3 I  I  21.2 -- 25.1  
2 I  I  0 I  I  
1 I  I  17 -- 40  
0 I  I  Research Range of Interest  
Task-Specific Self-Esteem Scores (X)
to make different attribution in terms of influence scores and internality scores respectively. The Johnson-Neyman technique revealed that the regions of insignificance for the task-specific self-esteem scores were from 21.1 to 24.1 when influence scores were involved and from 12.7 to 21.4 when internality scores were involved (see Appendix L for detailed calculation).

In Figure 8, the regression line for success subjects and the regression line for failure subjects intersect within the common range of interest and significance. This indicates that success subjects attributed their outcome more to the typical effort factor in terms of influence scores at the higher level of task-specific self-esteem (from 24.1 to 40), and failure subjects attributed their outcomes more to the typical effort factor at the lower level of task-specific self-esteem (from 17 to 21.1). If typical effort can be treated as internal factor as 86.7 percent of the total subject considered it as internal in this present study, this result confirms hypothesis 2 and seems to favor self-consistency theory explanation.

When the influence scores were transformed to internality scores, however, the regression line for success subjects and the regression line for failure subjects do not cross within the common range of interest and significance as shown in Figure 9. This result indicates that although success subjects made more internal attributions than failure subjects along the continuum of task-specific self-esteem score (from 21.4 to 40), it was more internal at the higher end of the task-specific self-esteem than the lower end. This result is in line with hypothesis 2, but seems to support the self-enhancement theory explanation.
Figure 8. Attributions (Influence Scores Measured by Scale Rating) to Typical Effort as a Function of Feedback by Task-Specific Self-Esteem Interaction

Influence Scores (Y) (Scale Rating)
7 I
6 I
5 I
4 I
3 I
2 I
1 I
0 I

Y(success) = 2.80152 + 0.07498X

(22.6, 4.5)

Y(failure) = 8.97046 + 1.9762X
Region of Insignificance 21.1 -- 24.1

Research Range of Interest
Task-Specific Self-Esteem Scores (X)

Figure 9. Attributions (Internality Scores Measured by Scale Rating) to Typical Effort as a Function of Feedback by Task-Specific Self-Esteem Interaction

Internality*6 I
Scores (Y) (Scale Rating)
5 I
4 I
3 I
2 I
1 I
0 I

Y(success) = 1.82682 + 0.05685X

(17.2, 2.8)

Y(failure) = 4.4623 + 0.09603X
Region of Insignificance 12.7 -- 21.4

Research Range of Interest
Task-Specific Self-Esteem Scores (X)
With regard to task characteristics factor, Figure 10 and Figure 11 illustrate how feedback and task-specific self-esteem interact to affect attributional influence and internality scores. The regions of insignificance for task-specific self-esteem scores derived from Johnson-Neyman technique were from 25.3 to 29.6 for influence scores and 30.2 to 36.9 for internality scores (see Appendix L for detailed calculations).

In Figure 10, the regression lines for success and failure subjects cross each other within the common range of interest and significance. This indicates that success subjects made more attributions to the task characteristics factor in terms of influence score at the higher level of task-specific self-esteem (from 29.6 to 40), and failure subjects attributed their outcomes more to the task characteristics factor at the lower level of task-specific self-esteem (from 17 to 25.3). Considering that 33.2 percent of the total subjects perceived this task characteristics factor as internal, 57.7 percent of them perceived this factor as external, and 9.2 percent of them perceived this factor as neutral (see Table 8), it does not seem to be easy to interpret the result in terms of hypothesis 2.

When influence scores for task characteristics factor were transformed to internality scores, however, it became evident that the result was contrary to hypothesis 2. As shown in Figure 11, the task-specific self-esteem scores and the internality scores for success subjects were negatively correlated, and those two scores for failure subjects were positively correlated. Within the range of research interest and significance, success subjects made more internal attributions at the lower level of task-specific self-esteem (from 17
Figure 10. Attributes (Influence Scores Measured by Scale Rating) to Task Characteristics as a Function of Feedback by Task-Specific Self-Esteem Interaction

\[
Y(\text{success}) = 2.14286 + 0.07519X \\
Y(\text{failure}) = 7.12978 - 0.10645X
\]

Region of Insignificance: 25.3--29.6

Research Range of Interest: Task-Specific Self-Esteem Scores (X)

Figure 11. Attributes (Internality Scores Measured by Scale Rating) to Task Characteristics as a Function of Feedback by Task-Specific Self-Esteem Interaction

\[
Y(\text{success}) = 7.04562 - 0.23815X \\
Y(\text{failure}) = -2.64908 + 0.05125X
\]

Region of Insignificance: 30.2--36.9

Research Range of Interest: Task-Specific Self-Esteem Scores (X)
to 30.21), and failure subjects made more internal attributions at the higher level of task-specific self-esteem (from 36.9 to 40).

On the other hand, the feedback by task-specific self-esteem interaction terms for ability and physical condition factors were found to add significant variance in explanations of attributions when attributions were measured by percentage assessment method as shown in Table 22. The main effects and the feedback by the task-specific self-esteem interaction terms accounted for 31.5 percent \((F = 27.1, p < .001)\) and 11.0 percent \((F = 7.3, p < .001)\) of the variance in explaining the influence scores for ability and physical condition factors respectively while accounting for 21.3 percent \((F = 15.9, p < .001)\) and 10.8 percent \((F = 7.2, p < .001)\) of the variance in explaining the internality scores for those two factors respectively. The inclusion of the interaction term significantly added the variance explained by an additional 4.3 percent \((F = 11.1, p < .01)\) and 6.5 percent \((F = 12.9, p < .001)\) in internality scores of these two factors respectively.

Relation to the ability factor, Figure 12 and Figure 13 illustrate how success and failure subjects made different attributions in terms of influence and internality scores respectively at the different levels of task-specific self-esteem scores. The Johnson-Neyman technique indicated that the regions of insignificance for the task-specific self-esteem scores were from 10.4 to 21.6 when attributions were measured by influence scores and from 18.2 to 23.9 when attributions were measured by internality scores (see Appendix L for detailed calculation).
Figure 12. Attritions (Influence Scores Measured by Percentage Assessment) to Ability as a Function of Feedback by Task-Specific Self-Esteem Interaction

Influence Scores (Y) I
(Percentage Assessment) I

Attribution to Ability I

\[
Y(\text{success}) = 7.53139 + 1.15935X
\]

Region of Insignificance
16.4 --- 21.6

Y(failure) = 56.58973 + 1.41489X

Research Range of Interest
Task-Specific Self-Esteem Scores (X)

Figure 13. Attritions (Internality Scores Measured by Percentage Assessment) to Ability as a Function of Feedback by Task-Specific Self-Esteem Interaction

Internality Scores (Y) I
(Percentage Assessment) I

Attribution to Ability I

\[
Y(\text{success}) = -13.65908 + 1.67313X
\]

Range of Insignificance
18.2 --- 23.9

Y(failure) = 44.78456 - 1.09353X

Research Range of Interest
Task-Specific Self-Esteem Scores (X)
In Figure 12, the regression lines for success and failure subjects do not cross each other within the common range of interest and significance. This result suggests that although the success subjects made more attributions to the ability factor than the failure subjects along the continuum of task-specific self-esteem scores (from 21.6 to 40), it was more to the ability factor at the higher end of the task-specific self-esteem than the lower end. This result can be considered as confirming hypothesis 2 since 93.5 percent of the total subjects treated ability factors as internal as shown in Table 8.

This interpretation can be further confirmed by transforming the influence scores to internality scores as shown in Figure 13. However, the regression lines for the success and the failure subjects cross each other within the common range of interest and significance when internality scores were considered as attributions. In this case, the success subjects made more internal attributions at the higher level of the task-specific self-esteem (from 23.9 to 40) and failure subjects made more internal attributions at the lower level of the task-specific self-esteem (from 17 to 18.2). Therefore, self-enhancement theory seems to be a better explanation for influence scores and self-consistency theory seems to be a better explanation for internality scores.

Concerning the physical condition factor, Figure 14 and Figure 15 show how success and failure subjects attributed their outcomes differently when subjects' task-specific self-esteem scores were considered. The Johnson-Neyman technique revealed that the regions of insignificance for the task-specific self-esteem scores were from 24.1 to 28.6 when influence scores were involved and from 24.1 to 28.7 when
internality scores were involved. Appendix L contains detailed calculations for these regions.

In both Figure 14 and Figure 15, the regression lines for the success and the failure subjects intersect with each other within the range of interest and significance. The failure subjects attributed their outcomes more to physical condition factor at the higher level of the task-specific self-esteem (from 28.6 to 40) and the success subjects attributed their outcomes more to physical condition factor at the lower level of task-specific self-esteem (from 17 to 24.1). Since physical condition factor was considered as internal by 93.9 percent of the total subjects as shown in Table 8, this result seems to be contrary to hypothesis 2. This interpretation became evident when influence scores were transformed to internality scores. As shown in Figure 15, failure subjects made more internal attributions for their outcomes than success subjects at the higher level of task-specific self-esteem (from 28.7 to 40) while success subjects made more internal attributions for their outcomes than failure subjects at the lower level of task-specific self-esteem (from 17 to 24.1).

**Test of Hypothesis 3.** Hypothesis 3 stated that there would be a significant two-way interaction effect between performance feedback and performance standard on attributions. Specifically, it was predicted that subjects in the comparative procedure condition would make more internal attributions after success than those in the absolute standard condition, whereas subjects in the comparative procedure condition would make more external attributions after failure than those in the absolute standard condition.
Figure 14. Attritions (Influence Scores Measured by Percentage Assessment) to Physical Condition as a Function of Feedback by Task-Specific Self-Esteem Interaction

Influence 70I
Scores(Y) I
(Percentage 60I
Assessment) I
50I
I
Attribution 40I
to I
Physical C. 30I
I

\[ Y(\text{failure}) = -16.00121 + .89538X \]

Range of Insignificance
24.1 -- 28.6

Research Range of Interest
Task-Specific Self-Esteem Scores (X)

Figure 15. Attritions (Internality Scores Measured by Percentage Assessment) to Physical Condition as a Function of Feedback by Task-Specific Self-Esteem Interaction

Internality+30I
Scores(Y) I
(Percentage+20I
Assessment) I
10I
I
Attribution 0I
to I
Physical C.-10I
I

\[ Y(\text{failure}) = -16.97853 + .91789 \]

Region of Insignificance
24.1 -- 28.7

Research Range of Interest
Task-Specific Self-Esteem Scores (X)
To test this hypothesis, a series of hierarchical regressions of performance feedback, performance standard, and the interaction term on attributions were obtained. Attributions were represented by both influence and internality scores. When attributions were measured by percentage assessment, there were no interaction terms which added significant variance in explanations of attributions. However, there were two interaction terms which added significant variance in explanations of attributions (i.e., typical effort and experimental setup) only in terms of internality scores when those attributions were measured by the scale rating method as shown in Table 23.

For the typical effort attribution, the proportions of variance accounted for by the model (i.e., main effects and the interaction term) were 17.7 percent in internality scores ($F = 13.2, p < .001$). The inclusion of the feedback by standard interaction term significantly increased the variance explained by an additional 1.7 percent in internality scores ($F = 3.9, p < .05$). Figure 16 shows how success and failure subjects made different attributions depending on which performance standard condition was involved. Tests of simple main effects indicated that there was no significant difference in internality scores for typical effort between absolute and comparative conditions when subjects received success feedbacks. However, failure subjects made significantly more external attributions in the absolute standard condition than in the comparative procedure condition ($F(1,188) = 3.99, p < .05$). This result is contrary to hypothesis 3.

