

The Effects of Feedback Sign, Attributional
Discrepancy, and Performance Discrepancy on
Reactions to Feedback

by

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(ABSTRACT)

The present investigation examined the effects of three factors -- feedback sign, performance discrepancy, and attributional discrepancy -- on reactions to feedback as measured by three groups of dependent variables (reactions against the feedback itself, reactions against the feedback source, and reactions against the feedback system). Hypothesis 1 was supported in that feedback sign affected feedback reactions as predicted. Hypotheses 2 and 3 were not supported as feedback sign did not interact in the expected manner with performance discrepancy or attributional discrepancy. However, performance discrepancy and attributional discrepancy were identified as important determinants of feedback reactions as well. The results of this study are discussed with respect to control theory and implications for organizational settings. Suggestions are made regarding the direction of future research.

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and demonstrated that he believed in my competencies and valued what I had to say. In only a few short years Neil Hauenstein has become both a good friend and informal advisor. Neil's constant willingness to help with academic matters and his concern for students is very hard to find, but I was fortunate to stumble upon it. I take my hat off to all of these fine people!

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INTRODUCTION

An important element of the performance appraisal process is the feedback delivered to individuals. That feedback process -- its antecedents, the perceptions of the feedback, and the responses to the feedback -- has generated a great deal of interest and research (cf., Ashford & Cummings, 1983; Ilgen, Fisher, & Taylor, 1979; Taylor, Fisher, & Ilgen, 1984). The predominant view, as espoused in Ilgen et al.'s (1979) seminal work, is that the feedback process is a special case of a communication process in which the sender conveys a message to the recipient.

In organizational settings, specifically the performance appraisal situation, the message is typically an evaluation of an employee's work performance communicated to the employee by the employee's supervisor. It is important to understand how that message is delivered as well as how it is perceived and reacted to by the recipient. The more that is known about this process, the better this information can be used to structure feedback systems that are beneficial to the sender, recipient, and organization.

Feedback Models

Ashford and Cummings (1983) have suggested a model of feedback seeking behaviors which identifies strategies of feedback seeking behavior and motivations for seeking

feedback. Basically, the authors argue that individuals as information processors, actively seek out feedback information rather than passively receive the feedback that is delivered. Ashford and Cummings (1983) included in their model various features of control theory or cybernetics which views feedback as information about the performance of a system which is used to control future behavior of that system (cf. Powers, 1973; Carver & Scheier, 1981).

Control theory has been proposed as a parsimonious explanation for many organizational phenomena such as goal setting (Campion & Lord, 1981), motivation (Lord & Hanges, 1987), and feedback (Taylor, Fisher, & Ilgen, 1984). The control theory perspective offers great insight into how individuals react or respond to feedback about their own performance. Taylor et al. (1984) suggest that how an individual responds to feedback depends on the comparison of that feedback with a referent, standard, or goal. The important element in this conceptualization is the existence of a discrepancy. If a discrepancy between the feedback and the individual's referent is perceived by the individual, he or she will act or respond in such a way to reduce that discrepancy. The authors discuss three general classes of responses: affective, behavioral, and cognitive. They propose that the discrepancy can be reduced through these various responses which can be directed against the feedback

itself, the feedback source, and/or the feedback system.

The Current Study

The control theory conceptualization is appropriate because it takes into account the discrepancies between the feedback source and recipient with respect to their perceptions and expectancies. The current investigation attempted to examine how these various discrepancies affect the responses to the feedback. Three variables were manipulated in this study: feedback sign, attributional discrepancy, and performance discrepancy.

Feedback sign refers to the positivity or negativity of the feedback that is delivered to the recipient (Ilgen et al., 1979). It has been argued that the sign of the feedback is an important variable affecting the recipient's reactions to that feedback (Ilgen et al., 1979; Biddle & Fisher, 1987). Quite simply, positive feedback is more favorably received by recipients than is negative feedback and this more favorable reception is likely to extend to more favorable reactions (cf. Ilgen, 1971; Feather, 1968; Ilgen & Hamstra, 1972; Shrauger, 1975; Morrow & Stockton, 1980; Bannister, 1986). As one manipulation, participants in the current study were provided with either positive or negative feedback.

The other two independent variables follow from the control theory conceptualization discussed above and involve two discrepancies between the feedback source and the

recipient. First, in achievement-related situations, individuals evaluate their own performance (Weiner, 1982). Specifically, it has been demonstrated that individuals evaluate their own performance in performance appraisal settings (Shaw & Fisher, 1986). Shaw and Fisher (1986) have referred to self-assessment as the "covert" side of performance appraisal feedback because although individuals undeniably have beliefs about their own performance, these beliefs are seldom reported.

Supervisors also evaluate the performance of their subordinates (Biddle & Fisher, 1987). This point is supported by the prevalence of performance appraisal systems in organizations. Bernardin and Beatty (1984) estimate that over 90% of all organizations in the United States employ a performance appraisal system and the overwhelming majority of these are structured such that the appraiser is the subordinate's supervisor. In other words, much as the subordinate evaluates his or her own performance, so do others evaluate the subordinate's performance. Specifically, the feedback source who is often the supervisor evaluates his or her subordinate's performance and feeds his or her evaluation back to the subordinate. It will be demonstrated in this paper that these two evaluations, one done by the individual him- or herself and one done by the feedback source, often disagree (cf., Ilgen, Peterson, Martin

& Boesch, 1981; Shaw & Fisher, 1986). It is this disagreement -- discrepancy in control theory terms -- that was the second manipulated factor of this current study. Performance discrepancy, or the disagreement discussed above is an important factor in determining reactions to feedback (Biddle & Fisher, 1987). By and large, the research suggests that individuals respond more favorably to feedback that is better than they had expected than they do to feedback that is worse than they had expected (Shrauger, 1975; Ilgen, 1971; Ilgen & Hamstra, 1972; Bernstein & Lecomte, 1979; Levy & Foti, 1989).

Secondly, attribution theory predicts that not only do individuals have beliefs about their performance, but they also make attributions for that performance (Weiner, 1985). Weiner's theory (Weiner, 1982; 1985) posits that individuals attempt to identify the causes of achievement-related events. That is, when an individual perceives that he or she has failed (succeeded), that individual does some attributional work to identify the causes for that performance outcome. Attributions about performance are also made by other individuals, such as supervisors or feedback sources. That is, not only does an individual make attributions for his or her performance, but so do other individuals (Weiner, 1982; 1985). Biddle and Fisher (1986) propose that in addition to conveying performance information (e.g., positive or

negative), feedback sources also convey information about their attributions for the causes of subordinate performance (cf., Green & Mitchell, 1979; Mitchell & Wood, 1980; Mitchell & Kalb, 1981).

It is suggested here that the source's attributions for a particular performance outcome tend to be quite different from the individual's own attributions for his or her performance (Jones & Nisbett, 1971; Weary & Arkin, 1981; Bradley, 1978; Zuckerman, 1974). Only a few studies have looked at the effect of this attributional discrepancy on reactions to feedback. Overall, these studies seem to indicate that the discrepancy in attributions for performance is an important factor along with the sign of the feedback and the performance discrepancy discussed earlier in determining how individuals will react to the feedback (Bannister, 1986; Levy & Foti, 1989; Sicoly & Ross, 1977). This attributional discrepancy was the third manipulated factor in this investigation.

Taylor et al. (1984) have suggested that individuals can react to feedback in three different ways. In their review, Taylor et al. (1984) cited evidence that individuals respond cognitively, affectively, and behaviorally. In the present study, feedback reactions were measured as dependent variables. Although these dependent measures could be characterized as fitting one of these three clusters, the

present study employed a different categorization scheme. Specifically, each measure of feedback reactions can be categorized with respect to its mode of direction. That is, reactions can be of the cognitive, affective, or behavioral type and can be directed against the feedback itself (e.g., dissatisfaction with the feedback), against the feedback source (e.g., evaluating him or her as unprofessional), or against the feedback system (e.g., evaluating the system as invalid).

Although two of the independent variables in the present study have been investigated to a great extent, attributional discrepancy has received only sparse treatment. In addition, most of the research has not been conducted within an industrial-organizational framework, but rather has been designed and conducted from within the domain of social psychology and has dealt with non-work related issues and settings (e.g., strangers engaging in social interactions, and clinical judgments). Furthermore, few studies have examined how any two of these factors interact in affecting feedback reactions. No single study has systematically manipulated all three factors within the same investigation. It is suggested here that in the performance appraisal setting, all three factors are important and operate simultaneously to determine feedback reactions. The current investigation had two major thrusts: 1) it was an initial

step in examining this important interaction, and 2) it also attempted to provide a theoretical framework (i.e., control theory) for much of the previous research and future investigations. In summary, the investigation discussed in this paper examined the effects of three factors (feedback sign, performance discrepancy, and attributional discrepancy) on reactions to feedback as measured by three groups of dependent variables (reactions against the feedback itself, against the feedback source, and against the feedback system).

LITERATURE REVIEW

This literature review will begin with a discussion of control theory and its application to the area of performance appraisal feedback. Following this, research related to each of the proposed study's independent variables (i.e., sign, attributional discrepancy, and performance discrepancy) will be reviewed and discussed. This review will include those studies that have examined reactions to feedback directed against the feedback itself, the feedback source, and the feedback system as a function of one or more of these factors.

Control Theory

Before discussing the control theory conceptualization of organizational feedback, a brief presentation of control

theory in its most general sense seems necessary. Powers (1973) discussed the linkage between feedback, goals, and control systems. The referent state to which environmental information (i.e., feedback) is compared can be described as a goal. The feedback and goal are compared by a mechanism that Powers calls a "comparator". It follows that if a large discrepancy exists between the feedback and goal, behavior is elicited in an attempt to rectify the situation; that is, reduce the discrepancy (Campion & Lord, 1982). This feedback loop which will result in behavior intended to reduce the apparent discrepancy is crucial for functioning (Taylor et al., 1984).

Perhaps the most illustrative example of a control system is a room thermostat. The thermostat monitors the temperature in the room and compares it with a standard or referent (the temperature setting). If a discrepancy is perceived, the unit behaves in a way to reduce that discrepancy (emitting cool or hot air). When the discrepancy is no longer detected the heating or cooling unit shuts down. The thermostat, however, continues to sense the temperature and through the comparator searches for a discrepancy. If a discrepancy is perceived, an appropriate behavior is once again initiated until the discrepancy is reduced. Recently, this control theory framework has been applied to organizations and organizational functioning (cf.,

Campion & Lord, 1982; Lord & Hanges, 1987; Taylor et al., 1984). Some of these applications of control theory will be included in the following discussion.

Control Theory and Organizational Feedback

Campion and Lord (1982) have articulated a goal setting model in which both goals and feedback are viewed as principal components of a motivational system. In a test of their model, Campion and Lord (1982) found that the comparator's perception of discrepancy was crucial in triggering a change in behaviors and cognitions. Specifically, ensuing effort and changes in goal selection were affected by the magnitude and number of perceived discrepancies. The authors conclude that this dynamic model is parsimonious in its explanations of the goal setting process and in explaining the specific findings from the goal setting research.

Lord and Hanges (1987) describe a control systems model of motivation and develop the model into a formal theory. The theory attempts to integrate the literatures of goal setting, feedback, and decision making while the authors discuss its relevance for areas such as job satisfaction and equity theory. Lord and Hanges (1987) suggest that control theory provides a precise model of how environmental information (such as feedback) and individuals' cognitions jointly determine behaviors and task outcomes. Like Campion

and Lord (1982), the authors argue that control theory is a valuable framework for organizational issues because it emphasizes that goal/feedback discrepancies are crucial determinants of behavior (Lord & Hanges, 1987). Research is consistent with this notion demonstrating that increases in performance or effort following feedback are in part affected by the goal/feedback discrepancy (cf., Kernan & Lord, 1988; Matsui, Okada, & Inoshita, 1983). It can be argued that discrepancies are also crucial for affective responses (Hollenbeck, 1988). Also, some models of job satisfaction (e.g., Porter & Steers, 1973) as well as theories of equity (Adams, 1963) suggest that discrepancies from a desired state (goal or referent) determine individuals' levels of satisfaction and dissatisfaction.

The Lord and Hanges (1987) model includes a decision mechanism as well as a comparator. After the comparator has detected a discrepancy, the decision mechanism begins considering responses which are likely to reduce that discrepancy (e.g., increasing effort with the intention to change performance, cognitively distorting the performance feedback, or lowering goals to the level of performance). Lord and Hanges (1987) conclude that control theory is a flexible dynamic model which incorporates responses to feedback and changes in goals over time.

Like Lord and his colleagues, Taylor et al. (1984) also

maintain that the control theory perspective is relevant to established bodies of literature such as goal setting, self-management, and performance feedback. Taylor et al. (1984) have developed a model which emphasizes individuals' responses to performance appraisal feedback from a control theory perspective. They argue that once the feedback is received and compared against the referent, the individual must select a response or responses. If a discrepancy is perceived, the individual will act to reduce that discrepancy. The authors have categorized these responses into three classes: cognitive, behavioral, and affective.

It can be argued that recipients' cognitive interpretations of the feedback are very important determinants of ensuing responses (Taylor et al., 1984). In other words, reactions to feedback can't be predicted only from its objective content -- the individuals' cognitive interpretations of the feedback are also important. The authors discuss a variety of cognitive responses such as the assessment of feedback accuracy, the evaluation of source credibility, and the evaluation of feedback system fairness. Furthermore, they suggest that these responses may then influence behavioral responses to the feedback.

Among the behavioral responses discussed are responding against the feedback system, altering effort, changing the direction of behavior, and changing task persistence (Taylor

et al., 1984) Responding against the feedback system is particularly relevant to the present investigation and requires more discussion at this time. Taylor et al. (1984) suggest that this response might include attacking the feedback source or derogating the feedback system (e.g., the specific performance appraisal system used in the organization). Quite simply, when an individual is provided with negative feedback (that is, he or she did not reach the standard), it is conceivable that he or she will evaluate the feedback source negatively (Denisi, Randolph, & Blencoe, 1980; Stone & Stone, 1982) and derogate the entire feedback system (Baumgardner, Kaufman, & Levy, 1989; Pearce & Porter, 1986). The authors suggest that control of the cognitive responses discussed previously through working to ensure that the feedback is accurate and that the system is a fair one will eliminate the derogation of the source and system, thereby decreasing the dysfunctional behavior (Taylor et al., 1984).

In addition to cognitive and behavioral responses, feedback typically arouses an affective response. It should come as no surprise that the feedback outcome (or sign) determines in large part the affective responses to that feedback (cf. Ilgen & Hamstra, 1972; Locke, Cartledge, & Knerr, 1970; Shrauger, 1975). Typically, these studies have found that positive feedback results in positive affective

responses and negative feedback in negative affective responses. An equally interesting determinant of affect is the valence of the feedback one received as compared to what one expected to receive (Taylor et al., 1984). Thus, the discrepancy between anticipated feedback and the delivered feedback is a second key determinant. It has been discovered that negative affect results when recipients are given feedback more negative than they had expected and positive affect results when individuals are given feedback more positive than they had anticipated (cf., Ilgen & Hamstra, 1972; Bernstein & Lecomte, 1979; Shrauger, 1975).

A final contribution to the feedback-affective response link may be attributions. Both Carver and Scheier (1981) and Weiner (1982; 1985) suggest that affect is in part determined by the attributions made about the cause of performance. More specifically, the feedback sign, the performance discrepancy and the attributions made for the performance (e.g., internal or external) may interact in some way to determine the various reactions. For instance, Bannister (1986) found that feedback sign interacted with attributional information to determine evaluations of the feedback and the feedback source.

Taylor et al. (1984) have altered their model in such a way that it appears slightly different from purely mechanical control systems. With mechanical control systems, deviations

on either side of the standard are equally serious and equally likely to lead to a response. Thus, the two outcomes of feedback to standard comparisons are simply 1) meeting the standard, or 2) not meeting the standard. The authors argue that this conceptualization is only adequate for a few organizational situations. Typically in the organizational setting, deviations above the standard are worthy of celebration rather than corrective action. In other words, exceeding the standard is quite different from falling below the standard even if the discrepancy is of the same magnitude. They argue that rather than matching the standard and deviating from the standard as the two appropriate outcomes of feedback to standard comparisons, understanding and explanation are better served by considering positive feedback (i.e., meeting or exceeding the standard) and negative feedback (i.e., not meeting or falling short of the standard) as the two most important outcomes for performance appraisal feedback.

As discussed, Taylor et al. (1984) have categorized feedback reactions into three types: cognitive, behavioral, and affective. Although an interesting distinction, by itself it is perhaps less than adequate. A more useful distinction is suggested in the present paper -- mode of direction. This distinguishes among the recipients of the reactions to the feedback. In other words, individuals can

react in the three ways suggested by Taylor et al. (1984), but more importantly those reactions can be directed against various elements of the feedback process. Reactions can be of the affective, behavioral, or cognitive variety and can be directed against the feedback itself, the feedback source, or the feedback/appraisal system. The following literature review will consider some of those reactions against the feedback, the source, and the system. The current study investigated the effects of three factors -- feedback sign, performance discrepancy, and attributional discrepancy -- on the reactions toward the feedback, the feedback system, and the feedback source.

Feedback Sign

One of the most important determinant of individuals' responses to feedback is the sign of that feedback -- positive or negative (Biddle & Fisher, 1987). Many studies have examined reactions to positive and negative feedback (Taylor et al., 1984). Some investigators have examined reactions against or toward the feedback itself. For instance, positive feedback (i.e., information that one has met or exceeded an accepted standard) has resulted in greater acceptance of the feedback than has negative feedback (Ilgen, 1971; Feather, 1968; Ilgen & Hamstra, 1972). Also, it has been demonstrated that positive feedback is perceived as more accurate than is negative feedback (Sicolý & Ross, 1977;

Stone & Stone, 1984; Bannister, 1986; Snyder, Shenkel, & Lowery, 1977).

