

RECIPROCAL INFLUENCE OF SUBORDINATE REACTIONS ON THE  
RATING BEHAVIOR, AMOUNT OF SUPERVISION, AND ATTRIBUTIONS  
OF SUPERVISORS INDEPENDENT OF ACTUAL PERFORMANCE

by

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## Abstract

One hundred and twenty six undergraduates were cast into a supervisory role in which they worked with a subordinate (confederate) for two twenty minute work sessions. Subjects were placed into one of nine conditions. Subordinate reaction (positive, negative, or none) and subsequent performance (increased, decreased, or same) were manipulated by the confederate. Both reaction conditions were predicted to influence a leniency bias in the supervisor's rating behavior, and either increase (negative reaction), or decrease (positive reaction) amount of supervision. Also, supervisors exposed to the positive reaction were hypothesized to provide more self-attributions, while supervisors in the negative reaction group should tend toward greater self-serving attributions. In addition, supervisor response to interpersonal attraction, conflict avoidance, and uncertainty scales were obtained. Both ratings and amount of supervision measures failed to yield significant results. Partial support was found for the attribution hypothesis, and differences on the interpersonal attraction scales were obtained for the experimental reaction conditions. Implications of the results and suggestions for possible research are discussed.





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## Introduction

Many researchers have suggested that relationships among individuals within an organizational context should be studied using a reciprocal interaction approach (Schneider, 1983; Terborg, 1981). After Lowin and Craig's (1968) initial demonstration of subordinate influence on leader behavior, there have been several findings of reciprocal influence processes (RIP) within the leader-member relationship (Dansereau, Graen, & Haga, 1975; Greene, 1975; Herold, 1977; Hollander, 1978; Sims & Manz, 1984). This body of research has demonstrated that subordinate performance can influence both the attitudes and behaviors of leaders. However, the effect of nonperformance-based influence tactics utilized by subordinates has not been studied. That is, subordinates may attempt to influence the attitudes and behaviors of supervisors either in conjunction with, or without modifying their actual work performance. The general purpose of the current study is to assess the relationship between performance-based and nonperformance-based subordinate influence within the context of performance appraisal.

The relationship between a subordinate and their supervisor may vary a great deal. Generally, RIP posits that either member of a dyad in any one of their roles may influence the other in a related role. One supervisory role which is common in many organizations is that of performance

evaluator. Interaction between supervisor and subordinate occurs in a performance appraisal system in which the supervisor provides the subordinate with feedback on his performance. Although RIP is established in the leadership area, it has not been extended to specifically address the performance appraisal setting. This process is a common type of interaction between the members of the dyad as it takes place in both formal and informal contexts. Informal feedback often occurs on a day to day basis, whereas formal appraisals are typically done according to a specific schedule, such as monthly or annually (Feldman, 1981).

In performance appraisal, rating accuracy is often problematic. A great deal of research has investigated the psychometric problems of appraisal instruments (for a review, see Landy & Farr, 1980). More recently, research has begun to focus more on the evaluator's process of judging performance (Ilgen & Feldman, 1983) rather than the instrument being used. The information exchange between the supervisor and subordinate takes place in a social context in which information is processed and perceptions formulated by both parties. Ilgen and Feldman (1983) point out that this complicates the process and increases the sources of bias. Subsystems which are subsumed by the appraisal process include: the organizational context in which the appraisal takes place, the appraiser's information processing system,

and the behavioral system of the person being appraised.

Assuming that appraisals take place on a regular schedule, and that the ratee is interested in the feedback, Ilgen and Feldman (1983) posit that in order to fully understand the process:

. . . one must begin with realistic conception of the evaluator as an information gatherer and processor, operating in a complex environment. One must then consider the interpersonal relationship existing between the evaluator and the one being evaluated . . . imbedded in an organizational context which serves to promote and constrain behavior in various ways. (p. 143).

These considerations are often overlooked by both researchers and personnel managers when implementing performance appraisal systems.

The cyclic nature of the appraisal process within the social context of an organization complicates the researcher's task a great deal. The subordinate actively processes and monitors information (Ashford & Cummings, 1983). They continually evaluate their performance, form expectations concerning the evaluation by the supervisor, receive the feedback, and assess its accuracy and fairness against their expectations. If the subordinate feels that the evaluation of his performance is unfair he/she may react outwardly, in a positive, or negative way. Such reactions may influence both the attributions of subordinate performance made by supervisors, as well as their future rating behavior.

Ideally, when supervisors evaluate their workers they make an accurate, objective assessment of a representative work sample, and this is reflected in their ratings. However, research has demonstrated that supervisor ratings are vulnerable to non-performance based variables. For instance, the rater's perception of serious consequences due to harsh ratings for himself and the ratee usually results in lenient ratings (Glickman, 1955). Kipnis (1960) discussed the influence of the social setting, supervisor expression of criticism of the subordinate, and proximity on leniency of supervisor's ratings. A similar effect should result from subordinate reaction to feedback, a variable which may directly effect the interpersonal relationship of the two members.

Attributions of subordinate performance have been shown to mediate the rating behavior of supervisors (Stone & Slusher, 1975; Knowlton & Mitchell, 1980). Similarly, Green and Mitchell (1979) suggest a two link model illustrating the mediating role of the leader's attribution process between subordinate behavior and leader behavior. The two link model is as follows:

subord. beh.-----> leader attributions-----> leader beh. When supervisors are placed in any situation in which they must function as a leader, they often need to seek out informational cues, and develop causal attributions which

subsequently guide their evaluations. Green and Mitchell (1979) describe the attribution process of the leader:

The naive causal attributions of the leader serve as mediators between the stimulus behavior of the subordinates and the behavior of the leader. Placed in an uncertain environment which is to be "managed," the leader seeks informational cues about what is happening and why. From these cues attempts are made to construct causal explanations to guide the leader's behavior and enhance his or her feelings of effectance . . . and sense of being in control (p.430-31).

This is an excellent summary of what takes place in the first link. However, an additional process may take place in the attribution model discussed above. When leader behavior refers to subordinate evaluation, then perhaps the subordinate's reaction to that performance rating will lead to a reassessment of the supervisor's attributions, which may in turn cause a change in the supervisor's subsequent rating behavior.

In summary, formal evaluations are likely to elicit reactions from subordinates. A great deal of research has investigated the appraisal factors which contribute to subordinate satisfaction/ dissatisfaction, or perceived fairness/ unfairness. Also, many studies have examined factors which influence supervisor rating behavior. However, the two variables, subordinate reaction and supervisor ratings, have not been investigated together as an independent variable and dependent variable, respectively. The specific purpose of this research is to investigate the

effect of subordinate reactions to initial evaluations on subsequent ratings, amount of supervision, and attributions by the supervisor. This should illustrate the difficulty of subjective evaluations in an organizational context, and lend support to the need to consider RIP when studying the supervisor-subordinate relationship in an appraisal setting.

## Literature Review

Reciprocal Influence Process in Performance Appraisals A great deal of the contemporary literature concerning the relationship between supervisor and subordinate is based on two oversimplified assumptions (Dansereau, Cashman, and Graen, 1973). The first assumption is that subordinates under the same supervisor are sufficiently homogenous on relevant dimensions. The second is that the supervisor behaves or responds to each of his subordinates in the same manner. Dansereau, et al. (1973) have pointed out the failure of the traditional approach to consider individual differences when describing the behavior of the supervisor. Performance appraisal research is a prime example of where this over-simplification of the dyad relationship exists.

Researchers generally treat the subordinates' role during a feedback session as receptive and passive. In many areas of research the need to assume the average, normal behavior between supervisor and subordinate may be understandable for control purposes. Also, the passive subordinate may frequently be found in an organizational setting. However, this is not always the case. The social, transactional nature of the dyad relationship is an important factor which needs to be considered.

Larson (1984) presented a preliminary model of performance feedback which depicted and emphasized the

transactional nature of the feedback process. Supervisor behavior was shown to be affected by both antecedent and consequent variables. Of the feedback process Larson (1984) states:

. . . the performance feedback process is a dynamic one, in which the consequences of any one feedback episode are among the antecedents of the next. This dynamism is conducted both through the impact that performance feedback has on subsequent subordinate performance, as well as through its influence on the supervisor him/herself. (p. 69)

This emphasizes the need to consider reciprocal influences when investigating the supervisor/subordinate dyad.

#### RIP Contributions from Leadership Theories

In their vertical dyad linkage (VDL) approach to leadership, Dansereau, Graen, and Haga (1975) perceive the supervisor - subordinate relationship as being complex and dynamic in that it involves reciprocal influences from the subordinate to the supervisor, as well as from the supervisor to the subordinate. The longitudinal research conducted by Dansereau, et al. (1975) found that supervisors tend to form subsets among their subordinates in which they develop either a supervision (influence based on authority) or a leadership (influence without authority) relationship with the subordinate, and that the degree of latitude granted by a supervisor for a subordinate to negotiate his role was predictive of both the supervisor's and the subordinates' subsequent behavior.

The fact that mutual influence occurs between supervisor and subordinate for both behavior and attitude was demonstrated by Herold (1977) who suggested that the vertical dyad is the proper unit of analysis when investigating the processes between the leader and the subordinate. Conditions were manipulated such that either the leader could control the subordinate's outcomes without effecting his own outcomes, or vice versa for the subordinate. The effect of leader behavior on subordinate performance was found to be conditional upon the leader-power situation. A general finding of the study was that subordinates reacted differently to different behaviors of the leader. The leaders' behaviors and attitudes varied as a function of subordinate performance.

Additional longitudinal data supporting the reciprocal influence between leaders and subordinates assessed inferences of causality by examining cross-lagged correlations between leader behavior and subordinate performance and satisfaction (Greene, 1975). Other studies have also found reciprocal influence between the dyad (Lowin & Craig, 1968; Hollander, 1978) in terms of both behavior and attitude. These studies have assessed different factors which mediate RIP within the dyad relationship, such as supervisor's level of power and the type of feedback message involved. Sims and Manz (1984) have investigated the verbal

communication dimension of the supervisor - subordinate relationship. High or low performance by the subordinate caused an increase in the supervisor's choice of verbal response, and reward or punishment respectively. This provides some insight about the informal verbal feedback commonly given by supervisors.

The influence of affect within a supervisor - subordinate relationship has also been investigated. Ratings were significantly more positive when the subordinate was perceived by the evaluator as being more similar as opposed to non-similar (Nimmer, Foti, and Davies, 1988). This suggests RIP influences on performance ratings as a result of interpersonal factors between the two members of the dyad.

The research on RIP within the supervisor-subordinate dyad strongly suggests mutual influence from both members. To exclusively focus on subordinate changes due to supervisor influence is shortsighted. Within an organizational context, supervisors and subordinates continually interact in such a way that the behaviors and attitudes displayed by one should have some bearing on the behaviors and attitudes of the other. When the two participate in the performance appraisal system the feedback information oriented toward the subordinate's performance is central. However, it is important to consider the effect of mutual feedback loops in which information originates from the subordinate, as well as

the supervisor. This is especially true for subsequent evaluations when performance appraisals are ongoing.

#### Control Theory Perspective

One framework which has been used to investigate the feedback process is control theory (Taylor, Fisher, & Ilgen, 1984). The four essential features underlying a control theory system are: inputs into the system initiating action, the processing of these inputs, outputs resulting from the processing, and a feedback loop. The feedback loop is the central mechanism. Feedback is received, compared against the individual's work standard, and results in some form of response. The worker's performance standard may or may not be congruent with the feedback evaluation. The content of a worker's response concerning his/her feedback is likely to depend on the extent to which the feedback and the standard are parallel.

Within the feedback loop the focus is on the information provided to the worker about the nature of their inputs, or the quality or quantity of their outputs. The goal of communicating this information is to improve subsequent outputs by that individual. Given that the feedback process is cyclic, and the supervisors and subordinates do influence one another reciprocally throughout feedback cycles, then the control theory perspective of feedback may serve a wider capacity in explaining the appraisal phenomenon. As

illustrated by Taylor et al. (1984) the control theory perspective of feedback only discusses feedback oriented toward the subordinate's work performance. When the same supervisor and subordinate are involved, each performance evaluation should not be considered independent of previous evaluations. Some consideration must be given to the inputs, processing, outputs, and feedback for the supervisor's rating behavior in the appraisal process as provided by the subordinate.

From this perspective, the initial inputs would include the sample of work behavior observed, and any other information which may aid the supervisor's evaluation. These inputs are compared against the standard of performance a supervisor expects from a subordinate. From this process the supervisor is able to provide an output, a performance rating for the subordinate. After the supervisor provides the rating, the feedback cycle may occur once again with the focus now on supervisor's evaluation performance instead of the subordinate's work performance. In this case, the subordinate's reaction to the evaluation serves as the source of feedback to the supervisor. Integration of RIP into the control theory perspective of the feedback system compels the researcher to investigate the subsequent influence of subordinate's reaction to feedback on the source of that feedback, specifically the supervisor.

