

Memory for Performance Feedback: A  
Test of Three Self-Motivation Theories

by

Joanne Mac Donlin

Dissertation submitted to the Faculty of the  
Virginia Polytechnic Institute and State University in  
partial fulfillment of the requirements for the degree of

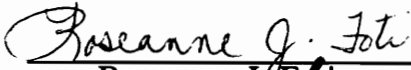
DOCTOR OF PHILOSOPHY

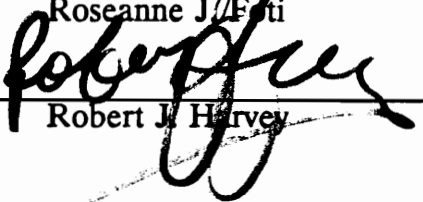
in

Psychology

APPROVED:

  
Neil M. H. Hauenstein, Chair

  
Roseanne J. Foti

  
Robert J. Harvey

  
Danny Axsom

  
Joseph J. Franchina

  
Robert M. Madigan

April 2, 1990

Blacksburg, Virginia

Memory for Performance Feedback: A  
Test of Three Self-Motivation Theories

by

Joanne Mac Donlin

Committee Chair: Neil M. Hauenstein

Psychology

(ABSTRACT)

The current study tests the adequacy of three self-motive theories to predict recall of performance feedback, memory sensitivity, and ratings of perceived accuracy. Self-enhancement (Jones, 1973) predicts individuals are motivated to maintain their self-esteem. Individuals will therefore recall positive relative to negative feedback and will rate positive feedback as more accurate. Self-consistency theory (Swann, 1985) predicts individuals are motivated to maintain their self-conceptions. Therefore they will recall feedback consistent with their expectations and rate consistent feedback as more accurate. Finally, Competence motivation (White, 1959) predicts individuals are motivated to master their environment and predicts individuals will recall feedback about important feedback dimensions, or feedback with high diagnostic value. The results clearly show individuals are biased toward recalling negative feedback. Individuals tended to recall more specific negative feedback statements relative to specific positive feedback statements ( $p < .06$ ),

and recalled more total information about negative feedback dimensions compared to positive feedback dimensions ( $p < .05$ ). The superior recall for negative feedback may be explained by two theories. The first is a modified version of competence motivation. Recalling negative information may help the individual master his/her environment because negative feedback indicates which behaviors were performed below standard, and need to be changed. Self-enhancement theory may also explain these results. Individuals may have attempted to refute the validity of the negative feedback, and this lead to greater processing of and enhanced recall for this information. Memory sensitivity data did not support any of the theories. Ratings of feedback accuracy supported previous literature and showed clear support for self-enhancement theory. Individuals rated positive feedback as more accurate than negative feedback, but only when the feedback dimensions were important or had high diagnostic value.

## ACKNOWLEDGEMENTS

My sincerest appreciation is expressed to my committee chair and advisor, Dr. Neil M. H. Hauenstein, for his unending support during the past two years. Neil was more than just an academic advisor, he was a mentor and a friend. He helped me develop confidence in myself as a researcher, a writer, and as a professional psychologist. For all this I am eternally grateful. Although Neil was extremely busy with many advisees, he always made time to meet with me and discuss my work. Without his responsiveness and encouragement, it would have been difficult to finish the final stages of my dissertation away from Virginia Tech.

I also thank Dr. Roseanne J. Foti for serving on both my Masters and Dissertation committees, and for teaching most of the Industrial & Organizational Psychology courses I took while at Virginia Tech. When I look back on my graduate school career I will always remember her enormous contribution to my education. In addition, my thanks goes to my other committee members for all their comments & suggestions: Dr. Danny Axsom, Dr. Joseph J. Franchina, Dr. Robert J. Harvey, and Dr. Robert M. Madigan.

Special thanks goes to Elizabeth Brownlee, my best friend at Virginia Tech. Elizabeth was always there to make the difficult times more bearable and make the good times even more special. I hope our friendship will continue to grow as it has in the past five years.

I would be remiss in not thanking William Donlin, my closest friend and

husband. Without his emotional support during the past five years I would not have been able to obtain my Ph.D. Words cannot adequately express my appreciation, and it is to him that I dedicate this dissertation. I only hope I have helped him half as much as he has helped me.

## TABLE OF CONTENTS

ABSTRACT . . . . .	ii
ACKNOWLEDGEMENTS . . . . .	iv
<b><u>Chapter</u></b>	<b><u>Page</u></b>
INTRODUCTION . . . . .	1
Overview of Study . . . . .	9
FEEDBACK THEORY: A LITERATURE REVIEW . . . . .	11
Feedback as a Communication Process . . . . .	11
Control Theory . . . . .	12
Feedback Seeking Behavior . . . . .	13
Self-Enhancement Theory . . . . .	15
Feedback Sign . . . . .	15
Self-Serving Bias . . . . .	16
Regulating Reactions to Feedback . . . . .	17
Recall . . . . .	19
Self-Consistency Theory . . . . .	24
Selective Attention . . . . .	25
Recall . . . . .	26
Selective Interpretation . . . . .	29
Task-specific Expectancies . . . . .	30
Personality versus Performance Feedback . . . . .	32
Self-Enhancement versus Self-Consistency . . . . .	33
Competence Motivation Theory . . . . .	36
Diagnostic Value . . . . .	38
Purpose of the Study . . . . .	41
Hypotheses . . . . .	42
METHOD . . . . .	45
Subjects . . . . .	45
Design . . . . .	45
Procedure . . . . .	45
Experimental Exercises and Stimuli . . . . .	49