In his review, Shrauger (1975) reports that satisfaction increases as the feedback becomes more positive. Ilgen and others (Bannister, 1986; Ilgen, 1971; Ilgen & Hamstra, 1972) have demonstrated this link between feedback sign and recipient satisfaction. Morran and Stockton (1980) reported that individuals given positive feedback evaluated that feedback as having a greater impact on them than did negative feedback. These same subjects reported that they wanted to receive positive feedback more than they desired negative feedback. Similarly, Bannister (1986) has found that positive feedback is perceived as more helpful by recipients than is negative feedback. Bloom and Hautaluoma (1987) found that positive feedback led to more positive affective reactions (as measured on the following dimensions: good, pleasant, encouraged, cheerful, complimented, and happy) than did negative feedback.

The affective reactions described above fit a model proposed by Weiner and his colleagues (cf. Weiner, Russel & Lerman, 1978; Weiner, Russel & Lerman, 1979; Weiner, 1985) which identifies certain affective reactions as being outcome-dependent. This means that these affective reactions depend mostly on the sign of the feedback. Support for this model has come indirectly from the studies discussed above as

well as directly from studies which have expressly tested Weiner's theory of achievement motivation, attribution, and emotion (cf. McFarland & Ross, 1982; Forsyth & McMillan, 1981; Smith & Kluegel, 1982). More will be discussed about this model later.

Other investigations have concerned themselves with how individuals react against the feedback source after receiving either positive or negative feedback. There are fewer studies in this area, but overall they seem to indicate that individuals provided with positive feedback are more likely to perceive the source as more accurate, more skilled, and more credible than are those provided with negative feedback (Snyder & Shenkel, 1976; Steiner, 1968; Stone & Stone, 1982). Baumgardner, Kaufman, and Levy (1989) have reported similar results. After a brief social interaction subjects were provided with either positive or negative feedback which was supposed to have been prepared by their interaction partner. Those subjects given positive feedback rated their partner (feedback source) as more intelligent, considerate, likable, and competent than did those subjects given negative feedback. Denisi, Randolph, and Blencoe (1980) found that when individuals were given negative feedback, they tended to give lower ratings to the feedback source than they did when given positive feedback. A couple of other studies have examined the effect of feedback sign on evaluation of the

source. Since these studies found interesting interactions between sign and another factor, the discussion of these studies will be delayed until this other factor is introduced later in this paper.

Although some investigators have argued that reactions against the feedback system (or performance appraisal system) are very important to better understanding the process, little research has looked at this dependent measure (Ivancevich, 1980; Dornbusch & Scott, 1975). Baumgardner et al. (1989) reported that subjects found the social communication process more enjoyable when given positive rather than negative feedback. Pearce and Porter (1986) examined the effects of feedback sign on resulting attitudes and behaviors of employees in a work situation. Among other findings, they reported that those employees given negative (actually neutral) feedback developed more negative attitudes toward the organization and were more likely to derogate the appraisal system than were those given positive feedback.

This review indicates that feedback sign is an important factor affecting reactions directed against the feedback itself, the feedback source, and the performance appraisal process. Although much research has examined reactions toward the feedback, it appears that more research examining the effect of feedback sign on evaluations of the source, the system, and the feedback itself would be beneficial in

gaining further understanding of the entire feedback process.

Attributional Discrepancy

Another factor that seems a likely determinant of feedback reactions is the attribution that is made by the supervisor for the subordinate's performance. For instance, Liden and Mitchell (1985) found that negative feedback which implied that the cause of that poor performance was due to things outside of the individual (e.g., working conditions) was perceived as more helpful and elicited more effort than did negative feedback which attributed poor performance to something about the individual (e.g., lack of ability or effort). It can be argued that individuals in the work situation do some attributional work as attribution theory argues that in achievement-related situations, individuals make attributions for their successes and failures (Kelley, 1971; Weiner, 1985). Specifically, workers make attributions about the causes of their successful or unsuccessful performance. Similarly, the feedback source not only evaluates performance with respect to exceeding or not exceeding the standard, he or she also makes attributions for the individual's performance (Biddle & Fisher, 1986). It is then, the discrepancy between the source's attributions for the employee's performance and the employee's attributions for his or her own performance that is important. Indeed, it is this attributional discrepancy factor that needs to be

considered.

The most appropriate attributional model for this situation is Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum's (1971) which is a model of attributional processes for achievement situations. The model categorizes causal attributions along three dimensions: locus, stability, and controllability. With respect to the locus of causality, one's behavior can be attributed to something internal to oneself such as ability or effort, or to something external such as luck or task difficulty. The stability dimension reflects whether the cause is constant or variable over time. Thus, ability and task difficulty are stable, while effort and luck are unstable. Controllability refers to whether the cause is within the individual's own control. For instance, effort is controllable, while luck is not.

The theory states that after exhibiting a particular behavior, an individual may then attribute causes from the four cells for that behavior. Individuals can also make attributions for others' behaviors. How an individual reacts to feedback might be affected by the difference in these attributions. For instance, an individual might attribute his own positive performance (as reflected in the feedback provided by the source) to ability and effort, but the feedback source might report that his performance was due to an easy task and a great deal of luck. This attributional

discrepancy may interact with feedback sign in affecting feedback reactions. An individual might respond to positive feedback in one way when there is a moderate attributional discrepancy where the employee is given less credit (i.e., less of an internal attribution from the source) for success and respond in a very different way when the attributional discrepancy is the opposite (i.e., more of an external attribution from the source).

Weiner (1985) has extended his work to formulate an attributional theory of achievement motivation and emotion. He contends that following the outcome of an event (i.e., positive or negative feedback), a positive or negative reaction follows. The reactions to feedback following these outcomes (i.e., outcome-dependent reactions) have already been discussed. Weiner continues by suggesting that causal attributions will be made as well. Furthermore, emotions will be generated by those attributions which Weiner calls attribution-dependent reactions. The results are mixed with respect to which affects are outcome-dependent and which are attribution-dependent (cf. Russell & McAuley, 1986; Harvey & Weary, 1984; Forsyth & McMillan, 1981; Smith & Kluegel, 1982; McFarland & Ross, 1982), but this research area is discussed here to indicate that it is important to examine the effect of sign and attributions on feedback.

The current study sought to extend the attributional

factor by manipulating attributional discrepancy as discussed previously. Only two studies have examined these types of relationships. First, Sicol and Ross (1977) randomly assigned subjects to receive positive or negative feedback on a "social sensitivity" task. After working on the tasks, subjects were asked to answer a few questions and to report their attributions for performance. The experimenter observed the subject filling out his questionnaire from behind a one-way mirror and then provided attributional feedback based on the subject's responses. This feedback was either more or less internal than were the subject's own attributional responses. In other words, subjects were randomly assigned to one of four conditions: 1) positive feedback with more internal attributions for performance, 2) positive feedback with more external attributions for performance, 3) negative feedback with more internal attributions for performance, or 4) negative feedback with more external attributions for performance. Analyses revealed interactions between feedback sign and attributional discrepancy on perceived accuracy of the feedback, as well as on the perceived perceptiveness, and likability of the source. The data indicated that subjects given positive feedback and more responsibility for success (i.e., internal attributions) and those given negative feedback and less responsibility for success (i.e., external attributions)

reported that the feedback was more accurate and the source both more perceptive and more likable than those given positive feedback with less responsibility and those given negative feedback with more responsibility.

This crossover interaction certainly reveals the importance of both sign and attributional discrepancy on reactions to feedback. The results are consistent with the self-serving bias (Kelley, 1971) which predicts that individuals will take credit by making internal attributions for success and reject the blame by making external attributions for failure. It is suggested that individuals use attributions in this way to enhance or protect their self-esteem. It follows then that attributions consistent with this intent, even when made by others, will be better received and result in more positive reactions than attributions not allowing for self-esteem maintenance. Sicoly and Ross (1977) were the first to empirically demonstrate this latter point.

Bannister (1986) extended the work of Sicoly and Ross (1977) to the performance feedback situation. Subjects worked on a truck routing problem (cf. Denisi, Randolph, & Blencoe, 1983) which required them to map a cross-country route for a truck that maximizes cargo while limiting mileage to under 5,000 miles. After working on the task, subjects answered questions providing attributional information. Each

subject, like in the Sicoly and Ross (1977) study, was assigned to receive positive or negative feedback and to receive attributions that were either more internal or more external than were their own responses. Analyses revealed significant interactions between feedback sign and attributional discrepancy on accuracy of the feedback, source perceptiveness, satisfaction of the feedback, and helpfulness of the feedback. The crossover interaction reported by Sicoly and Ross (1977) emerged in Bannister's data as well and provides more evidence for the importance of attributions as determinants of feedback reactions. At this point an important question emerges: To what extent is there agreement among supervisors (sources) and subordinates (recipients) regarding the causal attributions for subordinates' performance? In other words, if the typical state of affairs between the supervisor and subordinate is agreement rather than disagreement, then the attributional discrepancy issue is a minor one. To answer that question, it is necessary to introduce another concept from social psychology: the actor-observer difference. The notion here is that actors and observers differ in causal attributions (Jones & Nisbett, 1971). Actors tend to emphasize situational factors or make external attributions for behavior while observers tend to emphasize actors' personal dispositions or make internal attributions for behavior (for

examples of this widespread phenomenon and reviews, see Weary & Arkin, 1981; Bradley, 1978; Zuckerman, 1979). It seems that there are perceptual and motivational differences between the actor (recipient) and observer (source), that lead to this pattern of attributions (cf. Kelley & Michela, 1980; Jones & Nisbett, 1972). The actor-observer difference and the self-serving bias reveal that there is often disagreement among supervisors and subordinates over the causes of the subordinates' behavior (for examples, see Shaw & Fisher, 1986; Ilgen, Peterson, Martin & Boesch, 1981). Therefore, the importance of examining the effect of attributional discrepancy on feedback reactions in more detail and in combination with other factors is obvious. It is to one of those other factors that this paper now turns.

Performance Discrepancy

Supervisors and subordinates tend to disagree on performance evaluations (i.e., quality of performance) as well as attributions for performance. In fact, Fisher and Chachere (1987) maintain that disagreement is more common than agreement. In their review, Fisher and Russ (1986) identify study after study in which the subordinate and supervisor disagree about the level or nature of the subordinate's performance. Therefore, in addition to the sign of the performance feedback and the attributional discrepancy between the source and the recipient, a third

factor seems likely to impact on reactions to feedback -- performance discrepancy. This discrepancy is the difference between how the feedback recipient believed he or she performed and how the source reported that he or she did perform. In other words, this is the discrepancy between how one thought he or she performed and how one was told he or she performed.

Ilgen et al. (1979) emphasize the importance of subordinates accepting and agreeing with performance feedback before the feedback is to have any of the effects desired by the organization. Biddle and Fisher (1987) suggest that the first factor which influences how feedback is interpreted is how positive or negative the feedback is in comparison to what the recipient expected to receive. The importance of supervisor-subordinate attributional agreement was discussed in the previous section, but Shaw and Fisher (1986) maintain that supervisor-subordinate performance agreement is also very important. In the previous section an important question emerged about the attributional agreement among supervisors and subordinates. A second question emerges here: To what extent is there agreement among supervisors and subordinates regarding the performance level of subordinates? Although the reviews discussed above (i.e., Fisher & Russ, 1986; Fisher & Chachere, 1987) seem to answer this question, the results of two studies seem to bear

directly on this issue.

First, a field study in a large wood-products corporation (Ilgen, Peterson, Martin, & Boeschen, 1981) underscores the importance of performance discrepancies between supervisors and subordinates by demonstrating a great amount of disagreement among supervisors and subordinates. First, subordinates and supervisors did not agree on how much the subordinates trusted the supervisor (supervisors underestimated the amount of trust) or on the supervisors' knowledge of the job. Also, there was very much disagreement with respect to the following: 1) timing of the feedback during appraisal, 2) specificity of delivered feedback, 3) consideration shown in delivery of the feedback, and 4) frequency of feedback. In all but one case, supervisor estimates of feedback conditions were more positive than were those of their subordinates. Finally, supervisors believed that the feedback delivered during the last feedback session was more specific and more helpful than did the subordinates. Interestingly, subordinates perceived that the feedback for overall performance, quantity of performance, and quality of performance was more positive than it really was. Supervisors' perceptions of performance feedback were very accurate as verified by archival company records which included the latest performance scores recorded by the supervisor for each subordinate.

Second, Shaw and Fisher (1986) conducted a field study in a branch of the U.S. military and looked at the extent of agreement between supervisors and subordinates as well as the effects of that disagreement. Subordinates who disagreed with their supervisors reported much less satisfaction with the supervisor, less overall satisfaction, less commitment to the organization, and more role conflict and ambiguity. The authors conclude that it seems reasonable that these reactions followed from being rated lower on performance than one believed one should have been rated. The importance of agreement (or performance discrepancy) as an organizational construct itself is underscored by the fact that the majority of these results were still significant when the sign of the feedback was held constant.

Research on the impact of performance discrepancies on individuals can be found as long ago as the 1950s. For instance, Harvey, Kelley, & Shapiro (1957) manipulated feedback from another such that recipients were provided with feedback that was more negative by either small amounts or large amounts than they had expected. Harvey et al. (1957) found that as the discrepancy got larger, the amount or degree of devaluation of the source also increased. More recently, Shrauger (1975), in his review of responses to evaluation, emphasized two points with respect to satisfaction. First, as feedback became more positive,

satisfaction levels rose. This is the sign effect that has been previously discussed. Second, when feedback was better than expected, satisfaction increased as a function of that level of discrepancy, whereas when feedback was worse than anticipated, dissatisfaction increased as a function of that level of discrepancy.

An example that illustrates this relationship seems necessary. Ilgen (1971) randomly assigned subjects to one of three levels of expected performance (30th, 50th, 70th percentile) and five levels of discrepancy from expected performance (-20, -10, 0, +10, +20). In other words, both sign and performance discrepancy were manipulated in Ilgen's study. He found that satisfaction with performance was a monotonic function of the discrepancy conditions for all three levels of performance. That is, as the discrepancy became more positive (i.e., subjects performed better than they thought), subjects became more satisfied. It should be mentioned that there was also an effect due to the absolute level of outcome. For instance, consider subjects in the same discrepancy condition. Those that received feedback that was more positive in terms of an absolute level were more satisfied than those whose feedback was less positive in an absolute sense, but whose discrepancy was identical to the others. Ilgen (1971) found that both sign (i.e., absolute level of outcome) and performance discrepancy determined the

level of satisfaction. Ilgen and Hamstra (1972) conducted a similar study and found the same two effects for sign and performance discrepancy on resulting satisfaction.

Bernstein and Lecomte (1979) examined the effects of performance discrepancy on reactions to feedback. They found that subjects receiving moderately discrepant negative feedback evaluated the feedback content more negatively than did subjects receiving moderately discrepant positive feedback.

Levy and Foti (1989) measured the effects of attributional discrepancy and performance discrepancy on reactions to feedback. The subjects worked on a task which supposedly measured management potential. The "Management Potential Indicator" was abstracted from the LEAD (Hersey & Blanchard, 1974) and included twelve organizational problems or situations. The subjects were to choose from among four alternatives the option they would likely employ if put into the situation. After working on the task, subjects completed a questionnaire asking how well they thought they had performed and to what factors they attributed that performance (i.e., ability, effort, task difficulty, and luck). Subjects were randomly assigned to receive either positively or negatively discrepant feedback and attributions for performance that were either more internal or more external. This study takes into account the complexity of

the performance appraisal feedback situation by including both discrepancies simultaneously. In so doing, it deals with the situation where supervisors and subordinates do not just differ on their attributions for performance, but also on their actual evaluations of performance.

Levy and Foti (1989) uncovered many significant effects for both the attributional discrepancy and performance discrepancy factors. Those subjects in the positive performance discrepancy conditions rated the feedback as more accurate, reported being more satisfied with the feedback, and reported greater acceptance of the feedback than did those in the negative discrepancy conditions. These same subjects also evaluated the system (i.e., the Management Potential Indicator) as more valuable, more fair, more valid, more accurate, and more useful than did those in the negative discrepancy conditions. While the performance discrepancy factor affected reactions against the feedback and the system, the attributional discrepancy factor seemed to affect reactions against the feedback and the source. Those in the internal discrepancy condition evaluated the source and the feedback more positively than did those in the external discrepancy condition. It appears that Levy and Foti (1989) have demonstrated the importance of performance discrepancy and attributional discrepancy on reactions against the source, the system, and the feedback itself.

OVERVIEW

Summary and Hypotheses

Both the fields of industrial/organizational psychology and social psychology are concerned with how individuals react to feedback delivered by another person. A review of this literature presented earlier has outlined what has been done in the area and has suggested what needs to be done. Specifically, three major independent variables have been identified as important in determining one's reactions to feedback: feedback sign, attributional discrepancy, and performance discrepancy. Despite the research that supports the importance of these three factors in determining reactions against the feedback, the feedback source, and the feedback system, no study has manipulated the three factors in the same investigation. It is suggested here that in the work setting these three factors do occur simultaneously and need to be investigated in this manner.

The current investigation manipulated all three factors simultaneously. Also, this study builds on the control theory conceptualization with its emphasis on discrepancies. It also adds to the knowledge in this area by systematically measuring feedback reactions directed toward the three different modes. Although data were collected for all three modes of direction (i.e., feedback, system, and source) and were analyzed independently, the global dependent variable is

feedback reactions. Since predictions do not differ across the modes of direction, hypotheses are presented with respect to the global dependent measure -- feedback reactions. Feedback sign is an important factor affecting reactions to feedback. Consistently more positive reactions to feedback result when individuals are provided with positive rather than negative feedback (cf., Ilgen et al., 1979; Shrauger, 1975). These positive reactions can be directed at the feedback, the source of the feedback, and the feedback system. From the feedback sign literature reviewed in this paper, a main effect of feedback sign on feedback reactions is hypothesized such that:

Hypothesis 1: Those subjects provided with positive feedback will react more favorably toward that feedback, toward the source of that feedback, and toward the feedback system than will those provided with negative feedback.