### Subordinate Reaction

Supervisor ratings may not be a function of the subordinate's performance exclusively, but also a function of the subordinate's perceptions of previous evaluations and his/her expression of those perceptions to the supervisor. It is suggested that subordinate reactions to performance ratings, whether positive or negative, will affect future supervisor evaluations in a systematic manner. The characteristics of feedback and appraisal systems which are likely to result in worker satisfaction or dissatisfaction, perceived fairness or unfairness, as well as subordinate motives for expressing their opinion shall be discussed.

Satisfaction / Dissatisfaction. Perceptions of the supervisor and the feedback environment are related to subordinate satisfaction with the appraisal system (Ilgen, Peterson, Martin, & Boeschen, 1981). In general, this study found a lack of agreement between supervisors and subordinates concerning level of performance despite agreement concerning the pattern of the feedback discussion. Also, more highly educated subordinates tended to be less satisfied with the atmosphere of appraisal settings, and with the helpfulness of feedback

If subordinates do not agree with the reasons behind the feedback provided by the supervisor, they may argue against the feedback information. In many cases the subordinate and

supervisor may agree with the level of performance, however they may disagree about performance attributions. As observers of others, supervisors are apt to form internal attributions for poor performing subordinates based on the fundamental attribution error (Ross, Amabile, & Steinmetz, 1977). When the supervisor makes internal attributions, whether or not they are in error, a subordinate may have made external attributions for the same performance output. Weiner (1982) has suggested that in such a case, negative feedback leads to feelings of anger and frustration by the subordinate, in contrast to positive feedback which results in gratitude.

An early study found that subordinates perceived threats to their self-esteem when managers attempted to point out performance areas which needed improvement (Kay, Meyer, and French, 1965). This study not only looked at attitudes concerning the evaluation, but actual behaviors which resulted from those attitudes. The researchers found that the perceived threats were associated with defensive behaviors on the part of the subordinate. Burke, Weitzel, and Weir (1978) also found the presence of threat to be negatively related to satisfaction with the appraisal process. In addition, they found that planning self-development, opportunity to present ideas and feelings, supervisor helpfulness and constructiveness, clearing up job

problems, and setting objectives were positively related to subordinate satisfaction.

Other factors which correlate with perceived fairness and subordinate satisfaction with appraisals found by Dipboye and de Pontbriand (1981) included: the opportunity to state one's own side of the issues, dimensions evaluated were job relevant, and discussion of objectives and plans. A recent factor analysis of supervisors' behaviors in an appraisal review (Dorfman, Stephan, & Loveland, 1986) indicated that three dimensions of the process could be subsumed under two main functions: developmental (being supportive, and emphasizing performance improvement), and administrative (discussing pay and advancement). Support from the supervisor, and discussion of pay and advancement were associated with higher levels of employee motivation and satisfaction respectively. Finally, individuals were satisfied when feedback was positive, attributed to the proper source, plentiful, of a specific or descriptive nature, and consistent with expectations, (Taylor et al., 1984).

Perceived Fairness / Unfairness. Closely linked to subordinate perceptions of satisfaction are perceptions of fairness. When discrepancies between behavioral standards and feedback information occur, workers may evaluate feedback accuracy, source credibility, and system fairness (Taylor, et

al., 1984). Such conscious processing differs a great deal from the popular notion of automatic processing in which feedback is compared to a behavioral standard, and results simply in behavioral or performance adjustments. Supervisor feedback and subordinate work standards may or may not be congruent after the evaluation process. Some potential results of incongruence between the two are the subordinate perceives the appraisal instrument as being unfair, or inaccurate; or the subordinate feels that the supervisor did an inefficient job evaluating the worker's performance. On the other hand, subordinates may find the feedback very congruent with their assessment of performance based on their own standards. In this case such problems would seem unlikely, and in fact the subordinate may even compliment the fairness of the evaluation.

Feedback systems evaluated for fairness may be considered "incompatible" (Dornbusch & Scott, 1975) by the feedback recipients. Incompatible systems are characterized by infrequent feedback from sources who observed a nonrepresentative sample of worker behavior, and unreasonably high, conflicting, or unclear standards. This type of perception by the subordinate may result in various types of behaviors against that system. The subordinate may defiantly perform just as before, or even in the opposite direction of that desired by the supervisor (Brehm & Brehm, 1981). If

given the opportunity to evaluate the source, the subordinate may retaliate by giving low ratings (DeNisi, Randolph, & Blencoe, 1980), or respond defensively (Smircich & Chesser, 1981). Perceptions of inaccuracy may lead to negative reactions when subordinates set very high or low performance expectations (Taylor, 1981). In addition, three process variables which were found to be correlates of perceived fairness (Landy, Barnes, & Murphy, 1978; Landy, Barnes-Farrell, & Cleveland, 1980) included: the frequency of evaluation, identification of goals to eliminate weaknesses, assuring there is congruence between organizational and employee's standards, considering effort as well as results achieved, and supervisor's knowledge of subordinate performance and job duties. The presence or absence of these characteristics within an appraisal system are critical factors which influence subordinate perceptions of evaluations, and the evaluation process.

A recent factor analysis assessed data from an open-ended questionnaire answered by middle managers which investigated the determinants of a fair or unfair performance appraisal (Greenberg, 1986). Two distinct factors resulted from the analysis, each with several different determinants. The first, procedural justice, pertains to the fairness of the procedures used to obtain the ratings. The determinants found under this factor were: the opportunity to provide

input and have it considered in the rating, two way communication during interview, ability to challenge the evaluation, rater's familiarity with ratee's work, and consistent standards. The second factor, distributive justice, pertains to the fairness of the relative ratings received to the work performed. The two determinants found for this factor were the receipt of ratings based on the performance achieved, and recommendations for salary and promotion. The presence or absence of any of these desirable characteristics may result in the subordinate's formulation of perceived fairness or unfairness respectively.

A distinction exists between Greenberg's (1986) procedural and distributive justice in terms of the source of the injustice perceived by the subordinate. The subordinate may attribute his/her perception of justice or injustice to either the supervisor, or the process per se. A clear distinction between the two is not always possible. Often a spreading effect (Ilgen, Mitchell, & Fredrickson, 1981) takes place in which perceptions of the feedback generalize to feelings and beliefs about the supervisor. This indicates a tendency for the subordinate to convey his compliments or criticisms directly toward the supervisor regardless of the true source of the reaction.

Subordinate Motives to React to Feedback. The research discussed in this section demonstrates the potential

problems and benefits of an appraisal system for the subordinate. When present, these problems or benefits provide plausible reasons for a subordinate to express his/her perception of an appraisal system.

If the context of the organization dictates high dependence on good ratings for advancement or promotion, subordinates will be highly motivated to procure better ratings. Subordinates receiving poor ratings responded more negatively to quality of supervision when supervisors were high in power (subordinate reward was dependent upon supervisor evaluation), and provided general feedback (Ilgen, Mitchell, & Fredrickson, 1981). Apparently, the high power condition was associated with higher subordinate expectations of the supervisor's responsibility to supervise, and to provide specific as opposed to more general feedback.

A growing body of research has indicated that members in an organization often use upward influence strategies when interacting with a leader, especially to manipulate the attributions of the target person they are trying to impress (Kipnis, Schmidt, and Wilkinson, 1980; Mowday, 1978; Porter, Allen, & Angle, 1981; Schilit, & Locke, 1982). Subordinate reactions occur to a certain degree depending on the individuals involved, the organization, and the context. A study of influence tactics used by employees at different levels of the organization revealed various tactics workers

used to get their own way (Kipnis, et al., 1980). For instance, "held personal confrontation with target," and "expressed anger" were two tactics listed under the category, personal negative actions. In addition, the survey discovered many subordinate attempts at upward influence via ingratiation with the supervisor, such as praise and inflating the importance of the other's task. It seems that in addition to subordinates who actually recognize the strengths and benefits of an effective appraisal system, there are others who feel that complimenting the efficiency and fairness of the appraisal, regardless of whether or not the evaluation deserves those attributes, may be self-serving.

In summary, it is apparent that subordinates are active processors of the supervisor's feedback information concerning their performance. They have preconceived expectations to which the feedback information is compared. Also, there are many characteristics which they feel are important in an appraisal system. Whether or not such characteristics are present may determine subordinate perceptions of fairness and satisfaction, or the opposite. Consequentially, such perceptions will often determine how they will react to the evaluation. In addition, strategies of ingratiation may be attempted to improve one's status in the organization. When the situation leads to the

subordinate's expression of his/her perceptions, a form of reciprocal feedback to the supervisor concerning the evaluation process may take place. As a result, the subsequent performance ratings by supervisors, and the attributions on which they are based may change regardless of subsequent performance level.

#### Supervisor Response to Subordinate Reaction.

The problem of obtaining accurate performance ratings is aggravated by factors which impinge on the subjective judgment of the supervisor themselves. Beyond worker performance, supervisory evaluations can be affected by the appraisal context (e.g. Zedeck & Cascio, 1982), and supervisors' interpersonal relationships with subordinates (e.g. Cardy & Dobbins, 1986). The reactions of subordinates, whether positive or negative, concerning the appraisal process is a specific example of a nonperformance-based action that may influence supervisors' later perceptions. In other words, subordinate reaction to initial evaluations may influence subsequent evaluations independent of the actual performance level achieved by the subordinate in subsequent performance sessions.

Examination of the research concerning the attribution processes of supervisors may provide insight about the potential influence of subordinates' expressions of fairness or unfairness. In the context of formal performance

evaluations, supervisors are likely to make causal ascriptions concerning worker performance (Mitchell, et al., 1979, 1981). Accordingly, the supervisor is likely to determine whether worker performance was due to the person, task, or the context. Traditionally, four types of attributions are assumed to explain success or failure: ability, effort, task difficulty, and luck (Weiner, Frieze, Kukla, Reed, Nest, & Rosenbaum, 1972). Two of the above, ability and effort, demonstrate internal control; while the others, task difficulty and luck, are controlled by external factors. In each of these two groups there is a stable attribute, ability and task difficulty, and an unstable attribute, effort and luck (Kelley, 1972). More recently a third dichotomous dimension, controllability, was added along with locus of control and stability generating four additional sources of causality (Weiner, 1979). Figure 1 (see Appendix G) shows the matrix depicting the categorization of this larger range of attributions translated by Gioia and Sims (1986) to apply to an organizational setting. A subordinate's reaction of fairness or unfairness toward the evaluation process could affect the supervisor's attribution processes and subsequent ratings of the worker's performance.

Supervisor Response to Positive Reactions. In terms of positive reactions, a subordinate's expression of his

satisfaction and the fairness of the rater's evaluation may influence subsequent ratings in a positive direction by increasing one's likability with the supervisor via ingratiation. Kipnis and Vanderveer (1971) found strong support where supervisors favored ingratiators across conditions. When asked to describe an incident in which they actually succeeded in getting what they wanted, a majority of the respondents discussed their boss as the target person (Kipnis et al., 1980). Of the 62 whose case involved their boss, all but four were pertaining to instances in which they were able to obtain personal benefits including salary increases and promotion. Both negative personal actions and ingratiation were included in the list of successful tactics.

In a study investigating affect of leaders, perceived similarity resulted in more positive performance ratings than for perceived dissimilarity (Nimmer et al., 1988). Other studies investigating affect revealed that liked individuals were judged more positively than disliked individuals (Regan, Straus, & Fazio, 1984; Nisbett & DeCamp-Wilson, 1977). Similar increases would occur for positive reaction by the subordinate, assuming that it leads to perceived similarity and liking from the supervisor.

Finally, Feldman (1981) examines performance appraisal in terms of categorization processes. When evaluations are a result of processes based on categorizations, ratings are

prone to many biases including personal and prototypic characteristics. Positive or negative reactions by the subordinate may become very salient factors greatly influencing the process. It is easy to conceptualize a supervisor favoring an ingratiation-prototype, or appeasing a complainer-prototype as well.

In terms of attributions, any factor which makes the leader-member relationship psychologically closer (Banks, 1976), such as liking (Regan et al., 1974), or empathy (Regan & Totten, 1975) should increase the likelihood that the leader will make self-attributions. In other words, the supervisor will use the same attributions as if he/she were in the subordinate's situation. For instance, when performance is poor, causality should be attributed more to external factors. In addition, due to an increase in interpersonal trust, supervisors would most likely spend less time monitoring the ingratiating employee's performance.