For the experimental setup attribution, the proportions of variance accounted for by the performance feedback, performance standard, and interaction term were 9.2 percent in internality scores.
Table 23. Performance Feedback, Performance Standard, and Interactions as Predictors of Influence and Internality Scores
(Method = Scale Rating; N = 190)

<table>
<thead>
<tr>
<th>Attribution</th>
<th>Influence Scores</th>
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<th>Internality Scores</th>
<th></th>
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<td></td>
<td>sQR</td>
<td>F</td>
<td>P</td>
<td>ch.sQR</td>
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<td>.000</td>
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<td>.000</td>
<td>.007</td>
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<td>n.s.</td>
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<tr>
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<td>2.0</td>
<td>n.s.</td>
<td>.000</td>
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<td>Feedback</td>
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<td>58.4</td>
<td>.000</td>
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<td>F + PS</td>
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<td>.000</td>
<td>.010</td>
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<td>20.6</td>
<td>.000</td>
<td>.003</td>
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<td><strong>Task Charac.</strong></td>
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<td>.018</td>
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<td>.023</td>
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</table>
Figure 16. Attributions (Internality Scores Measured by Scale Rating) to Typical Effort as a Function of Feedback by Performance Standard Interaction

Internality +6 I
Scores (Y) I
(Scale +5 I Rating) I
+4 I
Attribution I to +3 I
Typ. Effort I +2 I
+1 I
I
0 I

(3.72) X
X (3.29) Success

(1.30) X
X (2.14) Failure

Absolute
Comparative
Standard Procedure

Performance Standard (X)

Figure 17. Attributions (Internality Scores Measured by Scale Rating) to Experimental Setup as a Function of Feedback by Performance Standard Interaction

Internality +2 I
Scores (Y) I
(Scale +1 I Rating) I
0 I
Attribution to -1 I
Exp. Setup I (-1.62) X
-2 I
(-2.67) X
-3 I
X (-2.98) Success
X (-3.02) Failure
-4 I

Absolute
Comparative
Standard Procedure

Performance Standard (X)
(F = 6.3, p < .001). The inclusion of the performance standard by experimental setup interaction term significantly increased the variance explained by an additional 2.2 percent in internality scores (F = 4.4, p < .05). Figure 17 illustrates how success and failure subjects made different attributions in the two performance standard conditions. Tests of simple main effects indicated that success subjects did not make different attributions in terms of internality scores of experimental setup factor in the two performance feedback conditions. However, failure subjects made more external attributions in the comparative procedure condition than in the absolute standard condition (F(1,191) = 9.55, p < .05). This latter result is in line with hypothesis 3.

Test of Hypothesis 4. Hypothesis 4 stated that there would be a significant three-way interaction effect among performance feedback, self-esteem, and performance standard on attributions. Specifically, it was predicted that internal attributions will be associated more positively with self-esteem for success outcome in the comparative procedure condition than in the absolute standard condition, but not for failure outcomes. To test this hypothesis, a series of hierarchical regressions of performance feedback, performance standard, self-esteem, and the interaction terms on attributions were obtained. Only one interaction term that was found to add significant variance accounted for in explanations of attributions was associated with task characteristics. For the task characteristics factor, when chronic self-esteem was involved, the proportions of variance accounted for by the entire model were 7.8 percent in internality scores as measured by scale rating method (F = 2.19, p < .05) and 7.4 percent in
internality scores as measured by percentage assessment method \((F = 2.1, p < .05)\).

The inclusion of the performance feedback by performance standard by chronic self-esteem interaction term added the variance explained by an additional 2.5 percent in internality scores as measured by scale rating method \((F = 5.0, p < .05)\) and 2.6 percent in internality scores as measured by percentage assessment method \((F = 5.1, p < .05)\). No other main effects or interaction effects terms were significant at the point of entry into the hierarchical regression. From an inspection of the regression-coefficient signs for success and failure groups separated by performance standard conditions, it was found that success groups' internal attributions were negatively correlated with their chronic self-esteem in both standard conditions. However, failure subjects' internal attributions were negatively correlated with their chronic self-esteem in the comparative procedure condition and positively correlated in the absolute standard condition. These results are contrary to hypothesis 4.

**Test of Hypothesis 5(a).** Hypothesis 5(a) stated that there would be a significant two-way interaction effect between performance feedback and stable attributions on the expectancy of success. Specifically, it was predicted that high expectancy of success will be associated positively with stable attributions for success outcomes, but negatively for failure outcomes.

To test this hypothesis, a series of hierarchical regressions of performance feedback, attributions, and the interaction term on the expectancy of success were obtained. Attributions were measured by both influence and stability scores. When attributions were measured
by the scale rating method, there was no significant interaction effect of feedback by stability scores for any of the eight attribution factors and there was a significant interaction effect of feedback by influence scores for ability and typical effort factor (see Table 24). The main effects and the feedback by ability attribution interaction term accounted for 21.4 percent of variance in explaining the expectancy of success ($F = 17.7, p < .001$). The inclusion of the interaction term significantly increased the variance explained by an additional 6.7 percent ($F = 16.8, p < .001$). The proportions of variance accounted for by the main effects and the feedback by typical effort attribution interaction term were 18.5 percent in explanations of the expectancy of success ($F = 14.9, p < .001$). The inclusion of the interaction term significantly increased the variance explained by an additional 4.3 percent ($F = 10.4, p < .01$).

Figure 18 and Figure 19 illustrate how success and failure subjects had different expectations of success depending on their attributional influence scores of the ability and the typical effort factors respectively. For success subjects, high expectancy of success was positively associated with more attributions to ability factor and high expectancy of success was negatively associated with more attributions to the ability factor for failure subjects. The same phenomenon was found with typical effort (see Figure 19). These two attribution factors were perceived as relatively more stable than other factors by the subjects in the present study (see Table 8). Thus, the results support hypothesis 5(a). When the influence scores were transformed to stability scores, the interaction terms were not found to add significant variance.
Table 24. Performance Feedback, Attribution, and Interactions as Predictors of the Expectancy of Success (Method = Scale Rating)

<table>
<thead>
<tr>
<th>Factors</th>
<th>Attribution Influence Score as Attribution</th>
<th>Stability Score as Attribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sqR</td>
<td>F</td>
</tr>
<tr>
<td>Ability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback</td>
<td>.14</td>
<td>32.8</td>
</tr>
<tr>
<td>F + AT</td>
<td>.15</td>
<td>16.9</td>
</tr>
<tr>
<td>F<em>AT+F</em>AT</td>
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<td>17.7</td>
</tr>
<tr>
<td>Imm. Effort</td>
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<td></td>
</tr>
<tr>
<td>Feedback</td>
<td>.14</td>
<td>32.8</td>
</tr>
<tr>
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<td>16.3</td>
</tr>
<tr>
<td>F<em>AT+F</em>AT</td>
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<td>11.1</td>
</tr>
<tr>
<td>Typ. Effort</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback</td>
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<td>32.8</td>
</tr>
<tr>
<td>F + AT</td>
<td>.14</td>
<td>14.3</td>
</tr>
<tr>
<td>F<em>AT+F</em>AT</td>
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<td>14.9</td>
</tr>
<tr>
<td>Task Charac.</td>
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<td></td>
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<td>32.8</td>
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<tr>
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<td>16.9</td>
</tr>
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<tr>
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<td>F + AT</td>
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<td>Strategy</td>
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<tr>
<td>F + AT</td>
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<td>16.3</td>
</tr>
<tr>
<td>F<em>AT+F</em>AT</td>
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<td>11.0</td>
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Table 25. Performance Feedback, Attribution, and Interactions as Predictors of the Expectancy of Success (Method = Percentage Assessment)

<table>
<thead>
<tr>
<th>Attribution Influence Score as Attribution</th>
<th>Stability Score as Attribution</th>
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</thead>
<tbody>
<tr>
<td><strong>Factors</strong></td>
<td>sqR</td>
</tr>
<tr>
<td>Ability</td>
<td></td>
</tr>
<tr>
<td>Feedback</td>
<td>.15</td>
</tr>
<tr>
<td>F + AT</td>
<td>.15</td>
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<tr>
<td>F<em>AT+F</em>AT</td>
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<tr>
<td>Imm. Effort</td>
<td></td>
</tr>
<tr>
<td>Feedback</td>
<td>.15</td>
</tr>
<tr>
<td>F + AT</td>
<td>.15</td>
</tr>
<tr>
<td>F<em>AT+F</em>AT</td>
<td>.15</td>
</tr>
<tr>
<td>Typ. Effort</td>
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</tr>
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<tr>
<td>F + AT</td>
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<td>F<em>AT+F</em>AT</td>
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<td>Task Charac.</td>
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<td>F + AT</td>
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<td>.15</td>
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<tr>
<td>Exp. Setup</td>
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</tr>
<tr>
<td>Feedback</td>
<td>.15</td>
</tr>
<tr>
<td>F + AT</td>
<td>.15</td>
</tr>
<tr>
<td>F<em>AT+F</em>AT</td>
<td>.17</td>
</tr>
<tr>
<td>Mental Con.</td>
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</tr>
<tr>
<td>Feedback</td>
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</tr>
<tr>
<td>F + AT</td>
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<tr>
<td>F<em>AT+F</em>AT</td>
<td>.16</td>
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<tr>
<td>Physical C.</td>
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</tr>
<tr>
<td>Feedback</td>
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</tr>
<tr>
<td>F + AT</td>
<td>.15</td>
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<tr>
<td>F<em>AT+F</em>AT</td>
<td>.16</td>
</tr>
<tr>
<td>Strategy</td>
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<tr>
<td>Feedback</td>
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</tr>
<tr>
<td>F + AT</td>
<td>.16</td>
</tr>
<tr>
<td>F<em>AT+F</em>AT</td>
<td>.16</td>
</tr>
</tbody>
</table>
Figure 18. Expectancy of Success as a Function of Performance Feedback by Ability Attribution Interaction (Influence Scores; Method=Scale Rating)

High

\[
Y(\text{success}) = 3.98826 + 0.29473X
\]

Expectancy of Success \((Y)\)

Low

\[
Y(\text{failure}) = 5.33326 - 0.18661X
\]

Figure 19. Expectancy of Success as a Function of Performance Feedback by Typical Effort Attribution Interaction (Influence Scores; Method=Scale Rating)

High

\[
Y(\text{success}) = 4.64639 + 0.20797X
\]

Expectancy of Success \((Y)\)

Low

\[
Y(\text{failure}) = 5.18931 - 0.14525X
\]
On the other hand, significant feedback by influence score interaction effects were found for ability, experimental setup, and physical condition factors when attributions were measured by the percentage assessment method (see Table 25). The proportions of variance accounted for by the main effects and the interaction terms were 19.3 percent ($F = 15.5, p < .001$), 16.7 percent ($F = 13.0, p < .001$), and 16.3 percent ($F = 12.6, p < .001$) for ability, experimental setup, and physical condition respectively in explaining the expectancy of success. The inclusion of the feedback by influence score interaction terms significantly increased the variance explained by additional 4.2 percent ($F = 10.1, p < .01$), 2.2 percent ($F = 5.1, p < .05$), and 1.7 percent ($F = 3.9, p < .05$) for the ability, the experimental setup, and the physical condition factors respectively.

Concerning the ability factor, the inspection of the regression lines for success and failure subjects indicated that high expectancy of success was positively associated with more attributions to the ability factor for success subjects and being negatively associated with for failure subjects (see Figure 20). This result seems to be in line with hypothesis 5(a) again since ability was considered as relatively stable by the subjects in the present study.

Concerning the experimental setup and the physical condition factors, high expectancy of success was negatively associated with more attributions to both attribution factors for success subjects while being positively associated with for failure subjects (see Figure 21 and Figure 22). Since these two attribution factors were considered as relatively unstable by the subjects in the present study (see Table 8), these results seem to be in line with hypothesis 5(a).
Figure 20. Expectancy of Success as a Function of Performance Feedback by Ability Attribution Interaction (Influence Scores; Method=Percentage Assessment)

\[
Y(\text{success}) = 5.39914 + 0.00651X
\]

\[
Y(\text{failure}) = 4.97972 - 0.01675X
\]

Figure 21. Expectancy of Success as a Function of Performance Feedback by Experimental Setup Attribution Interaction (Influence Scores; Method=Percentage Assessment)

\[
Y(\text{failure}) = 4.63525 + 0.00507X
\]

\[
Y(\text{success}) = 5.96845 - 0.05601X
\]
Figure 22. Expectancy of Success as a Function of Performance Feedback by Physical Condition Attribution Interaction (Influence Scores; Method=Percentage Assessment)

Expectancy of Success ($Y$)

High

7 I
6 I
5 I
4 I
3 I
2 I
1 I
0 I

Y(failure) = 4.65033+.00505X

Y(success) = 5.91747-.04067X

Low

10 20 30 40 50 60 70 80 90 100
Attribution to Physical Condition Factor (X)
(Influence Score)

Figure 23. Expectancy of Success as a Function of Performance Feedback by Experimental Setup Attribution Interaction (Stability Scores; Method=Percentage Assessment)

Expectancy of Success ($Y$)

High

7 I
6 I
5 I
4 I
3 I
2 I
1 I
0 I

Y(success) = 5.85191+.04133X

Y(failure) = 4.64966-.00817X

Low

10 20 30 40 50 60 70 80 90 100
Attribution to Experimental Setup Factor (X)
(Stability Score)
interpretation is further supported when the influence scores were transformed to a stability score. As shown in Figure 23 and Figure 24, the stability scores for both attribution factors were positively associated with the expectancy of success for success subjects and negatively associated with the expectancy of success for failure subjects. This result confirms hypothesis 5(a).