The difference between the attributions for subordinate performance made by the supervisor and those made by the subordinate his- or herself is also a key variable. From the social psychological research come phenomena like the self-serving bias and the actor-observer difference which explain the motivational underpinnings for these attributional differences. The logic follows: being told that I performed well may lead to positive reactions, but those positive

reactions may be moderated by the amount of "credit" that the supervisor gives me for that good performance. More specifically, it is the difference between how much credit I think I deserve for that performance and how much credit my supervisor gives me for it that is important. A couple of studies have included sign and attributional discrepancy as factors and they reported the predicted interaction just discussed. Specifically, subjects given more responsibility for a positive outcome and those given less responsibility for a negative outcome evaluated the feedback as being more accurate, satisfying, and helpful, and evaluated the source as being more perceptive and more likable than did those given less responsibility for a positive outcome and more responsibility for a negative outcome (cf. Sicoly & Ross, 1977; Bannister, 1986). Based on much of this research, the following is predicted:

Hypothesis 2: Reactions toward the feedback, the system, and the source will be determined by the interaction of both feedback sign and attributional discrepancy. More specifically, a disordinal interaction is expected such that the most favorable reactions will be made by those in the pos/int condition. Favorability of reactions will be decreasingly less for the neg/ext condition, the pos/ext condition, and the neg/int condition.

The final variable of interest for the proposed study is performance discrepancy. The difference between how the supervisor evaluates the subordinate's performance and how

the subordinate evaluates his or her own performance is another key factor. Many researchers have emphasized the importance of this factor in determining reactions to feedback (cf., Biddle & Fisher, 1987; Shaw & Fisher, 1986; Ilgen et al., 1979). Research in both industrial/organizational psychology and social psychology indicates that more positive reactions result when individuals are given feedback that is better than they had expected rather than feedback that is worse than they had expected (cf., Harvey et al., 1957; Shrauger, 1975; Ilgen, 1971; Levy & Foti, 1989). From this general finding, the following is predicted:

Hypothesis 3: Reactions toward the feedback, the system, and the source will be determined by the interaction of both feedback sign and performance discrepancy. More specifically, an ordinal interaction is expected such that the most positive reactions will be made by those in the pos/better condition and the least positive reactions made by those in the neg/worse condition. The reactions of those in the other conditions are expected to fall in between these two extremes.

METHOD

Participants

Participants were undergraduate psychology students who volunteered for the study. They were given extra credit points for their participation. A total of 192 individuals participated in both sessions of the study. Because of missing data resulting from some individuals skipping questions, the N for the various analyses varies from 181 to 186.

Design

The current study examined the effects of feedback sign (positive vs. negative), attributional discrepancy (internal vs. external), and performance discrepancy (performed better vs. performed the same vs. performed worse) in a 2 x 2 x 3 factorial design on reactions to feedback. Participants were randomly assigned to one of the twelve cells such that each cell was composed of between fourteen and sixteen participants.

Procedure

Session 1. A series of mass testing sessions were conducted during which data were collected for about 275 participants. In addition to some personality inventories, subjects were given the Management Potential Indicator (MPI) which is a modification of the LEAD (Hersey & Blanchard, 1974). The MPI is structured so that a situation is

presented and subjects are asked to report how they would respond to that situation if they were a manager. There are a total of 12 situations and each has four alternatives from which to choose. For example:

Your subordinates are not responding to your friendly conversation and obvious concern for their welfare. Their performance is declining rapidly. You ...

- A) Emphasize the use of uniform procedures and the necessity for task accomplishment.
- B) Make yourself available for discussion but don't push your involvement
- C) Talk with subordinates and set goals
- D) Intentionally do not intervene

Subjects were told, "The study is pretty straightforward. Basically, we need people to work on a selection instrument and then to give us their responses to that instrument. By selection instrument, we mean a questionnaire or inventory that has been devised to be used for the selection of managers into various organizations." Further, they were informed that the instrument (the MPI) was developed by an Industrial/Organizational psychologist at another university who has made a videotape that he would like shown to all of the participants (see Appendix A).

Before viewing the videotape, subjects were given the Informed Consent sheet to fill out if they agreed to participate in the study (see Appendix B). At this point the experimenter reemphasized that participants were to be called back for a second session which would require that they fill

out a few questionnaires. They were instructed that for this second session they would receive another extra credit point toward the grade in their psychology course. Finally, the subjects were played the videotape which is a short (2 or 3 minute) tape of Dr. John G. Smith, a psychologist at another University. In the tape Dr. Smith claims to be an Industrial/Organizational psychologist who has worked for many years in the field of managerial selection. Dr. Smith proceeds to tell the participants that he has developed the MPI for use in managerial selection, but that before using it in the "real world" he wants to get some data on the instrument as well as reactions to the instrument. The participants are also told that a great deal of data have already been collected and that it appears that the MPI is a good instrument for managerial selection. Dr. Smith informs the participants that Roseanne Foti and Paul Levy have agreed to help him with this project and that now, he is asking for the participants' help as well. He tells them that the experimenter will give them more details, but that basically they will work on the MPI and respond to some questions about it. He says that he will evaluate their responses and in a few weeks they will be called back to receive their feedback and answer some more questions. Before the conclusion of the tape Dr. Smith thanks the participants for their help and encourages them to take this very seriously as

over 2 years of work has gone into this project thus far.

After the video tape finished, the participants were asked if they had any questions up to that point. When these questions were addressed by the experimenter, he (she) summarized the events that were to follow. The experimenter gave out the MPI and went over the instructions with the subjects. Subjects were instructed to put only their ID numbers on the top of the MPI and were encouraged to answer as thoughtfully and honestly as possible since their responses were important in the further development of this instrument. After about 15 minutes and when all subjects had completed the MPI, the experimenter told the subjects that the responses would be sent to Dr. Smith who would evaluate them and send them back. It was emphasized that Dr. Smith has had almost 20 years experience in the selection and placement of managerial personnel and that he knows what sort of responses and response patterns are indicative of successful managers. Subjects were informed that their responses would be evaluated then in light of his extensive experience and research in the field.

Questionnaire #1 was administered and participants were instructed to put only their ID number on the top of it (see Appendix C) and then to respond to the questions that followed. The responses to these questions were the basis for the performance discrepancy and attributional discrepancy

manipulations which were made before session 2. This questionnaire consisted of a series of questions which asked the subjects to report how well they thought they did on a scale of 100 to 200 and others that asked them to evaluate the extent to which ability, effort, luck, and task difficulty determined their performance. When everyone had finished responding to the questionnaire, the responses were collected. Questionnaire #2 was administered (see Appendix D). This questionnaire was composed of three parts: Rosenberg's Self-esteem Inventory (Rosenberg (1965), Rotter's IE scale (Rotter, 1966), and the Academic Attributional Style Questionnaire (Peterson & Barrett, 1987). After participants finished this questionnaire they were reminded that they would be called back for a future session. Finally, subjects were dismissed.

Session 2. Participants who were called back for session 2 were tested in groups of 4-6 with dividers strategically placed between them to prevent any diffusion of feedback among participants. A second video tape of Dr. Smith was played for all subject groups (see Appendix A). In the tape, Dr. Smith thanks the participants for coming back and points out that the feedback they were about to receive was compiled by him. Specifically he says, "I evaluated your performance on the MPI based on a series of managerial criteria which have been identified by many of my research studies as being

very important indicants of managerial success." He goes on to say that some of the questions were more difficult than others and that based on their performance pattern on the various questions he was able to make attributions about their performance as well. He also tells them that if they have any questions about their performance to leave their telephone number and he will be in touch. Once again, he thanks them for their help in evaluating and validating the MPI.

The experimenter explained that he (she) will return the questionnaire that the participant filled out at the end of session 1 along with Dr. Smith's feedback. Finally, the subjects were informed that there was one last questionnaire that we would like them to respond to and then the experiment is over. First, the subjects' responses from session 1 and Dr. Smith's feedback were provided. Dr. Smith's feedback included both discrepancy manipulations and the feedback sign manipulation. The experimenter pointed out that Dr. Smith used the same form in summarizing his feedback that the subjects used earlier in session 1. They were told that this was intentional so that the participants could compare how well they thought they did with how well Dr. Smith thought they did. Dr. Smith's feedback also provided the subjects with information about their percentile score and how Dr. Smith interprets that score -- the feedback

sign manipulation. The participants were given a few minutes to "look over" both sheets of information (i.e., their evaluations and Dr. Smith's evaluations) and instructed that for obvious reasons they were not to discuss any of this information amongst themselves.

After a few minutes, the experimenter provided the subjects with Questionnaire #3 which included the major dependent measures and the manipulation checks (see Appendix E). When the subjects finished this questionnaire, all of the materials were collected and the debriefing will commence. The debriefing followed the prescriptions set forth by Mills (1976).

Independent Variables

Feedback Sign. Participants were randomly assigned to receive either positive or negative feedback. Subjects assigned to the positive feedback conditions were told that they performed at the 85th percentile and that based on Dr. Smith's experience and expertise he will suggest to organizations that those managers who score above the 65th percentile are likely to be successful managers and should be hired. In other words, these subjects were informed that their scores on the MPI indicate that they may be well suited for managerial positions. Those subjects who were assigned to receive negative feedback were told that they scored at the 45th percentile and that based on Dr. Smith's experience

and expertise he will recommend to organizations that those managers who score above the 65th percentile are likely to be successful managers and should be hired. In other words, these subjects were informed that their scores on the MPI indicate that they may not be suited for a managerial position.

Attributional Discrepancy. Subjects were randomly assigned to receive attributions that were either more external than their own attributions or more internal than their own attributions. The basis for this manipulation was the subjects' responses to the attributional questions presented during session 1. Subjects responded to questions asking to what degree ability, effort, luck, and task difficulty affected their performance on a scale of 0 to 100. The manipulation of this factor was abstracted from Levy and Foti (1989) and Sicoly and Ross (1977). Subjects were provided with attributional feedback that was, on the average, 15 points discrepant from their own. More specifically, subjects assigned to the internal discrepancy conditions were provided with feedback on the four attributional items that was, on the average, 15 points more internal than were their own responses. This procedure was used to reduce suspicion that could occur if equal discrepancies were used for each questionnaire item (e.g., a 15 point difference on each item). Subjects assigned to the

external discrepancy conditions were provided with feedback on the four attributional items that were, on the average, 15 points more external than were their own responses.

Performance Discrepancy. Participants were randomly assigned to either the better, same, or worse performance discrepancy condition. So as not to be limited by a ceiling or floor effect in making this manipulation, the following process was employed. First, only those subjects who were within one standard deviation above or below the mean on the session 1 item that asked subjects how well they thought they had performed were asked to return for session 2.

This analysis will be based on data from Levy and Foti (1989). In their study, the same questionnaire was used and subjects responded to the same item. The mean of the 114 subjects was 72 and the standard deviation was 12.9. The only difference in the present study was that the scale for this item was 100 to 200 rather than 0 to 100. Therefore, only those subjects who estimate that their performance was between 159 and 185 were going to be used as subjects in this study. However, in an attempt to make all possible combinations of the manipulations believable, only those participants between 150 and 180 were called back for session 2. This painstaking process was employed to prevent the following situation: a subject believed she performed so well (so poorly) that she could not be provided with feedback that

was more positive (more negative) -- a ceiling or floor effect would prevent the manipulation of performance discrepancy and random assignment to conditions. It should be noted that Levy and Foti (1989) found that 74% of their participants fell within this one standard deviation boundary and in the current investigation about 70% of the participants were within these bounds.

It is argued that this process also helps to control for a possible confound that has been prevalent in the literature in this area (cf., Ilgen, 1971; Ilgen & Hamstra, 1972). All of the subjects who returned for session 2 reported performance beliefs in the moderate range and therefore, performance discrepancy and performance beliefs are not confounded with one another. In other words, since all of the subjects fall in the moderate range with respect to their beliefs about their performance, the discrepancy level is not confounded with their performance beliefs. A final qualification was employed before including a subject in this study. Only those subjects whose attributional responses at session 1 could be manipulated in either direction (i.e., internal or external) were employed as participants. An overwhelming majority of participants fell into this category and could be employed in this investigation.

Participants were randomly assigned to receive performance information that was either better than they had

expected, about the same as they had expected, or worse than they had expected. Regardless of which condition subjects were assigned to, the discrepancy level was of a moderate magnitude. Previous research (cf., Harvey et al, 1957; Hamilton, 1969; Sicoly & Ross, 1977) has employed a graphic rating scale of various lengths (e.g., 14 centimeters, 16.8 centimeters) in making similar manipulations. For instance, many of these studies have asked subjects to report along this dimension how well they thought they had performed. The feedback delivered was provided using the same form with the discrepancy operationalized by a certain centimeter difference. In the current study, a graphic rating form was not used. However, the manipulations used by these earlier researchers were important in determining the current operationalization.

Levy and Foti (1989) did not use a graphic rating scale, but employed a 100 point scale. This same 100 point scale was adopted for the present investigation. Levy and Foti (1989) chose 12 points as their operationalization of a moderate discrepancy. The manipulation checks indicated that subjects in the better discrepancy conditions perceived their performance as significantly more positive than did those in the worse discrepancy conditions ($p < .05$). Also, those in the better discrepancy conditions reported that their performance feedback was better than they had expected and

those in the worse discrepancy conditions reported that their performance feedback was worse than they had expected. Extrapolating from those graphic rating scales used by other researchers to the 100 point scale would result in a discrepancy magnitude slightly larger than 12. Combining this information with the Levy and Foti (1989) study has led to a compromise resulting in the current operationalization of a moderate performance discrepancy as 15 points.

Those individuals assigned to the better performance discrepancy conditions were provided with feedback that was 15 points better than were their own responses. Those individuals assigned to the worse performance discrepancy conditions were provided with feedback that was 15 points worse than were their own responses. Those assigned to the same performance discrepancy conditions were provided with feedback that was either 2 points better or 2 points worse than were their own responses. Half the subjects received 2 points better and half received 2 points worse.

Dependent Variables

When the subjects returned for session 2 they were given a questionnaire to answer. This questionnaire (see Appendix E) included the major dependent measures as well as some items examining how effective the three manipulations were. The responses to the major dependent variables were made along 7-point Likert-type scales.

Manipulation Checks. The effectiveness of each independent variable was assessed by one or more questions. Subjects answered most of these questions by responding along a 7-point Likert-type scale. Other questions relating to how believable the subjects viewed the overall experiment and what they perceived the purpose of the experiment were open-ended. First, the checks for the feedback sign manipulation included questions tapping the subjects' perceptions of their performance feedback, their managerial potential, and their percentile score. Questions checking on the attributional discrepancy manipulation asked subjects about their attributions for performance, the responsibility they were given for their performance, and Dr. Smith's attributions. Finally, questions checking on the performance discrepancy manipulation asked participants about their performance as compared to their expectations.

Evaluations of the feedback. The first set of dependent variables consists of reactions directed toward the feedback itself. Subjects were asked how accurate they thought the feedback was, how satisfied they were with the feedback, and to what degree they accepted the feedback. Similar questions were included with respect to the attributions since the attributions were also a part of the feedback.

Evaluations of the feedback source. Questions were included that examined subjects' reactions directed against

the feedback source. These measures included questions inquiring about how the subjects perceived the source with respect to his professionalism, competence, knowledge, perceptiveness, and expertise.

Evaluations of the feedback system. Measures were employed which asked the subjects to evaluate the feedback system (in this case, the Management Potential Indicator). The MPI was evaluated along the following dimensions: value, fairness, validity, accuracy, and likelihood that the subject would use it if he or she were in an appropriate situation for its use.

RESULTS

Manipulation Checks

Several items were included in Questionnaire #3 to assess the effectiveness of each of the experimental manipulations. Tables for results are located in Appendix F.

Feedback Sign. Three items were included to assess the feedback sign manipulation. Participants were asked: 1) to rate how well they had performed on the MPI, 2) to select from a list of percentile ranges what percentile score they were provided by Dr. Smith, and 3) how much managerial potential was identified in them by the MPI. These items were summed to yield one computed measure. A 2 (attributional discrepancy: internal vs. external) x 2 (feedback sign: positive vs negative) x 3 (performance discrepancy: better vs same vs worse) Analysis of Variance (ANOVA) was performed on this computed item. The expected main effect of feedback sign emerged on this item (see Table 1). Participants provided with positive feedback perceived their feedback as more positive ($M = 17.76$) than did those provided with negative feedback ($M = 10.12$). No other effects were significant.

Performance Discrepancy. Two items were included to assess the effects of the performance discrepancy manipulation. Participants were asked: 1) how closely their performance estimate matched Dr. Smith's evaluation of their

performance, and 2) how much better/worse they had performed than they had thought. These items were summed to form a computed variable. An ANOVA on this computed item revealed the intended performance discrepancy effect (see Table 2). First, Newman-Keuls post-hoc tests revealed that participants in the better and worse conditions were more likely to report that their performance was discrepant from what they expected ($\bar{M} = 7.79, 7.87$, respectively) than were those in the same condition ($\bar{M} = 9.42, p < .05$).

One other effect emerged. A main effect of feedback sign was uncovered such that those in the positive condition viewed their performance as more consistent with their beliefs ($\bar{M} = 8.62$) than did those in the negative condition ($\bar{M} = 8.04, p < .01$). Although significant, this effect only accounted for 3% of the variance, whereas the performance discrepancy effect accounted for 21% of the variance.