Supervisor Response to Negative Reactions. Negative reactions by subordinates indicate disagreement and conflict between the two members. Once the criticism is expressed by the subordinate, the supervisor may feel obliged to remedy the situation upon subsequent performance appraisals. Supervisors have been shown to avoid the unpleasant interpersonal climate within an appraisal session involving negative ratings by "explaining away" lower ratings in order

to improve the climate (Fisher, 1979). A survey of appraisers found moderate support for the hypothesis that the consequences of conducting a thorough appraisal, providing both negative and positive feedback, is perceived as aversive to the appraiser (Napier & Latham, 1986). When appraisers' outcome expectancies of giving feedback does not include reward for a job well done, the supervisor's incentive to provide accurate appraisals is largely diminished. Stressing the need to consider practicality issues in order to obtain reliable appraisals, Napier and Latham (1986) suggest that "how an appraiser behaves at one point in time may have little bearing on how he or she behaves at a later point in time because the earlier behavior was neither reinforced nor punished" (p. 835). Perception of aversiveness on the part of the supervisor is also supported by Bernardin and Buckley (1981) who suggest that appraisers wish to avoid hostile interactions with subordinates because they fear being unable to replace the subordinate in the event that the subordinate should decide to transfer or quit. Also, a complaint to superiors or negative ratings for one's own employees are two potential sources of reprimand for the supervisor. These reasons suggest a tendency by supervisors to resolve conflicts via more lenient performance ratings for subsequent evaluations.

The attributions made for subordinates who react

negatively should not be as benevolent as those for a subordinate who regards previous ratings in a positive way. When subordinate performance changes subsequent to feedback, it is probable that the supervisor could exemplify self-serving or ego-biasing attributions (Miller & Ross, 1975; Bradley, 1978). Ego-biasing attributions refer to the tendency of people to take responsibility for positive outcomes, but deny responsibility for negative outcomes. This is particularly applicable when subsequent performance changes in either direction. Poor performance or lack of improvement will result in an internal attribution, such as the effort or mood of the subordinate. This is an external attribution from the perspective of the supervisor. However, good performance or improvement may be attributed to the coaching or leadership ability of the supervisor; an internal attribution from the perspective of the supervisor.

Negative reactions by the subordinate may be treated simply as a suggestion for the supervisor to consider a fairer, more representative sample of subordinate work behavior. Supervisors may perceive the reaction as an indication that their attributions of the subordinate's work performance may be incorrect. Such reactions are likely to also create uncertainty for the supervisor concerning subordinate performance. The amount of time a supervisor spends monitoring subsequent performance may serve as a

behavioral indicator of the supervisor's level of uncertainty. Closeness of supervision has been shown to be influenced by attributions (Green & Mitchell, 1979). The instability of the supervisor's causal attributions may mediate the degree of certainty of the supervisor concerning his/her beliefs about the subordinate's work performance. If the amount of supervision increases significantly it is probably due to the fact that the supervisor is interested in whether or not the subordinate's reactions were truly accurate, and that original ratings are possibly flawed. No change in time monitoring may indicate that the supervisor has discounted the possibility that the reaction of the subordinate is accurate and justifiable. However, this does not necessarily mean that ratings will not be adjusted.

## Summary and Hypotheses

In summary, subordinate reactions to the evaluation process is likely to influence subsequent supervisory attributions, monitoring of performance, and ratings of performance independent of the subordinates' actual level of performance. This study simulates a supervisor-subordinate relationship using a confederate subordinate in order to manipulate subordinate reaction (positive or negative) and performance (better, worse, or the same as in the first session). The simulation involves two sessions of a stock project task in which a confederate subordinate is supervised by an experimental subject. The supervisor is required to provide performance ratings and feedback to the confederate concerning both work sessions. Dependent measures include the supervisor's attributions, time monitoring subordinate performance, perceptions of psychological closeness with subordinate, desire to avoid conflict, and ratings of subordinate performance. The hypotheses are:

Hypothesis 1: Subordinate reaction to initial evaluations, whether positive or negative, will result in more lenient subsequent ratings by the supervisor in the second work session as compared to a "no reaction" control group.

Hypothesis 2: Supervisors in the positive reaction condition will report greater interpersonal attraction toward

the subordinate, while supervisors in the negative reaction condition will demonstrate a greater desire to avoid conflict with the subordinate, and less certainty about the fairness or accuracy of their ratings compared to a control condition.

Hypothesis 3: The amount of time a supervisor spends monitoring a subordinate's work will increase when the subordinate renders a negative reaction toward first session ratings, and decrease when the subordinate reacts in a positive manner to initial ratings as compared to the no reaction control group.

Hypothesis 4: When the subordinate renders a positive reaction, supervisors will make more external attributions of subordinate performance when subsequent performance is worse compared to when it is better or the same. When the subordinate reacts negatively to the ratings and subsequent performance increases, the supervisor's attributions of subordinate performance will be more external than the the performance decreases or stays the same. Specifically, higher performance will be attributed to the supervisor, himself. When subsequent performance decreases in the negative reaction, the supervisor's attributions of subordinate performance will be more internal than when performance increases or stays the same. Specifically, attributions concerning lower performance will be oriented toward the effort or mood of the subordinate.

## Method

### Overview

The experiment was set up as a 3 x 3 x 2 design (Subordinate Reaction x Subsequent Performance x Session). The three conditions of subordinate reaction were fairness, unfairness, and no reaction. Subsequent performance involved three levels: better than original performance, worse than original performance, or the same level of performance. Session refers to the two work periods. Two within-subjects variables, performance ratings and time spent monitoring, were obtained for both work sessions, and analyzed as repeated measure factors. Finally, supervisors' attributions about performance and their motives also were measured after the second work session.

### Subjects

One hundred and twenty six undergraduates from Virginia Polytechnic Institute and State University participated in this experiment as supervisors in a dyad relationship with a subordinate who was a confederate. The subjects were male students from the Introductory Psychology course who received extra credit for the course in return for their participation. The confederates were also male, and had already been trained in both the duties of the task and reaction to the supervisor.

## Task

The subordinate's task activities were adapted from a stock price task used by White and Mitchell (1979). It was selected due to the simplicity of the instructions and the multiple dimensions and skills on which a worker performing the task may be evaluated. The task required the subordinate to perform four phases of a stock project. The instructions for each project were provided to the subordinate on job cards supplied by the supervisor. Each phase is explained below.

The first phase of the task involved looking up and recording stock prices in a ledger. The stock prices were photocopied from weekly stock reports from the newspaper for a period of three months. A second phase involved recording the price changes for each scheduled time period for which the worker had researched the stock. These were computed by simple subtraction. The subordinate and supervisor were provided with calculators. A third phase requested the calculation of the percentage change in stock price for specified time periods. The fourth phase involved graphing. The subordinate was requested to chart the prices on a graph provided. Each job card requested the subordinate to perform all four phases on a particular stock for three time periods specified in the job card.

## Procedure

The supervisor (subject) and the subordinate (confederate) reported to an assigned room at a specified time. Shortly thereafter the experimenter greeted them and had them fill out informed consent forms (See Appendix A). The experimenter informed the two participants that the purpose of the experiment was to pilot test the external validity of a task involving both supervisor and subordinate roles in a simulated business organization environment so that the task may be used in the future to research worker production and satisfaction. The experimenter asked the subject and confederate to pick a card out of a hat. Both cards had the word 'supervisor' written on it. The experimenter asked them to take their appropriate seats pointing out which is the subordinate work station and which is the supervisor work station. Both work stations consisted of a desk with the appropriate binders (stock information) and materials (calculator, ruler, pencils, graph paper, etc.) to perform the stock project, and other tasks for the supervisor.

The experimenter informed the two individuals that throughout the next hour they would be performing various duties according to each of their roles. In the presence of the supervisor, the experimenter had given the confederate a sheet of instructions for the subordinate task (See Appendix

B). The supervisor was provided with a list of duties (See Appendix C) which included the following: generating job cards for future subordinates, checking the general quality of the subordinate's work as each job card is completed, completing several in-basket items such as memos or requests to executives (filler exercises), general supervision of the subordinate at his work station, and providing feedback for the subordinate's work performance in each task session. The supervisors were told to assign their own priorities to these different duties.

After the supervisor was familiarized with his own duties, he was provided with the task instructions, and normative information concerning the subordinate's task (See Appendix D). Within the supervisor's copy of the task instructions, it was stated that when the task was used in previous research the range of job cards completed in a twenty minute session was two to ten, and the average was between five and seven (62% of the workers performed in this average range).

When both supervisor and subordinate were ready to begin, the subordinate was instructed to report to the desk of the supervisor whenever he finished a job card and was ready to start a new one. The experimenter also explained to the two members that if at the end of the session the subordinate had completed the first two phases of the job

card it may be turned in, but labeled half-way completed. If the third phase was completed, but not the fourth, it was still only a half. If the first phase was completed, but not the second it was not counted as anything. The supervisor was then informed that he/she can assign any job card from the pile provided, and that the work session would last twenty minutes. The subordinate, having already thoroughly familiarized himself with the task, performed at an average pace throughout the first session. In terms of the task duties, he completed five job cards. In an effort to avoid leniency effects in the ratings for the first session, the number of completed job cards fell into the lower part of the normative average range indicated in the supervisor's instructions.

After the session was terminated, the subordinate was told to take a break, and he left the room. At this time the supervisor rated the subordinate's performance. When the supervisor had completed his ratings, and the subordinate had returned to the room, the subordinate reviewed the ratings. A feedback session was then held between the supervisor and the subordinate in which subordinate reaction was manipulated (see Appendix E). After the feedback session the two members were informed that a second session would begin shortly.

The second session also lasted twenty minutes, and was once again followed by performance ratings by the supervisor.

In this session the subordinate's subsequent performance level was manipulated accordingly. In addition, the supervisor also filled out a Supervisor Questionnaire, and a Manipulation Check Questionnaire. At the completion of these questionnaires the subject was thoroughly debriefed and introduced to the confederate.

### Independent Variables

Subordinate Reaction. There were three conditions in the "perceptions of fairness" phase of the experiment. During the feedback session the subordinate reacted to the feedback following a script generated for both conditions: positive, negative, or with no reaction (see Appendix E). A standardized statement in which the reaction was conveyed was delivered by the subordinate. The subordinate's were told to be as genuine, and believable as possible. Any rebuttal by the supervisor was not to be addressed by the subordinate specifically. Instead, there was no further comment by the subordinate.

Subsequent Performance. In the "subsequent performance" phase, there were three conditions. Subordinates were to perform either the same, better, or worse in the second session as compared to the first. The group performing the same once again completed five job cards as in the first session. The group performing better in the second session completed six and one half job cards, while the group

performing worse completed only four job cards. Four and six and one half job cards were selected so that the performance change groups would fall outside of the average range provided in the normative information. Based on pilot work assessing supervisor perceptions of performance change, four and six and one half job cards were perceived as both credible and similar degrees of change in each direction from the average performed in the first session.

#### Dependent Variables

Performance Ratings. The supervisors completed the Subordinate Evaluation Form (see Appendix F) after each work session. The subordinate was rated on six items followed by nine point scales ranging from (1) very poor to (9) very good. Supervisors rated subordinates in terms of their amount of work completed, planning ability, organizing ability, perseverance, time management ability, and overall performance.

The normative information pertaining to the average number of job cards completed in a twenty minute session should have sufficiently influenced the supervisor to provide average ratings for the first work session. After assessing worker performance in the initial session, any supervisors who provided ratings which exceeded forty four when the dimensions are summed, were excused from further participation, and that data was excluded from the analyses.

Time Monitoring. Throughout each of the twenty minute sessions the experimenter kept track of the amount of time the supervisor spent monitoring the subordinate's completed job cards. The experimenter was located in another room where he/she could view the supervisor, yet keep the watch hidden by a barrier. In order to measure time monitoring the experimenter began the stopwatch when the supervisor picked up the finished job card project which the subordinate had placed in the in-basket. The clock was stopped when the supervisor deposited the envelope containing the finished job card project into the out-box. The clock was stopped temporarily before the deposit for the following conditions: 1) if the finished job card was put aside to work on something else (e.g. log-in new job card, distribute card to subordinate, finish memo, etc.), 2) if the supervisor got out of chair to give feedback to the subordinate, or verbally made suggestions from his chair. The time measure continued when the supervisor once again picked up the finished job card, returned to his chair, or ceased providing verbal feedback to the subordinate. The experimenter did not begin the clock for any completed job card still in the in-basket when there was less than two minutes remaining in that work session.

Attributions. The Supervisor Questionnaire (see Appendix F) was administered after the supervisor had

completed the subordinate evaluation form for the second work session. Two parallel forms were used. Except for the attribution measures, individual items pertaining to the other scales were put into two random orders. Six items within the questionnaire assessed the supervisor's attributions of the worker's performance. The supervisor was requested to indicate the extent to which they felt a particular attribute was responsible for the performance of the subordinate. Each item was followed by a seven point Likert scale ranging from (1) not at all, to (7) to a great extent.