Test of Hypothesis 5(b). Hypothesis 5(b) stated that performance expectancy shift will be associated positively with stable attributions to performance feedback. To test this hypothesis, correlation coefficients between expectancy shift and influence scores, and those between expectancy shift and stability scores were obtained (see Table 26). The stability scores of ability (as measured by both scale rating and percentage assessment) and strategy (as measured by scale rating) were found to have significant positive correlations with the expectancy shift. This result is in line with hypothesis 5(b). However, the stability scores of the task characteristics and the experimental setup factors (both as measured by scale rating) were found to have significant negative correlation with the expectancy shift. In addition, the stability scores of experimental setup factor as measured by percentage assessment was again negatively correlated with the expectancy shift. These results seem to be contrary to hypothesis 5(b).

Test of Hypothesis 6. Hypothesis 6 stated that internal attributions for success outcome would be positively associated with the positive affective responses, whereas internal attributions for failure outcome would be positively associated with the negative affective responses. Before testing this hypothesis, a factor analysis
Figure 24. Expectancy of Success as a Function of Performance Feedback by Physical Condition Attribution Interaction (Stability Scores; Method=Percentage Assessment)

| High | 7   | 1   |
|      | Y(success) = 5.31432 + 0.02941X |
|      | 6   | 1   |
|      | 5   | 1   |
|      | Expectancy of Success (Y) |
|      | 4   | 1   |
|      | 3   | 1   |
|      | 2   | 1   |
|      | Y(failure) = 4.5108 - 0.02159X |
|      | 1   | 1   |
|      | 0   | 1   |

Low: 10 20 30 40 50 60 70 80 90 100

Attribution to Physical Condition Factor (X) (Stability Score)

Table 26. Correlation Coefficients Between Expectancy Shift and Attributions in terms of Influence and Stability Scores

<table>
<thead>
<tr>
<th>FACTORS</th>
<th>Scale Rating Method</th>
<th>Percentage Assessment Method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Influence Score</td>
<td>Stability Score</td>
</tr>
<tr>
<td>Ability</td>
<td>-0.107</td>
<td>0.181*</td>
</tr>
<tr>
<td>Imm.Eff.</td>
<td>0.067</td>
<td>0.058</td>
</tr>
<tr>
<td>Tye.Eff</td>
<td>-0.004</td>
<td>0.022</td>
</tr>
<tr>
<td>Task Ch.</td>
<td>0.087</td>
<td>-0.252**</td>
</tr>
<tr>
<td>Ex.Set.</td>
<td>0.060</td>
<td>-0.187**</td>
</tr>
<tr>
<td>Mental</td>
<td>0.014</td>
<td>0.017</td>
</tr>
<tr>
<td>Physic.</td>
<td>0.020</td>
<td>0.041</td>
</tr>
<tr>
<td>Strate.</td>
<td>0.010</td>
<td>0.135*</td>
</tr>
</tbody>
</table>

* p < .05    ** p < .01
on the subjects' affective responses was conducted to check the validity of the classification of positive and negative affective responses. Three factors were retained with eigen values greater than 1.0. The varimax rotation on the factor loadings produced the results shown in Table 27. These three factors accounted for 70.6 percent of variance. Table 27 suggests that the high-loaded responses (over .50) of factor 1 are considered to be failure-oriented negative affective responses while the high-loaded responses (over .50) of factor 2 are considered to be success-oriented positive affective responses. The third factor seems to represent affective responses common to both success and failure.

To test hypothesis 6, correlation coefficients between positive affective responses and internality scores as measured by scale ratings were calculated for the success subjects and those between negative affective responses and internality scores as measured by scale ratings were computed for the failure subjects (see Table 28).

For the success subjects, internal attributions to the ability and the mental condition factors were found to have significant positive correlations with all four positive affective responses (i.e., satisfaction, pride, happiness, competence). Internal attributions to the physical condition factor had significant positive correlations with all of the positive affective responses except competence. Internal attributions to the strategy factor had significant correlations with pride and competence. However, internal attributions to the experimental setup had a negative significant correlation with satisfaction.
Table 27. Varimax Rotated Factor Loadings of 12 Affective Responses

<table>
<thead>
<tr>
<th>Affective Responses</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>satisfied</td>
<td>-.15</td>
<td>.69</td>
<td>-.59</td>
</tr>
<tr>
<td>proud</td>
<td>-.21</td>
<td>.86</td>
<td>-.21</td>
</tr>
<tr>
<td>happy</td>
<td>-.20</td>
<td>.86</td>
<td>-.20</td>
</tr>
<tr>
<td>competent</td>
<td>-.39</td>
<td>.61</td>
<td>.02</td>
</tr>
<tr>
<td>shameful</td>
<td>.81</td>
<td>-.27</td>
<td>.10</td>
</tr>
<tr>
<td>guilty</td>
<td>.80</td>
<td>-.22</td>
<td>.30</td>
</tr>
<tr>
<td>embarrassed</td>
<td>.66</td>
<td>-.35</td>
<td>.45</td>
</tr>
<tr>
<td>angry</td>
<td>.50</td>
<td>-.31</td>
<td>.45</td>
</tr>
<tr>
<td>surprised</td>
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<td>-.05</td>
<td>.45</td>
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<td>relaxed</td>
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<td>.27</td>
<td>-.33</td>
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<td>depressed</td>
<td>.61</td>
<td>-.31</td>
<td>.16</td>
</tr>
<tr>
<td>pitied</td>
<td>.66</td>
<td>-.05</td>
<td>.24</td>
</tr>
</tbody>
</table>

Table 28. Correlation Coefficients Between Internality Scores and Affective Responses for Success and Failure Subjects (Method = Scale Rating)

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>.33***</td>
<td>.03</td>
<td>.06</td>
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<td>.28**</td>
<td>.25**</td>
<td>.08</td>
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<tr>
<td>proud</td>
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<td>.18*</td>
<td>.25*</td>
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<tr>
<td>happy</td>
<td>.24*</td>
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<td>.03</td>
<td>.02</td>
<td>-.02</td>
<td>.20*</td>
<td>.26*</td>
<td>.13</td>
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<tr>
<td>competent</td>
<td>.35***</td>
<td>.00</td>
<td>-.03</td>
<td>-.09</td>
<td>-.08</td>
<td>.19*</td>
<td>.12</td>
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<tr>
<td>shameful</td>
<td>.21*</td>
<td>-.15</td>
<td>-.07</td>
<td>-.04</td>
<td>-.02</td>
<td>.04</td>
<td>.03</td>
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<tr>
<td>guilty</td>
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<td>-.15</td>
<td>-.07</td>
<td>-.12</td>
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<td>-.02</td>
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<tr>
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<td>-.09</td>
<td>.11</td>
<td>-.26*</td>
<td>.07</td>
<td>.03</td>
<td>.13</td>
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</tr>
<tr>
<td>angry</td>
<td>.20*</td>
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<td>-.12</td>
<td>-.15</td>
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<tr>
<td>depressed</td>
<td>.05</td>
<td>-.03</td>
<td>.09</td>
<td>.09</td>
<td>-.03</td>
<td>.18*</td>
<td>.27**</td>
<td>.18*</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>pitied</td>
<td>.23*</td>
<td>-.08</td>
<td>.10</td>
<td>-.01</td>
<td>-.08</td>
<td>-.01</td>
<td>-.00</td>
<td>-.09</td>
<td></td>
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</tr>
</tbody>
</table>

* p < .5  ** p < .1  *** p < .001
For failure subjects, internal attributions to the ability factor were positively associated with shame, guilt, anger, and pity, but not with embarrassment and depression. Internal attributions to mental condition, physical condition, and strategy factors were all positively associated with depression. However, internal attributions to the experimental setup factor were negatively associated with guilt and embarrassment. Internal attributions to the immediate effort, the typical effort, and the task characteristics factors had no significant correlations with any of the positive or negative affective responses.

When the internality scores were measured by the percentage assessment method, only internal attributions to the strategy factor had positive correlation with the positive affective responses in success conditions. In failure conditions, internal attributions to the ability factor were positively associated with guilt, anger, and pity. However, internal attributions to the physical condition factor were negatively associated with guilt and pity (see Table 29).

It appears, therefore, that there are certain attribution factors whose internality scores are positively correlated to some affective responses. It is interesting to note that internality scores for immediate effort and task characteristics were not significantly associated with any of the affective responses when either scale rating or percentage assessment method was used.

If the influence score of each attribution factor is considered as attribution as measured by scale rating (see Table 30), somewhat different results emerged. That is, almost all correlation coefficients between influence scores and positive affective responses for success outcomes were significant. This result indicates that success feedback
Table 29. Correlation Coefficients Between Internality Scores and Affective Responses for Success and Failure Subjects
(Method = Percentage Assessment)

<table>
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<tr>
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<tr>
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* p < .5    ** p < .10    *** p < .001
Table 30. Correlation Coefficients Between Influence Scores and Affective Responses for Success and Failure Subjects  
(Method = Scale Rating)

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* p < .5  ** p < .10  *** p < .001
leads to positive affects regardless of attributions. For failure outcomes, however, there were selective unique relationships. Attribution to a bad strategy was positively related to all negative affects: shame, guilt, embarrassment, anger, depression, and pity. In addition, shame was positively related to attribution to ability. Guilt was positively related to attribution to ability and experimental setup. Embarrassment was positively related to experimental setup. Depression was positively related to immediate effort, mental condition, and physical condition. Pity was positively related to ability. These results suggest the possibility of greater cognitive and affective overlap after success feedback rather than failure feedback as previously documented by Brown and Weiner(1984).

Supplementary Findings

There were some additional findings which were not hypothesized in the present study. There was a significant main effect of performance standard on attributions. Subjects assigned to the comparative condition made more attributions to immediate effort ($F (1, 198) = 5.38, p < .05$), task characteristics ($F (1, 198) = 5.48, p < .05$) and experimental setup ($F (1, 198) = 5.02, p < .05$) factors in terms of influence scores as measured by scale rating method than subjects assigned to the absolute standard condition. As noted earlier, there was not a significant main effect of performance feedback on the attributions to these three factors given the above same measures.

When these influence scores were transformed to internality scores, performance standard had significant main effects on the task characteristics factor and the experimental setup factor. In other
words, subjects assigned to the comparative condition made more internal attributions to the task characteristics factor than subjects assigned to the absolute standard condition \((F\,(1,194) = 3.39, p < .05)\). However, subjects assigned to the absolute standard condition made more internal attributions than subjects assigned to the comparative procedure condition when the experimental setup factor was involved \((F\,(1,197) = 6.35, p < .01)\). As reported earlier, there was a significant feedback by performance standard interaction effect on this latter attribution factor. Only failure subjects made more internal attributions in the absolute standard condition. Success subjects did not make different attributions between the two conditions.

There was no significant main effect of sex on attributions. However, there was a significant feedback by sex interaction effect on influence scores of typical effort attributions \((F = 7.33, p < .01)\). A simple main effect analysis indicated that female subjects attributed their success more to typical effort factor than male subjects. In addition, there was a significant sex by performance standard interaction effect on typical effort attribution as measured by percentage assessment method \((F = 5.16, p < .05)\). It was found that female subjects made more typical effort attributions in the absolute standard condition than male subjects, but there was no difference between male and female subjects in the comparative procedure condition. As for the task characteristics factor, there was a significant feedback by sex interaction effect on influence scores as measured by scale rating \((F = 4.3, p < .05)\). For success outcomes,
female subjects made more task characteristics attribution than male subjects.

On the other hand, there was a significant interaction effect of feedback by internality scores for the ability factor as measured by the scale rating method on the expectancy of success. The main effects and the feedback by internality scores for ability factor interaction term accounted for 20.8 percent of variance in explaining the expectancy of success (F=17.1, p < .001) while the inclusion of the variance explained by an additional 5.3 percent (F=13.2, p < .001). The inspection of the regression lines for the success and the failure subjects indicates that the expectancy of success was positively associated with internal attributions to ability for success subjects and associated negatively with internal attributions to ability for the failure subjects.

The following chapter will summarize and discuss the findings as related to the six hypotheses tested in the study.
CHAPTER V
DISCUSSION

The purpose of this study was to examine how performance feedback interacts with self-esteem and the types of performance standard to affect attributions which, in turn, affect performance expectations and affect. A series of canonical analyses revealed that there existed a meaningful significant relationship of performance feedback and the feedback by self-esteem interaction term with attributions. Then, a series of regression analyses tested experimental hypotheses 1, 2, 3, 4, and 5(a). Finally, a series of correlational analyses tested hypotheses 5 and 6. This chapter summarizes and interprets the results of the hypotheses testing described in the previous chapter.

Discussion of Findings as Related to Hypothesis 1

First of all, the results of the present study provided partial support for the predictions of hypothesis 1 concerning the self-serving attributions for success and failure. The findings showed that success subjects perceived ability, typical effort, mental condition, physical condition, and strategy factors as more influential to their outcomes than did failure subjects when subjects were asked to rate the perceived degree of influence independently of each other factor (i.e., influence scores as measured by scale rating). These five factors were perceived by the subjects as internal in the present study as reported earlier. The transformation of these influence scores to internality
scores revealed the same pattern of results. Internality scores were assumed to represent the subjects' own perceptions on the dimensionality of attributions, that is, locus of causality (i.e., internal or external). Thus, these results confirm self-serving phenomenon.