Attributional Discrepancy. Three items were employed to check on the effects of the attributional discrepancy manipulation. Participants were asked to rate: 1) how much more/less responsibility for their performance Dr. Smith had given them than they had expected, 2) the degree to which Dr. Smith attributed their performance more to ability and effort than they had expected, and 3) the degree to which Dr. Smith attributed their performance more to task difficulty and luck than they had expected. These items were summed, resulting

in a computed variable. An ANOVA revealed the expected Attributional discrepancy effect (see Table 3). Participants in the internal condition were more likely to report that they were given attributions that were more internal than they expected ($\underline{M} = 15.16$) than were those in the external condition ($\underline{M} = 10.44$, $p < .01$). No other significant effects emerged.

In sum, it appears that all three manipulations had their intended effects. Participants in the positive feedback condition perceived their performance as more positive than did their counterparts in the negative feedback condition. Participants in either performance discrepancy condition (i.e., better or worse) perceived a larger discrepancy between their performance and their ideas about their performance than did those in the same condition. Finally, participants in the internal condition relative to external condition perceived: 1) that they were given more responsibility for their performance than they had expected, 2) that their performance was due more to ability and effort than they had thought, and 3) that their performance was due less to task difficulty and luck than they had thought.

Major Dependent Variables

The major dependent variables in this investigation were reactions to feedback. A series of Multivariate Analyses of Variance (MANOVAs) were to be used as the major analytic

strategy on the three classes of feedback reactions (i.e., system, source, and feedback itself). A series of 2 (attributional discrepancy) x 2 (feedback sign) x 3 (performance discrepancy) MANOVAs were computed on each dependent variable class. However, since the internal consistency reliabilities for each class were so high (see Table 4), a summary measure for each class was computed, resulting in one measure for reactions against the feedback, one measure for reactions against the source, and one measure for reactions against the system. These measures were computed by summing the individual measures and dividing by the number of measures (i.e., 6, 5, 5) resulting in the mean. These computed measures were then used as the dependent measures in a series of 2 x 2 x 3 ANOVAs.

The results from the MANOVAs are presented in Appendix G. It must be pointed out that the pattern of results was very similar, but some effects that were marginally significant with the MANOVAs emerged as statistically significant with the ANOVAs. Because of the apparent consistency of the within-class measures, the results of the ANOVAs rather than the MANOVAs will be discussed in detail. Various descriptive statistics for each dependent measure and the computed measures are presented in Table 4. Tables 8-10 include the descriptive statistics for each computed dependent measure by condition.

Hypotheses. Hypothesis 1 predicted a significant main effect of feedback sign on reactions to feedback. The ANOVA on the three computed dependent measures supports this hypothesis (see Tables 5-7). Feedback sign significantly affected reactions directed against the feedback itself, the feedback system, and the feedback source. As predicted positive feedback as opposed to negative feedback resulted in more favorable reactions toward the feedback ($M = 5.49$ vs 3.92), toward the system ($M = 4.83$ vs 3.53), and toward the source ($M = 5.86$ vs 5.21).

Hypotheses 2 and 3, which predicted interactions between feedback sign and the two discrepancy factors, were not supported by these data. As indicated in Tables 5-7, the ANOVAs did not reveal either of the predicted interactions for any of the three dependent measures. Although these effects did not emerge as predicted, other interesting results from this investigation require attention and it is to these results that I now turn.

Unexpected Findings. First, attributional discrepancy contributed to feedback reactions as a main effect on two of the three dependent measures. Tables 5 and 6 indicate significant effects of attributional discrepancy on reactions toward the feedback and reactions toward the system. Those participants assigned to the internal condition as opposed to those assigned to the external condition reacted more

favorably toward the feedback (\underline{M} = 5.03 vs 4.42) and the feedback system (\underline{M} = 4.41 vs 3.98). Second, attributional discrepancy interacted with performance discrepancy to impact on feedback reactions. Tables 6 and 7 reveal significant attributional discrepancy by performance discrepancy interactions on reactions toward the system and the source. To further breakdown these interactions simple effects tests were employed. These analyses examined the effects of attributional discrepancy at each level of performance discrepancy. Significant simple effects were uncovered on both system and source only for those participants in the worse conditions (System: \underline{F} (1, 174) = 114.13, \underline{p} < .01; Source: \underline{F} (1, 174) = 5.89, \underline{p} < .05). These relationships are best understood by examining Figures 1 and 2. The figures indicate that those participants in the worse, internal conditions evaluated the feedback system (\underline{M} = 4.85) and source (\underline{M} = 5.91) more favorably than did those participants in the worse, external conditions (\underline{M} = 3.73 and 5.32, respectively).

Exploratory Analyses. Because hypotheses 2 and 3 were not supported, exploratory analyses were undertaken in an attempt to further explain why these effects did not emerge. The exploratory analyses consisted of a search for moderators and therefore, moderated regression was the analytical technique employed (Stone, 1986; Stone & Hollenbeck, 1984;

Stone & Hollenbeck, 1989). Moderated regression is a form of hierarchical regression that is used to examine interaction effects (Hollenbeck & Williams, 1987). More specifically, it is most often used to examine if an individual difference variable (e.g., self-esteem) moderates the relationship between one or more independent variables and one or more dependent variables. This is how it was used in the current investigation.

During session 1 of the present study, participants were asked to respond to a series of questionnaires. These questionnaires measured three individual difference variables: 1) Self-esteem as measured by the Rosenberg Self-esteem Inventory (Rosenberg, 1965); 2) Locus of Control as measured by Rotter's IE Scale (Rotter, 1966); and 3) Attributional Style as measured by the Academic Attributional Style Questionnaire (Peterson & Barrett, 1987). Self-esteem was measured in this study because it was believed that it could act as a moderator variable in the current design. There is research that suggests that self-esteem may affect how individuals react to information about the self (cf. Baumgardner et al., 1989) and also that self-esteem may be important in determining what kind of information individuals want or prefer about the self (cf. Swann & Ely, 1984; Swann & Read, 1984). Locus of Control and Attributional Style were measured for the same reason -- the

possibility that they might moderate the relationship between the independent variables and the dependent variables. Research by Peterson and his colleagues (cf. Abramson, Seligman, & Teasdale, 1978; Peterson & Barrett, 1987; Peterson & Seligman, 1984) suggest that individuals may react differently to information about the self or their performance as a function of these two variables.

The descriptive statistics and reliability coefficients for these variables are presented in Table 11. These three variables were employed in the regression analyses as potential moderators. Specifically, I was interested in 1) whether self-esteem moderated the predicted interaction of feedback sign and performance discrepancy in such a way that only those high in esteem responded as predicted, and 2) whether locus of control and attributional style moderated the predicted interaction of feedback sign and attributional discrepancy. In other words, I was interested in the following three-way interactions: 1) self-esteem x performance discrepancy x sign, 2) locus of control x attributional discrepancy x sign, and 3) attributional style x attributional discrepancy x sign.

As mentioned, moderated regression is done in hierarchical steps. At step 1, the main effect terms are put into the model. At step 2, all two-way interactions are added. At step 3, all three-way interactions are added and

so on. For the purposes of these analyses, effect coding was used to code each independent variable creating one vector for feedback sign, one vector for attributional discrepancy, and two vectors for performance discrepancy since it has three levels. Interaction terms were created by the multiplication of the appropriate coded vectors.

The analyses were conducted in a hierarchical fashion. I was specifically interested in the increment in R^2 (proportion of variance accounted for) due to the three-way interactions. Because of this, step 3 was broken down into two steps such that each three-way interaction was added into the model by itself and tested last. This allows one to uncover which, if any, three-way interactions were responsible for a significant increase in R^2 above that which was attributed to the other three-ways. Four effects emerged which merit further discussion. Since attributional style did not emerge as a moderator of any relationships, these results are neither presented or discussed.

First, Table 12 reveals that self-esteem moderated the interaction of attributional discrepancy and performance discrepancy on reactions against the system (R^2 change = .03, $p < .05$). The nature of this three-way interaction is revealed in Figure 3, in which the relation between performance discrepancy, attributional discrepancy, and evaluation of the system is plotted for values of ± 1 SD units

on self-esteem. The figure reveals that high self-esteem individuals who perform worse than they thought and are held responsible for that performance evaluate the system more favorably than do any other group of participants. The interaction of attributional discrepancy and performance discrepancy is consistent with the results of the ANOVA presented in Table 6. The regression analysis reveals that self-esteem moderates the relationship uncovered by the ANOVA.

None of the other moderated regressions with self-esteem uncovered any significant effects (see Tables 13-14). The ANOVA did not uncover a significant sign by performance discrepancy interaction and the regression analyses indicate that self-esteem does not moderate that insignificant interaction. In other words, it must be emphasized that the relationship between sign and performance discrepancy was not uncovered by these analyses which is consistent with the results of the ANOVA. The regression analyses did not help in clarifying the relationship between sign, performance discrepancy, and the dependent variables other than to point out that self-esteem does not moderate that relationship.

The second series of regressions employed locus of control as the moderator. I was interested in whether locus of control moderated the sign by attributional discrepancy interaction. Again, each three-way interaction was added

last to isolate the unique R^2 increment. This strategy resulted in two three-way interactions on system that approached significance and one three-way interaction on source that approached significance. Tables 15-18 summarize these results.

Table 15 reveals that the relationship between sign and attributional discrepancy on the system dependent measure was moderated by locus of control -- the R^2 increment was marginally significant (R^2 change = .016, $p < .06$). Figure 4 reveals the nature of this interaction, in which the relation between feedback sign, attributional discrepancy, and evaluation of the system is plotted for values of ± 1 SD on locus of control. Those individuals who scored low on the locus of control scale (often called 'internals') and are given positive feedback as well as more internal attributions react more favorably to the system than do any of their counterparts.

Table 16 shows that locus of control moderated the performance discrepancy by attributional discrepancy interaction on reactions to the system (R^2 change = .023, $p < .07$). The nature of this interaction is revealed in Figure 5, in which the relation between performance discrepancy, attributional discrepancy, and evaluation of the system is plotted for values of ± 1 SD units on locus of control. This figure reveals great fluctuation in the relationship among

these variables across performance discrepancy levels. For instance, those participants who performed better than they thought, scored low on the locus of control scale (i.e., 'internals'), and were given external attributions for their performance evaluated the system more favorably than did any of their counterparts. However, when performance was worse than expected, these same individuals evaluated the system less favorably than any other group.

The results summarized in Table 17 reveal that locus of control moderated the interaction of performance discrepancy and attributional discrepancy on evaluation of the feedback source (R^2 change = .025, $p < .08$). The nature of this interaction is revealed in Figure 6, in which the relation between performance discrepancy, attributional discrepancy, and evaluation of the source is plotted for values of ± 1 SD units on locus of control. This figure reveals an interaction very similar to that displayed in Figure 5 in which the relation among these variables fluctuates across levels of performance discrepancy.

DISCUSSION

Hypotheses

Hypothesis 1. Hypothesis 1 was supported by the data in that feedback sign had the intended effects on feedback reactions. Those participants provided with positive feedback responded more positively toward the feedback, the system, and the source than did those provided with negative feedback. These results support the contention of Biddle and Fisher (1987) that feedback sign is one of the most important determinants of feedback responses. The data corroborate previous findings and also further extend our knowledge regarding feedback reactions. The effect of positive feedback on reactions toward the feedback itself replicates the work of many other researchers (cf. Ilgen, 1971; Stone & Stone, 1984; Sicolý & Ross, 1977; Bannister, 1986). These earlier studies together with the current study indicate that individuals given positive rather than negative feedback are more likely to accept the feedback, perceive the feedback as accurate, be satisfied with the feedback, and report that the feedback is helpful.

Fewer studies have examined feedback reactions toward the source, but those that have report results similar to those found in the current study. Previous work has demonstrated that individuals provided with positive feedback are more likely to view the source as credible, skilled,

intelligent, considerate, likable, competent, and accurate than are participants provided with negative feedback (cf. Snyder & Shenkel, 1976; Steiner, 1968; Stone & Stone, 1982; Baumgardner et al., 1989). The current study extends these findings to other dependent variables -- professionalism, knowledge, perceptiveness, and expertise. Together, these studies indicate that in addition to directing one's feedback reactions toward the feedback, individuals also respond by evaluating the feedback source.

Researchers have argued that individuals can react toward the feedback system in addition to reacting against the feedback and the source (Pearce & Porter, 1986), but very little research has been done on this particular effect. Prior to their study, Pearce and Porter (1986) maintained that although prior research had examined individuals' perceptions of the feedback, no empirical work had directly investigated the impact of feedback sign on attitudes and behaviors toward the feedback system and the organization. These researchers found that those employees given negative feedback were more likely to derogate the appraisal system than were those given positive feedback. The current study corroborates this lone finding in a laboratory setting and extends it to include evaluations of system value, fairness, validity, accuracy, and usefulness. It appears that individuals do respond to feedback by derogating or

complimenting the feedback or appraisal system. The present investigation is one of the first to examine this issue empirically and it, along with Pearce and Porter (1986), indicate the importance of measuring and being aware of reactions directed toward the system.

Hypothesis 2. The second hypothesis was not supported by data collected during the current investigation. Feedback sign did not interact with attributional discrepancy as had been anticipated. Rather than uncovering support for Hypothesis 2, a main effect of attributional discrepancy emerged on reactions toward the feedback and the system with participants responding more favorably to internal attributions regardless of feedback sign. The expectation that attributional discrepancy would have a differential effect as a function of the level of feedback sign was developed from the work of Sicolly and Ross (1977) and Bannister (1986). Both of these studies uncovered the significant interaction.

With respect to the lack of a significant interaction in the current study, a few points need to be made. First, although the interaction between the two factors was not uncovered, each affected feedback reactions as main effects. Interestingly, Bannister (1986) also found significant main effects of these two variables on some of his dependent measures. These effects were not followed by post hoc tests,

but from the graphical representation of the data it appears that those subjects given positive feedback were more satisfied with it than were those given negative feedback. It also appears that those subjects given attributions only minimally discrepant from their own (rather than moderately more internal or moderately more external) perceived the feedback as more accurate and were more satisfied with that feedback. Finally, from Bannister's graphs it seems that those subjects given attributions more internal than they expected were slightly more satisfied with their feedback than were those given attributions more external than they expected. The main effect of sign and attributional discrepancy in the current study seem to corroborate at least some of these findings not emphasized in Bannister's paper.

Second, there is at least one major procedural difference between the studies of Bannister, Sicoly and Ross, and the present investigation. In the earlier studies, subjects were given their feedback sign information before the subjects provided any attributional information. In the current study, attributions were made by the participants and then during session 2 they were given the feedback sign information. This is a very important difference because the self-serving bias would predict that those subjects given positive feedback would attribute that performance to internal factors while those given negative feedback would

attribute that performance to external factors. This is exactly what happened in both the Bannister study and the Sicoly and Ross study. For instance, in Bannister's study those in the positive conditions took more responsibility for their performance ($\bar{M} = 9.03$) than did those in the negative conditions ($\bar{M} = 5.94$). Obviously, the attributional discrepancy manipulations that followed in the Bannister study and the Sicoly and Ross study are problematic. That is, the attributional discrepancy and feedback sign manipulations were not orthogonal since the feedback sign information indirectly affected the absolute level of attributional feedback subjects received.

This flaw calls into question the feedback sign by attributional discrepancy interaction since the two were inextricably tied together. The Bannister paper only reports that this difference in attribution means is statistically significant, but does not discuss the problem outlined here. Sicoly and Ross do not report the means, but point out that there was a statistical difference and they too do not discuss the problem. Another troublesome point related to these issues has to do with a possible ceiling effect on the attributional discrepancy manipulation in both of the earlier studies. For example, Bannister's subjects in the positive sign condition took a great deal of responsibility for that performance ($\bar{M} = 9.03$). Bannister does not discuss the scale

on which the subjects made their attributions, but it is conceivable that giving these subjects more responsibility for their performance required the feedback to be at or above the scale ceiling. This problem could also cause concern about the interpretability of the effects. It appears that the methodology used in the Bannister study as well as the Sicoly and Ross study may have unintentionally created circumstances that artificially increased the likelihood of obtaining the feedback sign by attributional discrepancy interaction. I argue that the current investigation is a stronger and fairer test of the propositions put forth because both manipulations are orthogonal.

Lastly, although the data do not support the predicted feedback sign by attributional discrepancy interaction, one moderated regression analysis did reveal that locus of control moderated the interaction on reactions toward the system ($p < .06$). Figure 4 indicates that 'internals' (i.e., low IE scores) given more responsibility than they expected for a positive performance evaluated the system much more favorably than did 'internals' given more responsibility for a negative performance outcome and 'internals' given less responsibility for a positive performance outcome. In other words, the interaction between the two factors is in the appropriate direction for internally oriented participants.

Hypothesis 3. The final hypothesis did not receive support from the current investigation. Feedback sign did not interact with performance discrepancy as had been anticipated. In addition, performance discrepancy did not emerge as an important main effect factor. Although not predicted in the current study, this seems to contradict the findings of Levy and Foti (1989) who found significant main effects of performance discrepancy on reactions toward the feedback and the system. A major difference between the Levy and Foti study and the current investigation is that the current investigation included an additional factor, feedback sign. It is the inclusion of this factor and the levels at which it was manipulated that may explain both the lack of performance discrepancy main effects and the predicted feedback sign by performance discrepancy interaction.