The attribution measures pertain to the six of the eight applicable attribution components previously discussed from Figure 1 (see Appendix G). Two of the attributes were not applicable to the experimental setting, typical effort (since the supervisor has no knowledge of his prior work experience) and coworkers (there are none). The six attributions which were assessed are: ability, mood, task difficulty, luck, immediate effort, and supervisor.

Interpersonal Attraction. The Supervisor Questionnaire also contained several items measuring interpersonal closeness. Two items from the interpersonal judgment scale (IJS) developed by Byrne (1971) were combined with two additional items in order to assess the supervisor's perception of interpersonal closeness with the subordinate.

The items taken from Byrne's scale (1971) were (a) "how well do you like the subordinate?", and (b) "would you like to work with the subordinate in another experiment?". The scale anchors ranged from (-3) like very much to (+3) dislike very much with a midpoint of zero. Byrne (1971) reported reliabilities in the .80's for this interpersonal attraction measure. The same type of scale and anchors were used for the third item which asked the supervisors if they would like the subordinate to be their assistant on a large group project coordinated by the supervisor. Also, the supervisor rated the subordinate on being "warm or friendly" using a nine point scale which ranged from (1) well below average to (9) well above average.

Conflict / Uncertainty. In addition to the attribution and interpersonal items, the Supervisor Questionnaire assessed the supervisor's desire to avoid conflict with the subordinate. Two of the three measures of conflict avoidance asked the supervisor to indicate how important was it that: a) you and the subordinate work as a unified team, and b) that you, as supervisor, maintain a peaceful, cooperative atmosphere between you and the subordinate. Supervisors were to choose an alternative from a nine point scale which ranged from (1) not at all important to (9) very important. The third measure asked the supervisors directly the extent to which they desired to avoid conflict with the subordinate in

the present work context. This scale used a seven point scale with the anchors (1) not at all to (7) very large extent.

Also, two measures of uncertainty asked the supervisor to indicate the degree of certainty for which they felt their ratings were a) fair or b) accurate. The scales ranged from (1) very certain to (9) very uncertain.

Manipulation Checks. A manipulation check questionnaire labelled Supervisor/Subordinate Survey (See Appendix F) was administered after the Supervisor Questionnaire. One item requested the supervisor to indicate on a nine point scale to what extent he/she felt the subordinate was in agreement with his/her ratings, and b) receptive to the feedback provided. These items indicated whether or not the subordinate reaction manipulation was successfully conveyed by the confederates. To test the subsequent performance variable, the supervisors were asked to recall to the best of their ability, the number of job cards completed in each of the two work sessions.

## Results

Performance ratings and time monitoring were treated as repeated measures taken over two sessions. The data was analyzed using 3 (Subordinate Reactions) x 3 (Subsequent Performance) x 2 (Sessions) analyses of variance (ANOVA's). Subjects' responses to the interpersonal attraction, conflict avoidance, and supervisor uncertainty scales, as well as the attribution sources from the Supervisor Questionnaire were analyzed using 3 (Subordinate Reaction) x 3 (Subsequent Performance) ANOVA's. Subjects whose first session performance ratings exceeded 44 did not continue in the experiment due to the ceiling effect which resulted from extreme leniency. This resulted in a loss of 23 subjects, a 15% attrition rate. This seemed high considering the fact that normative information was provided, and that five job cards (the amount always completed in session one) was at the lower range of 'average' performance for that information. However, this finding would seem to indicate the pervasiveness of the leniency bias.

Manipulation Checks. The log-in sheet served as a manipulation check for the performance levels provided by the subordinates. Since the supervisors recorded each completed job card, and were able to review the log-in sheet before rating the subordinate, their perceptions of performance level should have been accurate. This assumption was

supported by the supervisor's report of their perception of performance level (number of job cards completed by subordinate) on the manipulation check questionnaire. The data pertaining to the supervisors' responses to this manipulation check are summarized in Table G-1. All, but two subjects correctly responded that five job cards were completed in the first session. The two subjects who responded incorrectly were in the no reaction/ no performance change group, and they said the subordinate completed six for both sessions. It was revealed afterward that they included the last card logged in, even though it was not checked as completed. The subjects in the the no performance change, and all those in the performance worse condition responded correctly to the number of job cards completed in the second session. For the performance increase condition seven subjects incorrectly rounded the six and a half job cards to either six or seven, still an increase. Two were in each of the negative and no reaction group, and the other three were in the positive reaction group. Overall, these discrepancies are slight, and should not pose any problem for the analyses.

Based on the items pertaining to the subordinate's reaction to initial ratings, the manipulation was effective. The supervisor's perception of the subordinate's reaction was correctly perceived by the supervisors as being negative or positive for both conditions. As indicated in Table G-2,

this was evident by a highly significant difference between subjects in the three reaction conditions concerning the extent to which they perceived the subordinate as agreeing or disagreeing with the first session ratings,  $F(2,117) = 188.69$ ,  $p < .001$ . Tukey's Honestly Significant Difference procedure demonstrates that all three reactions are significantly different from each other. The experimental groups (negative:  $M = -1.62$ ; positive:  $M = 1.76$ ) were both different from the control group ( $M = 0.17$ ) in the appropriate direction.

In addition, a significant difference was obtained for the performance change condition,  $F(2,117) = 4.20$ ,  $p < .05$ . One possible explanation for this result may be that supervisors perceived change in performance level in the second session as a reaction to their ratings. However, it would be inappropriate to make any specific contrasts or conclusions because although it is statistically significant in the table, practical significance is lacking. Assessing the effect size of performance change on the manipulation check reveals an  $\eta^2 = .017$ , as compared to  $\eta^2 = .75$  for the reaction condition. Subsequent to the large effect in the reaction condition, the error term in the three way ANOVA model was largely reduced.

Each of the four confederates who delivered the reaction participated in a similar proportion for each of the nine

conditions. There were no significant differences in supervisor response to this manipulation check (See Table G-3), or to actual ratings ( $F(3,92) = .71, p > .50$ ) among the four different confederates who were used. Analysis of the second session ratings for a confederate effect yielded  $F(3,92) = .56, p > .60$ . Also, both two-way interaction terms, and the three-way interaction term were nonsignificant. Therefore, it can be assumed that the fact that multiple confederates were used did not seem to be a problem, nor were their reactions, for both the positive and negative type, perceived differently by subjects.

Supervisor Ratings. In order to investigate the first hypothesis, the six dimensions from the subordinate evaluation form were summed together for each of the sessions. It was expected that groups in both the positive and negative reaction condition would rate significantly higher than the control group subjects in the second session evaluations. However, this was not the case. The between subjects effect for reaction resulting from the repeated measures analysis of first and second ratings was not significant,  $F(2,117) = 1.67, p > .10$ , nor was the interaction term significant,  $F(4,117) = 1.87, p > .10$ . The summary table for this analysis can be found in Table G-4. The large performance X session interaction is an obvious result of the actual change in level of performance which

operationally defines the independent variable, subsequent performance.

Using a MANOVA, the six rating dimensions were analyzed separately in order to see if any single dimension was sensitive to the reaction. The means and standard deviations for the ratings summed, and each of the individual rating dimensions for both sessions can be found in Tables G-5 to G-11. The similar means for each reaction group illustrate the absence of any significant differences between groups for both the ratings summed together, as well as the individual items. It is interesting to note that in 13 of the 21 performance change conditions presented, second session ratings for the negative reacting subordinates exceeds the control group. Seven of the eight remaining conditions involve performance increase in the second session. This indicates a consistent tendency for second session ratings in the predicted direction of the hypotheses, in all of the performance change conditions except increased performance. In this condition the control group ( $M = 44.0$ ) exceeds the other conditions. Figure 2 (See Appendix G) illustrates this tendency for the ratings when the dimensions are summed.

The subsequent performance manipulation was evident in the performance ratings as a significant main effect was apparent,  $F(2,117) = 11.96$ ,  $p < .001$ . This effect was obviously expected, and serves as an indication that there

was a discriminative difference perceived by subjects in the different levels of subsequent performance. The focus of the first hypothesis was to assess the degree to which this difference could be augmented by subordinate reactions preceding the performance change session.

To investigate the power of the test of significance, the probability of rejecting the null hypothesis, the alpha level was set at .05, and the sample size of 14 per cell was used. A formula supplied by Kirk (1982) determined the power for various effect sizes. The results are displayed in Table G-12. They indicate that the power associated with a significant small effect size (.5 times the standard deviation) would be less than .30. The power increases to approximately .62 and .95 for effect sizes which are 1 and 1.5 times the standard deviation respectively. This indicates that the sample size may have been too small if only a small effect was expected. The associated power for medium and large effects are in a much more desirable range.

Interpersonal Attraction. Based on the second hypothesis, the subordinate's reaction was expected to influence the subject's liking of that subordinate. The interpersonal attraction scales were first tested using the two items taken from Byrne's scale (1971) and then combined with two additional items. The ANOVA summary tables (Table G-13), and the means and standard deviations (Table G-14) are

presented. Subjects reported less liking for subordinates who reacted negatively to their initial ratings. Significant differences were found using the components of Byrne's scale,  $F(2,117) = 3.39$ ,  $p < .05$ , and approached significance for the four item scale,  $F(2,117) = 2.77$ ,  $p < .07$ .

Investigation of the individual groups reveals that these findings support the interpersonal attraction prediction of the first hypothesis. Tukey's Honestly Significant Difference procedure concluded that the positive reaction group's mean response (1.88) was significantly higher than the mean response of the negative reaction group (1.10). Although subordinate reaction affected liking, these feelings were not reflected in the performance ratings. Some indication to the reason for this may be the fact that subjects did not dislike the subordinate, but rather they simply liked him less than the control or positive reaction group. This idea is supported by the fact that all the means exceed zero (See Table G-14), which is the transformed value of the midpoint of the scales. These scale values were anchored with either "neutral", or "average". This suggests that all conditions leaned toward the liking side of the scale, but differed in the degree of liking.

Conflict Avoidance and Supervisor Uncertainty. Since the rating dependent variable did not achieve significance, one would not expect to find significance for either of these

concepts. These two scales were predicted to show significant differences between the negative reaction condition and the other conditions in order to offer possible reasons for the hypothesized leniency effect for the negative reaction group. Supervisors in the negative condition did not report any increase in desire to avoid conflict with the subordinate, nor any increase in uncertainty about the fairness or accuracy of their ratings as compared to the other groups.

Three items were combined in order to assess conflict avoidance. The two scores on the supervisor uncertainty scale included were converted to range from -3 to +3 due to the opposite nature of the certainty/uncertainty issue being investigated. Table G-15 contains the ANOVA summary table for these scales, while the mean response and standard deviation for each condition for both scales are recorded in Table G-16. Lack of significant differences between groups on these scales may provide some indication of the failure to adequately capture the negative reaction phenomenon in the present lab setting.

Time Monitoring. In order to investigate the third hypothesis, the average amount of time spent by the supervisor monitoring the subordinate's completed job cards for both sessions was analyzed. The time monitoring variable was expected to serve as a behavioral indicator of supervisor

uncertainty. However, we did not find the hypothesized difference for the reaction main effect. In the repeated measures ANOVA (See Table G-17), the F values for both the reaction main effect and reaction by session interaction were below 1.0. The means and standard deviations for each condition in both sessions are displayed in Table G-18. The large variances within each condition may be due to extreme individual differences between subjects in prioritizing the job duties of the supervisor. Also, the time monitoring variable may have been too narrowly defined as it focused only on the time the supervisors spent checking completed job cards. This is only one aspect of subordinate supervision.

As indicated in Table G-17, a large significant difference ( $F(1,117) = 40.85, p < .001$ ) in time monitoring was discovered for the within-subjects variable, session. Also, a significant interaction between subsequent performance and session occurred ( $F(2,117) = 4.05, p < .05$ ), as illustrated in Figure 3 (See Appendix G). A significant decrease from session one to session two occurred for all three subsequent performance conditions. However, a cross-over interaction took place as the magnitude of each group's mean reversed order as they converged to a lower range in the second session. The average amount of time monitoring for the performance same condition (control) shifted from 77.2 seconds per job card in the first session to 51.8 seconds per

job card in the second session). This interaction was not hypothesized, and the researcher essentially has no explanation to account for the interaction. The decrease for the two experimental groups was not as large (performance increase shifted from an average 66.0 seconds to 52.2 seconds per job card; while performance decrease shifted from an average 62.1 seconds to 53.7 seconds per job card). The difference from session one to session two, and the convergence in the second session may reflect the lack of familiarity with the supervisory role, and the establishment of a more efficient style of monitoring as the supervisors became more familiar with their duties, and how to appropriately prioritize their work.