RESULTS . . . . .	56
Manipulation Checks . . . . .	56
Suspicion . . . . .	56
Feedback Sign . . . . .	58
Expectancy . . . . .	59
Diagnostic Value . . . . .	60
Major Dependent Variables . . . . .	62
Free Recall - Specific Statements . . . . .	62
Free Recall - Total Recall . . . . .	69
Memory Sensitivity . . . . .	71
Response Bias . . . . .	72
Ratings of Feedback Accuracy . . . . .	74
DISCUSSION . . . . .	77
REFERENCES . . . . .	93
APPENDICES . . . . .	108
A. PROTOCOL . . . . .	109
B. CONSENT FORM . . . . .	114
C. DEMOGRAPHIC QUESTIONNAIRE . . . . .	116
D. LEAD TASK . . . . .	118
E. LEAD FEEDBACK . . . . .	122
F. IN-BASKET TASK . . . . .	124
G. DIAGNOSTIC VALUE CHART . . . . .	138
H. DIAGNOSTIC VALUE TASK . . . . .	140
I. IN-BASKET FEEDBACK . . . . .	142
J. WESMAN PERSONNEL CLASSIFICATION TEST . . . . .	145
K. RECALL MEASURE . . . . .	146

L.	RECOGNITION MEASURE	. . . . .	148
M.	FEEDBACK ACCURACY MEASURE	. . . . .	151
N.	MANIPULATION CHECKS	. . . . .	153
O.	CONFIRMATION OF DEBRIEFING	. . . . .	157
P.	PERCENT RECALL FOR FEEDBACK STATEMENTS	. . . . .	159
Q.	SUMMARY TABLES FOR MANIPULATION CHECK ITEMS		162
R.	SUMMARY TABLES FOR DEPENDENT VARIABLES	. . . . .	166
VITA	. . . . .	. . . . .	184



## INTRODUCTION

Performance evaluations are a common aspect of organizational life. Employees generally receive performance feedback annually in a performance appraisal session. From an organization's perspective, feedback is used to justify salary treatment (Landy & Farr, 1980) and serves to keep its members' behavior directed toward desired goals (Payne & Hauty, 1955; Vroom, 1964). Goals of the organization (e.g., profits, productivity) and goals of the individual (e.g., raises, promotions) are both linked to improvements in employee performance. Because feedback is delivered in part to help employees improve performance, it is important for workers to accurately process and retain feedback received during appraisal sessions.

The performance appraisal interview is a special social situation where an individual's self-motives are likely to influence how feedback is processed. Self-motives are personal goals or biases that influence behavior, which are dependent upon the characteristics of the immediate social situation (Markus & Wurf, 1987). However, most feedback theories do not incorporate the influence of self-motives on behavior. The first widely accepted feedback model views feedback as a special case of the general communication process, where the source sends a message (i.e., feedback) to the receiver (Ilgen, Fisher & Taylor, 1979). The authors acknowledge that individual differences and contextual variables impact the communication process, such that the feedback sent does not always equal the message received. However the impact of

social variables is not adequately explained by the model. Alternatively, Taylor, Fisher and Ilgen (1984) view feedback from a cybernetic or control theory framework, which also fails to account adequately for the impact of self-motives and social context. Finally, Ashford and Cummings (1983) propose a model which portrays individuals as active feedback seekers rather than passive feedback recipients. This model acknowledges the impact of several self-motives on feedback seeking behavior. However empirical tests of the model measure feedback seeking strategies rather than recall of feedback received during a feedback session (cf. Ashford, 1986). Therefore, current feedback models do not account for the impact of self-motives on the storage and retention of performance feedback.

Fortunately, social psychology has a rich theoretical basis for potentially explaining the effects of self-motives on the processing and recall of self-relevant information. There are obvious parallels between appraisal interviews and situations where individuals receive social feedback. Therefore, feedback theory can be advanced by considering the feedback session as a special social situation where self-motives are likely to affect how an employee interprets, stores, and retrieves performance feedback.

Three self-motive theories may potentially affect individuals' behaviors in performance feedback sessions. The three theories are: Self-enhancement (Jones, 1973), Self-consistency (Swann, 1984), and Competence motivation (White, 1959). Evidence has been found for the existence of each of the three

self-motives, but the immediate social context determines which motive will control behavior (Epstein, 1973). The purpose of the current study is to determine which of the three self-motive theories best describes the manner in which ratees process and store performance feedback delivered during performance appraisal sessions. Knowing which self-motive operates during performance appraisal sessions may have implications for how the feedback is delivered.