As discussed earlier, Ilgen (1971) manipulated both performance discrepancy and feedback sign. However, because the two variables were partially confounded with each other, the interaction effect was difficult to interpret. From his results, Ilgen (1971) cautiously suggested that at extreme levels of feedback sign (such as 'success' and 'failure') performance discrepancy did not matter in affecting feedback satisfaction. Ilgen and Hamstra (1972) tested this suggestion by including more levels of feedback sign and they found that performance discrepancy information was a far less

important determinant of feedback satisfaction when feedback sign was extreme than when feedback sign was in the moderate range. In other words, when individuals are given extreme feedback sign information, it matters to them less whether they performed better, the same, or worse than they had thought. Locke's (1967) data on satisfaction fit nicely with this notion. Satisfaction was not affected by the difference between individuals' expectancies and their performance, but they were all given either total success feedback or total failure feedback.

It is argued here that the current study manipulated feedback sign at two extreme levels. Participants were told that they had management potential and that people similar to them should be hired or that they did not have management potential and that people similar to them should not be hired. It is not a large jump in reasoning to view this positive level of feedback sign as success and the negative level as failure. It follows from the arguments made by Ilgen (1971) and supported by Ilgen and Hamstra (1972) as well as earlier investigations (cf. Locke, 1967) that performance discrepancy information was not important in determining individuals' feedback reactions in the current study. Indeed, telling subjects that they had succeeded or failed rendered the performance discrepancy information superfluous since the feedback sign information provided

subjects with diagnostic evaluative data.

Also, it is posited here that performance discrepancy was not important as a main effect in the current study -- as opposed to Levy and Foti (1989) where it was important -- because of the addition of feedback sign. In the Levy and Foti (1989) study, however, since subjects were not given feedback sign information, the performance discrepancy information was very important as the only indicant of performance. Hence, the main effects emerged in the earlier study, but did not in the current one.

Unexpected Findings

Post hoc analyses revealed other unanticipated effects. First, attributional discrepancy affected reactions toward the feedback and the system. Participants given more responsibility for their performance evaluated the feedback and the system more favorably than did those participants given less responsibility for their performance. Although, these main effects were not predicted because it was anticipated that feedback sign would interact with this factor, they do corroborate previous work by Bannister (1986) which was already discussed, and Levy and Foti (1989). This latter study reported that participants given less responsibility for their performance evaluated the feedback and the source less favorably than did those given the same amount of responsibility as expected and those given more

responsibility than expected. Based on these earlier studies and the current one, it appears that subjects prefer being given more responsibility for their performance than they do being given less responsibility for their performance.

Before discussing these effects, one important point about the current study will be presented. Although at first glance the attributional results from the current study seem to contradict the self-serving bias, this may not be the case. There is a difference between the current study and those that have tested notions of the self-serving bias (cf. Miller, 1976; Arkin, Gleason, & Johnston, 1976). The typical study examining the self-serving bias asks participants to attribute their good or poor performance to one of a number of things. The results indicate that after an individual succeeds he or she will attribute that success to internal causes, but when he or she fails, the attribution will be to external causes. The current study did not find results that totally contradict this pattern. In the current investigation participants made attributions for their behavior and then responded when another evaluated that behavior and made attributions for their performance. The results indicate that participants given more responsibility for their performance than they had taken themselves as opposed to those given less responsibility than they had taken themselves were more pleased with their feedback. This

does not mean that participants would have taken as much responsibility for unsuccessful performance as they would have taken for successful performance. In fact, both Sicoly and Ross (1977) and Bannister (1986) found support for the self-serving bias. The design of the current study was not intended to test for this effect. On the other hand, the results are intriguing and merit further discussion.

Because the effect on reactions toward the feedback source was qualified by an interaction which will be examined shortly, I will limit the current discussion to the effect of attributional discrepancy on reactions toward the feedback itself. There are both theoretical explanations and empirical results from previous work which shed light on the current finding. First, Weary and Arkin (1981) discuss an effective control hypothesis which suggests that individuals may strategically make attributions for their own performance to appear as if they are maintaining effective control. Miller and his colleagues (Miller & Norman, 1975; Miller, Norman, & Wright, 1978) have found support for this effective control notion. Miller and Norman (1975) found that individuals made more internal attributions for their own performance than observers did, thus claiming more responsibility for that performance than was given them by observers. They explain their results by claiming that the tendency for individuals to assume responsibility for their

behavior is a manifestation of the individual's need to view him - or her- self as experiencing effective control. It follows that individuals in the current study would react more favorably when given responsibility for their performance because being given this responsibility would satisfy their desire for effective control. Given the ego-involving nature of the task in the current study -- an instrument that identifies managerial potential in people -- subjects might prefer to believe that they have control over their performance and to appear to be experiencing effective control. In this way, individuals can take the credit for a good performance and perceive that improvement on a poor performance is within his or her control. On the other hand, when not given responsibility for a good performance subjects might feel less able or competent while not being given responsibility for a poor performance might lead them to feel hopeless and believe that they cannot improve themselves. Kelley (1971) argues that attribution processes are important as a means for maintaining and encouraging one's belief in the exercise of control in his or her world.

In addition to the research on effective control (cf. Miller & Norman, 1975; Miller, Norman, & Wright, 1978), there are data which indicate that individuals prefer controllable attributions. This refers to Weiner's (1979) third dimension of causal attributions. Some causes of behavior are

controllable by the actor or observer (e.g., effort) while others are uncontrollable (e.g., luck). Kelley and Michela (1980) argue that since attributions to controllable factors imply that one can satisfy his or her goals through his or her own effort, these attributions should be beneficial in leading individuals to believe that they can reach their goals. Given this rationale, these controllable attributions should be preferred over uncontrollable ones. The operationalization of an internal attributional discrepancy in the current study involved an increase on the ability and effort dimensions while task difficulty and luck were decreased. Of these four attributions, Weiner identifies only effort as controllable and thus the performance of subjects in the internal condition was attributed more to controllable factors than was the performance of those in the external condition. Perhaps it could be argued that participants in this study could have viewed ability as controllable as well. For instance, subjects may have believed that although their ability was low they could enroll in more appropriate courses and get some applied work experience which could increase their ability. Regardless, because of the effort attribution manipulation the controllability notion seems very plausible.

Forsyth and McMillan (1981) found that students who made

controllable attributions for their performance reported more positive affect regardless of the level of performance -- success or failure. They found a main effect of feedback sign such that those who performed more positively than others experienced more positive affect. Also, those who made more internal attributions for their performance than were made by others for their own performance reported more positive affect. Third, those who failed and attributed that failure to external, uncontrollable factors reported the most negative expectations regarding future performance. This seems to support the notion mentioned above regarding external attributions for failure and a lack of control over future improvement. Finally, those who made more controllable attributions than were made by others experienced more positive affect. In sum, the results of Forsyth and McMillan's (1981) study parallel many of the findings of the current study. Certainly, their results regarding controllability and locus of causality, in addition to their theoretical explanation help put the attributional discrepancy main effect into perspective. Because of the internal attributions along with the controllability notion, it is understandable why subjects in the internal condition evaluated the feedback more positively than did those in the external condition in both Levy and Foti (1989) and the present investigation. The importance of

these various attributional factors is underscored by the three-way interaction discussed by Forsyth and McMillan (1981). Locus of causality, controllability, and stability interacted in such a way that those subjects who made internal, stable, and controllable attributions for performance regardless of feedback sign reported more positive affect than any other group of participants.

A second explanation for the attributional discrepancy main effect on reactions toward the feedback is suggested by Jellison and Green (1981). They propose a norm of internality which they describe as an overwhelming preference for internal attributions. They demonstrated that people evaluate others more positively when those others make internal attributions for their own performance. They also showed that individuals perceive themselves as more internal than they perceive other people. Finally, they reported that when subjects were instructed to make a good impression, they responded to the I-E Scale (Rotter, 1966) such that their scores categorized them as 'internal' and when told to make a bad impression, they responded in such a way as to emerge as an 'external.' Because people perceive internal attributions as more positive, it follows that subjects in the present investigation reacted to the feedback in a more favorable way when given more responsibility for performance than they did when given less responsibility for performance.

In sum, the finding that participants given more internal attributions than they expected reacted more favorably to the feedback than did those given more external attributions than they expected is consistent with previous work in social psychology. In addition, a motive for effective control, a desire for controllable attributions, and a desire for internal attributions have all been suggested previously as important in determining affective reactions to attributions. The main effect of attributional discrepancy, although not predicted to emerge in this study, fits with both earlier theoretical arguments and the empirical findings reviewed above.

A final unexpected finding that emerged in the current study is the interaction of attributional discrepancy and performance discrepancy on reactions toward the system and the source. These interactions (as depicted in Figure 1 and Figure 2) indicate that among participants performing worse than they had thought, those given more responsibility for their performance evaluated the system and source more positively than did those given less responsibility for their performance. Further, this effect is most prominent for the high self-esteem subjects (see Figure 3) and those who are characterized by the IE scale as 'internals' (see Figures 5 and 6). At first glance, these results seem to be counter-intuitive, but when considered in light of the previous

discussion regarding the attributional main effect the results seem less bizarre.

First, given the previous discussion regarding effective control and controllable attributions, it follows that when participants perform worse than they had thought they will want to take responsibility for that performance because with the responsibility comes a feeling of effective control. For instance, if an individual performs poorly and is told that his or her performance is due more to external factors than he or she had thought, a problem emerges for that individual. Namely, the poor performance is out of his or her control; the individual perceives that nothing can be done to improve his or her performance. On the other hand, if the individual's poor performance is attributed to internal factors, the individual's perception is that the ball is in his or her court -- there is a perception of control such that improvement can be realized from within. If a poor performance is attributed to task difficulty or luck (i.e., external factors) the individual realizes that he or she has no options to employ which could improve performance. If, on the other hand, a poor performance is attributed to ability and effort (i.e., internal factors) the individual knows that his or her effort can be increased and assumes that an increase in effort will likely be manifested in improved performance. The individual might also believe that his or

her ability can be improved in various ways (e.g., specific classes, practice, training) and there is an accompanying assumption that greater ability will be translated into better performance. The more favorable evaluations of the system and source by those who were given responsibility for a performance that was worse than expected are consistent with this theorizing. That is, the preference for internal attributions should be reflected in more favorable reactions when individuals are given those internal attributions.

The results from the moderated regressions support this notion also as the internals reacted most favorably to the internal attributions. These exploratory analyses also revealed that high self-esteem participants were most pleased with the internal attributions for a disappointingly poor performance. This is also consistent with the controllability notion since high self-esteem individuals would be expected to be most interested in having the control over future performance. These moderated results are also consistent with the following theoretical rationale.

Second, the norm of internality notion (Jellison & Green, 1981) also supports this interaction effect. If people perceive internal attributions as more positive than external attributions, as suggested by Jellison and Green (1981), it follows that when performing worse than they thought, individuals will especially prefer internal

attributions. If the performance information is negative, the only positive information the participants could gather from the situation are internal attributions. Hence, internal attributions for a disappointingly bad performance result in more favorable reactions than do external attributions for a disappointingly bad performance. Also, the norm of internality suggests that people believe that one makes a better impression when making internal attributions for his or her performance than when making external attributions for his or her performance. It is conceivable that an actor might view an observer's internal attributions for the actor's performance as an indication that he or she has made a good impression.

In conclusion, it appears that the attributional discrepancy by performance discrepancy interaction can be at least partially explained by the importance of controllable attributions and the norm of internality. It must also be mentioned that attributional discrepancy seems to have a greater impact on feedback reactions when performance is worse than expected. It is plausible that this effect results from the salience of performing worse than expected. That is, when one performs worse than expected, the attributional information provided takes on greater importance because the individual is focused on obtaining some positive information to make up for or overcome the

disappointing performance.

Figures 3, 5, and 6 show a similar pattern of data. These results with respect to the worse condition have been previously discussed. Now, I turn to the moderated results depicted in these figures for the better condition. First, there is a strong relationship between self-esteem and locus of control ($r = -.31$, $p < .01$) indicating that those who are classified as 'internals' are high in self-esteem and those who are 'externals' are low in self-esteem. Figure 3 shows that those who are high in esteem and given external attributions for their better performance react more favorably than the other groups of participants. This can be explained as a result of their esteem. High esteem people are more confident and secure in their abilities than are their counterparts. It follows that they would believe that they performed well and would have responded as such. When told that they performed even better than they thought, it is conceivable that because they feel as if they really know how well they did, they could only accept this discrepancy feedback if they were also told that their performance was due to external factors. These confident people would react more favorably to external attributions for the better performance than internal attributions because the former situation would make the most sense to them and be most readily comprehensible. Their belief in their self-

diagnostic abilities would make it more easy for them to accept and respond favorably to the external feedback. On the other hand, those who are low in self-esteem are looking for ways to improve their esteem and, therefore, respond more favorably when they are given responsibility for their better performance and less favorably when not given that responsibility. High self-esteem people don't need to do this (Baumgardner, et al., 1989).

Explanations for Figures 5 and 6 follow the same rationale if one views 'internals' as high in self esteem and 'externals' as low in self-esteem. More confident internals react more favorably to their better performance when that performance is attributed to external attributions and react worse when it is attributed to internal attributions. Again, the confidence factor that is a function of their personality type explains this effect. Likewise, those who are externals want to be given the responsibility for their surprisingly good performance in an attempt to increase their self-esteem and improve their positive self-view.

Implications

The current study suggests implications for both theoretical development and applied work. These implications will be the focus of this section. The first has to do with the control theory conceptualization. The findings for

attributional and performance discrepancy seem to indicate that individuals do respond to feedback differentially as a function of their perceived discrepancies. Other consistency theories such as equity theory (Adams, 1963) seem less parsimonious in explaining some of the current findings. For instance, it would predict that individuals who did not experience a discrepancy at all (i.e., the same performance discrepancy condition) would react most positively toward the feedback. This was not the case in the present investigation.

Equity theory would predict that performing better than one thought would lead to a perception of inequity (i.e., over-equity) and subjects would act to reduce that inequity. Control theory as espoused by Taylor et al. (1984), on the other hand, draws a distinction between performance above standard and performance below standard. It predicts more favorable responses when individuals perform better than they thought as opposed to performing at the expected levels or worse than they thought. The current data indicate that performing at the level one expected did not result in the most favorable reactions as would be predicted by equity theory. Also, equity theory would not predict a difference between the internal attributional discrepancy conditions and external attributional discrepancy conditions because a discrepancy of the same magnitude should result in similar

behaviors regardless of the direction. It is suggested here that control theory is a good dynamic model of organizational phenomena and should continue to be used to guide future research in the area of feedback as well as human resources and organizational behavior in general.

A second theoretical point stems from the mode of direction categorization. This paper argues that differentiating feedback responses by the mode of direction might be more useful than categorizing responses as affective, behavioral, and cognitive. The data indicate that subjects do react to feedback in the three modes suggested. It is proposed here that differentiating feedback reactions along this mode of direction dimension provides a clearer understanding of feedback responses. Also, from an organizational perspective, it appears that information about the direction of feedback responses is much more useful than information about whether the responses are affective, behavioral, or cognitive. It follows that future research should continue to differentiate among these directional modes to provide more insight into feedback reactions.

Additional research should also attempt to explore which mode of direction is more likely given various situations. For instance, perhaps after positive feedback people are more apt to respond toward the feedback itself rather than toward the source or system. It is argued that it would benefit

supervisors to be aware that employees may react to their performance appraisal feedback by directing their reactions toward the supervisor or feedback source. Knowledge like this may prevent the feedback interview from escalating into an uncomfortable exchange. If the supervisor knows what to expect in a given situation, he or she may be better able to maintain the effectiveness of the feedback interview.

Research along these lines is currently underway (cf. Levy, Foti, & Hauenstein, 1989). These sorts of issues would seem to be very important in applied settings.

Third, the current study also furthers knowledge in this area by examining feedback reactions directed toward the system. Very little research has been undertaken in this area, but given the significant findings from the current study, the system is a viable mode of direction. Future feedback studies should continue to pursue system reactions as a dependent variable in addition to feedback source and the feedback itself. From an applied perspective it is important to realize that it may not be appropriate to restructure the performance appraisal system because employees complain about it. Organizations must be aware of the possibility that employees may be derogating the system because of the nature of the performance appraisal feedback they received. The organization should certainly review the system, but should do so within the context of the motivation

behind the feedback reactions.

Fourth, the importance of attributional information and attributional discrepancies has been highlighted by Levy and Foti (1989) and the current study. The results, however, are far from clear cut. It appears that individuals want to be given responsibility for their performance. This is so even if the performance is worse than they expected. Although some theoretical perspectives can explain these phenomena (e.g., effective control), more research is necessary to clear up what may be conflicts between these data and the self-serving bias. The results from the current study indicate that supervisors may not be "softening the blow" by attributing poor performance to external factors and that individuals prefer being given responsibility for that poor performance.

Finally, the results from the present study indicate that an individual's perceived performance discrepancy is not as important a determinant of feedback reactions when individuals are given unambiguous extreme feedback sign information. Future research should explore further the relationship between performance discrepancy and feedback sign. It is suggested that future research include moderate levels of both factors to explore the possible interactive effect. Given that most employees have perceptions or expectancies regarding their performance, the interaction of

these two factors has implications for the performance appraisal process in organizations as well. For instance, if an employee is told that he or she has done average (i.e., moderate sign information), it is conceivable that his or her perceived performance discrepancy may be very important in determining feedback reactions. Future research is necessary in this area.

Limitations

Several limitations concerning this study merit some attention. The first has to do with the external validity of these data. Although the laboratory setting employed in the current investigation is a good one for the examination of theoretical connections and for increasing the understanding of the processes which underlie behavior in work settings, generalization to the work setting must be done with caution (Dobbins, Lane, & Steiner, 1988). The choice of a laboratory setting was based on the belief that this setting allows for stronger statements about cause and effect which can further our understanding of organizational processes. However, it is strongly suggested that future research attempt to examine similar causal connections in a field setting to insure that the conclusions drawn from the current study are generalizable.