Attributions. In the fourth hypothesis attributions were investigated. Table G-19 contains the ANOVA summary for both internal and external items combined. The composites for internal (ability, effort, and mood) and external (task difficulty, luck, and supervisor) attribution composites yielded no significant interactions or main effects when the internal and external attributes were combined and analyzed.

Since the hypothesis suggested that certain attributions may be more salient than others in the performance appraisal setting, a MANOVA was used to investigate the six items individually. For the reaction by performance effect the Hotelling's  $T^2 = .267$  generated an approximate  $F(24,460) =$

1.23,  $p = .209$ . In terms of the individual tests for these items, an interaction term was found to be significant at the .005 level for the mood of the subordinate. The ANOVA summary table, and means and standard deviations are presented for this attribution source in Tables G-20 and G-21 respectively. Figure 4 (See Appendix G) depicts the cross over interaction which occurs across subsequent performance conditions when the mean response for both negative and positive reaction groups are plotted. The control group falls almost directly between them when performance changes in either direction. However, the statistically significant differences occur between the performance increase and performance decrease conditions in the opposite direction for the negative and positive reaction conditions.

Tukey's Multiple Comparison Test was used to investigate the interaction. In the positive reaction condition the mood attribution response of the performance increase group ( $M = 5.21$ ) is larger than the performance decrease group ( $M = 3.93$ ). In contrast, the mood attribution response of the performance decrease group ( $M = 5.29$ ) is larger than performance increase group ( $M = 4.43$ ) in the negative condition. These differences between the experimental conditions in the subordinate reaction variable may demonstrate a projection response by the supervisors in that 'subordinate's mood' provides a suitable explanation for the

subordinate's reaction in each condition. Subordinate mood was perceived by subordinates as a highly plausible attribution for performance level when subordinates reacted negatively and performed worse, as well as when subordinates reacted positively and performed better compared to subordinates in the negative/better, or positive/worse conditions. This lends partial support to the third hypotheses. Subjects whose subordinates reacted negatively to initial evaluations tended to attribute decreases in performance more to their mood, an internal attribution. The opposite effect, evident in the performance increase condition, was not predicted in the hypothesis.

## Discussion

In the present study, subordinate reaction to initial performance ratings failed to demonstrate the predicted effect on both the rating behavior and time monitoring subordinate's work by the supervisor. The hypotheses developed based on the principles of RIP were not supported in this performance appraisal lab setting. Although it seems apparent that the manipulation was powerful within the context, as indicated by the manipulation checks, the processes predicted between a supervisor and subordinate in a work environment, and more specifically, a performance appraisal context was not evoked.

Also, the conflict avoidance and supervisor uncertainty scales failed to reveal any significant differences between reaction groups as hypothesized. However, significant differences were found between reaction groups in terms of interpersonal attraction. The degree to which supervisors exposed to different reactions liked subordinates was correctly hypothesized. Despite the differences in the interpersonal attraction measure, rating behavior was not affected. Partial support was obtained for the fourth hypothesis. Significant increases in external attributions for both the positive reaction/ worse performance, and negative reaction/ better performance conditions were expected, but not found. However, there was a significant

interaction for supervisors' response to the specific attribution, subordinate mood. As expected, when performance level decreased the supervisors who received the subordinates' negative reaction tended to attribute it to the subordinate's mood much more than those who received the positive reaction. The reverse was true when performance increased. This was not hypothesized.

Although the results of the present study fail to support all the hypotheses, it should not be concluded that subordinate reciprocal influence within the performance appraisal process due to subordinate reaction does not exist. The notion of reciprocal interaction among supervisors and subordinates as suggested by Schneider (1983) and Terborg (1981) among others, may still have merit in the realm of performance appraisal. Adequately simulating the supervisor/subordinate relationship in an isolated lab setting using subjects with no previous supervisory experience is a very difficult task. The results obtained from some of the other phenomena investigated, such as attributions and supervisor uncertainty, may shed some light on the shortcomings of the research. Also, many of these problems reflect the inadequacy of the lab setting to capture those factors considered crucial by Ilgen and Feldman (1983) in this area of research. They state that a realistic conception of the appraisal process must include, "the

evaluator as an information gatherer and processor, operating in a complex environment . . . imbedded in an organizational context which serves to promote and constrain behavior in various ways." With this in mind, several problems with the present study and possible solutions need to be discussed.

The lack of support for the first hypothesis may be due to a number of factors, such as the saliency of the subordinate's reaction, the believability of the reaction in a lab setting, as well as the lack of any further consequences for the dyad. In addition, several supervisors may have displaced the focus of the reaction to other sources, such as the subordinate's mood.

Subordinate reaction was operationally defined by a two sentence statement directed at the supervisor in regard to his ratings. This one-time manipulation may not have been sufficiently salient to convey the ingratiating, or complaining tactics often employed by subordinates. In the positive reaction condition, the subordinate's comments may have easily been construed as agreement with the present ratings with no intention to influence better ratings. After all, better ratings in the second session would have no significant bearing for the subordinate.

According to the confederates, it was difficult to maintain a negative tone and emphasize one's disagreement to any large degree and still maintain credibility. This was

especially difficult during negative reaction conditions in which supervisors gave fairly high ratings for average performance. When questioned during debriefing, several subjects indicated that they were very surprised and became somewhat suspicious about the credibility of the reaction. This problem may have been compounded by the fact that supervisors could not perceive any apparent motive to account for the subordinate's reaction in this setting.

Another possible explanation may be that many supervisors could have discounted the reaction and attributed it to another source. For instance, two supervisors admitted that they felt the subordinate was referring to the unfairness of the rating dimensions themselves. A frequent comment often made by the subjects was that they had no way to rate the subordinates on things such as planning or organizing. A second potential source of displacement which may have occurred was revealed in the only significant attribution item, subordinate mood. Blaming the subordinate's reaction on his mood, instead of the actual ratings seems even more feasible considering the problems with the reaction's credibility discussed above, as well as the the lack of any previous encounter between the two members. This is an example of Kelley's (1972) discounting principle, and it provides a possible explanation of how the supervisor may have perceived the subordinate's reaction, and

why the reaction may not have influenced the supervisor's subsequent evaluation. The discounting principle (Kelley, 1972) would propose that the reaction may not have been considered by the supervisor as genuine criticism of the supervisor's original evaluation of the subordinate.

These explanations may be considered a type of self-serving attribution (Miller & Ross, 1975; Bradley, 1978) used by the supervisor to avoid admittance that his ratings were initially incorrect. Self-serving attributions were hypothesized to occur for performance decrease conditions, but it is possible that they are also operating when the supervisor is processing his ratings. Finally, the reaction may have totally been disregarded as being inaccurate and unfounded. Many supervisors mentioned afterward, or responded to the subordinate's reaction stating that he "based it on the graph", which contained the normative information. The insignificant results for the supervisor uncertainty scale also support this possibility.

The time monitoring measure was complicated by the lack of familiarity with the role of the supervisor. Subjects were very disorganized and uncertain about priorities among the supervisory duties during the first session. This may account for the difference in time monitoring measures taken for the first session. In addition, extreme individual differences were prevalent. It was often the case that

supervisors either put the completed job card right into the envelope, or checked all aspects of the task entirely. This caused a large increase in the variance which imposed a large demand on the required effect size for significance. Once again, the fact that the uncertainty scales were insignificant may suggest that supervisors did not feel the need to seek out more information. This was suggested by Green and Mitchell (1979). Supervisors are more apt to monitor subordinates if they experience uncertainty or an unstableness about their evaluations or attributions of subordinate performance.

The investigation of the attribution measures may have been improved a great deal had the items been oriented toward "any change in performance", instead of performance in general. Performance change is the more appropriate focus for these hypotheses. Also, the use of multiple confederates made standardized performance impossible. Different styles of work and interaction with the supervisor, and general dispositions are inevitable no matter how they are trained. Lastly, the fourth hypothesis predicted a difference within the negative reaction groups for the "supervisor" attribution specifically. Higher attributions to this source were to be made by supervisors when performance increased. This attribution was intended to pertain to the effect of the motivation stemming from the feedback provided by the

supervisor. It is probable that many subjects did not make this connection, and failed to consider the item in this light. The "subordinate mood" attribution may have been scored high by supervisors who felt that the subordinate's mood truly was a result of their ratings, but did not consider this for the "supervisor" attribution item.

Some of the possible problems with the research discussed above may be remedied. The improvements suggested below may address several of the obstacles encountered in the present study. First, several factors need to be integrated into the lab setting in order to establish a more efficient simulation of the supervisor/subordinate dyad. For instance, consequences and incentives are essential. The hypothesis concerning the effect of subordinate reaction on supervisor ratings may rest on the potential effect of subsequent ratings. If there is no forum established in which those effects, such as conflict and attraction, may be perceived as important and necessary, then there is no need to even consider the subordinate's reaction. Supervisors need to perceive that some additional interaction will take place after subsequent ratings. The appraisal system is an ongoing social process where the consequences of interactions may have future implications. This idea is supported by the emphasis on organizational context provided by Ilgen and Feldman (1983), and is also conveyed in the potentially

aversive consequences of performance appraisal for the supervisor as described by Bernardin and Buckley (1981). Concern from the supervisor stems from having to account to a higher authority, and having to deal with subordinates who have conveyed hostility. The present setting failed to sufficiently capture these aspects. Perhaps a third session involving a different type of task in which closer interaction between the dyad would remedy the latter.

Also, there must be some incentive for the subordinate to perform well in order to justify the reaction to evaluations. Additionally, there must be some incentive for the supervisor to rate objectively and perform well overall in order to curtail the leniency bias and encourage him to think about and carry out his duties in a serious manner. This conveys the importance of the high/low power variable implemented by Ilgen, Mitchell, & Fredrickson, 1981) in which subordinate reward either was or was not dependent on supervisor ratings. The presence of the high power condition is probably essential for the present phenomenon.

The supervisor incentive should also permit a more efficient and realistic measure of time monitoring. Other suggestions may include selecting subjects who have had some supervisory experience and allowing them to familiarize themselves with their duties in the lab setting to a greater extent. Also, the time monitoring variables should be

defined more broadly in order to include more aspects of the "supervision" function. The time monitoring hypothesis was oriented toward assessing the change in amount of supervision given by the supervisor as a result of the subordinate's reaction to his ratings. Checking the actual work units is only one part of supervision, as were the work units only one aspect of the evaluations. Ideally, time monitoring would also involve the supervisor's direct observation of the subordinate at work. It is the input from this type of supervision which determines the supervisor's ratings on the subordinate's abilities in time-management, organization, planning, and persevering. This type of supervision can be included in the operational definition of time monitoring, and be measured by the use of video recording of the supervisor during the session.

Finally, in order to improve the reliability of both the rating and attribution measures, performance could be standardized. Once again the use of video could be employed to produce four stimulus tapes, one for the first session, and three for each of the performance change conditions. The supervisor needs to perceive that the tape is actually the subordinate's present performance, and not a prerecording. In this way the tapes serve as a mock television monitor. This would still enable some type of face to face reaction manipulation, and add a great deal to the validity of the

results.

The results of the present research failed to support any firm conclusions about the reciprocal influence of subordinate reaction on rating behavior, supervision, and for the most part attributions. In addition, this lack of support made it impossible to expand the explanatory power of both Green and Mitchell's (1979) two link model of attributions and leader behavior, and the Control Theory perspective of feedback (Taylor, et al., 1984) as anticipated. However, the investigation of reciprocal influence processes within organizations, particularly within performance appraisal settings should not be abandoned.

Supervisor behavior will be influenced by many antecedent and consequent variables as Larson (1984) suggested. It is important to understand the social, transactional nature of the supervisor - subordinate dyad, and to investigate the implications of that transactional influence. Supervisor ratings is an important area in which this applies. When performance ratings are used as important criteria for bonuses, salary increases, and promotions consideration of this additional source of bias is crucial. It is unfair to procure an advantage independent of actual performance level by use of complaint or ingratiation tactics. It has been demonstrated that these tactics are used in work environments (Kipnis & Vanderveer, 1971; Kipnis

et al., 1980).

Also, supervisors should not adjust the time they spend supervising individuals as a result of subordinate reaction to ratings if they've done an efficient job on those ratings. Supervisors should neither "let up" on workers or "crack down" on them unless actually warranted by performance. RIP in this context may potentially identify such problems of inequity and supervision duties. The internal and external validity of the present study is not sufficient to conclude that this is not the case.

The effect of subordinate perceptions concerning performance appraisal systems and processes on cognitions, behavior, and affect have been discussed a great deal in the literature (Taylor, et al., 1984). Also, supervisory evaluations have been shown to be influenced by both the appraisal context (Zedeck & Cascio, 1982), and the interpersonal relationship between the supervisor and subordinate (Cardy & Dobbins, 1986). This evidence is based on data collected within organizations from actual supervisors and subordinates. In addition, several researchers have pointed out the problems facing supervisors when poor performance, or low ratings are involved (Fisher, 1979; Bernardin & Buckley, 1981; Napier & Latham, 1986). In general, one of the basic problem illustrated in these bodies of research is that supervisors are not focusing just on

performance in the performance appraisal context, but also the performer, and possibly a host of factors which should not affect the ratings. However, the supervisor is subject to numerous biases, one of which may very possibly be subordinate reaction.