### Self-Enhancement Theory

Self-enhancement theory proposes that individuals are motivated to embrace positive and repel negative information about themselves for the purpose of enhancing and protecting self-esteem (Jones, 1973; Tesser & Paulhus, 1983). Individuals may utilize several mechanisms for protecting esteem including: engaging in the self-serving bias in causal attribution (Bradley, 1978), and regulating one's reactions to feedback (Jones, 1973). According to self-enhancement theory feedback sign is the critical factor determining how feedback is processed. Research has shown that negative feedback is rated as less accurate and is less accepted than is positive feedback (Stone & Stone, 1984; 1985; Jacobs, Jacobs, Feldman & Cavior, 1973; Halperin et al., 1976). Research has also shown subordinates report feeling uneasy about attending feedback sessions, particularly when their evaluation has negative aspects. For example, Kay, Meyer and French (1965) found evidence for the "overload phenomenon." Subordinates became increasingly more

defensive as the number of criticisms delivered during an appraisal interview increased. The defensive reactions included negative attitudes about the supervisor and the appraisal system. Campbell and Lee (1988) also propose that "psychological defense mechanisms," such as selective memory and feedback distortion that may interfere with one's ability to make accurate self-assessments of performance. However, research also suggests the presentation of negative feedback does not necessarily lead to defensive responses. For example, Fletcher and Williams (1976) found that individuals who received both negative and positive feedback during an appraisal interview were more motivated and improved their performance more than subordinates who received only positive information. In addition, Ilgen, Mitchell and Fredrickson (1981) found that specific negative feedback was rated as more helpful and led to more positive attitudes about the supervisor than did general negative feedback. Apparently reactions to negative performance feedback need not always be defensive.

A possible explanation for these inconsistent results is that feedback sign is only one characteristic of the information that influences employee reactions. Independent of feedback sign, feedback can vary in terms of performance improvement strategies conveyed by the feedback. An implicit assumption of the feedback literature is that performance improvement information is conveyed primarily in negative feedback. This is clearly an oversimplification. Negative feedback which is vague and nonspecific (e.g., you are a terrible

employee) has little value in terms of leading to improvements in performance. Conversely, specific positive feedback can convey strategies for improving performance (e.g., you are a terrific employee and the only way I can see you improving your performance is to ...). Clearly, performance improvement information may be conveyed by specific positive and specific negative feedback.

In the feedback literature, one of the primary focuses has been on the effects of feedback sign (Bannister, 1986; DeNisi, Randolph, & Blencoe, 1983; Fisher, 1979; Ilgen, 1971; Ilgen & Hamstra, 1972; Stone & Stone, 1984; 1985; Stone, Gueutal & MacIntosh, 1985), without much concern for feedback content (with the exception of Ilgen, Peterson, et al, 1981). The feedback stimuli utilized in feedback research has been global in nature and essentially documents ratees' past performance rather than indicating how individuals may improve future performance (cf. Stone & Stone, 1984; 1985; Ilgen, 1971; Ilgen & Hamstra, 1972). On the other hand, goal setting research has been concerned with characteristics of the feedback content which leads to maximum future performance improvement (Locke, 1968; Locke et al., 1981), without much concern for feedback sign. Concerning this latter research, it is clear that specific information (i.e., goals) leads to greater changes in performance than vague information (Ivancevich & McMahon, 1982; Locke, 1968; Locke et al., 1981). The current study utilizes specific feedback to assess the effects of feedback sign when all feedback conveys specific information for improving future performance.

Beyond feedback sign and strategies for improving performance, the manner in which specific performance feedback is processed is also dependent on the characteristics of the person receiving the feedback. Recipient characteristics that should influence feedback processing include: task-specific self-expectations, and implicit theories about the job including perceptions of diagnostic value. These characteristics are critical to the predictions of self-consistency theory and competence motivation respectively.

### Self-consistency Theory

Self-consistency theory assumes that once individuals develop self-expectancies they are motivated to maintain these expectancies by engaging in activities to confirm these conceptions (Swann, 1985; 1987). Cognitive activities that allow individuals to confirm their expectations include: attending to confirmatory information (Swann & Read, 1981b, Expt. 1), recalling self-confirmatory personality feedback (Swann & Read, 1981b, Expt. 3), and endorsing the validity of tests only if the scores they receive fit with their self-conceptions (Bernstein & Lecomte, 1979; Crary, 1966; Markus, 1977). Therefore, this theory assumes that individuals resist changing their self-conceptions.

Self-expectancies may take a general form, involving relatively broad beliefs about personal competency and level of control over environment. However, self-expectancies may also be specific to the task itself, involving relatively narrow beliefs about particular skills or abilities (Moreland &

Sweeney, 1984). Individuals' task-specific self-expectations are particularly relevant in multidimensional jobs because one's level of self-appraisal is typically not consistent across all performance dimensions (cf. Shrauger, 1975; Shrauger & Osberg, 1980; Moreland & Sweeney, 1984). People who usually are extremely competent and sure of themselves may still have areas in which they feel inadequate and expect to perform poorly. Therefore it is necessary to measure specific performance expectancies when testing self-consistency theory.