However, success and failure subjects were not significantly different in terms of both influence and internality scores for immediate effort, task characteristics, and experimental setup factors. It should be noted that these three factors were considered by the subjects as the less internal factors compared to the above five factors. Thus, it may be argued that self-serving attribution phenomenon is dependent on a particular set of attribution factors, especially more internal factors.

This dependency of the self-serving attribution on the particular factors has not typically been reported in the previous research since most research collapsed responses across different factors to form a global measure of internality score which was calculated by subtracting the sum of the attributions to external factors (i.e., task difficulty and luck) from the sum of the attributions to internal factors (i.e., ability and effort). However, Fontaine (1975), Tillman and Carver (1980), and Marsh et al. (1984) did report that self-serving attribution phenomenon was limited to internal causes (e.g., ability and effort) and was not found for attributions to external causes (e.g., task difficulty and luck). Their findings are in line with those in the present study.

When subjects were asked to indicate the relative importance of influence of each attribution factor (i.e., influence scores as
measured by percentage assessment), however, success subjects perceived only ability and typical effort as more influential to their outcomes and failure subjects perceived immediate effort, task characteristics, experimental setup, mental condition, physical condition, and strategy as more influential. Since immediate effort, mental condition, physical condition, and strategy were considered as relatively internal factors by the subjects in the present study, it may be argued that failure subjects also attribute their outcomes to some internal factors contrary to the self-serving attribution hypothesis.

When these influence scores were transformed to internality scores to represent the unidimensional internal attributions, however, success subjects were found again to make more internal attributions than failure subjects concerning ability, typical effort, and experimental setup factors. The rest of the attribution factors except physical condition did not make any significant differences in internality scores between success and failure subjects.

Two explanations can be offered to account for the difference between the results from scale rating and percentage assessment methods. First, the ipsative nature of the percentage assessment method may have forced success subjects to consider some internal factors such as immediate effort, mental condition, physical condition, and strategy as less influential compared to other internal factors such as ability and typical effort while inducing failure subjects to take those four internal factors as their attributions in addition to the relatively external factors such as task characteristics and experimental setup (Elig & Frieze, 1979; Stevens & Jones, 1976). Second, in relation to the first explanation, failure
subjects may choose relatively unstable factors as their attributions when there are multiple alternatives which are considered dominantly internal and success subjects may choose relatively stable factors given the same situation. In the present study, immediate effort, mental condition, physical condition, and strategy were considered by the subjects more unstable than ability and typical effort as shown in Figure 3 in Chapter 4. Arkin and Maruyama's (1979) finding supports this explanation. They found that success subjects attributed their outcomes more to internal and stable factors than did failure subjects.

In sum, it may be argued that success subjects tend to attribute their outcomes to relatively stable factors while failure subjects tend to attribute their outcomes to relatively unstable factors when they were forced to distribute the responsibility for the outcomes among the multiple attributions which consist of internal and external, but dominantly internal factors.

Discussion of Findings as Related to Hypothesis 2

Hypothesis 2 was concerned with how self-esteem moderates the relationship between performance feedback and attributions. The findings in the present study partially supported hypothesis 2. That is, internal attributions were positively associated with self-esteem for success subjects concerning only particular factors. There was disagreement how failure subjects attributed their outcomes when these attribution factors were involved. The results were different depending on which attribution factor was involved.

Chronic self-esteem was found to be positively associated with attributions of success outcomes to typical effort in terms of both
influence and internality scores as measured by scale rating and being negatively associated with attributions of failure outcomes to typical effort factor given the same measures. Within the region of significance and research interest, success subjects made more internal attributions than failure subjects. However, it was relatively more internal at the higher level of the chronic self-esteem scores. Nonetheless, failure subjects did not make more internal attributions than success subjects at any level of the chronic self-esteem within the region of significance and research interest. This finding is in agreement with self-enhancement theory explanation and in disagreement with self-consistency theory explanation.

When task-specific self-esteem was involved, the same pattern of results was found concerning the internality scores of the typical effort factor. That is, success subjects made more internal attributions than failure subjects along the continuum of task-specific self-esteem within the region of significance and research interest. This tendency confirms again self-enhancement theory explanation. Similar result was found by Adler (1980).

On the other hand, task-specific self-esteem was found to be positively associated with attributions of success outcomes to ability factor in terms of both influence and internality scores as measured by scale rating while being negatively associated with attributions of failure outcomes to ability factor given the same measures. Within the region of significance and research interest, success subjects attributed their outcomes more internally at the higher level of task-specific self-esteem and failure subjects attributed their
outcomes more internally at the lower level of task-specific self-esteem.

The same tendency was found for attributions to ability factor in terms of internality scores as measured by percentage assessment method. These results are in agreement with self-consistency theory explanation. Arkin, Appleman, and Burger (1980), Fitch (1970), and Kuiper (1978) found the similar results. It should be noted, however, that the proportion of the subjects who belonged to the reversal trend of self-serving attribution phenomenon in the present study was at most only 6.3 percent. On the other hand, the proportion of the subjects who attributed their success outcomes more internally than failure outcomes was at least 88.5 percent among all subjects in the present study.

If research range of interest covers extremely low self-esteem subjects (say, below 17 for ability factor in Figure 7 and below 12.7 for typical effort factor in Figure 9), however, extrapolation from regression lines indicates that self-consistency theory may be applied to those subjects, thus, to the wider range of self-esteem level. Therefore, it may be concluded from the above results that the debate between the self-enhancement theory explanations and self-consistency theory explanations for low self-esteem people should consider which range of research interest is involved. If extremely low level of self-esteem is included in the region of research interest, self-consistency theory is likely to work.

Another explanation for the present findings is that the moderating effect of self-esteem on the feedback-attribution relationships appears to be more complex. In other words, specific factors of attribution interact with feedback and self-esteem in
different ways. That is, as shown in this study, ability attributions may provoke tendency for self-consistency theory explanation while typical effort attribution may provoke tendency for self-enhancement theory explanation.

Concerning the task characteristics factor, contradictory results were found. In terms of influence scores as measured by the scale rating method, high task-specific self-esteem subjects attributed their success outcomes more to the task characteristics factor than failure outcomes and low task-specific self-esteem subjects attributed their failure outcomes more to the task characteristics factor than success outcomes. If the task characteristics factor can be considered as external, this result is totally contrary to hypothesis 2. In the present study, however, task characteristics factor was perceived as only modestly external by the subjects.

When influence scores for this factor were transformed to internality scores, the result was again contrary to hypothesis 2. That is, success subjects made more internal attributions at the lower level of task-specific self-esteem while failure subjects made more internal attributions at the higher level of task-specific self-esteem even though the range for the higher level of task-specific self-esteem was small (only 4.2 percent of the total subjects belonged to this range). The reason for this conflicting result seems to be due to the complex concept of task characteristics factor. As suggested by Weiner (1983a), there has been some confusion about the locus classification of task characteristics since task attribution factor has both subjective and objective characteristics. Especially, the mixing of task difficulty and task interest concepts in one category - task
characteristics – might have accelerated the confusion about the locus classification in the present study.

Concerning the physical condition factor in terms of influence scores as measured by percentage assessment, failure subjects made more attributions to the physical condition factor at the higher level of task-specific self-esteem and success subjects made more attributions to the physical condition factor at the lower level of task-specific self-esteem. Since physical condition was perceived as internal by the subjects in the present study, this result seems to be contrary to hypothesis 2. The transformation of influence scores to internality scores produced the same results.

However, the consideration of the method of how physical condition attribution was measured may require somewhat different interpretation. As noted earlier, the ipsative nature of the percentage assessment method might have forced failure subjects to pick relatively unstable factors among internal and external factors. This explanation is based on excuse theory (Mehlman & Snyder, 1985). According to excuse theory, a particular excuse will be considered effective only when the actor believes that it will be perceived as a reasonable and viable explanation for the negative outcome. In fact, under certain circumstances it is likely that attribution to totally stable external factors (e.g., experimental setup) may not be perceived as reasonable and viable explanation for the negative outcomes. In this case, unstable internal factors (e.g., physical condition) can be the best alternatives to the stable external factors to break or weaken the responsibility link that otherwise would associate the person's ability
to the negative outcome. The same line of reasoning can be applied to the success subjects.

Nevertheless, it should be noted that the variance explained by the total regression model was low in explanations of internality scores when those task characteristics and physical condition factors were involved. The main effects and the feedback by task-specific self-esteem interaction terms accounted for only 6.1 percent of the variance in explanations of internality scores when task characteristics factor was involved while the above model accounted for 26.2 percent and 18.2 percent for ability and typical effort factors respectively given the same measures (see Table 21 in the previous chapter). One the other hand, the main effects and the feedback by task-specific self-esteem interaction terms accounted for only 10.8 percent of the variance in explanations of internality scores for physical condition factor, compared to 21.3 percent for ability factor given the same measures (see Table 22 in the previous chapter). Therefore, it may be suggested that the results from the task characteristics and physical condition factors may be less meaningful than those from ability and typical effort factors.

Discussion of Findings as Related to Hypothesis 3

At the multivariate level, hypothesis 3 was not confirmed. However, separate multiple regression analysis for each attribution factor produced two significant interaction terms: for typical effort and experimental setup factors in terms of internality scores as measured by scale rating method. For both attribution factors, success subjects did not make different attributions in the comparative and
absolute standard conditions. However, failure subjects did make different attributions when those two factors were involved. For the typical effort factors, failure subjects made more internal attributions in the comparative procedure condition than in the absolute standard condition. This result is contrary to the prediction of hypothesis 3. For the experimental setup factor, failure subjects made more external attributions in the comparative procedure condition than in the absolute standard condition. This tendency confirms hypothesis 3.

The deviation of typical effort attribution from hypothesis 3 may be explained by the concept of "double-edged sword" derived from self-worth theory (Covington & Omelich, 1979). According to the concept of the double-edged sword, having tried hard and still doing a poor job is the evidence of low ability, but without exerting significant effort ability estimates will remain largely unaffected in case of failure. For the failure subjects in the comparative procedure condition, internal attribution to typical effort might have been considered as more reasonable and viable excuses for negative outcomes since attribution to low level of typical effort may help failure subjects avoid being implicated to low level of ability, thus by redirecting the causes of failure to external factors. In other words, internal attribution to low level of typical effort does not become a potential threat to the individual, since a combination of lack of typical effort (i.e., not having been trying) and failure invite causal attributions to other external factors rather than ability factor.

In general, although subjects were manipulated to be aware of the performance standard as either comparative or absolute, this
manipulation did not overwhelmingly influence subjects' attributions. Four explanations can be offered concerning this lack of general support for hypothesis 3.

First, some reports indicate that females are less likely to be involved in competition, thus may not be affected cognitively by competition (Stein & Bailey, 1973). To test this proposition, separate data analyses were conducted for each sex group. However, no significant interaction effects for any attribution factor were found from either sex group.

Second, although the effectiveness of the performance standard manipulation was confirmed by manipulation check as reported earlier, subjects' subjective perception on the continuum of the degree of competitiveness regarding the evaluation situation may be a better moderator in affecting their attributions. Therefore, additional series of hierarchical regression analysis were conducted with performance standard variable being measured by subjects' own ratings for their reactions to the manipulations (1 = not at all, 7 = very much interpersonally competitive). However, there were no significant interaction effects for any attribution factor.

Third, artificial laboratory setting in the present study might have caused the lack of overwhelming evidence for the moderating role of performance standard. If the performance evaluation situation had been of more personal interest and importance, the performance standard variable may have been more salient in making attributions.

Fourth, other variables such as performance feedback and self-esteem may prevail over performance standard variable. Thus, it is
possible that performance standard is not a salient factor which affects subjects' attributions.

Even though hypothesis 3 was not overwhelmingly supported in the present study, the main effects of performance standard for the influence scores of immediate effort, task characteristics, and experimental setup factors, and for the internality scores of task characteristics and experimental setup factors are of interest here. In terms of influence scores as measured by scale rating, subjects in the comparative procedure condition perceived immediate effort, task characteristics, and experimental setup factors more influential than subjects in the absolute standard condition regardless of performance feedback. Since these three factors were perceived by the subjects as relatively external in the present study, it may be suggested that comparative procedure may provoke more external attributions. The transformation of influence score for experimental setup factor to internality score confirms this suggestion while those for task characteristics factor does not.

Discussion of Findings as Related to Hypothesis 4

Hypothesis 4 was not confirmed at the multivariate level of analysis. The separate multiple regression analysis for each attribution factor did not produce any supportive evidence. Thus, further elaboration would not be fruitful in the present study.