In terms of the direction of future research to discern the true effects of subordinate reaction, not only should the present lab study be undertaken with the appropriate changes, but the RIP phenomenon should be explored outside of the lab. Documented complaints, or identification of "ingratiator", or "complainer" types described by Kipnis, et al., (1980) by peer assessment may provide the grouping variable by which ratings may be monitored, and amount of supervision be assessed. The potential insight that understanding RIP has for organizations, in terms of the problems discussed above, makes these endeavors worthwhile.

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APPENDIX A  
STATEMENT OF INFORMED CONSENT

STATEMENT OF INFORMED CONSENT

Participation in this experiment involves students simulating a supervisor-subordinate dyad participating in two 20 minute sessions of a stock task. A short feedback session will occur between the sessions, and a short questionnaire will follow the second session. Depending on which role you play you will perform duties similar to those of actual supervisors or subordinates. Note that all responses to questionnaires will be anonymous and held in strict confidentiality. We do believe that the questionnaire is innocuous and poses no psychological threat.

If you wish to participate in this research project, please note that:

1. You may cease participation at any time without prejudice.
2. You will be given \_\_\_ credit(s) toward your final grade in your respective psychology course for satisfactory completion of the task and questionnaires.
3. This research project has been approved by the Human Subjects Committee of the Psychology Department; questions should be directed to the chair of that committee or one of the researchers listed below.

4. If you would like a copy of this form you may have one.

5. If you are interested in the final analysis of the results, they will be available from the researchers during the spring semester of the 1989-1990 school year. However, because individual data is anonymous and will be analyzed as such, you will not be able to obtain information directly pertinent to any response you made. Only a summary of the final data will be available.

If you wish to participate please provide the information requested below and sign your name. Thank you very much.

Robert T. Brill	Neil M. A. Hauenstein	Helen J. Crawford
Principle Researcher	Faculty Advisor	Chair, 231-6279
231-5716	Human Subjects Comm.	

"I hereby agree to voluntarily participate in the research project described above and under the conditions described above."

Name: \_\_\_\_\_

Social Security Number: \_\_\_\_\_

Local Phone Number: \_\_\_\_\_

APPENDIX B  
TASK INSTRUCTIONS FOR THE SUBORDINATE

## TASK INSTRUCTIONS FOR THE SUBORDINATE

The task requires you to perform four phases of a stock project, and you are to complete as many projects as possible during two twenty minute periods. You will receive feedback on your performance in between work sessions. The specific stock you will be working with for each project will be provided on job cards supplied by the supervisor. After each card is completed you are to return the finished work, and the card to the subordinate at which time you will receive a new job card. Each phase of the job card is explained below.

The first phase of the task will involve looking up and recording stock prices in a ledger. The stock prices are photocopied from weekly stock reports from the newspaper for a period of three months. Each job card will request the subordinate to record the stock prices on a particular stock over a specified three week period.

A second phase will involve recording the price changes for each scheduled time period for which you have researched the stock. Price changes are computed by simply subtracting the second week's price from the first, and the third week's price from the second. You will be provided with a calculator.

In the third phase you will calculate the percentage change in stock price for each price change. Percentage change is calculated by dividing the price change figured in the second step by the stock price of the earlier week (the first or second week stock price depending on which of the two percentage change figures you are calculating).

The fourth phase will require you to chart the prices on a graph which will be provided. Chart the stock price at the appropriate level for each of the three weeks and then connect the points to provide a graph.

Once again, you have twenty minutes to do as many job cards as possible. Completed job cards are turned in to the supervisor, and another job card is assigned.

APPENDIX C  
JOB DUTIES OF THE SUPERVISOR

## JOB DUTIES OF THE SUPERVISOR

As supervisor, you will be responsible for the following list of duties:

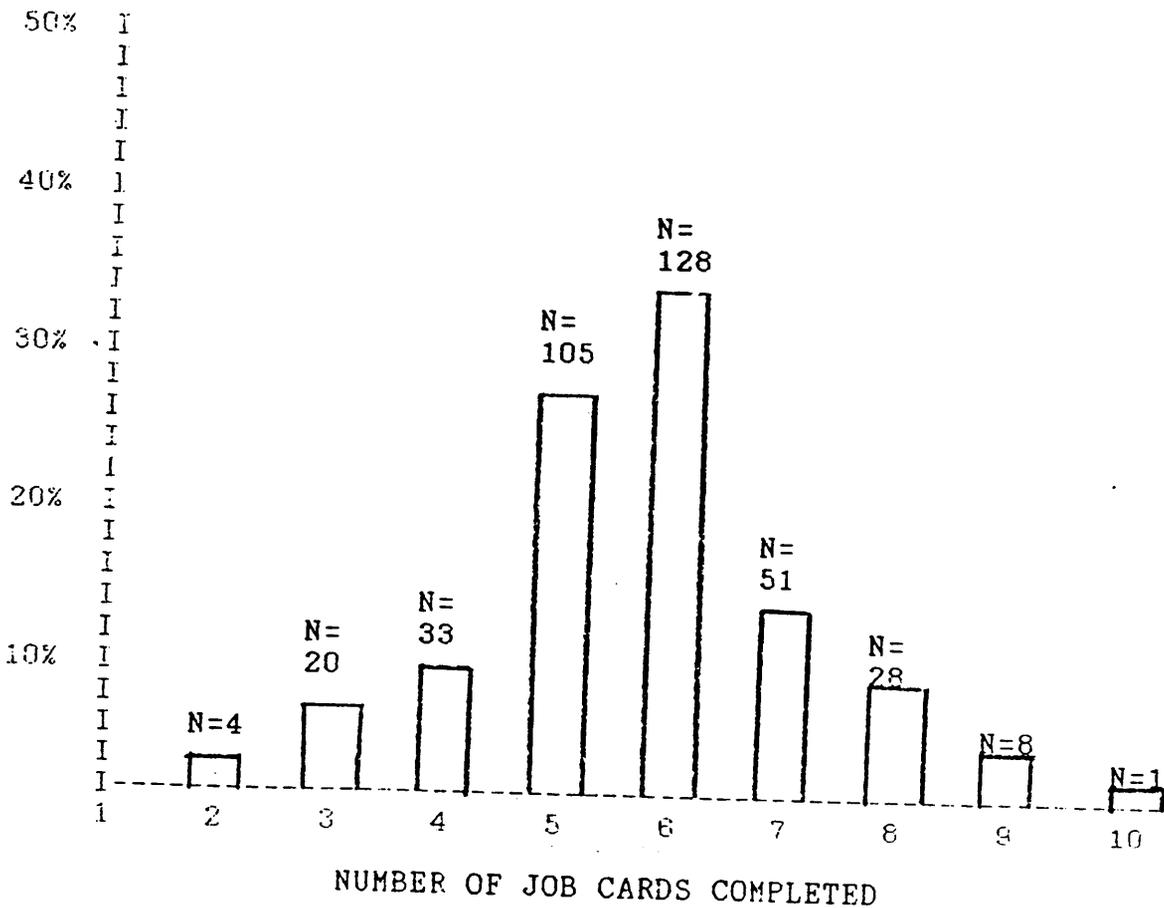
- 1) Generating job cards for future subordinates.
- 2) Checking the general quality of the subordinate's work as each job card is completed.
- 3) Completing memos, or requests from executives found within your basket of "things to get done".
- 4) Provide general supervision of the subordinate at their work station.
- 5) providing feedback for the subordinate's work performance for each task session.

As supervisor, you are to assign your own priorities to these different duties, but should remember that your work will be evaluated in order to assess your performance as a supervisor at the end of the sessions.

APPENDIX D  
NORMATIVE INFORMATION FOR THE SUPERVISOR

## NORMATIVE INFORMATION FOR THE SUPERVISOR

TO THE SUPERVISOR: The instructions provided on the following pages are for the stock project being performed by the supervisor in these work sessions. You are to review the instructions in order to understand the task, and to help you with the ratings you will be making on the subordinate's performance. In a previous study of 400 undergraduates, the number of job cards completed in a twenty minute session ranged from two to ten completed job cards with the average performance falling between five and seven completed job cards (62% fell in this average range). The graph below illustrates the distribution of individual performance in the stock project from previous research.



APPENDIX E  
SUBORDINATE REACTION MANIPULATION

## SUBORDINATE REACTION MANIPULATION

The following statements are the standardized scripts for the subordinate reaction manipulation. The reaction takes place shortly after the subordinate reviews the ratings.

### CONDITION: NEGATIVE REACTION

The subordinate will be handed the evaluation form in an envelope, and will examine them for a minute or two.

Subordinate: "These don't seem very accurate ratings. I don't think these are very fair for the work I did."

Supervisor may say something in defense or in explanation.

Subordinate shrugs his shoulders, but before anything else is said the experimenter interrupts suggesting that they should begin should begin the second session in a minute or two.

### CONDITION: POSITIVE REACTION

The subordinate will be handed the evaluation form in an envelope, and will examine them for a minute or two.

Subordinate: "These seem like accurate ratings. I appreciate you being so fair."

Supervisor may say something appreciative or in explanation.

Subordinate nods his head in agreement, but before anything else is said the experimenter interrupts suggesting that they should begin the second session in a minute or two.

### CONDITION: NO REACTION

The suborddinate will be handed the evaluation form in an envelope. Instead of examining them, the subordinate will state, "If it's alright with you I'd rather just move right into the second session."

APPENDIX F  
QUESTIONNAIRES

## SUBORDINATE EVALUATION

Please indicate your response to the following questions on the scales provided. These ratings will provide performance feedback for the subordinate. Please consider each item carefully before providing your rating.

1. Based on the subordinate's performance in the previous work session, how would you assess the amount of work accomplished by the subordinate?

1-----2-----3-----4-----5-----6-----7-----8-----9  
very poor                      poor                      average                      good                      very good

2. Based on what you observed of the subordinate during the previous work session, how would you rate the subordinate as an organizer?

1-----2-----3-----4-----5-----6-----7-----8-----9  
very poor                      poor                      average                      good                      very good

3. Based on what you observed of the subordinate during the previous work session, how would you rate the subordinate in terms of efficiently using his time?

1-----2-----3-----4-----5-----6-----7-----8-----9  
very poor                      poor                      average                      good                      very good

4. Based on what you observed of the subordinate during the previous work session, how would you rate the subordinate as a planner?

1-----2-----3-----4-----5-----6-----7-----8-----9  
very poor                      poor                      average                      good                      very good

5. Based on what you observed of the subordinate during the previous work session, how would you rate the subordinate in terms of persevering through difficult work?

1-----2-----3-----4-----5-----6-----7-----8-----9  
very poor                      poor                      average                      good                      very good

6. Based on the subordinate's performance in the first work session, how well do you think the individual performed in the task overall?

1-----2-----3-----4-----5-----6-----7-----8-----9  
very poor                      poor                      average                      good                      very good

## SUPERVISOR QUESTIONNAIRE

Please indicate your responses to the following questions on the scales provided. The items within this questionnaire will enable us to assess your opinions and perceptions concerning different aspects of the task, such as characteristics of the task per se, about the subordinate's performance in the task, and about the interaction between the supervisor and subordinate. Please consider each item carefully before providing your rating. All of your responses on this questionnaire will be held in strict confidentiality. Typically, a person's performance is due to many different factors. The cause of a worker's performance may be due to ability, difficulty of the task, effort, luck, his/her supervisor, or even the individual's mood. In this first section please choose an alternative for each question based on the performance of the subordinate which you supervised. Give some thought to each question before answering.