Related to the point above is the notion that some researchers take exception to the use of laboratory studies

because they use undergraduate students as subjects and undergraduates differ significantly from organizational members (Gordon, Slade, & Schmitt, 1986). However, a compilation of papers examining the generalizability of research with students to organizational settings indicates that principles derived in laboratory research with college students tend to generalize to employees in field settings (Locke, 1986). Again, however, similar research in field settings with actual employees should be pursued if for no other reason than to add more evidence to the conclusions reached in the Locke book.

Third, it is conceivable that the results of the current study could be limited by the task and the situation related to that task. In an organizational setting there are more serious contingencies and outcomes than there were in the current study. Although I feel that because of the importance and relevance of this task to the subjects, this study is stronger than other laboratory studies which require subjects to work on some mundane or irrelevant task for 30 minutes in the laboratory, future research ought to employ tasks and subjects over a longer period of time with more important or self-relevant outcomes and contingencies.

Finally, a fourth limitation of the current investigation is that only two levels of feedback sign were employed. If feedback sign had been manipulated at three

levels (with an average level of performance), the explanation regarding the lack of performance discrepancy by feedback sign interaction could have been more efficiently tested. That is, the current study would have been able to test if individuals use performance discrepancy information more when provided with a moderate level of feedback sign rather than an extreme level. The inclusion of a third level of feedback sign may have clarified some of the questions that still remain. As suggested earlier, future research should pursue this idea.

Conclusions

Although all of the hypotheses were not supported in the current investigation, the three manipulated factors did affect feedback reactions. In other words, feedback sign, performance discrepancy, and attributional discrepancy seem to be important in determining feedback reactions. The dependent variables measured in the current study indicate that individuals react along the three dimensions predicted. The present investigation suggests that future research should pursue examinations of both the independent variables and the dependent variables employed here because both sets of variables seem relevant for increased theoretical understanding and for applications in organizational settings.

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APPENDICES

Appendix A

Video Script

SESSION #1

"Hello, my name is Dr. John Smith and I am an Industrial Psychologist at Fictional University in Somewhere, USA. I want to first thank-you for helping us out today with our data collection. I have worked for many years in the field of managerial selection and appraisal and am a consultant to many organizations who need help in this area.

I have developed an instrument that I would like to use for the selection of management personnel -- it's called the management potential indicator. However, since it is still in the working stages I have asked various colleagues along the east coast to help me get student data on the instrument as well as reactions to the instrument before taking it to the real world. At Tech, Roseanne Foti & Paul Levy have agreed to help me and we are now asking for your help also.

The experimenter will explain in more detail what we need you to do. Basically, some data will be collected from you now and then in a week or two after I have examined your data you will return for one more session. Again, I'd like to thank-you for helping us out and I ask that you do take this very seriously because over 2 years of work has gone into this project thus far. Thanks again."

SESSION #2

"Thanks for coming back. As you probably remember, I am Dr. John Smith and the performance feedback that you will soon receive was completed by me. I evaluated your performance on the MPI based on a series of managerial criteria which have been identified by many of my research studies as being very important indicants of managerial success. I should mention that some of the questions are more difficult or easy than others and that based on your performance pattern on the various questions I was able to make attributions about your performance as well.

If you have any questions about your feedback please leave your ID number and phone number with the experimenter and I will get back to you. You don't have to leave your name so that your anonymity is protected, but you can leave it if you wish.

Again, you have been a big help to me and hopefully to organizations that might one day use the MPI for the selection of managers. Thank-you and good-bye."

Appendix B

CONSENT FORM

In this study you will be asked to take part in an investigation of the validity of a "managerial selection instrument." You will be given a brief explanation of the test, its development, and its use. Then the paper and pencil test will be administered to you for your completion. After you have completed the test, you will be asked some questions about the test. Your test responses will be sent away to the professor who developed the test and he will evaluate your performance. In approximately two or three weeks, you will be asked to return so that you may review the feedback provided by the developer of the instrument. At this time we will ask for your opinions about the instrument and its use in various situations. The responses to all of these questions are confidential. Your name will not be put on any of your answers; only your ID number.

You will be given one credit for your participation in each session of this study. Intro students are reminded of the policy that allows for a deduction of 1 point if you fail to show up for an experiment. If at any time you wish to terminate your participation, you may do so at no penalty!! This research has been approved by the Human Subjects Committee of the Psychology Department. If you would like a copy of this form, please make that request and it will be honored.

If you are interested in the final analysis of the results, they will be available from the principal investigator next fall. However, since individual data is anonymous and it will not be analyzed as such, you will not be able to obtain information directly pertinent to any responses that you have made. Only a summary of the final data will be available.

Any other questions that you might have about the specifics of the study should be directed to the principal investigator. If you understand the material presented above and agree to participate in this investigation, please sign below.

Thank you very much for your participation.

Paul E. Levy x 18141
Principal Investigator

Dr. Helen Crawford x 16581
Human Subjects Committee

Dr. Roseanne J. Foti
Research Director

I hereby consent to participate voluntarily in this research project under the conditions described above.

SIGNED: _____ SSN: _____ - _____ - _____

Appendix C

QUESTIONNAIRE #1

1) How well do you think you performed on the Management Potential Indicator? The MPI is scored from 100 to 200 so please indicate how well you think you did on the MPI with 100 being the lowest possible score and 200 the highest possible score. Write a number between 100 and 200 in the blank below.

2) To what degree is effort responsible for your performance? Consider your effort involved in things like reading the questions carefully and thinking through the situations thoroughly. Choose a number between 0 and 100 where 0 indicates "effort is not responsible at all" and 100 indicates that "effort is totally responsible for my performance." Please write a number between 0 and 100 in the blank below.

3) To what degree is the difficulty of the MPI responsible for your performance? Consider things like the difficulty of the questions and the complexity of the situations. Choose a number between 0 and 100 where 0 indicates "MPI difficulty is not responsible at all" and 100 indicates that "MPI difficulty is totally responsible for my performance." Please write a number between 0 and 100 in the blank below.

4) To what degree is your ability responsible for your performance? Consider things like your competence and intelligence in dealing with the MPI. Choose a number between 0 and 100 where 0 indicates that "ability is not responsible at all" and 100 indicates that "ability is totally responsible for my performance." Please write a number between 0 and 100 in the blank below.

5) To what degree is luck responsible for your performance? Consider the chance factors that may have impacted on your performance. Choose a number between 0 and 100 where 0 indicates that "luck is not responsible at all" and 100 indicates that "luck is totally responsible for my performance." Please write a number between 0 and 100 in the blank below.

Appendix D

QUESTIONNAIRE # 2

Self-Descriptions Scale

1. This is a questionnaire to find out about the way in which certain important events in our society affect different people. Each item below consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

2. Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. Please circle the your response.

3. In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select one that you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

1a. Children get into trouble because their parents punish them too much.

1b. The trouble with most children today is that their parents are too easy with them.

2a. Many of the unhappy things in people's lives are partly due to bad luck.

2b. People's misfortunes result from the mistakes they make.

3a. One of the major reasons why we have wars is because people don't take enough interest in politics.

3b. There will always be wars, no matter how hard people try to prevent them.

4a. In the long run people get the respect they deserve in this world.

4b. Unfortunately, individuals' worth often passes unrecognized no matter how hard they try.

- 5a. The idea that teachers are unfair to students is nonsense.
- 5b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
- 6a. Without the right breaks one cannot be an effective leader.
- 6b. Capable people who fail to become leaders have not taken advantage of their opportunities.
- 7a. No matter how hard you try some people just don't like you.
- 7b. People who can't get others to like them don't understand how to get along with others.
- 8a. Heredity plays the major role in determining one's personality.
- 8b. It is one's experiences in life which determine what they're like.
- 9a. I have often found that what is going to happen will happen.
- 9b. Trusting to fate has never turned out.
- 10a. In the case of the well-prepared student, there is rarely if ever such a thing as an unfair test.
- 10b. Many times exam questions tend to be so unrelated to coursework that studying is really useless.
- 11a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
- 11b. Getting a good job depends mainly on being in the right place at the right time.
- 12a. The average citizen can have an influence in government decisions.
- 12b. This world is run by the few people in power, and there is not much the little "guy" can do about it.
- 13a. When I make plans, I am almost certain that I can make them work.
- 13b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
- 14a. There are certain people who are no good.
- 14b. There is some good in everybody.

- 15a. In my case getting what I want has little or nothing to do with luck.
- 15b. Many times we might as well decide what to do by flipping a coin.
- 16a. Who gets to be boss often depends on who was lucky enough to be in the right place first.
- 16b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
- 17a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
- 17b. By taking an active part in political and social affairs the people can control world events.
- 18a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
- 18b. There really is no such thing as "luck."
- 19a. One should always be willing to admit mistakes.
- 19b. It is usually best to cover up one's mistakes.
- 20a. It is hard to know whether or not a person really likes you.
- 20b. How many friends you have depends upon how nice a person you are.
- 21a. In the long run the bad things that happen to us are balanced by the good things.
- 21b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
- 22a. With enough effort we can wipe out political corruption.
- 22b. It is difficult for people to have much control over the things politicians do in office.
- 23a. Sometimes I can't understand how teachers arrive at the grades they give.
- 23b. There is a direct connection between how hard I study and the grades I get.
- 24a. A good leader expects people to decide for themselves what they should do.
- 24b. A good leader makes it clear to everybody what their jobs are.

- 25a. Many times I feel that I have little control over the things that happen to me.
- 25b. It is impossible for me to believe that chance or luck plays an important role in my life.
- 26a. People are lonely because they don't try to be friendly.
- 26b. There's not too much use in trying to please people, if they like you, they like you.
- 27a. There is too much emphasis on athletics in school.
- 27b. Team sports are an excellent way to build character.
- 28a. What happens to me is my own doing.
- 28b. Sometimes I feel that I don't have enough control over the direction my life is taking.
- 29a. Most of the time I can't understand why politicians behave the way they do.
- 29b. In the long run the people are responsible for bad government on a national level as well as on a local level.

Interpretation of Academic Events

1. Please try to imagine yourself in the situations that follow. If such a situation were to happen to you, what do you feel would have caused it? While events can have many causes, we want you to pick only one -- the major cause if this event happened to you.

2. Please write this cause in the blanks provided on the sheets following this page. Then we want you to answer three questions about the cause you provided. Simply circle the number of your answer for each question. First, is the cause of the event something about you or something about other people or circumstances? Second, is the cause of this event something that will persist across time or something that will never again be present? Third, is the cause of this event something that affects all situations in your life or something that only affects just this type of event?

3. To summarize, we want you to:
 - a. Read each situation and vividly imagine it happening to you.
 - b. Decide what you feel would be the one major cause of the situation if it happened to you.
 - c. Write the one cause in the blank provided.
 - d. Then answer the three questions about each cause.

(6) YOU CANNOT SOLVE A SINGLE PROBLEM IN A SET OF TWENTY (20) ASSIGNED AS HOMEWORK.

Write the one cause:

- 1) Is the cause of this due to something about you or is it something about other people or circumstances (circle one number)?

totally due to others 1 2 3 4 5 6 7 totally due to me

- 2) In the future, will this cause again be present (circle one number)?

never present 1 2 3 4 5 6 7 always present

- 3) Is this cause something that affects just this type of situation, or does it also influence other areas of your life (circle one number)?

just this situation 1 2 3 4 5 6 7 all situations

(7) YOU ARE DROPPED FROM THE UNIVERSITY BECAUSE YOUR GRADES ARE TOO LOW.

Write the one cause:

- 1) Is the cause of this due to something about you or is it something about other people or circumstances (circle one number)?

totally due to others 1 2 3 4 5 6 7 totally due to me

- 2) In the future, will this cause again be present (circle one number)?

never present 1 2 3 4 5 6 7 always present

- 3) Is this cause something that affects just this type of situation, or does it also influence other areas of your life (circle one number)?

just this situation 1 2 3 4 5 6 7 all situations

- (10) THE REQUIRED TEXTBOOK FOR A COURSE IS UNAVAILABLE IN THE SCHOOL BOOKSTORE.

Write the one cause:

- 1) Is the cause of this due to something about you or is it something about other people or circumstances (circle one number)?

totally due to others 1 2 3 4 5 6 7 totally due to me

- 2) In the future, will this cause again be present (circle one number)?

never present 1 2 3 4 5 6 7 always present

- 3) Is this cause something that affects just this type of situation, or does it also influence other areas of your life (circle one number)?

just this situation 1 2 3 4 5 6 7 all situations

- (11) YOU GET A "D" IN A COURSE REQUIRED FOR YOUR MAJOR.

Write the one cause:

- 1) Is the cause of this due to something about you or is it something about other people or circumstances (circle one number)?

totally due to others 1 2 3 4 5 6 7 totally due to me

Personal Reactions Inventory

PLEASE COMPLETE THE FOLLOWING ITEMS BY CIRCLING THE NUMBER MOST CLEARLY REPRESENTING YOUR PERSONAL REACTION. PLEASE BE FRANK AND HONEST.

- 1). I feel that I'm a person of worth, at least on an equal basis with others.

1. Strongly Agree	2. Agree	3. Neither Agree Nor Disagree	4. Disagree	5. Strongly Disagree
-------------------	----------	-------------------------------	-------------	----------------------

- 2). I feel that I have a number of good qualities.

1. Strongly Agree	2. Agree	3. Neither Agree Nor Disagree	4. Disagree	5. Strongly Disagree
-------------------	----------	-------------------------------	-------------	----------------------

- 3). All in all, I am inclined to feel that I am a failure.

1. Strongly Agree	2. Agree	3. Neither Agree Nor Disagree	4. Disagree	5. Strongly Disagree
-------------------	----------	-------------------------------	-------------	----------------------

- 4). I am able to do things as well as most other people.

1. Strongly Agree	2. Agree	3. Neither Agree Nor Disagree	4. Disagree	5. Strongly Disagree
-------------------	----------	-------------------------------	-------------	----------------------

- 5). I feel I do not have much to be proud of.

1. Strongly Agree	2. Agree	3. Neither Agree Nor Disagree	4. Disagree	5. Strongly Disagree
-------------------	----------	-------------------------------	-------------	----------------------

- 6). I take a positive attitude toward myself.

1. Strongly Agree	2. Agree	3. Neither Agree Nor Disagree	4. Disagree	5. Strongly Disagree
-------------------	----------	-------------------------------	-------------	----------------------

- 7). On the whole, I am satisfied with myself.

1. Strongly Agree	2. Agree	3. Neither Agree Nor Disagree	4. Disagree	5. Strongly Disagree
-------------------	----------	-------------------------------	-------------	----------------------

8). I wish I could have more respect for myself.

- | | | | | |
|----------------------|----------|-------------------------------------|-------------|-------------------------|
| 1. Strongly
Agree | 2. Agree | 3. Neither
Agree
Nor Disagree | 4. Disagree | 5. Strongly
Disagree |
|----------------------|----------|-------------------------------------|-------------|-------------------------|

9). I certainly feel useless at times.

- | | | | | |
|----------------------|----------|-------------------------------------|-------------|-------------------------|
| 1. Strongly
Agree | 2. Agree | 3. Neither
Agree
Nor Disagree | 4. Disagree | 5. Strongly
Disagree |
|----------------------|----------|-------------------------------------|-------------|-------------------------|

10). At times I think I am no good at all.

- | | | | | |
|----------------------|----------|-------------------------------------|-------------|-------------------------|
| 1. Strongly
Agree | 2. Agree | 3. Neither
Agree
Nor Disagree | 4. Disagree | 5. Strongly
Disagree |
|----------------------|----------|-------------------------------------|-------------|-------------------------|

Appendix E

Questionnaire #3

DIRECTIONS: PLEASE CIRCLE THE NUMBER THAT BEST ANSWERS EACH QUESTION. FOR SOME QUESTIONS YOU WILL BE REQUIRED TO WRITE A PHRASE OR SENTENCE OR TWO.

1) According to your feedback, how well did you perform on the Management Potential Indicator?

1	2	3	4	5	6	7
well below average			average			well above average

2) How much managerial potential was identified in you by the MPI?

1	2	3	4	5	6	7
well below average			average			well above average

3) You were provided with a "percentile score" by Dr. Smith. Which of the following best represents that percentile score?

1	2	3	4	5	6
0-26th	27th-39th	40th-52th	53th-65th	66th-78th	79th-100th

4) How closely did your performance estimate match with Dr. Smith's evaluation of your performance?

1	2	3	4	5	6	7
not closely at all			somewhat			very closely

5) How closely did your attributions for performance match with those attributions made by Dr. Smith?

1	2	3	4	5	6	7
not closely at all			somewhat			very closely

6) How much better/worse did you perform than you thought you had performed?

1	2	3	4	5	6	7
much worse		about the same				much better

7) How much more/less responsibility for your performance did Dr. Smith give you than you had expected? Holding you responsible for your performance would involve evaluating your performance as due to things like ability and effort while not giving you the responsibility would involve evaluating your performance as due to things like task difficulty and luck.

1	2	3	4	5	6	7
much less			about the same			much more

8) To what degree did Dr. Smith attribute your performance more to ability and effort than you had expected?

1	2	3	4	5	6	7
very small degree			some degree			great degree

9) To what degree did Dr. Smith attribute your performance more to task difficulty and luck than you had expected?

1	2	3	4	5	6	7
very small degree			some degree			great degree

10) How well did you perform on the MPI?

1	2	3	4	5	6	7
not very well			average			very well

11) How accurate do you believe Dr. Smith's feedback regarding your performance was?

1	2	3	4	5	6	7
not accurate			somewhat accurate			very accurate

12) How accurate do you believe Dr. Smith's attributions regarding your performance were?

1	2	3	4	5	6	7
not accurate			somewhat accurate			very accurate

13) To what degree do you accept the feedback provided by Dr. Smith as adequately reflecting your performance?

1	2	3	4	5	6	7
very small degree			some degree			great degree

14) To what degree do you accept the attributions made by Dr. Smith as adequately reflecting the various causes of your performance?