### Competence Motivation

The third self-motive that may affect subordinates' processing of performance feedback is competence motivation (White, 1959; 1974). According to White (1959), people are motivated to master their environment. Individuals achieve this competence by continually engaging in challenging situations and exploring their environment. Further, conquering these challenging situations and demonstrating competence, leads to feelings of satisfaction, competence and efficacy (White, 1959). Ashford and Cummings (1983) incorporate competence motivation into their model of feedback seeking behavior. Feedback seeking is defined as the conscious devotion of effort toward determining the correctness and adequacy of behavior for attaining valued end states (Ashford & Cummings, 1983). Seeking performance feedback is one behavior that facilitates the attainment of competence and adapting to the environment (White, 1974).

Accurately processing relevant performance feedback should enhance one's ability to master the environment. Although there is some individual variation, employees performing the same job tend to share a set of implicit expectations about their job (Borman, 1987; Guion, 1987), and included in these shared expectations are assumptions about what information is relevant to successful job performance (Hauenstein & Foti, in press). The extent to which employees accurately process specific performance feedback information is likely to be mediated by these perceptions of relative importance. That is, feedback may vary in terms of its perceived diagnostic value for leading to better overall job performance. For example a professor's job entails multiple dimensions including teaching, publishing research, and advising students. These dimensions also vary in their relative weight in determining tenure. Feedback about important dimensions (e.g., publishing research) has high diagnostic value because performance in this area is highly related to obtaining tenure. Feedback about less critical dimensions (e.g., advising students) has low diagnostic value because performance on this dimension has little consequence for tenure decisions.

Diagnostic value is related to but different from task diagnosticity (cf. Trope, 1975, 1985). While task diagnosticity is a subjective judgement of the relationship between task performance and current ability level (Trope, 1985), diagnostic value is a subjective judgement of the relationship between performance on a certain dimension and successful future performance. Task



diagnosticity determines the amount of information a task can provide for reducing uncertainty about ability level, while diagnostic value indicates the importance of performing well on a specific performance dimension if one wants to demonstrate successful overall performance in the future. Therefore diagnostic value provides information for improving future performance while task diagnosticity provides information for assessing current ability.

As stated previously, the purpose of the present study is to test the adequacy of the three self-motive theories to describe the manner in which ratees process performance feedback. This goal is accomplished through a "strong inference" approach of conducting research (Platt, 1964). Strong inference consists of: 1) devising alternative hypotheses; 2) devising a crucial experiment with alternative possible outcomes, each of which will, as nearly as possible, exclude one or more of the hypotheses; and 3) carrying out the experiment so as to get a clean result. This is accomplished in the current study by including the relevant variables for testing each self-motive theory.

#### Overview of the study

To test the self-motive theories outlined above, the following factors are manipulated: feedback sign, task-specific self-expectations, and diagnostic value. Feedback sign is the positive or negative nature of the feedback (Ilgen, Fisher, & Taylor, 1979). Feedback sign is manipulated to test the predictions of self-enhancement (Jones, 1973) and self-consistency theory (Swann, 1984). Both theories predict individuals with positive expectations will recall positive

feedback. However, self-enhancement theory predicts individuals with negative expectations will recall positive feedback, while self-consistency theory predicts these individuals will recall negative feedback.

The second factor, task-specific self-expectations, are the subordinate's beliefs about their personal competence or ability to perform a specific task. Performance expectancies are manipulated to test the predictions of self-consistency theory (Swann, 1984). Self-consistency theory predicts that, regardless of the level of diagnostic value, individuals with positive expectations are expected to recall more positive feedback relative to negative feedback, and individuals with negative expectations are expected to recall more negative feedback relative to positive feedback.

The final factor, diagnostic value, is manipulated to test the predictions of competence motivation theory (White, 1959). According to competence motivation theory, regardless of feedback sign and task-specific self-expectations, individuals are motivated to recall feedback with high diagnostic value relative to feedback with low diagnostic value. Feedback with high diagnostic value relative to low diagnostic value should be accurately processed because it provides more information for how to demonstrate competence in the future.

## FEEDBACK THEORY: A LITERATURE REVIEW

This study investigates the impact of self-motives on the manner in which feedback is processed. A search of the literature revealed three feedback models which provide potential frameworks for conceptualizing how employees process performance feedback. Alone, each model is inadequate to explain how self-motives affect memory for performance feedback. However because research guided by each of these models is directly applicable to the current research, each model is briefly described below.

### Feedback as a Communication Process

The first widely cited model of the feedback process was proposed by Ilgen, Fisher and Taylor (1979). They view feedback as a special case of the general communication process, where the source sends a message (i.e., feedback) to the receiver. This model proposes that individuals respond to feedback in four stages: perception of feedback, acceptance of feedback, desire to respond to feedback, intended response. The authors indicate that characteristics of the feedback recipient, feedback message, and feedback source impact at each stage of the model, such that feedback sent does not always equal the message received. Although the authors acknowledge the potential impact of recipient characteristics (e.g., self-motives), the model does not adequately specify predictions about the effects of these motives. Research on feedback sign that was prompted by this model is especially applicable to the current research, and is discussed later in the review.