Discussion of Findings as Related to Hypothesis 5(a)

Concerning hypothesis 5(a), there was a significant interaction effect of feedback by attributions to ability and typical effort in
terms of influence scores as measured by scale rating method. For those two attribution factors, the expectancy of success was positively associated with those influence scores for success outcomes. However, the expectancy of success was negatively associated with those influence scores for failure outcomes. When the influence scores were transformed to stability scores, there were no significant interaction terms. This result seems to raise some doubt on the role of the perceived stability dimension in explaining the expectancy of success. One explanation for this confusing result seems to be that all eight attribution factors were considered as somewhat unstable by the subjects in this study even though ability and typical effort were perceived as relatively less unstable among them. However, it may be suggested that, for success outcomes there exists a positive correlation between the expectancy of success and attributions to ability and typical effort factors which are presumably considered as stable while there exists a negative correlation between them for failure outcomes. Even though not hypothesized, internal attributions to ability factor as measured by scale rating were found to have positive correlations with the expectancy of success for success outcomes while having negative correlations with the expectancy of success for failure outcomes.

Indeed, there were significant feedback by stability scores interaction effects on the expectancy of success for experimental setup and physical condition factors when attributions were measured by percentage assessment method. Stable attributions to both factors as represented by stability scores were positively associated with the expectancy of success for success subjects. For failure subjects, those
stable attributions were negatively associated with the expectancy of success. These results are in line with the prediction of hypothesis 5(a).

Discussion of Findings as Related to Hypothesis 5(b)

Concerning hypothesis 5(b), it was found that the stable attributions to ability factors as measured by both a scale rating and a percentage assessment method and strategy factors as measured by a scale rating method had significant positive correlations with the expectancy shift. This result confirms hypothesis 5(b). However, the stable attributions to task characteristics factor as measured by a scale rating method and experimental setup factor as measured by a scale raring and a percentage assessment method had significant negative correlation with the expectancy shift. These confusing results raise some doubt on the concept of the expectancy shift. Some authors (e.g., Porac, Ferris, & Fedor, 1983) hypothesized that there would be a negative correlation between stable attribution and expectancy shift, which is opposite direction to Weiner's (1980) formulation. It seems that stable attributions to internal factors (e.g., ability and strategy) are positively associated with the expectancy shift while the stable attributions to external factors (e.g., task characteristics and experimental setup) are negatively associated with expectancy shift.

Discussion of Findings as Related to Hypothesis 6

The internal attributions of success outcomes to ability and mental conditions as measured by the scale rating method were found to
be positively associated with all four positive affective responses: satisfaction, pride, happiness, and competence. The internal attributions of success outcomes to physical condition were positively associated with satisfaction, pride, and happiness, but not with competence. The internal attributions of success outcomes to strategy were positively associated with only pride and competence. However, the external attribution of success outcomes to experimental setup were also positively associated with satisfaction, but not with pride, happiness, or competence.

The internal attributions of failure outcomes to ability as measured by scale rating were positively associated with shame, guilt, embarrassment, anger, and pity, but not with depression. Depression was positively associated with the internal attribution of failure outcomes to mental condition, physical condition, and strategy. However, the external attributions of failure outcomes to experimental setup were positively associated with guilt and embarrassment.

Surprisingly, the internal attributions to immediate effort, typical effort, and task characteristics were not significantly correlated with any positive or negative affects. Only the influence score of immediate effort was positively related to depression for failure subjects.

Overall Summary of Findings

(1) Hypothesis 1 was partially supported by the data. The findings showed that success subjects made more internal attributions to ability, typical effort, mental condition, physical condition, and strategy factors as measured by a scale rating method than failure
subjects. However, success and failure subjects did not make any significant difference in the attributions in terms of immediate effort, task characteristics, and experimental setup factors. This finding indicates that the self-serving attribution phenomenon may be dependent on particular factors, especially internal factors.

When a percentage assessment method was used to measure attributions, success subjects made more internal attributions to ability, typical effort, and experimental setup factors than failure subjects. However, there was no difference in the attributions in terms of other factors between the two groups. This indicates that success subjects may attribute their outcomes to more stable factors than failure subjects when they were forced to distribute the responsibility for the outcomes among multiple attributions which dominantly consist of internal factors.

(2) Hypothesis 2 was partially supported by the data. The moderating effect of self-esteem was confirmed only for particular attribution factors. Internal attributions to typical effort as measured by a scale rating method were positively associated with chronic self-esteem for success subjects and negatively associated with for failure subjects. However, there were no significant interaction effects on other attribution factors.

Internal attributions to ability factor as measured by both a scale rating and a percentage method were positively associated with task-specific self-esteem for success subjects and negatively associated with for failure subjects. For the task characteristics factor as measured by a scale rating and the physical condition factor
as measured by a percentage assessment, however, subjects made more internal attributions.

Concerning the debate between the self-enhancement theory and self-consistency theory explanations for low self-esteem subjects, it is suggested that self-consistency theory also works if extremely low level of self-esteem is included in the region of research interest. Another suggestion is that specific attribution factors interact with feedback and self-esteem in a different way. Ability attributions may provoke self-consistency theory explanation and typical effort attributions may provoke self-enhancement theory explanation.

In addition, it was found that task-specific self-esteem had more predictive power than chronic self-esteem in terms of variance explained in predicting self-serving attributions.

(3) Hypothesis 3 was not overwhelmingly confirmed. Success subjects did not make different attributions for any of the factors between the comparative and the absolute standard conditions. However, failure subjects made more internal attributions as measured by a scale rating method in the comparative procedure condition than in the absolute standard condition contrary to the hypothesis. As hypothesized, however, failure subjects made more external attributions to experimental setup factors as measured by a scale rating method in the comparative condition than in the absolute standard condition.

(4) There was not any evidence that supported hypothesis 4.

(5) Hypothesis 5(a) was partially supported. The expectancy of success was positively associated with the attributions to ability and typical effort factors as measured by a scale rating method for success subjects and negatively associated with those for failure subjects.
The expectancy of success was positively associated with the stable attributions to experimental setup and physical condition factors as measured by a percentage assessment method for success subjects and negatively associated with for failure subjects.

(6) There were conflicting findings concerning the hypothesis 5(b). The expectancy shift had significant positive correlations with the stable attributions to ability and strategy factors and negative correlations with those to task characteristics and experimental setup factors. It is suggested that the expectancy shift may be positively associated with the stable attributions to internal factors and negatively with those to external factors.

(7) Supporting for hypothesis 6 was limited to some particular factors. The internal attributions to ability and mental condition factors as measured by a scale rating method for success subjects were positively associated with all four positive affective responses (i.e., satisfaction, pride, happiness, and competence). The internal attributions to ability factor as measured by the scale rating method for failure subjects were positively associated with the negative affective responses such as shame, embarrassment, anger, depression, and pity. However, the external attributions to experimental setup factor as measured by a scale rating method for failure subjects were positively associated with guilt and embarrassment. It is suggested that there are certain attribution factors whose internality scores are positively correlated with some affective responses. The data also indicate that there is more possibility of cognitive and affective overlap after success than failure feedback.
CHAPTER VI

CONCLUSION

This chapter deals with an integration of the findings and the interpretations in terms of theory and practical implications. In addition, the limitations of the study and future research areas are suggested.

Implications of the Findings

This study has provided evidence for the existence of self-serving phenomenon in the context of formal performance evaluation feedback. Moreover, the moderating role of self-esteem in self-serving attribution was confirmed in this study even though it was limited mainly to ability and typical effort factors. It was found that high self-esteem subjects made more internal attributions for success outcomes than low self-esteem subjects and low self-esteem subjects made more internal attributions for failure outcomes than high self-esteem subjects. It was also found that low self-esteem subjects sometimes attributed their failure outcomes more internally than their success outcomes.

There are surprisingly few studies concerned with the effects of this reversal or lack of self-serving attribution by low self-esteem people on their subsequent cognitive and affective responses. The
The present study provides evidence that the more internal attributions to the ability factor people make for their failure outcomes, the more they feel shameful, guilty, embarrassed, angry, and pitied. In addition, the more internal attribution to mental condition, physical condition, and strategy factors for failure outcomes, the more depressed. This finding suggests that self-serving attributions are associated with less negative affects. This finding is in line with some early evidence documented by Nicholls (1975), Riener (1975), and Weary (1980). Klein, Fencil-Morse, and Seligman (1975) made similar suggestion indicating that learned helplessness was not exhibited when depressives were manipulated to make attribution for failure to an external cause (task difficulty). They also provided evidence that when depressed subjects were manipulated to make attribution for failure to an internal cause (ability), subsequent performance was impaired.

In addition, the present study suggests that attributions for failure outcomes to some stable and internal factors such as ability are negatively associated with the expectancy of success. Thus, it may be suggested that low self-esteem people's stable and internal attributions to failure may lower their sense of self-efficacy expectations (Bandura, 1977), which should have an inhibitory effect on their subsequent performance (Brief & Aldag, 1981). According to Bandura (1982), people often do not behave optimally not because they do not know full well what to do, but because they judge themselves inefficacious and imagine potential difficulties as more overwhelming than they really are. In this sense, low self-esteem people's performance could be improved if they changed their reversal trend or lack of self-serving attributions (Brookner & Guare, 1983).
Taken together, the present study provides empirical evidence that low self-esteem people's internal attributions for failure outcomes may induce the negative affects and impair self-efficacy expectations which may in turn reduce subsequent performance. One practical implication of this finding for performance evaluation and the feedback process in organizations is that managers as appraisers would be well advised to consider appraisees' level of self-esteem and direct unrealistic attributions toward more realistic sources. In this sense, descriptive, specific feedback which provides more information about the likely causes of performance should be given to appraisees rather than general evaluative feedback. Without descriptive feedback, appraisees may misattribute the determinants of performance and develop unrealistic expectancies (Taylor, Fisher, & Ilgen, 1984). Dweck (1975) was able to decrease quitting after negative feedback by teaching helpless children to attribute failure to an unstable factor (lack of effort) in an experimental problem-solving situation. Martinko and Gardner (1982) have suggested overall strategies for minimizing organizationally induced helplessness. But, more elaboration of this issue is beyond the scope of this study.

On the other hand, even though the moderating role of performance standard variable was not significant at the multivariate level of analysis, one tentative suggestion may be made based on the separate multiple regression analysis. That is, failure subjects made more external attributions to experimental setup factor in the comparative procedure condition than in the absolute standard condition. However, this external attribution of failure outcomes to experimental setup factor made subjects feel more guilty and embarrassed. This result
suggests that people tend to feel more guilty and embarrassed when they fail in competition even if they externalize their attributions.

**Limitations of the Study**

The most apparent limitation of the present study in terms of the obtained findings and generalization seems to be associated with its nature of experimental setting. To succeed in a proofreading task to be selected as a senior proofreader might not have been realistic enough for participants to be fully involved in the task and generate cognitive and affective responses. A real life situation such as college exam or admission to a graduate program would perhaps produce more meaningful and generalizable data.

The proofreading task continued only for 15 minutes. This short time period might have affected the attributions made. In the present study, for example, immediate effort attribution was barely found to be significantly related to other variables. The duration of the task may not have been long enough for immediate effort to be perceived as an important factor in determining the cause of performance.

Another limitation would be the possible confounding of the performance standard manipulation. Performance standard manipulation for absolute standard condition was established by testing subjects on a proofreading task in 10 groups of average 10 subjects each. Even if they were told that those who detected at least 75 percent of errors would be successful, they might have been affected by the nonverbal behaviors of other subjects participating together in the same group. Testing each subject separately would be one way to remove the possible confounding effect even though it might be time-consuming and costly.
However, it should be noted that performance evaluation in real organizational settings is most frequently concerned with individuals working together in the same group. Thus, testing subjects in groups is more realistic than testing subjects individually.

Conclusion

The primary goal of the present study was to provide the empirical evidence for self-serving attribution phenomenon and the potential role of self-esteem and performance standard in moderating the impact of performance feedback on the self-serving attribution, which in turn affect performance expectation and affects. The results of the present study did not confirm the moderating role of performance standard, but did confirm the main effect of performance feedback and the feedback by self-esteem interaction effect on attributions. These attributions were found to affect performance expectation and affects. Some of the approaches taken in the present study were different from those taken in the previous studies.

First, to enhance the validity of this study, a pilot study was conducted to generate a complete and relevant list of causes using open-ended questionnaire. This procedure generated eight attribution factors: ability, immediate effort, typical effort, task characteristics, experimental setup, mental condition, physical condition, strategy. The average number of factors each subject generated was 2.97. It is interesting to note that when these eight attribution factors were suggested to subjects in the main experimentation, a majority of subjects indicated that these factors altogether influenced their performance feedback (70 percent in the
scale rating and 53.5 percent in the percentage assessment). However, only a few factors (i.e., ability and typical effort) were found to be differentially perceived by the subjects in terms of attributions depending on the feedback conditions and subjects' self-esteem scores.