1	2	3	4	5	6	7
very small degree			some degree			great degree

15) In general, how professional would you say Dr. Smith is?

1	2	3	4	5	6	7
not professional			somewhat professional			very professional

16) In general, how competent would you say Dr. Smith is?

1	2	3	4	5	6	7
not competent			somewhat competent			very competent

17) In general, how knowledgeable would you say Dr. Smith is?

1	2	3	4	5	6	7
not knowledgeable			somewhat knowledgeable			very knowledgeable

18) In general, how perceptive would you say Dr. Smith is?

1	2	3	4	5	6	7
not perceptive			somewhat perceptive			very perceptive

19) In general, how expert would you say Dr. Smith is?

1	2	3	4	5	6	7
not expert			somewhat expert			very expert

20) How satisfied are you with the performance feedback provided by Dr. Smith?

1	2	3	4	5	6	7
not satisfied			somewhat satisfied			very satisfied

21) How satisfied are you with the attributions made for your performance by Dr. Smith?

1	2	3	4	5	6	7
not satisfied			somewhat satisfied			very satisfied

22) In your opinion, how valuable is the Management Potential Indicator (MPI) for the selection of managers?

1	2	3	4	5	6	7
not valuable			somewhat valuable			very valuable

23) In your opinion, how fair is the MPI?

1	2	3	4	5	6	7
not fair			somewhat fair			very fair

24) In your opinion, how valid is the MPI?

1	2	3	4	5	6	7
not valid			somewhat valid			very valid

25) In your opinion, how accurate is the MPI?

1	2	3	4	5	6	7
not accurate			somewhat accurate			very accurate

26) If you were a personnel administrator, how likely is it that you would use the MPI in the selection of managers for your company?

1	2	3	4	5	6	7
not likely			somewhat likely			very likely

27) For what purpose will the Management Potential Indicator be used?

28) Who developed the Management Potential Indicator?

29) What was the purpose of your participation in this project?

Appendix F

Table 1

Summary of ANOVA for Manipulation Check on Feedback Sign

Source	SS	df	MS	F	eta ²
Attrib Discrepancy (A)	2.638	1	2.638	1.900	
Perf Discrepancy (P)	6.851	2	3.425	2.466	
Feedback Sign (S)	2627.075	1	2627.075	1891.611*	.900
A x P	1.961	2	.981	.706	
A x S	1.961	1	1.961	1.412	
P x S	3.992	2	1.996	1.437	
A x P x S	4.717	2	2.359	1.698	
Error	234.708	169	1.389		
Total	2894.729	180	16.082		

* $p < .01$

Table 2

Summary of ANOVA for Manipulation Check on Performance
Discrepancy

Source	SS	df	MS	F	eta ²
Attrib Discrepancy (A)	4.718	1	4.718	2.468	
Perf Discrepancy (P)	101.332	2	50.666	26.507*	.210
Feedback Sign (S)	15.124	1	15.124	7.912*	.030
A x P	5.562	2	2.781	1.455	
A x S	4.211	1	4.211	2.203	
P x S	11.637	2	5.818	3.044	
A x P x S	.529	2	.264	.138	
Error	323.032	169	1.911		
Total	464.110	180	2.578		

* $p < .01$

Table 3

Summary of ANOVA for Manipulation Check on Attributional
Discrepancy

Source	SS	df	MS	F	eta ²
Attrib Discrepancy (A)	1017.748	1	1017.748	148.115*	.450
Perf Discrepancy (P)	3.834	2	1.917	.279	
Feedback Sign (S)	17.031	1	17.031	2.479	
A x P	27.181	2	13.590	1.978	
A x S	5.117	1	5.117	.745	
P x S	25.042	2	12.521	1.822	
A x P x S	21.854	2	10.927	1.590	
Error	1161.258	169	6.871		
Total	2268.983	180	12.605		

* $p < .01$

Table 4

Dependent Variable Means and Reliabilities

Variable	Mean	SD	Min	Max	Alpha Rel.
Feedback Accuracy	4.747	1.465	1.0	7.0	
Attribution Accuracy	4.731	1.304	1.0	7.0	
Feedback Acceptance	4.559	1.573	1.0	7.0	
Attribution Acceptance	4.591	1.377	1.0	7.0	
Feedback Satisfaction	4.876	1.718	1.0	7.0	
Attribution Satisfaction	4.806	1.501	1.0	7.0	
FEEDBACK (COMPUTED VARIABLE)	4.719	1.501	1.5	7.0	.944
Professionalism	5.575	1.123	1.0	7.0	
Competence	5.667	1.054	2.0	7.0	
Knowledgeable	5.763	1.080	2.0	7.0	
Perceptiveness	5.392	1.186	1.0	7.0	
Expertise	5.317	1.172	1.0	7.0	
SOURCE (COMPUTED VARIABLE)	5.543	1.014	1.8	7.0	.943
Valuable	4.306	1.643	1.0	7.0	
Fair	4.478	1.515	1.0	7.0	
Valid	4.172	1.560	1.0	7.0	
Accurate	4.231	1.483	1.0	7.0	
Useful	3.780	1.845	1.0	7.0	
SYSTEM (COMPUTED VARIABLE)	4.194	1.845	1.0	7.0	.951

Table 5

Summary of ANOVA for Reactions toward the Feedback

Source	SS	df	MS	F	eta ²
Attrib Discrepancy (A)	17.043	1	17.043	16.000*	.053
Perf Discrepancy (P)	.899	2	.450	.422	
Feedback Sign (S)	114.002	1	114.002	107.027*	.348
A x P	2.929	2	1.464	1.375	
A x S	.236	1	.236	.222	
P x S	1.696	2	.848	.796	
A x P x S	.600	2	.300	.282	
Error	185.340	174	1.065		
Total	323.386	185	1.748		

* $p < .01$

Table 6

Summary of ANOVA for Reactions toward the System

Source	SS	df	MS	F	eta ²
Attrib Discrepancy (A)	8.206	1	8.206	4.733*	.023
Perf Discrepancy (P)	1.070	2	.535	.308	
Feedback Sign (S)	78.051	1	78.051	45.015**	.194
A x P	12.588	2	6.294	3.630*	.034
A x S	.001	1	.001	.001	
P x S	1.384	2	.692	.399	
A x P x S	.848	2	.424	.244	
Error	301.696	174	1.734		
Total	403.672	185	2.182		

* $p < .05$ ** $p < .01$

Table 7

Summary of ANOVA for Reactions toward the Source

Source	SS	df	MS	F	eta ²
Attrib Discrepancy (A)	.788	1	.788	.846	
Perf Discrepancy (P)	.777	2	.388	.417	
Feedback Sign (S)	19.311	1	19.311	20.756**	.102
A x P	5.593	2	2.797	3.006*	.036
A x S	.063	1	.063	.068	
P x S	1.148	2	.574	.617	
A x P x S	.455	2	.228	.245	
Error	161.888	174	.930		
Total	190.236	185	1.028		

* $p < .05$ ** $p < .01$

Table 8

Descriptive Statistics by Condition for Measure of Reactions
toward the Feedback

	Performance Discrepancy					
	Better		Same		Worse	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
	Attributional Discrepancy					
Feedback Sign	Int.	Ext.	Int.	Ext.	Int.	Ext.
Positive	5.865 (.642)	5.500 (.680)	5.678 (.910)	5.156 (.990)	5.937 (.551)	4.792 (1.236)
Negative	4.122 (1.427)	3.594 (1.342)	4.202 (1.246)	3.900 (1.151)	4.240 (.861)	3.467 (.968)

Note. Int. stands for internal and Ext. stands for external. Higher numbers connote more favorable reactions. Standard deviations are in parentheses under the cell means.

Table 9

Descriptive Statistics by Condition for Measure of Reactions
toward the System

	Performance Discrepancy					
	Better		Same		Worse	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
	Attributional Discrepancy					
Feedback Sign	Int.	Ext.	Int.	Ext.	Int.	Ext.
Positive	4.825 (1.124)	4.962 (1.203)	4.800 (1.375)	4.450 (1.576)	5.487 (.755)	4.425 (1.530)
Negative	3.453 (1.579)	3.387 (1.552)	3.543 (1.143)	3.587 (1.362)	4.212 (1.084)	2.987 (1.255)

Note. Int. stands for internal and Ext. stands for external. Higher numbers connote more favorable reactions. Standard deviations are in parentheses under the cell means.

Table 10

Descriptive Statistics by Condition for Measure of Reactions
toward the Source

	Performance Discrepancy					
	Better		Same		Worse	
	Int.	Ext.	Int.	Ext.	Int.	Ext.
	Attributional Discrepancy					
Feedback Sign	Int.	Ext.	Int.	Ext.	Int.	Ext.
Positive	5.987 (.539)	5.950 (.663)	5.480 (1.156)	5.887 (.693)	6.237 (.608)	5.587 (1.285)
Negative	5.120 (1.121)	5.112 (.864)	5.186 (1.479)	5.240 (1.023)	5.575 (.719)	5.027 (1.039)

Note. Int. stands for internal and Ext. stands for external. Higher numbers connote more favorable reactions. Standard deviations are in parentheses under the cell means.

Table 11

Descriptive Statistics for Individual Difference Variables

Variable	Mean	SD	Min	Max	Alpha Rel.
Self-esteem	39.964	5.396	25.00	50.00	.839
Locus of Control	10.990	4.290	1.00	22.00	.755
Attributional Style	4.302	.669	2.00	7.00	.848

Table 12

Moderated Regression on System with Self-esteem as Moderator

Step	Variable	R^2	p	$R^2 \Delta$	p of Δ
1	Self-esteem (E) Feedback Sign (S) Attributional Discrepancy (A) Performance Discrepancy (P)	.219	.0001		
2	E x S E x A E x P S x A S x P A x P	.274	.0001	.055	ns
3	E x S x A E x S x P S x A x P	.287	.0001	.013	ns
4	E x A x P	.317	.0001	.030	.03

Table 13

Moderated Regression on Feedback with Self-esteem as Moderator

Step	Variable	R^2	p	R^2_{Δ}	p of Δ
1	Self-esteem (E)				
	Feedback Sign (S)				
	Attributional Discrepancy (A)				
	Performance Discrepancy (P)	.415	.0001		
2	E x S				
	E x A				
	E x P				
	S x A				
	S x P				
	A x P	.438	.0001	.023	ns
3	E x S x A				
	E x S x P				
	S x A x P				
	E x A x P	.462	.0001	.024	ns

Table 14

Moderated Regression on Source with Self-esteem as Moderator

Step	Variable	R^2	p	R^2_{Δ}	p of Δ
1	Self-esteem (E)				
	Feedback Sign (S)				
	Attributional Discrepancy (A)				
	Performance Discrepancy (P)	.122	.0003		
2	E x S				
	E x A				
	E x P				
	S x A				
	S x P				
	A x P	.180	.002	.058	ns
3	E x S x A				
	E x S x P				
	S x A x P				
	E x A x P	.207	.008	.027	ns

Table 15

Moderated Regression on System with Locus of Control as Moderator

Step	Variable	R^2	p	ΔR^2	p of Δ
1	Locus of Control (L)				
	Feedback Sign (S)				
	Attributional Discrepancy (A)				
	Performance Discrepancy (P)	.218	.0001		
2	L x S				
	L x A				
	L x P				
	S x A				
	S x P				
	A x P	.261	.0001	.043	ns
3	L x S x P				
	L x P x A				
	S x P x A	.299	.0001	.038	ns
4	L x S x A	.315	.0001	.016	.056

Table 16

Moderated Regression on System with Locus of Control as Moderator

Step	Variable	R^2	p	ΔR^2	p of Δ
1	Locus of Control (L)				
	Feedback Sign (S)				
	Attributional Discrepancy (A)				
	Performance Discrepancy (P)	.218	.0001		
2	L x S				
	L x A				
	L x P				
	S x A				
	S x P				
	A x P	.261	.0001	.043	ns
3	L x S x P				
	L x S x A				
	S x P x A	.292	.0001	.031	ns
4	L x P x A	.315	.0001	.023	.067

Table 17

Moderated Regression on Source with Locus of Control as Moderator

Step	Variable	R^2	p	$R^2 \Delta$	p of Δ
1	Locus of Control (L)				
	Feedback Sign (S)				
	Attributional Discrepancy (A)				
	Performance Discrepancy (P)	.111	.0008		
2	L x S				
	L x A				
	L x P				
	S x A				
	S x P				
	A x P	.176	.002	.065	ns
3	L x S x P				
	L x S x A				
	S x P x A	.184	.01	.008	ns
4	L x P x A	.209	.008	.025	.084

Table 18

Moderated Regression on Feedback with Locus of Control as Moderator

Step	Variable	R^2	p	$R^2 \Delta$	p of Δ
1	Locus of Control (L)				
	Feedback Sign (S)				
	Attributional Discrepancy (A)				
	Performance Discrepancy (P)	.412	.0001		
2	L x S				
	L x A				
	L x P				
	S x A				
	S x P				
	A x P	.439	.0001	.027	ns
3	L x S x P				
	L x S x A				
	L x P x A				
	S x P x A	.455	.0001	.016	ns

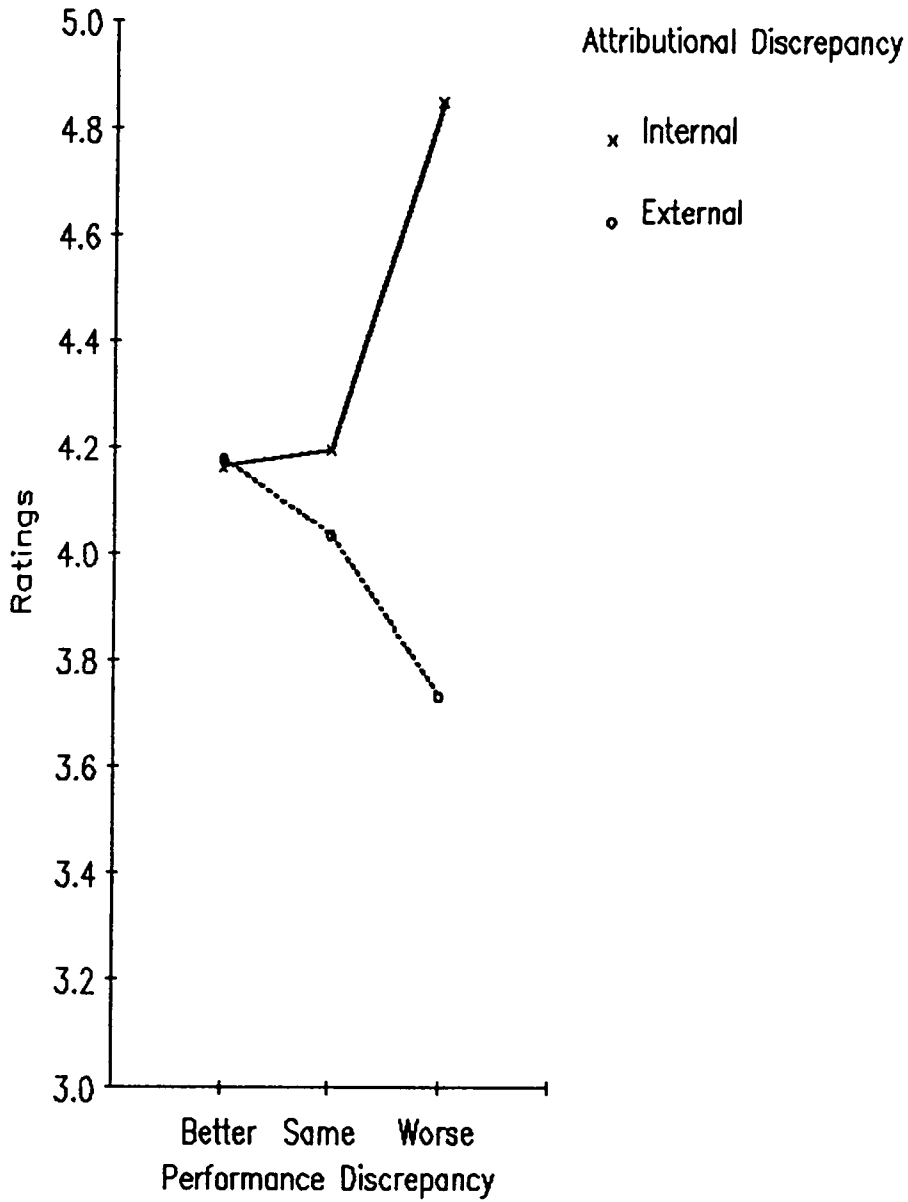


Figure 1. Mean Reactions against the System as a Function of Attributional and Performance Discrepancies