### Control Theory

Taylor, Fisher and Ilgen (1984) propose a control theory of feedback based on the field of cybernetics (Powers, 1973; Wiener, 1948). In reference to performance feedback, a control system involves receiving feedback from the environment (i.e., a performance rating) and comparing it to a performance standard (established by the individual and the organization). Two outcomes are possible: (1) the standard may be matched, or (2) there may be a discrepancy between the feedback and the standard. Information from the environment that indicates one has met or exceeded the standard is interpreted as positive feedback, while information indicating one has fallen below standard is interpreted as negative feedback. Based on the outcome of this comparison procedure, one chooses any combination of three types of responses: cognitive, affective, or behavioral, all of which work to reduce the discrepancy between the feedback and the standard.

Memory processes (e.g., recall and recognition) are not currently included in the control theory model, but may be considered cognitive responses to feedback. Taylor et al. (1984) postulate that cognitive responses to feedback are the most important because they may affect other types of responses (e.g., affective and behavioral). In other words, memory for feedback (a cognitive response) may affect future performance (a behavioral response). This assumption is a major rationale for investigating memory for performance feedback. The control theory model also acknowledges that individual

differences and contextual variables potentially impact on reactions to feedback. However the model provides no specific predictions regarding the impact of self-motives on cognitive responses.

### Feedback Seeking Behavior

The third model of the feedback process is proposed by Ashford and Cummings (1983). This model views feedback as an individual resource, which helps individuals obtain performance and nonperformance goals. This model differs from the previous models in two respects. First, individuals are viewed as active feedback seekers rather than passive recipients. Second, the model includes explicit predictions about the impact of social motivations on feedback seeking behavior. According to this model, feedback seeking behavior is driven by the motivation to attain competence in interacting with one's environment.

This motivation to master the environment is translated into two distinct feedback seeking strategies. First, individuals may passively monitor their environment for feedback by observing: situational cues, other individuals, and how others respond to their behavior in order to infer how well they are doing. Alternatively, individuals may actively inquire as to how others perceive and evaluate their behavior. Ashford and Cummings (1983) argue that the cost of each strategy determines which will be used.

The authors also acknowledge that other motivations such as ego protection may affect feedback seeking behavior. In other words, individuals

may often experience the conflict between the desire for an accurate feedback portrayal, and a desire to enhance their self-esteem (Jones & Gerard, 1967). The motivation to self-enhance may cause individuals to avoid feedback, or restrict one's information search (Janis & Mann, 1977; Zuckerman, Brown, Fox, Lathin, & Minasian, 1979). However the authors fail to incorporate self-consistency motive in their model which predicts individuals are biased towards seeking feedback consistent with one's self-expectations. To their credit, the authors realize the motivation to seek feedback is not entirely straightforward. They propose the level of the different motivations, in combination, will determine the individual's level of active feedback seeking. However they fail to make more specific predictions for when each motive is a better predictor of feedback seeking behavior.

The Ashford and Cummings model (1983) measures feedback seeking behavior, while the current investigation measures memory for feedback after it is received. While the two dependent variables focus on different processes, they do not necessarily conflict. Viewing individuals as active feedback seekers is not incompatible with the current view. However the current study investigates the processing of feedback delivered in a performance appraisal context, which does not preclude the possibility that individuals actively seek and monitor feedback from their environment. Because organizations frequently rely on performance appraisal interviews to deliver feedback, it is important to determine how self-motives affect the processing of feedback delivered during

these sessions. Determining which motivations operate during appraisal sessions will allow organizations to design interventions aimed at diminishing the effects of the biases, or to structure feedback to be most memorable. For if the employee cannot recall the feedback delivered from the appraisal, then it cannot possibly be applied on the job.

From the discussion above it is evident that current feedback theories inadequately explain the effects of self-motives on the processing and recall of performance feedback. Fortunately, much research has been conducted in the social psychology literature on the effects of self-motives on the processing of self-relevant information. Three self-motive theories appear relevant to performance feedback sessions: self-enhancement (Jones, 1973), self-consistency (Swann, 1984), and competence motivation (White, 1959).

### Self-Enhancement Theory

Self-enhancement theorists (e.g., Dittes, 1959; Jones, 1987; Rogers, 1959; Rosenberg, 1967) assert that individuals are motivated to increase, maintain, or confirm feelings of personal satisfaction, worth or effectiveness. Regardless on one's self-evaluation, individuals embrace positive and repel negative information about themselves for the purpose of enhancing or protecting their self-esteem (cf. Jones, 1973). Therefore, according to self-enhancement theory, feedback sign is the critical factor determining how feedback is processed.