1. To what extent was the subordinate's performance outcome in this session due to his **ability**?

1-----	2-----	3-----	4-----	5-----	6-----	7-----
not at	very	small	fairly	fairly	large	very
all	small	extent	small	large	extent	large
	extent		extent	extent		extent

2. To what extent was the subordinate's performance outcome in this session due to the **difficulty of the task**?

1-----	2-----	3-----	4-----	5-----	6-----	7-----
not at	very	small	fairly	fairly	large	very
all	small	extent	small	large	extent	large
	extent		extent	extent		extent

3. To what extent was the subordinate's performance outcome in this session due to his **effort**?

1-----	2-----	3-----	4-----	5-----	6-----	7-----
not at	very	small	fairly	fairly	large	very
all	small	extent	small	large	extent	large
	extent		extent	extent		extent

4. To what extent was the subordinate's performance outcome in this session due to **pure luck**?

1-----	2-----	3-----	4-----	5-----	6-----	7-----
not at	very	small	fairly	fairly	large	very
all	small	extent	small	large	extent	large
	extent		extent	extent		extent

5. To what extent was the subordinate's performance outcome in this session due to you, the **supervisor**?

1-----2-----3-----4-----5-----6-----7  
 not at very small fairly fairly large very  
 all small extent small large extent large  
 extent extent extent extent extent extent

6. To what extent was the subordinate's performance outcome in this session due to the **subordinate's mood**?

1-----2-----3-----4-----5-----6-----7  
 not at very small fairly fairly large very  
 all small extent small large extent large  
 extent extent extent extent extent extent

The questions in this section will assess the way in which you perceive the subordinate, and your relationship with the subordinate as his/her supervisor. Using the scales provided, select an alternative which best indicates your impression of the subordinate. REMEMBER, your responses on this questionnaire will be kept strictly confidential. Please consider each question carefully and respond as you truly feel.

7. Would you like to participate in another experiment with the person who was your subordinate?

-3 ----- -2 ----- -1 ----- 0 ----- 1 ----- 2 ----- 3  
 dislike dislike like like  
 very much very much

8. If you needed to coordinate a large group project and needed an assistant do you feel that you would like this subordinate to fill that role?

-3 ----- -2 ----- -1 ----- 0 ----- 1 ----- 2 ----- 3  
 dislike dislike like like  
 very much very much

9. How important was it that you and the subordinate work as a unified team?

1-----2-----3-----4-----5-----6-----7-----8-----9  
 not at of little somewhat important very  
 all importance importance important important  
 important





5. Please indicate the extent to which you feel the subordinate was receptive to your evaluation (ratings) of his/her performance.

-3 ----- -2 ----- -1 ----- 0 ----- 1 ----- 2 ----- 3  
very nonreceptive somewhat neutral somewhat receptive very  
nonreceptive nonreceptive receptive receptive

6. To the best of your ability, please indicate the number of job cards completed by your subordinate in the first session.

\_\_\_\_\_

7. To the best of your ability, please indicate the number of job cards completed by your subordinate in the second session.

\_\_\_\_\_

8. How strong was the subordinate's feelings about your evaluation of his/her performance?

-3 ----- -2 ----- -1 ----- 0 ----- 1 ----- 2 ----- 3  
very weak somewhat neutral somewhat strong very  
weak weak strong strong strong

APPENDIX G  
Tables and Figures

Table G-1

Percentage of the Fourteen Subjects in each Condition who Correctly Perceived the Number of Job Cards Performed by Subordinates in each Session (1st session / 2nd session).

SUBORDINATE REACTION	SUBSEQUENT PERFORMANCE		
	Increase	Same	Decrease
Positive	100 / 79 <sup>**</sup>	100 / 100	100 / 100
No reaction	100 / 86 <sup>**</sup>	86 / 86 <sup>* *</sup>	100 / 100
Negative	100 / 86 <sup>**</sup>	100 / 100	100 / 100

\* Incorrectly reported six completed job cards when actually five job cards were completed by the subordinate. (The two subjects made the same mistake in both sessions)

\*\* Incorrectly reported six or seven completed job cards when actually six and a half job cards were completed by the subordinate.

Table G-2

ANOVA Table for Supervisors' Responses to the Manipulation Check  
Pertaining to Subordinate's Reaction as a Function of Subordinate  
Reaction and Performance Change.

Source	SS	DF	F
Reaction	240.30	2	188.69**
Performance	5.35	2	4.20*
React. X Perf.	1.51	4	.59
Residual	74.50	117	

Note: \*\* p < .001; \* p < .05

Table G-3

ANOVA Table for Supervisors' Responses to the Manipulation Check  
Pertaining to Subordinate's Reaction as a Function of Subordinate  
Reaction and the Confederate Delivering the Reaction.

Source	SS	DF	F
Reaction	237.32	2	236.36**
Confederate	2.18	3	1.44
Performance	4.10	2	4.09*
React. X Confed.	5.35	6	1.78
React. X Perform.	1.93	4	0.96
Confed. X Perform.	2.95	6	0.98
React. X Confed. X Perform.	2.48	7	0.71
Residual	36.65	73	

Note: \*\*  $p < .001$

Table G-4

Summary Table for Repeated Measures ANOVA for Ratings (Summed) in  
Session One and Session Two by Subordinate Reaction and  
Performance Change.

Source	SS	DF	F
<b>BETWEEN-SUBJECTS</b>			
Reaction	116.79	2	1.67
Performance	837.17	2	11.96**
React. X Perf.	261.25	4	1.87
Residual	4095.86	117	
<b>WITHIN-SUBJECTS</b>			
Session	36.57	1	4.69*
React. X Session	12.10	2	.77
Perform. X Session	1092.95	2	70.01**
React. X Perform. X Session	21.10	4	.68
Residual	913.29	117	

Note: \*\* p < .001; \* p < .05

Table G-5

Means and Standard Deviations for Ratings Summed Over All Six Dimensions for Session One and Two by Performance Change and Reaction Conditions.

Condition	SESSION ONE		SESSION TWO	
	M	SD	M	SD
Performance Same				
No Reaction	35.50	3.46	35.71	3.75
Negative Reaction	38.50	3.70	39.07	5.27
Positive Reaction	35.93	3.65	36.57	3.52
Performance Decrease				
No Reaction	36.71	6.18	30.76	5.35
Negative Reaction	38.64	3.34	35.50	6.79
Positive Reaction	36.86	4.15	33.36	6.08
Performance Increase				
No Reaction	37.86	3.13	44.00	3.28
Negative reaction	36.00	3.98	41.86	5.01
Positive Reaction	36.29	4.76	42.29	5.44

Table G-6

Means and Standard Deviations for First Rating Measure\* of  
Session Two by Performance Change and Reaction Conditions.

Condition	SESSION ONE		SESSION TWO	
	M	SD	M	SD
Performance Same				
No Reaction	5.36	0.93	5.50	1.02
Negative Reaction	5.64	0.93	5.71	0.83
Positive Reaction	5.29	1.07	5.21	0.98
Performance Decrease				
No Reaction	5.43	0.65	4.36	1.28
Negative Reaction	5.21	0.89	4.64	1.28
Positive Reaction	5.43	1.02	4.64	0.93
Performance Increase				
No Reaction	5.36	1.01	7.36	1.01
Negative reaction	5.57	1.09	7.07	1.00
Positive Reaction	5.14	0.77	6.64	0.93

\*Note: "How would you assess the amount of work accomplished by the subordinate?"

Table G-7

Means and Standard Deviations for Second Rating Measure\* of  
Session Two by Performance Change and Reaction Conditions.

Condition	SESSION ONE		SESSION TWO	
	M	SD	M	SD
Performance Same				
No Reaction	6.21	0.89	6.07	0.73
Negative Reaction	6.93	0.48	6.79	0.80
Positive Reaction	6.50	0.86	6.64	0.84
Performance Decrease				
No Reaction	6.57	1.40	5.93	1.27
Negative Reaction	6.64	0.84	6.43	1.34
Positive Reaction	6.86	0.95	6.07	1.33
Performance Increase				
No Reaction	6.71	0.83	7.21	0.58
Negative reaction	6.29	0.99	6.71	1.27
Positive Reaction	6.43	6.86	0.86	

\*Note: "How would you rate the subordinate as an organizer?"

Table G-8

Means and Standard Deviations for Third Rating Measure\* of  
Session Two by Performance Change and Reaction Conditions.

Condition	SESSION ONE		SESSION TWO	
	M	SD	M	SD
Performance Same				
No Reaction	6.07	1.00	6.00	1.00
Negative Reaction	6.57	1.40	6.57	1.70
Positive Reaction	6.07	0.92	6.07	0.92
Performance Decrease				
No Reaction	6.29	1.20	4.93	0.92
Negative Reaction	7.07	1.27	6.14	1.51
Positive Reaction	6.14	1.10	5.21	1.19
Performance Increase				
No Reaction	6.50	1.09	7.71	0.73
Negative reaction	6.14	1.41	7.29	1.20
Positive Reaction	6.29	1.20	7.57	0.85

\*Note: "How would you rate the subordinate in terms of making efficient use of his time?"

Table G-9

Means and Standard Deviations for Fourth Rating Measure\* of  
Session Two by Performance Change and Reaction Conditions.

Condition	SESSION ONE		SESSION TWO	
	M	SD	M	SD
Performance Same				
No Reaction	5.43	0.51	5.64	0.75
Negative Reaction	6.29	0.73	6.57	1.16
Positive Reaction	5.71	0.99	6.00	0.78
Performance Decrease				
No Reaction	6.14	1.03	5.36	1.01
Negative Reaction	6.43	0.94	6.21	1.37
Positive Reaction	5.71	1.07	5.64	1.01
Performance Increase				
No Reaction	5.93	0.62	6.50	0.52
Negative reaction	5.50	0.86	6.50	0.76
Positive Reaction	5.79	0.98	6.14	1.05

\*Note: "How would you rate the subordinate as a planner?"

Table G-10

Means and Standard Deviations for Fifth Rating Measure\* of  
Session Two by Performance Change and Reaction Conditions.

Condition	SESSION ONE		SESSION TWO	
	M	SD	M	SD
Performance Same				
No Reaction	6.21	1.05	6.00	0.97
Negative Reaction	6.79	1.12	6.93	1.14
Positive Reaction	6.43	1.22	6.57	1.09
Performance Decrease				
No Reaction	6.29	1.54	5.14	1.17
Negative Reaction	6.86	1.23	6.14	1.56
Positive Reaction	6.36	1.15	6.07	1.33
Performance Increase				
No Reaction	7.21	0.98	7.71	1.14
Negative reaction	6.29	1.07	7.00	1.11
Positive Reaction	6.64	1.50	7.43	1.22

\*Note: "How would you rate the subordinate in terms of his ability to persevere through difficult work?"

Table G-11

Means and Standard Deviations for Sixth Rating Measure\* of  
Session Two by Performance Change and Reaction Conditions.

Condition	SESSION ONE		SESSION TWO	
	M	SD	M	SD
Performance Same				
No Reaction	6.21	1.19	6.50	0.94
Negative Reaction	6.29	0.99	6.50	1.16
Positive Reaction	5.93	1.21	6.07	1.14
Performance Decrease				
No Reaction	6.00	1.52	5.07	1.14
Negative Reaction	6.43	0.94	5.93	1.49
Positive Reaction	6.36	0.93	5.71	1.54
Performance Increase				
No Reaction	6.14	1.23	7.50	0.76
Negative reaction	6.21	0.80	7.29	0.91
Positive Reaction	6.00	1.24	7.00	1.41

\*Note: "How well do you think the subordinate performed in the task overall?"

Table G-12

Power Analysis: Investigating the Probability of Rejecting the Null Hypothesis for Ratings and Time Monitoring Prediction while Varying Effect Sizes.

k	n	alpha	effect size	phi*	approx. power
3	14	.05	(.5)SD	0.7638	< .30
3	14	.05	(.75)SD	1.1456	~ .38
3	14	.05	(1.0)SD	1.5275	~ .62
3	14	.05	(1.25)SD	1.9094	~ .84
3	14	.05	(1.5)SD	2.2913	~ .95

\*phi and the power tables associated with phi are from a formula provided by Kirk (1982):  
 $PHI = (\text{SQR ROOT of } n) (\text{SQR ROOT of } (\text{effect size squared} / (2)(k)))$ ;  
 where k = number of levels or groups; n = sample size per cell;  
 effect size = the # of standard deviations between means

Table G-13

ANOVA Table for Supervisors' Responses on Two Interpersonal Attraction Scales by Reaction and Performance Change.

Source	SS	DF	F
INTERPERSONAL ATTRACTION (2 items from Byrne)			
Reaction	13.64	2	3.39**
Performance	4.11	2	1.02
React. X Perf.	4.56	4	.57
Residual	235.00	117	
INTERPERSONAL ATTRACTION (all 4 items)			
Reaction	76.76	2	2.77*
Performance	8.14	2	.29
React. X Perf.	27.38	4	.49
Residual	1621.43	117	

Note: \*\*  $p < .05$ ; \*  $p < .10$

Table G-14

Means and Standard Deviations for Two Interpersonal Attraction Scales by Performance Change and Reaction Conditions

Condition	Byrne's Scale		All four items	
	M	SD	M	SD
Performance Same				
No Reaction	1.50	1.51	5.29	3.60
Negative Reaction	0.93	1.07	4.43	2.68
Positive Reaction	2.00	1.52	6.21	4.95
Performance Decrease				
No Reaction	1.50	1.56	4.86	3.21
Negative Reaction	0.71	1.54	3.50	3.80
Positive Reaction	1.86	1.35	6.79	2.78
Performance Increase				
No Reaction	1.93	1.49	5.57	3.25
Negative reaction	1.64	1.45	5.50	3.96
Positive Reaction	1.79	1.19	6.14	3.84

Table G-15

ANOVA Table for Supervisors' Responses on the Supervisor  
Uncertainty Scale, and Conflict Avoidance Scale by Subordinate  
Reaction and Performance Change.