Second, to capture subjects' own classification of eight attribution factors on the dimensions of locus and stability, Russell's (1982) causal dimension scale was administered. Mental condition, physical condition, ability, typical effort, strategy, and immediate effort were perceived relatively internal. Task characteristics and experimental setup were perceived relatively external. However, every factor was perceived unstable. This result is somewhat different from Weiner et al.'s (1971) original suggestion.

By multiplying the perceived dimensional classification score (score from Russell's causal dimension scale) by the conventional attribution rating score (influence score), derived internality and stability scores were calculated in the study. These derived internality and stability scores are more conservative than influence scores in terms of testing the self-serving attribution phenomenon since the former scores consider the subjects' perceived dimensionality and the latter scores do not. Even with these conservative measurement, the existence of the self-serving phenomenon was confirmed in the present study.

Third, self-esteem was measured by both chronic and task-specific self-esteem scales. It has been suggested that researchers concentrate on associations between organizational variables and task-specific self-esteem rather than global self-esteem (Loeke et al., 1981; Tharenou, 1979). In the present study, it was found that the amount of variance
accounted for when the task-specific self-esteem was involved was much more than when the chronic self-esteem was involved in explaining self-serving attributions.

Fourth, self-esteem variable was treated as continuous variable rather than categorical variable. As a result, a new attempt has been made to explain under what conditions self-enhancement theory or self-consistency theory works. It was found that the range of research interest played a critical role in determining which theory is more plausible in explaining the self-serving attribution phenomenon. In other words, the more extremely low level of self-esteem is considered, the more likely the self-consistency theory works.

Fifth, to test the significance of the interaction terms, a series of hierarchical regression analysis were conducted. Hierarchical regression analysis tests whether the moderator variable interacts with the independent variable in determining the dependent variable. Thus, this procedure was appropriate to test the research question of the present study (Arnold, 1982).

Suggestions for Future Research

In relation to the application of the results from the present study to effective feedback process, one area for future research would be the investigation of the intercausality pattern among attribution factors. Porac (1981) has already proved that students retrospectively perceived attribution factors as having interacted with one another to affect their exam performance, while other researchers have provided useful methodology (e.g., Axelrod, 1976; Bougon, 1983; Bougon, Weick, & Binkhorst, 1977; Ford & Hegarty, 1984).
Understanding of this cognitive map of intercausality pattern is important in controlling performance. In other words, performance feedback, to be useful for control, should include the relations which represent the determinants of the variable to be controlled (Weick, 1969). Tod and Hammond (1965) also suggested that performance feedback providing information about the linear relations between a variable to be controlled and the variables which affect this control variable may improve performance and control in comparison to the case where only feedback outcome is provided.
APPENDIX A

Instructions to Participants

We are conducting an experiment which investigates the determinants of human communication capabilities. The inventory attached at the end of this instruction is the first step in our experiment. The inventory is a 37 item forced-choice adjective pair scale which consists of a list of personality characteristics. We would like you to fill out this form to describe yourself.

Completion of this inventory is voluntary. If you complete the scale, you may be contacted later to see if you would be interested in participating in the subsequent phase of the experiment, for which you would receive an experimental credit. You are free to withdraw from this experiment at any time.

The subsequent phase of the experiment consists of some proofreading task and filling out questionnaires. It will take about an hour to finish all the procedures necessary in the experiment.

Please write down the last four digits of your social security number below so that we can keep all of the subsequent responses from each individual together. Do not sign your name anywhere. Your responses are strictly confidential and will not be seen by the instructor of your class. Your responses will be used only as part of a group. Be sure to answer all the items as honestly as you can.

1) The last four digits of your social security number:_______
2) Schedule - Place an "X" in the box for the hours in which you know you will be available. Remember that the subsequent phase of our experiment will last about an hour.

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Thank you for your assistance.
APPENDIX B

Ghiselli's Self-Assurance Scale

The purpose of this inventory is to obtain a picture of the traits you believe you possess, and to see how you describe yourself. There are no right or wrong answers, so try to describe yourself as accurately and honestly as you can.

(A) In each of the pairs of words below, check the one you think most describes you.

1. __understanding
   ___thorough

2. __loyal
   ___dependable

3. __unaffected
   ___alert

4. __sharp-witted
   ___deliberate

5. __kind
   ___jolly

6. __enterprising
   ___intelligent

7. __progressive
   ___thrifty

8. __thoughtful
   ___fair-minded

9. __sociable
   ___steady

10. __pleasant
    ___modest

11. __responsible
    ___reliable

12. __dignified
    ___civilized

13. __imaginative
    ___self-controlled

14. __sympathetic
    ___patient

15. __stable
    ___foresighted

(B) In each of the pairs of words below, check the one you think least describes you.

16. __shy
    ___lazy

17. __immature
    ___quarrelsome

18. __unfriendly
    ___self-seeking

19. __despondent
    ___evasive

20. __weak
    ___selfish

21. __fussy
    ___submissive
19. __ conceited __ infantile
    __ oilty
20. __ shallow __ stingy
21. __ unstable __ frivolous
    __ dreamy
22. __ dependent
23. __ apathetic __ egotistical

(C) Background Information
Sex: male____ female_____ Age:_____
APPENDIX C

Task-Specific Self-Esteem Scale

Instructions: Read each question carefully. For each question, circle the number that has the most to do with your proofreading task experience. There are no right or wrong answers. Please be sure to answer all the questions.

1. No one knows the proofreading task better than I do.
   1  2  3  4
   strongly agree  strongly disagree

2. Even though the proofreading task here could be rewarding, I am frustrated and find motivation continuing only because of my experimental credit.
   1  2  3  4
   strongly agree  strongly disagree

3. I do not know as much as other participants in this study do concerning the proofreading task.
   1  2  3  4
   strongly agree  strongly disagree

4. Unfortunately, an individual's worth often passes unrecognized no matter how hard he or she tries.
   1  2  3  4
   strongly agree  strongly disagree

5. I would make a fine model for an apprentice to emulate in order to learn the proofreading skills he or she would need to succeed.
   1  2  3  4
   strongly agree  strongly disagree

6. If anyone here can find the answer, I'm the one.
   1  2  3  4
   strongly agree  strongly disagree

7. Sometimes I feel like I'm not getting anything done.
   1  2  3  4
   strongly agree  strongly disagree

8. My talents, or where I can concentrate my attention best, are found in areas not related to this proofreading task.
   1  2  3  4
   strongly agree  strongly disagree
9. Considering the time spent on the proofreading task in the past, I feel thoroughly familiar with my proofreading task in this study.

   1  2  3  4
strongly agree  strongly disagree

10. I honestly believe I have all the skills necessary to perform the proofreading task well.

   1  2  3  4
strongly agree  strongly disagree

11. This proofreading task makes me tense and anxious.

   1  2  3  4
strongly agree  strongly disagree

12. Mastering this proofreading task means a lot to me.

   1  2  3  4
strongly agree  strongly disagree
APPENDIX D
Pilot Test Open Ended Questionnaire

PERFORMANCE FEEDBACK

We are pleased to inform you that you met our performance standard. You are entitled to be called as "senior proofreader" in our study.

QUESTIONNAIRE

Instructions: Why do you think you succeeded and were selected as a senior proofreader in this study? Please list any important causes you may consider in explaining your success. You may try to think what helped you succeed in this proofreading task and selection procedure context.

1. ____________________________
2. ____________________________
3. ____________________________
4. ____________________________
5. ____________________________
6. ____________________________
7. ____________________________
8. ____________________________
9. ____________________________
10. ____________________________

Instructions: Now take all the causes you have listed above and rank order them on the basis of relative importance. Please indicate the number assigned to each cause above in order of relative importance.

Most effect on my success       Least effect on my success

_____  _____  _____  _____  _____  _____  _____  _____  _____  _____
PERFORMANCE FEEDBACK

We regret that you failed to meet our performance standard. You are not entitled to be called as "senior proofreader" in our study.

QUESTIONNAIRE

Instructions: Why do you think you failed and were not selected as a senior proofreader in this study? Please list any important causes you may consider in explaining your failure. You may try to think what made you fail in this proofreading task and selection procedure context.

1. ____________________________________________
2. ____________________________________________
3. ____________________________________________
4. ____________________________________________
5. ____________________________________________
6. ____________________________________________
7. ____________________________________________
8. ____________________________________________
9. ____________________________________________
10. ____________________________________________

Instructions: Now take all the causes you have listed above and rank order them on the basis of relative importance. Please indicate the number assigned to each cause above in order of relative importance.

Most effect on my failure

Least effect on my failure

______ ______ ______ ______ ______ ______
APPENDIX E

Cover Story for Main Experiment

In the first phase of our study, we are interested in evaluating your proofreading performance. The proofreading task is to check for errors in sentence structure, spelling, punctuation, capitalization, and grammar as well as typographical mistakes. Your task in this study is to detect such errors embedded in a three-page manuscript within 15 minutes.

Why Do We Care About Proofreading?

Previous research has repeatedly shown that the written business communications by persons rating high on this task are more effective than those by persons who do not have a high rating. In this study, we want to prove that your successful proofreading and effective business writing go hand in hand, both being the important determinants of your performance in supervising other's writing.

What Do We Do With Your Proofreading Performance?

First of all, we want to distinguish between success and failure performers in a proofreading task. The purpose of this distinction is to select those who are potentially more capable of supervising others' writing. The success performers will be entitled to be called the "senior proofreaders" who will be assigned to positions to help check others' writing in the subsequent phase of this study. The failure
performers will be asked to write short business report which will be checked by the "senior proofreaders" in the subsequent phase of this study. The specific instructions for the subsequent phase of this study will be given later.

Definition of Your Success: How Do We Select "Senior Proofreaders?"

We will check and evaluate each participant's actual performance in terms of the number of the errors correctly detected and, then, order all participants from highest to lowest performer.

Since there are limited number of positions to be filled with "senior proofreaders" in our study, only the top one-half of the participants in this room will be selected as "senior proofreaders." The bottom one-half of the participants will be considered as failure performers.

Please keep in mind that, to be "senior proofreaders", you must beat at least one-half of the participants in this room in terms of the number of the errors correctly detected. The selection of the "senior proofreaders" will be based on the comparison of each participant's performance with every other participant's performance.

1. Your Identification Number: _____________________________
   (The last four digits of your social security number)

2. Sex: _____ male  _____ female

3. My MHR 701 class meets at:

   _____ M.W. 10:00 - 12:00 AM  _____ T.Tr. 9:00 - 11:00 AM
   _____ M.W. 1:00 - 3:00 PM  _____ T.Tr. 5:30 - 7:30 PM
   _____ M.W. 5:30 - 7:30 PM

4. Age: _______
Definition of Your Success: How Do We Select "Senior Proofreaders?"

We will check and evaluate each participant's actual performance in terms of the number of the errors correctly detected and, then, calculate the percentage of the errors correctly detected in consideration of the total number of the errors embedded in our manuscript.

The previous studies on this proofreading task have shown that those who detect at least 75 percent of errors are significantly more successful in helping check others' writing than those who detect less than 75 percent of errors. Based on those research, only participants that correctly detect at least 75 percent of the total number of the errors embedded in our manuscript will be selected as "senior proofreaders." The remaining participants will be considered as failure performers.

Please keep in mind that, to be "senior proofreaders", your actual performance outcome must meet the assigned performance goal which is to detect at least 75 percent of the total number of the errors embedded in our manuscript.

1. Your Identification Number:
   (The last four digits of your social security number)

2. Sex: ______ male    ______ female

3. My MHR 701 class meets at:
   ______ M.W. 10:00 - 12:00 AM    ______ T.Tr. 9:00 - 11:00 AM
   ______ M.W. 1:00 - 3:00 PM      ______ T.Tr. 5:30 - 7:30 PM
   ______ M.W. 5:30 - 7:30 PM

4. Age: ______
APPENDIX F

Proofreading Task

Identification Number: ____________ (The last four digits of your SSN)

Sex: ______ male ______ female

Instructions: Please read the following manuscript and checkmark such errors as sentence structure, spelling, punctuation, capitalization, and grammar as well as typographical mistakes. If you find wrong sentence structures, please underline those sentences. For each incorrect checkmark or underlining, you will get the penalty which will offset your score from a correct checkmark or underlining.

Examples: the scene is an large abandoned office formally used as a secretarial pool area in the days before the company headquarters was moved a new building in an expensive corporate development in the suburbs. All the furniture and window coverings have removed and the electricity turned off in most of the inner office areas?