Feedback Sign. Feedback sign, or its positive or negative nature, is considered the most important determinant of subordinates' reactions to

feedback (Ilgen et al., 1979). The Control theory model of feedback defines negative feedback somewhat differently. According to Taylor, Fisher & Ilgen (1984), negative feedback indicates which behaviors are performed below standard while positive feedback indicates which behaviors are performed above standard. Research shows that negative feedback is rated as less accurate (Halperin, Snyder, Shenkel, & Houston, 1976; Snyder & Shenkel, 1976; Stone & Stone, 1984; 1985), leads to decreases in self-perceived task competence (Stone & Stone, 1984; 1985), is less accepted (Jacobs, Jacobs, Feldman & Cavior, 1973; Halperin et al., 1976), and leads to less satisfaction (Bannister, 1986; Ilgen, 1971; Ilgen & Hamstra, 1972) than does positive feedback. Given the large influence of feedback sign on various reactions to feedback, it is important to consider the effects of feedback sign on memory for performance feedback.

The self-enhancement motive may manifest itself through multiple mechanisms: 1) engaging in the self-serving bias in causal attribution, 2) regulating reactions to feedback, and 3) selectively recalling positive information or distorting recall to maintain esteem.

Self-Serving Bias. The self-serving bias of causal attribution involves two biases (Bradley, 1978). The self-enhancing bias predicts individuals tend to make internal attributions for success or accept credit for favorable outcomes. The self-protecting bias predicts individuals tend to make external attributions for failure or deny responsibility for unfavorable outcomes. These biases have



received a great deal of empirical support (cf. Arkin, Gleason, & Johnston, 1978; Miller, 1976; Snyder, Stephan, & Rosenfield, 1976; Zuckerman, 1979). The motivational basis for self-enhancing biases was questioned by Miller and Ross (1975) who reinterpreted the results in a non-motivational, information processing model. A review of these arguments is beyond the current scope of this paper. The interested reader is referred to the original source (Miller & Ross, 1975). However, research conducted subsequent to Miller and Ross (1975) provides conclusive evidence regarding the influence of motivational biases in the causal inference process (cf. Baumgardner & Arkin, 1988; Miller, 1976; Sicolý and Ross, 1977; Zuckerman, 1979).

After reviewing the literature, Bradley (1978) concluded that the self-serving bias is most likely to occur when: 1) the performance is public (i.e., the experimenter knows the subjects' performance level); 2) the subject has a high amount of choice in performing the task (i.e., he or she feels responsible for the outcome); 3) the subject is ego-involved in the task (i.e., he or she cares about the outcome), and 4) the greater the impact of a situation on global self-evaluation (Wiener, 1970; 1973; Dutton, 1972; Steele, 1975).

Regulating Reactions to Feedback. Another mechanism through which individuals can "view themselves positively" is by reacting differently to positive and negative feedback. In general, research has shown that individuals react favorably to compliments (i.e., positive feedback) and unfavorably to insults (i.e., negative feedback) (e.g., Harvey, Kelley & Shapiro, 1957; Pyszczynski,

Greenberg, & LaPrelle, 1985; Riggs & Cantor, 1984; Shavit & Shouval, 1980; Wyer & Frey, 1983). Presumably, individuals are motivated to accept positive information about themselves and reject negative information about themselves.

In the performance feedback literature, one of the most widely investigated reactions to feedback is subjects' ratings of perceived accuracy. Research shows that perceived accuracy is positively related to feedback sign. (Halperin, Snyder, Shenkel, & Houston, 1976; Snyder & Shenkel, 1976; Stone & Stone, 1984; 1985; Stone, Gueutal & MacIntosh, 1984). Perceived accuracy has been utilized as a measure for the feedback acceptance stage of the Ilgen et al. (1979) process model of feedback. Thus, positive feedback is rated as more accurate (i.e., accepted) than negative feedback. Individuals also rate source of positive information as more credible than the source of negative feedback (Halperin, Snyder, Shenkel, & Houston, 1976; Regan, 1976; Snyder & Shenkel, 1976; Stone & Stone, 1984; 1985).

The major assumption underlying perceived accuracy research is that individuals assess the accuracy of feedback they receive and the perceived accuracy of this information moderates their reactions to it. The more accurate the individual judges the feedback to be, the more likely they will be to change their behavior (i.e., performance), cognitions (i.e., acceptance), and affect (i.e., satisfaction). This proposition has been supported by two research studies. O'Reilly and Anderson (1980) reported that employees' perceived

accuracy of their evaluation was directly related to performance. However this relationship only occurred for individuals who had low trust in their supervisor. For those individuals with high trust, there was no relationship between perceived accuracy of feedback and performance. Similarly, Cederbloom and Lounsbury (1980) found the perceived "validity" (i.e., accuracy) of peer evaluations was correlated positively with recipients' acceptance of the peer evaluation system. Evidently, because positive feedback is generally viewed as more accurate, and the source as more credible, positive feedback should lead to more changes in behavior than should negative feedback. The current investigation includes a measure of perceived accuracy to compare the results of perceived accuracy and retrieval.

Recall. The third mechanism that individuals may use to view themselves positively is by selectively recalling positive information or distorting recall of feedback in a positive direction. No research has systematically investigated memory for performance feedback. Understanding how individuals process and retain performance feedback is imperative. For if feedback is going to affect performance, it must be accurately interpreted, stored, and available in memory.