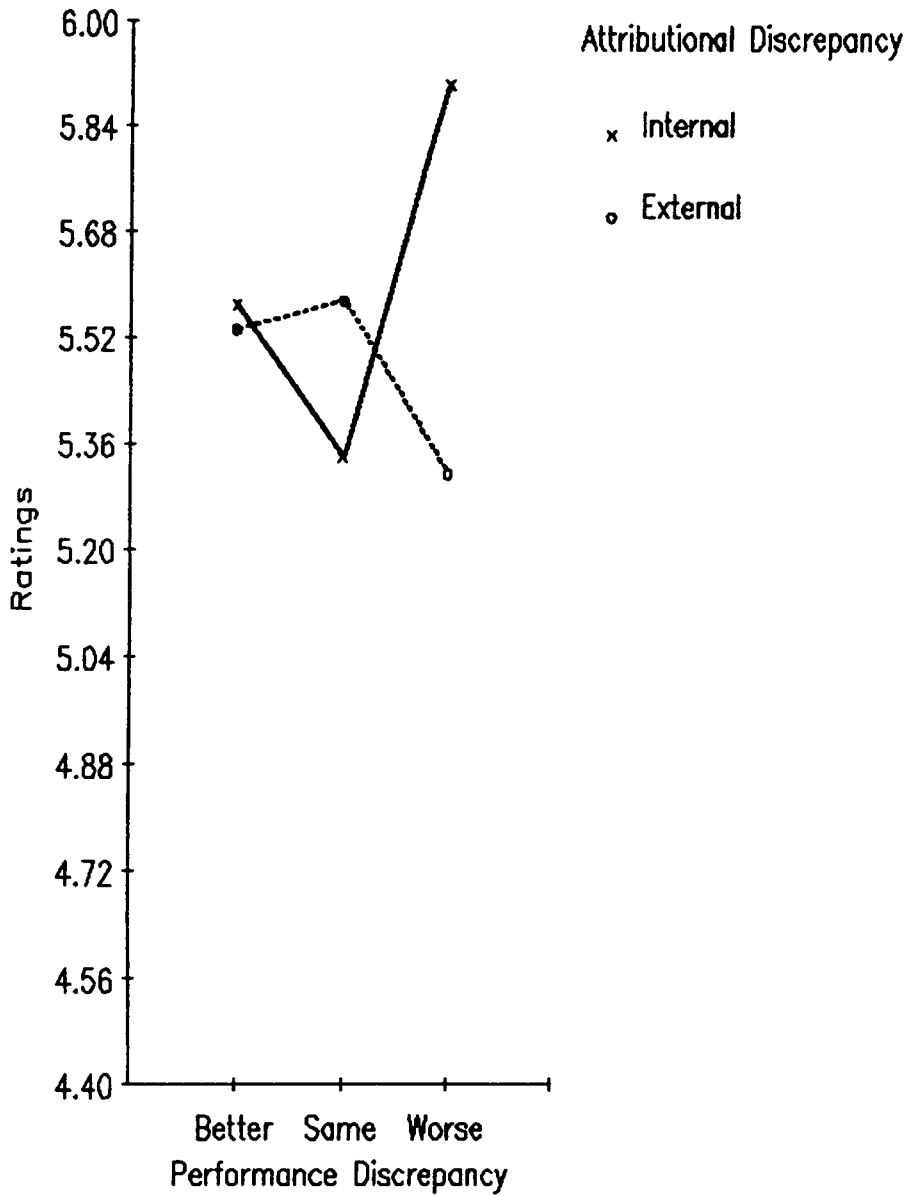


Figure 2. Mean Reactions against the Source as a Function of Attributional and Performance discrepancies

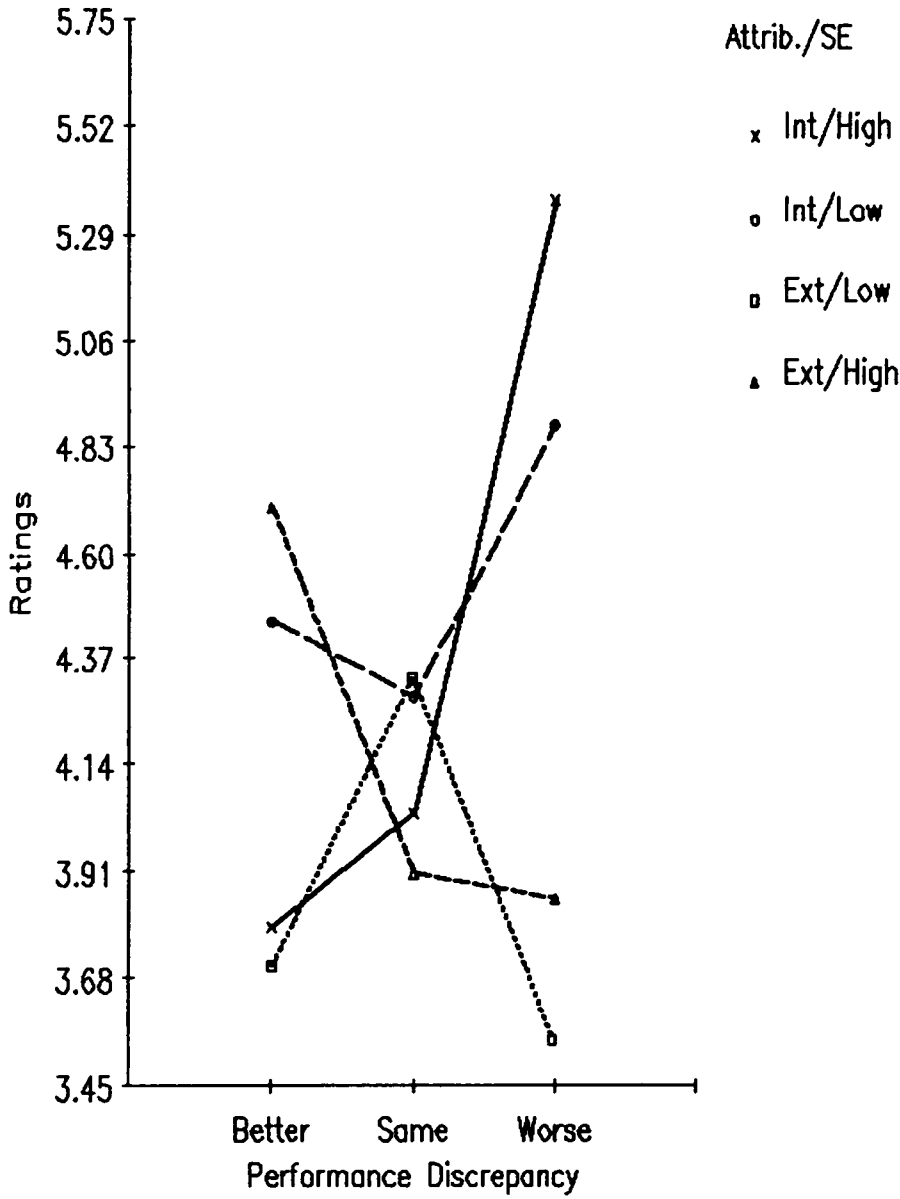


Figure 3. Interaction of Attributional Discrepancy, Performance Discrepancy, and Self-esteem on Reactions toward the System

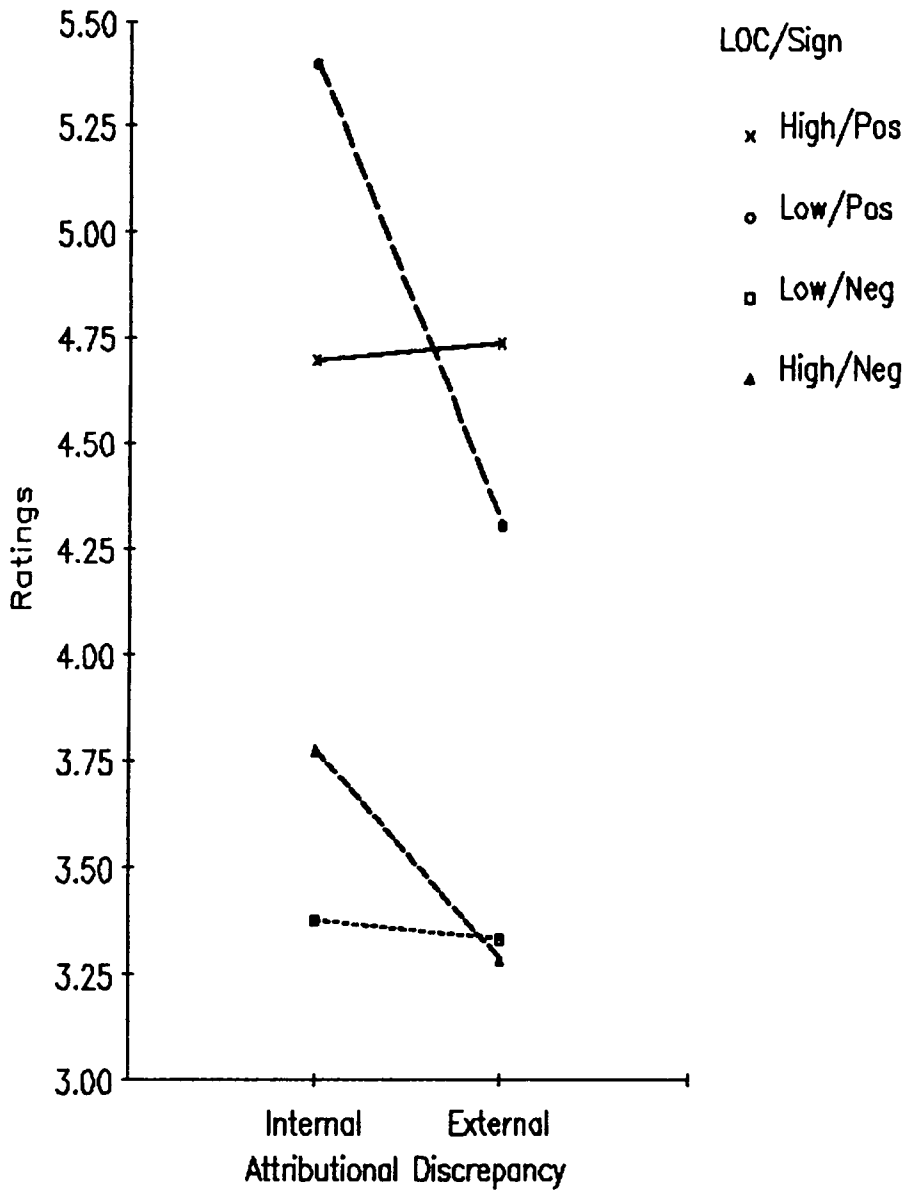


Figure 4. Interaction of Attributional discrepancy, Feedback Sign, and Locus of Control on Reactions toward the System

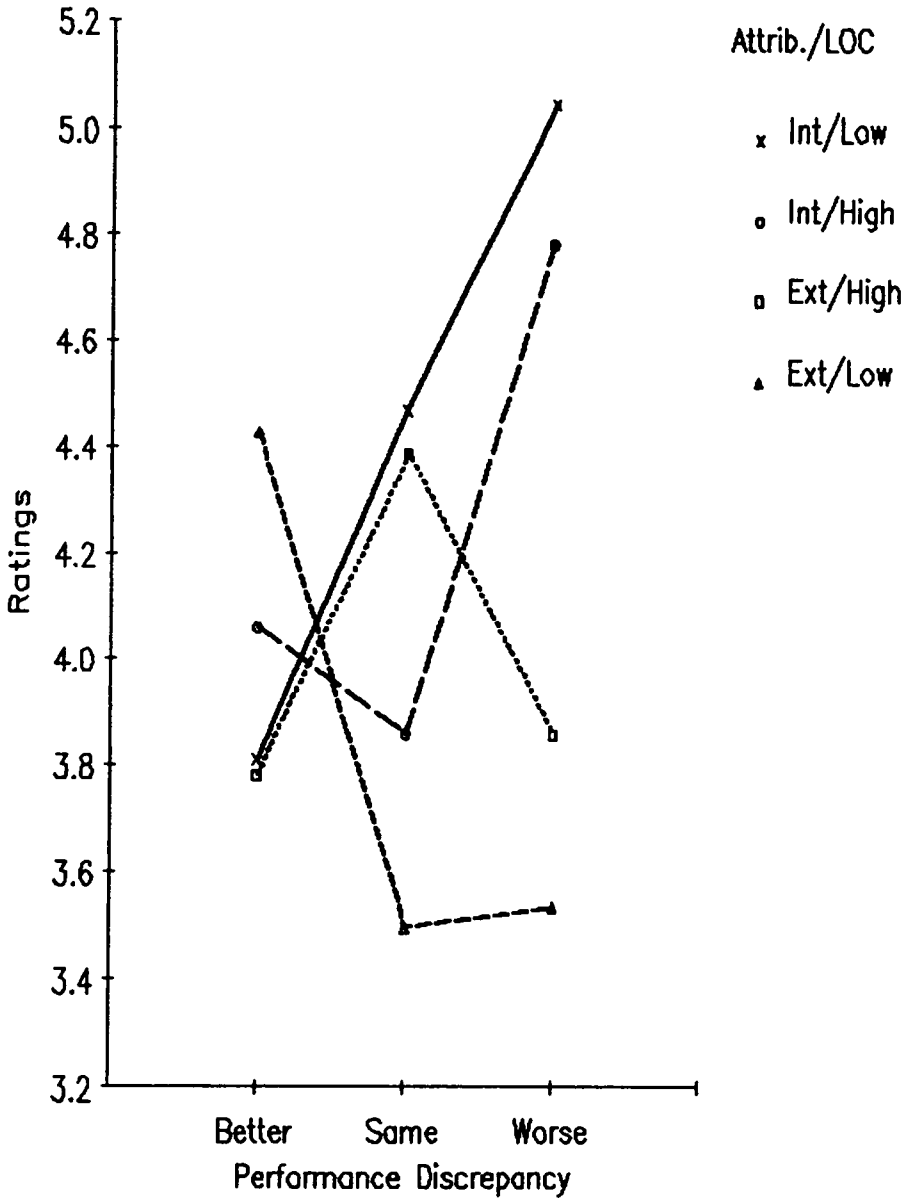


Figure 5. Interaction of Attributional Discrepancy, Performance Discrepancy, and Locus of Control on Reactions toward the System

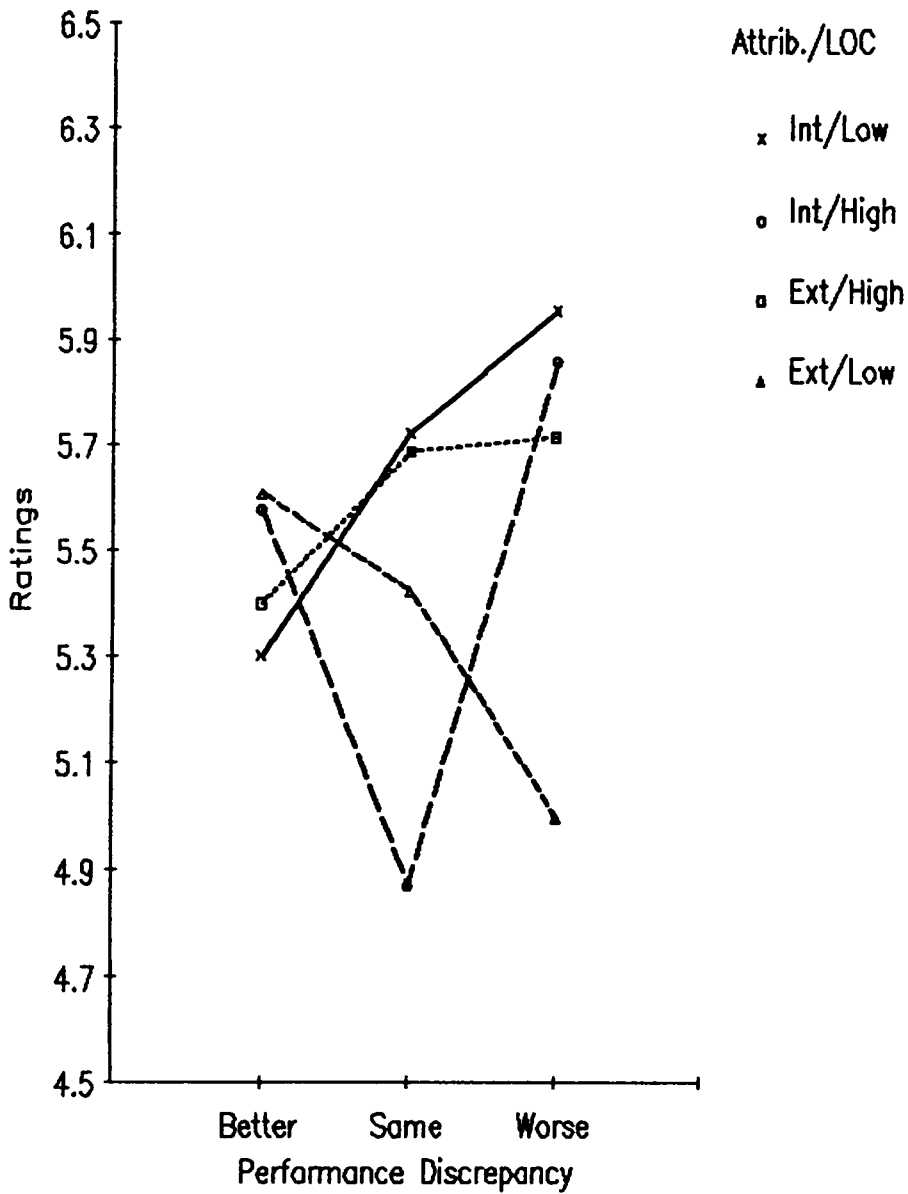


Figure 6. Interaction of Attributional Discrepancy, Performance Discrepancy, and Locus of Control on Reactions toward the Source

Appendix G

MANOVA Results

The 2 x 2 x 3 MANOVAs on each class of dependent variables revealed the following effects. First, a main effect of feedback sign emerged on each dependent variable class (all p s < .0001). The univariate ANOVAs on each variable within the feedback class (i.e., feedback accuracy, attribution accuracy, feedback acceptance, attribution acceptance, feedback satisfaction, and attribution satisfaction) were all significant at the p < .0001 level. The univariate ANOVAs on each variable within the system class (i.e., value, fairness, validity, accuracy, and usefulness) were all significant at the p < .0001 level. The univariate ANOVAs on each variable within the source class (i.e., professionalism, competence, knowledge, perceptiveness, expertise) were all significant at the p < .0001 level.

Second, a main effect of attributional discrepancy emerged on reactions to the feedback itself (p < .0001). The univariate ANOVAs on each variable within the feedback class (i.e., feedback accuracy, attribution accuracy, feedback acceptance, attribution acceptance, feedback satisfaction, and attribution satisfaction) were all significant (p levels range from .026 to .0001).

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