(Experimenter's use only)

Performance Outcome:

(1) Number of the Errors Correctly Detected : ______

(2) Number of Incorrect Checkmarks and Underlinings: ______

(3) Net Number of Credible Answers : ______

(4) Percentage of the Errors Correctly Detected in consideration of the total number of the errors embedded in our manuscript : ______

Performance Feedback:

___________ Success

___________ Failure
Identification Number: ____________ (The last four digits of your SSN)

Sex: _____ male  _____ female

Instructions: Please read the following manuscript and checkmark such errors as sentence structure, spelling, punctuation, capitalization, and grammar as well as typographical mistakes. If you find wrong sentence structures, please underline those sentences. For each incorrect checkmark or underlining, you will get the penalty which will offset your score from a correct checkmark or underlining.

Examples: the scene is an large abandoned office formally used as a secretarial pool area in the days before the company headquarters was moved a new building in an expensive corporate development in the suburbs. All the furniture and window coverings have removed and the electricity turned off in most of the inner office areas?

(Experimenter's use only)

Performance Outcome:

(1) Number of the Errors Correctly Detected  : ____

(2) Number of Incorrect Checkmarks and Underlinings: ____

(3) Net Number of Credible Answers  : ____

(4) Ranking of Your Performance Outcome  : ____

Performance Feedback:

______________ Success

______________ Failure
THE COMMUNICATION AUDIT

- Company Communication on the Psychiatric Couch -

Untying the Gordian Knot

A frustrating problem in dealing with the concept of communication, particularly for those practical-minded managers who are by nature suspicious of the social sciences in first place, is that the word "communication" is ubiquitous. Simple definitions of the term won't suffice.

Communication has inherent social relevance. Any area of concern to the human condition can be ranked to communication. If communication includes the total exchange of information, written and oral, nonverbal, involving machines as well as people, then how do we deal with a subject that excludes everything.

Let's make some sense of our sue of the world "communication" by assigning it a meaningful location in the organizational scheme of things. Figure 1 provides a basic illustration of what has been called the Organizational Causal SEquence. It is a cause-and-effect model that provides a more clear view of the role of communication in the organization.

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TIME

FIGURE 1 Organizational Casual Sequence
Reading from left to right on Figure 1, we see that there are certain external and internal causal factors, the former being under the direct control of management, which have an impact on the organization. On the right side are the end-result factors, measures of organizational performance. Communication is the critical linkage between these causes and end results. Everything that occurs between the time a causal factor is first felt in an organization and the time when its impact begins to show up in results is reflected in the organization's communication system. Regardlessness of where the problem initiates — in marketing, sales, finance, engineering, industrial relations, accounting — its presence will show up in the communication system. Any event or condition that will eventually influence results will detectable in the organization's communication apparatus if we are sensitive to it — if somebody is listening. In essence: communication is an early warning system allowing us to infer what is about to happen.

Communication is the business organization's bloodline. An examination of an organization's communication system by specialists armed with the proper tools and how-know can provide a whole body scan of organization health.

Our Communication Audit involves a three-pronges strategy for tapping into the organization's communication system to take a reading on the rich information it holds. This technique, modified and shaped by us over years of practice, has proven to be an affective way of capturing the real corporate dynamic underlying several layers of superficial protective barriers. For a number of good reasons, the technique works powerfully. First let us describe the three parts of
the Communication Audit, Depth Interviewing, the Attitude Barometer, and Artifact Analysis.

Part One - Depth Interviewing

Depth Interviewing relies heavily on old-fashioned, face-to-face meetings. By taking with and listening to enough people first-hand, genuine insights can be gained into the internal and external communication system of the organization. This is not unlike a seasoned physician talking with a patient to probe and identify physical symptoms.

To help bring focus one mechanism of this interviewing process, we would ask business leaders this question: "when was the last time you sat down and listened for two and one-half hours to what one or more of your employees had on his or her mind?" For most business leaders the answer is "Not in living memory."

This technique couples the investigative reporting of journalism with the subtleties of psychiatric nondirective interviewing. This method of active listening is not new. Its use in industry was initiated in Cicero, Illinois, at Western Electric's Hawthorne Works in the early 1930s. Perhaps the most lasting and useful finding of the famous Hawthorne Studies was the measurable value of the unstructured interview in the work setting. While the conduct of such interviews requires considerable skill and experience with the method, its use in the business setting has led to bountiful results.
APPENDIX G

General Questionnaire

Instructions: Read each question carefully. For each question, circle the number that most closely represents your feelings or beliefs. Please be sure to answer all the questions.

1. How much prior experience have you had in this kind of proofreading task?
   1  2  3  4  5  6  7
   no experience at all  great amount of experience

2. How important do you think it is for you to be selected as "senior proofreaders" in this study?
   1  2  3  4  5  6  7
   not at all  very important

3. Was the proofreading task challenging to you?
   1  2  3  4  5  6  7
   not at all  very challenging

4. Was the proofreading task interesting for you?
   1  2  3  4  5  6  7
   not at all  very interesting

5. While working on the proofreading task, were you concerned about how other participants in this room were doing in their own task?
   1  2  3  4  5  6  7
   not at all  very much

6. How do you feel about our definition of your success (i.e., performance standard or criterion) to select "senior proofreaders" in this study?
   1  2  3  4  5  6  7
   individualistic, competitive, relative criterion
   absolute criterion

7. Do you feel our criterion to select "senior proofreaders" is interpersonally competitive?
   1  2  3  4  5  6  7
   not at all  very much interpersonally competitive

8. How would you predict your performance feedback on your proofreading task?
   1  2  3  4  5  6  7
   very great success  very great failure
9. How accurately do you think you could predict your success or failure in this proofreading task?
   1 2 3 4 5 6 7
   not at all very much accurately

10. Your identification Number: ______________
    (The last four digits of your SSN)

    Sex: ______ male ______ female

11. Please circle the number which indicates the size of your group.
   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
APPENDIX H

Attribution Questionnaires for Success and Failure Subjects

Participant's Identification Number: ______________

Sex: _____ male _____ female

To our participants: Before we move to the second phase of our study, we like you to fill out some responses to the feedbacks you have just received concerning your qualifications for "senior proofreaders."

Instructions: Read the following questions carefully. Circle the number that most represents your belief concerning your feedback.

1. How was your performance feedback on the proofreading task in this study?
   1  2  3  4  5  6  7
   very great success  very great failure

2. How would you rate your performance feedback?
   1  2  3  4  5  6  7
   extremely unfair  extremely fair

3. How would you rate your performance feedback on the proofreading task in this study?
   1  2  3  4  5  6  7
   very much satisfactory  very much unsatisfactory
Participant's Identification Number: ____________

Sex: _____ male _____ female

To our participants: Before we move to the second phase of our study, we like you to fill out some responses to the feedbacks you have just received concerning your disqualifications for "senior proofreaders."

Instructions: Read the following questions carefully. Circle the number that most represents your belief concerning your feedback.

1. How was your performance feedback on the proofreading task in this study?
   1  2  3  4  5  6  7
   very great success very great failure

2. How would you rate your performance feedback?
   1  2  3  4  5  6  7
   extremely unfair extremely fair

3. How would you rate your performance feedback on the proofreading task in this study?
   1  2  3  4  5  6  7
   very much satisfactory very much unsatisfactory
Instructions: Read each question carefully. For each question, indicate the degree to which you believe regarding the causes of your success in the proofreading task.

1. Do you believe that your success in this study was due to your high level of ability (i.e., good experiences and skills in writing, reading, and/or proofreading, good English background, etc.)?  
   1 2 3 4 5 6 7  
   not at all  strongly believe

2. Do you believe that your success in this study was due to your high level of immediate effort (i.e., high motivation, high concentration, repetitive readings, etc.)?  
   1 2 3 4 5 6 7  
   not at all  strongly believe

3. Do you believe that your success in this study was due to your high level of typical effort (i.e., like reading, writing, self-competing, looking for mistakes, challenging, etc.)?  
   1 2 3 4 5 6 7  
   not at all  strongly believe

4. Do you believe that your success in this study was due to favorable task characteristics (i.e., enjoyable, challenging, easy task, etc.)?  
   1 2 3 4 5 6 7  
   not at all  strongly believe

5. Do you believe that your success in this study was due to favorable experimental setup (i.e., sufficient time, clear instructions, well-typed manuscript, cool and quiet place, etc.)?  
   1 2 3 4 5 6 7  
   not at all  strongly believe

6. Do you believe that your success in this study was due to your good mental condition (i.e., relaxed, not pressured, in a good mood, etc.)?  
   1 2 3 4 5 6 7  
   not at all  strongly believe

7. Do you believe that your success in this study was due to your good physical condition (i.e., awake, alert, etc.)?  
   1 2 3 4 5 6 7  
   not at all  strongly believe

8. Do you believe that your success in this study was due to your good strategy (i.e., simply focusing on errors, calm approach, tried to be accurate, fast reading, etc.)?  
   1 2 3 4 5 6 7  
   not at all  strongly believe
9. Do you believe that your success in this study was due to (please specify any other causes rather than those mentioned above, if any)?

1 2 3 4 5 6 7
not at all strongly believe
Instructions: To what degree do you think each of the following contributed to your success. We want you to assign a reason for your success over the following sources. The total should be 100%. There is no restriction as to the proportion of causality attributed to any one source.

HIGH ABILITY ------------------------------------------ %
(good experiences and skills in writing, reading, and/or proofreading, good English background, etc.)

HIGH IMMEDIATE EFFORT ----------------------------- %
(high motivation, high concentration, repetitive reading, etc.)

HIGH TYPICAL EFFORT -------------------------------- %
(I like reading, writing, self-competing, looking for mistakes, challenging, etc.)

FAVORABLE TASK CHARACTERISTICS --------------------- %
(enjoyable, challenging, easy task, etc.)

FAVORABLE EXPERIMENTAL SETUP ---------------------- %
(sufficient time, clear instructions, well typed manuscript, cool and quiet place, etc.)

GOOD MENTAL CONDITION ------------------------------ %
(relaxed, not pressured, in a good mood, etc.)

GOOD PHYSICAL CONDITION ----------------------------- %
(awake, alert, etc.)

GOOD STRATEGY ------------------------------------- %
(simply focusing on errors, calm approach, tried to be accurate, fast reading, etc.)

(Please specify any other causes rather than those mentioned above, if any)

Total 100%
Instructions: Read each question carefully. For each question, indicate the degree to which you believe regarding the causes of your failure in the proofreading task.

1. Do you believe that your failure in this study was due to your low level of ability (i.e., poor experiences and skills in writing, reading, and/or proofreading, poor English background, etc.)?
   - 1 not at all
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7 strongly believe

2. Do you believe that your failure in this study was due to your low level of immediate effort (i.e., low motivation, low concentration, reading only once, etc.)?
   - 1 not at all
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7 strongly believe

3. Do you believe that your failure in this study was due to your low level of typical effort (i.e., I don't like reading, writing, looking for mistakes, etc.)?
   - 1 not at all
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7 strongly believe

4. Do you believe that your failure in this study was due to unfavorable task characteristics (i.e., boring, unchallenging, unfamiliar, difficult task, etc.)?
   - 1 not at all
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7 strongly believe

5. Do you believe that your failure in this study was due to unfavorable experimental setup (i.e., lack of time, ambiguous instructions, poorly typed manuscript, hot and noisy place, etc.)?
   - 1 not at all
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7 strongly believe

6. Do you believe that your failure in this study was due to your bad mental condition (i.e., nervous, uneasy, in a bad mood, in a hurry to get out, etc.)?
   - 1 not at all
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7 strongly believe

7. Do you believe that your failure in this study was due to your bad physical condition (i.e., tired, hungry, lack of sleep, etc.)?
   - 1 not at all
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7 strongly believe

8. Do you believe that your failure in this study was due to your bad strategy (i.e., too slow reading, too fast reading, time mismanagement, not thorough, etc.)?
   - 1 not at all
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7 strongly believe
9. Do you believe that your failure in this study was due to _____________ (please specify any other causes rather than those mentioned above, if any)?

1  2  3  4  5  6  7
not at all strongly believe
Instructions: To what degree do you think each of the following contributed to your failure. We want you to assign a reason for your failure over the following sources. The total should be 100%. There is no restriction as to the proportion of causality attributed to any one source.

**LOW ABILITY**

(poor experiences and skills in writing, reading, and/or proofreading, poor English background, etc.)

**LOW IMMEDIATE EFFORT**

(low motivation, low concentration, reading only once, etc.)

**LOW TYPICAL EFFORT**

(I don't like reading, writing, looking for mistakes, etc.)

**UNFAVORABLE TASK CHARACTERISTICS**

(boring, unchallenging, unfamiliar, difficult task, etc.)

**UNFAVORABLE EXPERIMENTAL SETUP**

(lack of time, ambiguous instructions, poorly typed manuscript, hot and noisy place, etc.)