At this point it is necessary to define memory. The definition of memory most applicable to the current investigation is episodic memory (Tulving, 1972). According to Tulving, episodic memory receives and stores information about temporally dated episodes or events, and temporal-spatial relations

among these events. This information is stored in terms of its perceptual attributes and in terms of its autobiographical reference to the already existing contents of the episodic memory store. Tulving emphasizes this system is quite susceptible to transformation and loss of information. Thus, individuals may potentially distort their memory to satisfy their self-motives.

Tulving (1972) contrasts episodic memory with a independent memory system called semantic memory. This type of memory does not register perceptible properties of inputs, but rather cognitive referents of input signals. Semantic memory is the memory necessary for the use of language (i.e., words and other verbal symbols, their meaning and their referents). Semantic memory is much less susceptible to involuntary transformation and loss compared to episodic memory.

Examples of the information contained in episodic and semantic memory will help illustrate the difference between the two memory systems. An individual's memory for his/her sixteenth birthday and an individual's ability to reproduce a list of words previously presented both represent information contained in episodic memory. Each piece of information refers to a personal experience that is remembered in its temporal-spatial relation to other experiences. In contrast, semantic memory does not contain specific autobiographical events. Information contained in semantic memory includes knowledge such as: NaCl is the chemical formula for common table salt, and Trenton is the capitol of New Jersey. Each of these can be regarded as

memory statements in that their content clearly depends upon information entered into semantic memory at some earlier time. Unlike episodic memory, these statements do not refer to personally experienced unique episodes. From these examples it is evident that a subordinates' memory for feedback presented during an appraisal interview is represented in episodic memory.

To date, only one study in the Industrial/Organizational literature has measured recall for performance ratings, and recall was not a major dependent variable in the investigation. Russell and Goode (1988) measured employees' recall of their most recent performance appraisal rating and compared it to company records. The authors found a moderate correlation of .51 between rating recalled and actual rating. This seemingly low correlation prompted exploratory analyses showing fifty percent of the employees recalled a higher rating than was actually received. Thus, employees' recall was distorted in a positive direction. Russell and Goode (1988) used a very simplistic feedback stimulus (i.e., the employees performance rating delivered on a single 7 point Likert-type scale). The present study measures recall for both positive and negative feedback statements rather than for a single performance rating. This strategy was selected for several reasons: subordinates generally receive both positive and negative feedback about performance in performance appraisal sessions, and memory for specific feedback statements is more directly related to performance improvement than is recall for an overall performance rating.

Other studies utilizing personality feedback have measured recall for feedback when it was delivered as a mark on graphic rating scale (GRS). Subjects were required to complete self-ratings on a number of personality dimensions. Next, subjects received feedback that was congruent or discrepant from their self-ratings. Subjects were then asked to reconstruct the ratings received. Accuracy of recall was operationally defined as the distance on the GRS between feedback received and feedback recalled. One factor deserves mention. Most studies only included negatively discrepant feedback conditions (i.e., ratings were lower than expected; Harvey, 1962; Harvey, Kelley & Shapiro, 1957). Results showed that subjects who received negative feedback moderately discrepant from the self-rating recalled feedback as more positive than the actual feedback received (Harvey, 1962; Harvey, Kelley & Shapiro, 1957), thus supporting self-enhancement. However those receiving negative feedback extremely discrepant from the self-rating recalled feedback as more negative than the actual feedback received. This was termed "contrast recall" (Bernstein & Lecomte, 1979; Harvey, Kelley & Shapiro, 1957). The authors postulate that contrast recall in the extreme negative conditions may have been due to subjects discounting the feedback received.

A critical test of the limits to positive distortion in recall of feedback lies in positive discrepancy conditions. When feedback is more positive than expected, do individuals still distort their recall of feedback to be more positive than was actually received? In the only study to include a positive discrepancy

condition, the authors did not report enough information (i.e., means) to isolate recall in the positively discrepant feedback conditions. Therefore it was not possible to determine whether subjects who received feedback that was higher than expected recalled a rating that was even higher than the feedback actually received (Bernstein & Lecomte, 1979). This issue must be addressed in future research.

Although these studies provide support for self-enhancement theory, the operational definition of feedback and the assessment of memory are simplistic. Individuals are presented with an overall rating and are asked to reproduce the rating from memory. During performance appraisal sessions individuals generally receive overall performance ratings, but more importantly, supervisors communicate subordinates' strengths and weaknesses. This information indicates which behaviors should be changed in order to improve performance. It is important to test storage and retrieval of specific feedback statements because this information should be more closely related to performance improvement than global evaluations.

The implications of self-enhancement theory are clear. In work situations, the importance of maintaining one's self-esteem is apparent. Because work is often a central part of one's life, individuals may be motivated to avoid viewing themselves as less than competent. Consequently, individuals may be biased toward accurately processing and storing positive feedback only, with negative feedback being ignored or discounted. Therefore,

feedback cannot possibly have maximum performance enhancement effects because the performance improvement information conveyed by negative feedback will not be accessible in the future.