Source	SS	DF	F
SUPERVISOR UNCERTAINTY (2 items)			
Reaction	9.14	2	.98
Performance	2.91	2	.31
React. X Perform.	13.52	4	.72
Residual	546.79	117	
CONFLICT AVOIDANCE (2 items)			
Reaction	16.44	2	.56
Performance	42.97	2	1.47
React. X Perform.	63.94	4	1.10
Residual	1705.29	117	

Table G-16

Means and Standard Deviations for Supervisor Uncertainty and Conflict Avoidance Scales by Performance Change and Reaction Conditions

Condition	SUPERVISOR UNCERTAINTY SCALE		CONFLICT AVOIDANCE SCALE	
	M	SD	M	SD
Performance Same				
No Reaction	1.57	2.21	14.86	3.92
Negative Reaction	0.93	2.06	14.93	3.97
Positive Reaction	2.00	2.11	16.36	4.22
Performance Decrease				
No Reaction	1.29	1.59	18.07	3.15
Negative Reaction	1.14	2.32	15.29	5.06
Positive Reaction	1.14	1.83	16.57	2.24
Performance Increase				
No Reaction	0.79	2.78	16.07	3.05
Negative reaction	1.57	1.99	16.93	3.99
Positive Reaction	2.21	2.36	16.79	4.06

Table G-17

Summary Table for Repeated Measures ANOVA for Time Monitoring in  
Session One and Session Two by Subordinate Reaction and  
Performance Change.

Source	SS	DF	F
BETWEEN-SUBJECTS			
Reaction	927.94	2	.26
Performance	2106.70	2	.60
React. X Perf.	3412.87	4	.48
Residual	205894.07	117	
WITHIN-SUBJECTS			
Session	15920.94	1	40.85**
React. X Session	634.56	2	.81
Perform. X Session	3159.92	2	4.05*
React. X Perform. X Session	613.33	4	.39
Residual	45594.99	117	

Note: \*\*  $p < .01$ ; \*  $p < .05$

Table G-18

Means and Standard Deviations for Time Monitoring for Session One and Two as a Function of Performance Change and Reaction by the Subordinate.

Condition	SESSION ONE		SESSION TWO	
	M	SD	M	SD
Performance Same				
No Reaction	75.99	42.60	48.43	22.95
Negative Reaction	81.32	56.68	51.50	33.88
Positive Reaction	74.43	34.29	55.59	25.93
Performance Decrease				
No Reaction	57.01	26.15	54.55	22.24
Negative Reaction	73.33	37.18	60.12	21.68
Positive Reaction	55.97	27.13	46.38	14.34
Performance Increase				
No Reaction	70.54	37.98	53.67	31.19
Negative reaction	64.41	41.84	47.72	27.76
Positive Reaction	63.15	35.52	55.13	25.02

Table G-19

ANOVA Table for Supervisors' Responses on the Internal and External Attribution Scales by Subordinate Reaction and Performance Change.

Source	SS	DF	F
INTERNAL ATTRIBUTION (ability, effort, and mood)			
Reaction	11.54	2	1.21
Performance	14.40	2	1.51
React. X Perf.	27.94	4	1.46
Residual	559.79	117	
EXTERNAL ATTRIBUTION (difficulty of task, luck, supervisor)			
Reaction	4.40	2	.45
Performance	1.16	2	.12
React. X Perf.	21.75	4	1.11
Residual	574.57	117	

Table G-20

ANOVA Table for Supervisors' Responses to the 'Subordinate Mood'  
Attribution by Subordinate Reaction and Performance Change.

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Source	SS	DF	F
Reaction	0.97	2	0.45
Performance	0.83	2	0.39
React. X Perf.	16.70	4	3.91*
Residual	124.79	117	

---

Note: \*  $p < .01$

Table G-21

Means and Standard Deviations for Supervisors' Response to  
'Subordinate Mood' Attribution by Performance Change and Reaction  
Conditions.

Condition	N	M	SD
Performance Same			
No Reaction	14	4.57	1.02
Negative Reaction	14	4.79	.70
Positive Reaction	14	4.71	1.07
Performance Decrease			
No Reaction	14	4.71	1.27
Negative Reaction	14	5.29	.91
Positive Reaction	14	3.93	1.39
Performance Increase			
No Reaction	14	4.86	.86
Negative reaction	14	4.43	.85
Positive Reaction	14	5.21	1.05

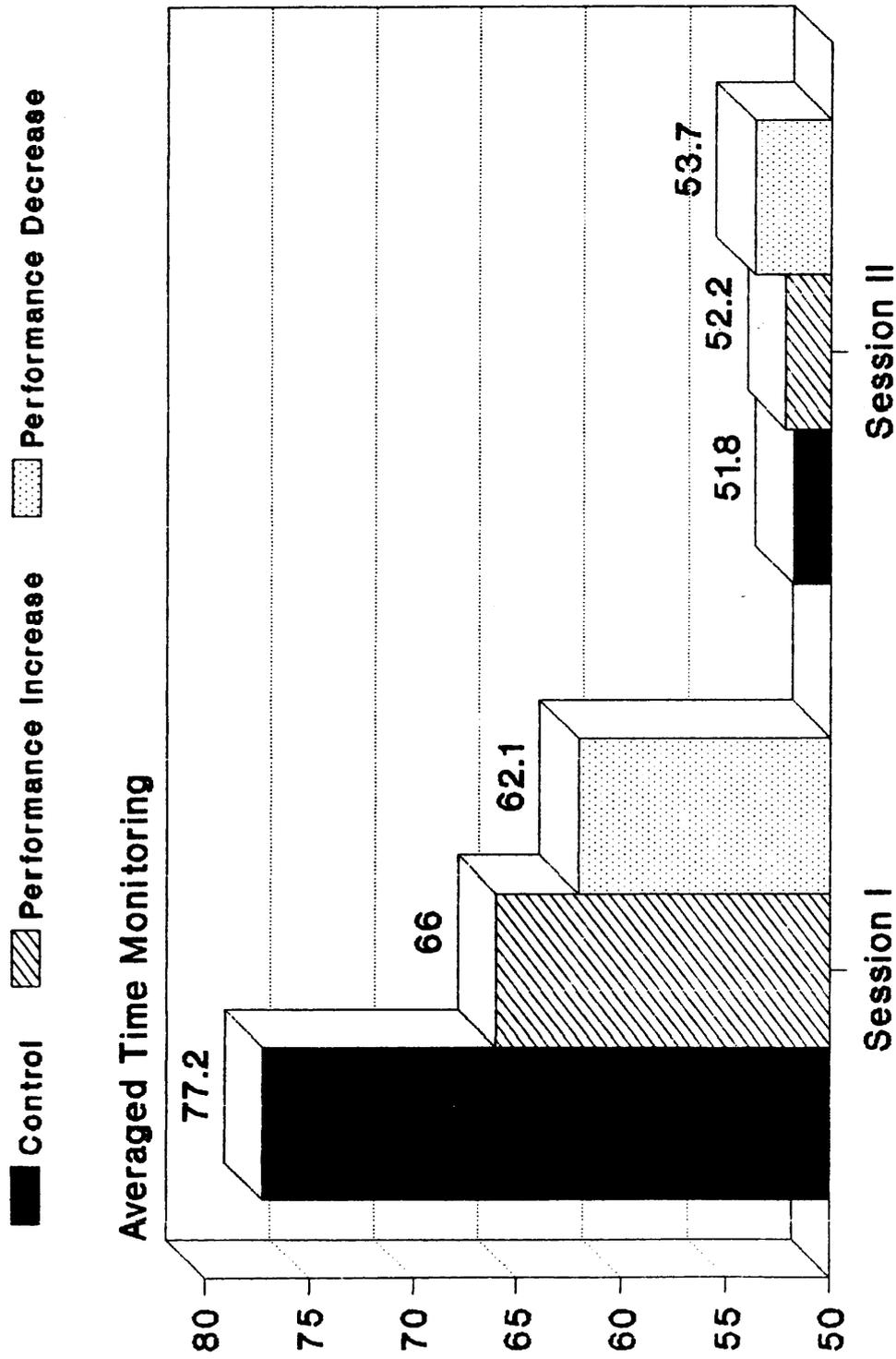
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	<u>Locus</u>			
	internal		external	
	<u>Stability</u>		<u>Stability</u>	
<u>Control</u>	stable	unstable	stable	Unstable
uncontrollable	ABILITY	MOOD	TASK DIFFICULTY	LUCK
controllable	TYPICAL EFFORT	IMMEDIATE EFFORT	SUPERVISOR	COWORKERS

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Figure 1: The eight cell attribution matrix





**Time Monitoring by Session & Performance**

**Figure 3**

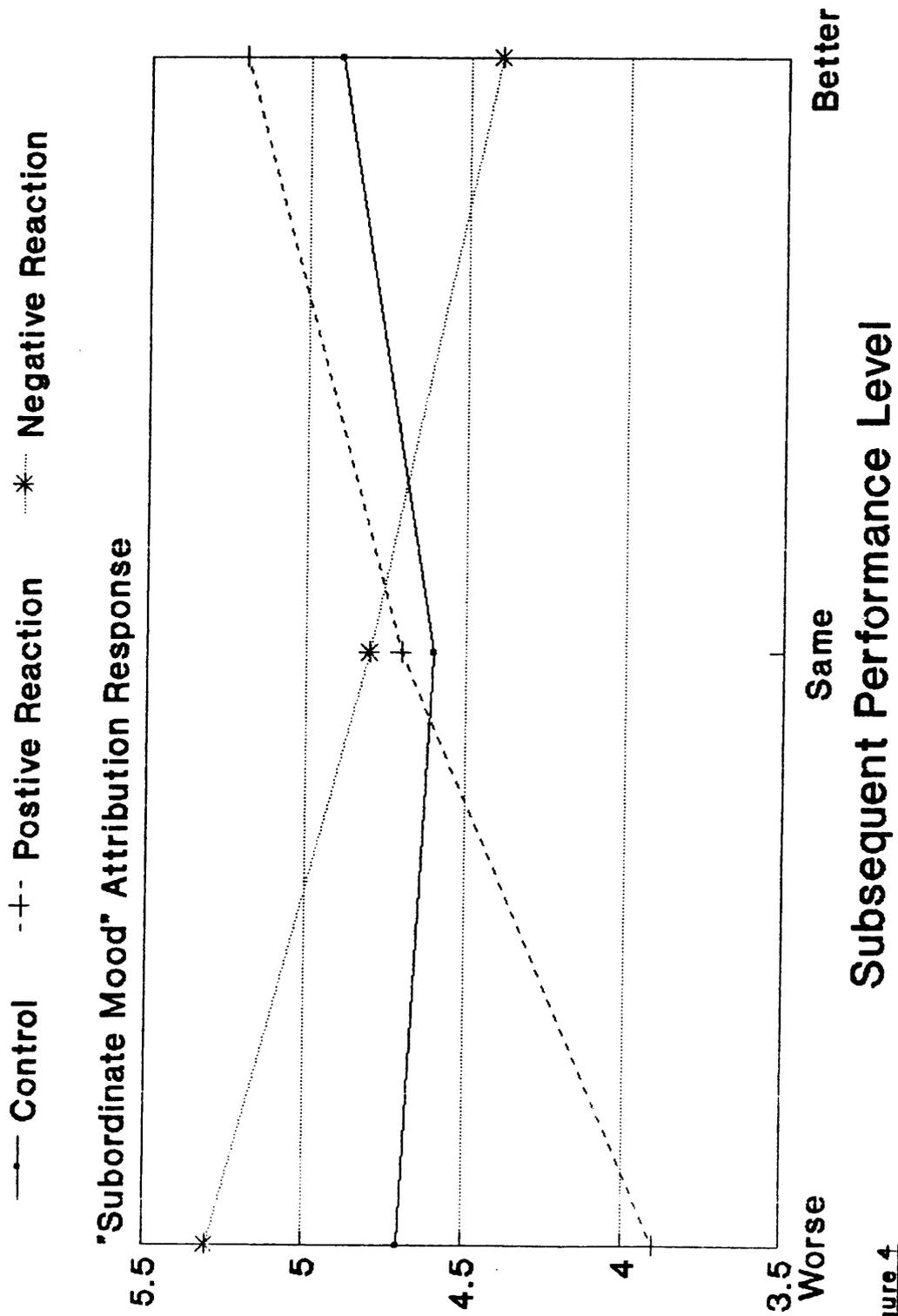


Figure 4

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