**BAD MENTAL CONDITION**

(nervous, uneasy, in a bad mood, in a hurry to get out, etc.)

**BAD PHYSICAL CONDITION**

(tired, hungry, lack of sleep, etc.)

**BAD STRATEGY**

(too slow reading, too fast reading, time mismanagement, not thorough, etc.)

(Please specify any other causes rather than those mentioned above, if any)

Total 100 %
APPENDIX I

Russell's Causal Dimension Scale

Instructions: Think about the reasons for your feedback suggested on the previous page. The items below concern your impressions or opinions of these causes or your feedback. Circle one number for each of the six items. Be sure to answer all the items for all the causes.

1. Concerning ABILITY: e.g., experiences, skill, English background

1) Is ABILITY something that reflects an aspect of yourself or situation?
   1  2  3  4  5  6  7
   myself    situation

2) Is ABILITY something that is permanent or temporary?
   1  2  3  4  5  6  7
   permanent temporary

3) Is ABILITY something that is outside or inside of you?
   1  2  3  4  5  6  7
   outside of me inside of me

4) Is ABILITY something that is variable or stable over time?
   1  2  3  4  5  6  7
   variable over time stable over time

5) Is ABILITY something about you or about others?
   1  2  3  4  5  6  7
   something about me something about others

6) Is ABILITY something that is changeable or unchanging?
   1  2  3  4  5  6  7
   changeable unchanging

2. Concerning IMMEDIATE EFFORT: e.g., motivation, concentration

1) Is IMMEDIATE EFFORT something that reflects an aspect of yourself or situation?
   1  2  3  4  5  6  7
   myself    situation

2) Is IMMEDIATE EFFORT something that is permanent or temporary?
   1  2  3  4  5  6  7
   permanent temporary
3) Is IMMEDIATE EFFORT something that is outside or inside of you?
   1 2 3 4 5 6 7
   outside of me inside of me

4) Is IMMEDIATE EFFORT something that is variable or stable over time?
   1 2 3 4 5 6 7
   variable over time stable over time

5) Is IMMEDIATE EFFORT something about you or about others?
   1 2 3 4 5 6 7
   something about me something about others

6) Is IMMEDIATE EFFORT something that is changeable or unchanging?
   1 2 3 4 5 6 7
   changeable unchanging

3. Concerning TYPICAL EFFORT: e.g., like or don't like looking for errors

1) Is TYPICAL EFFORT something that reflects an aspect of yourself or situation?
   1 2 3 4 5 6 7
   myself situation

2) Is TYPICAL EFFORT something that is permanent or temporary?
   1 2 3 4 5 6 7
   permanent temporary

3) Is TYPICAL EFFORT something that is outside or inside of you?
   1 2 3 4 5 6 7
   outside of me inside of me

4) Is TYPICAL EFFORT something that is variable or stable over time?
   1 2 3 4 5 6 7
   variable over time stable over time

5) Is TYPICAL EFFORT something about you or about others?
   1 2 3 4 5 6 7
   something about me something about others

6) Is TYPICAL EFFORT something that is changeable or unchanging?
   1 2 3 4 5 6 7
   changeable unchanging

4. Concerning TASK CHARACTERISTICS: e.g., boring/interesting; easy/difficult

1) Is TASK CHARACTERISTICS something that reflects an aspect of yourself or situation?
   1 2 3 4 5 6 7
   myself situation
2) Is TASK CHARACTERISTICS something that is permanent or temporary?
   1   2   3   4   5   6   7
   permanent temporary

3) Is TASK CHARACTERISTICS something that is outside or inside of you?
   1   2   3   4   5   6   7
   outside of me inside of me

4) Is TASK CHARACTERISTICS something that is variable or stable over time?
   1   2   3   4   5   6   7
   variable over time stable over time

5) Is TASK CHARACTERISTICS something about you or about others?
   1   2   3   4   5   6   7
   something about me something about others

6) Is TASK CHARACTERISTICS something that is changeable or unchanging?
   1   2   3   4   5   6   7
   changeable unchanging

5. Concerning EXPERIMENTAL SETUP: e.g., time constraints, instructions

1) Is EXPERIMENTAL SETUP something that reflects an aspect of yourself or situation?
   1   2   3   4   5   6   7
   myself situation

2) Is EXPERIMENTAL SETUP something that is permanent or temporary?
   1   2   3   4   5   6   7
   permanent temporary

3) Is EXPERIMENTAL SETUP something that is outside or inside of you?
   1   2   3   4   5   6   7
   outside of me inside of me

4) Is EXPERIMENTAL SETUP something that is variable or stable over time?
   1   2   3   4   5   6   7
   variable over time stable over time

5) Is EXPERIMENTAL SETUP something about you or about others?
   1   2   3   4   5   6   7
   something about me something about others

6) Is EXPERIMENTAL SETUP something that is changeable or unchanging?
   1   2   3   4   5   6   7
   changeable unchanging
6. Concerning **MENTAL CONDITION**: e.g., nervous/relaxed; in a good/bad mood

1) Is MENTAL CONDITION something that reflects an aspect of yourself or situation?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   myself \hspace{1cm} situation

2) Is MENTAL CONDITION something that is permanent or temporary?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   permanent \hspace{1cm} temporary

3) Is MENTAL CONDITION something that is outside or inside of you?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   outside of me \hspace{1cm} inside of me

4) Is MENTAL CONDITION something that is variable or stable over time?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   variable over time \hspace{1cm} stable over time

5) Is MENTAL CONDITION something about you or about others?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   something about me \hspace{1cm} something about others

6) Is MENTAL CONDITION something that is changeable or unchanging?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   changeable \hspace{1cm} unchanging

7. Concerning **PHYSICAL CONDITION**: e.g., tired/alert; lack of sleep/awake

1) Is PHYSICAL CONDITION something that reflects an aspect of yourself or situation?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   myself \hspace{1cm} situation

2) Is PHYSICAL CONDITION something that is permanent or temporary?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   permanent \hspace{1cm} temporary

3) Is PHYSICAL CONDITION something that is outside or inside of you?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   outside of me \hspace{1cm} inside of me

4) Is PHYSICAL CONDITION something that is variable or stable over time?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   variable over time \hspace{1cm} stable over time

5) Is PHYSICAL CONDITION something about you or about others?
   \[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]
   something about me \hspace{1cm} something about others
6) Is **PHYSICAL CONDITION** something that is changeable or unchanging?

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8. Concerning **STRATEGY**: e.g., fast/slow reading; time management

1) Is **STRATEGY** something that reflects an aspect of yourself or situation?

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2) Is **STRATEGY** something that is permanent or temporary?

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3) Is **STRATEGY** something that is outside or inside of you?

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4) Is **STRATEGY** something that is variable or stable over time?

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5) Is **STRATEGY** something about you or about others?

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6) Is **STRATEGY** something that is changeable or unchanging?

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APPENDIX J

Performance Expectation and Affect Measures

Instructions: Read each question carefully. For each question, circle the number that most represents your beliefs or feelings.

1. How do you expect you would do on another proofreading task, if you were given another opportunity to perform?
   1    2    3    4    5    6    7
   strongly likely to fail  strongly likely to succeed

2. How do you expect your performance would be on another proofreading task as compared to the present performance?
   1    2    3    4    5    6    7
   getting lower  unchanged  getting higher

3. How satisfied do you feel now?
   1    2    3    4    5    6    7
   not at all  extremely

4. How proud do you feel now?
   1    2    3    4    5    6    7
   not at all  extremely

5. How happy do you feel now?
   1    2    3    4    5    6    7
   not at all  extremely

6. How competent do you feel now?
   1    2    3    4    5    6    7
   not at all  extremely

7. How shameful do you feel now?
   1    2    3    4    5    6    7
   not at all  extremely

8. How guilty do you feel now?
   1    2    3    4    5    6    7
   not at all  extremely

9. How embarrassed do you feel now?
   1    2    3    4    5    6    7
   not at all  extremely

10. How angry do you feel now?
    1    2    3    4    5    6    7
    not at all  extremely
11. How surprised do you feel now?
not at all 1  2  3  4  5  6  7 extremely

12. How relaxed do you feel now?
not at all 1  2  3  4  5  6  7 extremely

13. How depressed do you feel now?
not at all 1  2  3  4  5  6  7 extremely

14. How pitied do you feel now?
not at all 1  2  3  4  5  6  7 extremely
APPENDIX K

Debriefing Script

In order to get you involved in the proofreading task and obtain genuine responses on the questionnaire, it was necessary to mislead you about the true purpose and procedure of the experiment. There were, in fact, no successful or unsuccessful performers. All the feedbacks you were given were arbitrary and given to you on a predetermined basis. Also, as you can guess, we did not have any subsequent work for both success and failure performers. In fact, we do not know whether there really exists any research that shows that successful proofreading and effective writing go hand in hand. Let me emphasize that your proofreading performances have no relation to your writing performances, nor are they indicative of your capability of supervising others' writing.

As I said, your performance feedback was experimentally manipulated. Even though we actually checked your real performance outcome, it didn't determine your feedback. We randomly assigned one-half of you to success and the other one-half to failure feedback conditions. It was important to use this procedure because we needed equal number of participants in each feedback condition and because we wanted to eliminate any extraneous factors by random assignment.

We are studying the effect of performance feedback on your attributions or thoughts, feelings, and performance expectations. Attributions refer to "naive" inferences about the causes of people's
behaviors. We are also interested in investigating how your self-esteem and different definitions of success (for example, competition against each other or accomplishing specific output goals) moderate our dependent variables. The findings of this study will have direct implications for attribution retraining. Attribution retraining centers on directing undesirable, unrealistic attributions toward more desirable, realistic sources.

For all of these reasons, I ask you not to reveal the experimental procedure to anyone until the end of this summer quarter. This is extremely important because the responses from someone who already knows our experimental procedure will be invalid and confuse the results.

I encourage everyone who may still have problems or questions about the experiment to remain and discuss these issues with us. We will give you some feedback about the results of this study later at the end of the quarter.

Thank you very much for your participation.
APPENDIX L

Formula and Data for Johnson-Neyman Technique

The regions of significance are between the two values of $X$ in the following formula (Pedhazur, 1982, p. 470).

$$X = \frac{-B \pm \sqrt{B^2 - 4AC}}{2A}$$

The terms of the above equation are defined as follows:

$$A = \frac{-F_{\alpha}}{N - 4} \left( SS_{res} \right) \left( \frac{1}{\sum x_1^2} + \frac{1}{\sum x_2^2} \right) + (b_1 - b_2)^2$$

$$B = \frac{-F_{\alpha}}{N - 4} \left( SS_{res} \right) \left( \frac{\bar{x}_1}{\sum x_1^2} + \frac{\bar{x}_2}{\sum x_2^2} \right) + (a_1 - a_2)(b_1 - b_2)$$

$$C = \frac{-F_{\alpha}}{N - 4} \left( SS_{res} \right) \left( \frac{N}{n_1n_2} + \frac{\bar{x}_1^2}{\sum x_1^2} + \frac{\bar{x}_2^2}{\sum x_2^2} \right) + (a_1 - a_2)^2$$

where $F_{\alpha}$ = tabled $F$ ratio with 1 and $N-4$ degrees of freedom at a selected level of $\alpha$ ($\alpha = .05$ in this study); $N$ = total number of subjects; $n_1, n_2$ = number of subjects in groups 1 and 2, respectively; $SS_{res}$ = residual sum of squares obtained from the overall regression analysis, or, equivalently, the pooled residual sum of squares from separate regression analyses for each group; $\sum x_1^2, \sum x_2^2$ = sum of squares of the continuous independent variable (X) for groups 1 and 2, respectively; $\bar{x}_1, \bar{x}_2$ = means of groups 1 and 2, respectively, on the continuous independent variable, $X$; $b_1, b_2$ = regression coefficients of the regression equations for groups 1 and 2, respectively; $a_1, a_2$ = intercepts of the regression equations for groups 1 and 2, respectively.
Data for the Formula in Figures 4 to 15

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$F_{\infty}$ = 3.84 for all Figures;

$N$ = 190 for Figure 4 and Figure 5, 183 for Figures 6 to 15;

$n_1$ = 95 for Figure 4 and Figure 5, 93 for Figures 6 to 15;

$n_2$ = 95 for Figure 4 and Figure 5, 90 for Figures 6 to 15;

$\Sigma x_1^2$ = 67428 for Figure 4 and Figure 5, 83295 for Figures 6 to 15;

$\Sigma x_2^2$ = 62525 for Figure 4 and Figure 5, 74585 for Figures 6 to 15;

$\bar{X}_1$ = 26.232 for Figure 4 and Figure 5, 30.720 for Figures 6 to 15;

$\bar{X}_2$ = 25.295 for Figure 4 and Figure 5, 28.456 for Figures 6 to 15;
LIST OF REFERENCES