### Self-Consistency Theory

An alternative view of individuals' reactions to feedback is offered by self-consistency theorists (e.g., Korman, 1970; Lecky, 1945; Markus, 1977; Secord & Backman, 1961; Swann, 1984). According to self-consistency theorists, people react most favorably to evaluations congruent with their self-image. In addition, individuals actively engage in processes to bring others to see them as they see themselves, and processes to make the social environment seem more compatible with their self-perceptions than it really is (Swann, 1983).

According to self-consistency theory, one's self-expectations and feedback sign are critical determinants of how feedback is processed. Individuals' self-expectancies are beliefs about personal competence, worth, and ability to deal with the world (Moreland & Sweeney, 1984; Shrauger, 1972). Self-consistency theory predicts that individuals with high expectations anticipate interacting effectively with the environment and will be biased toward positive feedback, while those with low expectations foresee ineffective interactions with the world, and will be biased toward retrieving negative feedback.



According to Swann (1982), the specific strategies through which people verify their self-conceptions fall into two distinct classes. The first class are behavioral activities through which individuals strive to create self-confirmatory opportunity structures, or social environments that foster the survival of self-views (Swann, 1987). In their quest for a self-confirmatory opportunity structure, people may use at least three strategies: selecting interaction partners and social settings, displaying identity cues, and adopting interaction strategies that evoke self-confirmatory responses (Swann, 1984). The second class of self-consistency strategies are cognitive processes through which individuals systematically distort their perceptions of reality. In particular, individuals process feedback in ways that make it more supportive of their self-views than it actually is. These cognitive activities are discussed below.

Selective Attention. Self-conceptions can exert a powerful channeling effect on information processing. Consider the first stage in information processing, attention. Swann and Read (1981b, Expt. 1) found that individuals are more attentive to information that confirmed their self-conceptions. Individuals who rated themselves as likable spent more time scrutinizing the feedback when they expected the feedback to be favorable; individuals who rated themselves as dislikable spent more time scrutinizing the feedback when they expected the feedback to be unfavorable. Hence, it appears that people will be more attentive to social feedback if they suspect that it will confirm their chronic self-views. Mischel, Ebbeson, and Zeiss (1973) also measured

selective attention to personality feedback. Individuals given a success experience subsequently attended to more personality assets and less liabilities than did those who failed or had a control experience. However, those given a failure experience did not attend to more liabilities and less assets than those given the control experience. Therefore, self-consistency theory was only partially supported. In any event, all individuals did not selectively attend to positive personality information as self-enhancement theory would predict.

Recall. Just as people may selectively attend to self-confirmatory feedback, they may also selectively recall self-confirmatory feedback. Swann and Read (1981b, Expt. 3) provide strong support for self-consistency theory in a study investigating recall for personality feedback. Subjects who described themselves relatively favorably or unfavorably were led to expect positive or negative personality ratings from another person. All subjects received both positive and negative personality statements and were later asked to recall the statements they had received. Subjects recalled statements consistent in favorability with their initial self-description. Overall those who saw themselves as likable remembered more positive statements, and those who saw themselves as dislikable remembered more negative statements (Swann & Read, 1981b Expt. 3).

Self-consistency theory was also supported when individuals were asked to recall incidental information about an experimental task (e.g., a current events test) in which they received either self-confirmatory or self-discrepant

feedback. Individuals recalled more questions from the test when they received self-confirmatory rather than self-discrepant feedback (Crary, 1966; Silverman, 1964). Further support for self-consistency theory was obtained by Suinn, Osborne, and Page (1962). These researchers asked students to rate themselves on a number of trait dimensions and then presented them with a series of evaluations that had ostensibly been made by other members of their class. When later asked to recall their classmates' ratings, participants were considerably less accurate at recalling the extremely negative ratings relative to the congruent ones.

The work on self-schema by Hazel Markus also supports self-consistency theory. According to Markus (1977), self-schema are cognitive generalizations about the self, derived from past experience, that organize and guide the processing of self-related information. Self-schema represent the way the self is represented in one's memory. There are several criteria for deciding whether someone has a schema (is schematic) or has no schema (is aschematic) on particular dimensions of his or her self-concept. People are schematic on dimensions that are important to them, on which they think themselves extreme, and on which they are certain the opposite does not hold (Markus, 1977). Research has showed that individuals with developed self-schema: (a) process information about the self in the given domain (e.g., make judgements or decisions) with relative ease; (b) retrieve behavioral evidence from the



domain; (c) predict future behavior in the domain; (d) and resist counterschematic information about the self.

Multiple explanations exist for why individuals recall consistent feedback. The first explanation is that information inconsistent with one's belief is discounted, or disregarded as irrelevant to the belief. The tendency to discount contradictory evidence has been found to play a contributing role in the belief-perseverance effect (Ross et al., 1975). Lord et al. (1979) presented subjects who either favored or opposed capital punishment with descriptions of two studies bearing on the effectiveness of the death penalty as a crime deterrent. Subjects tended to discount the study whose results were inconsistent with their own position and believed that the study supporting their position was more methodologically sound.

Alternatively, it is possible that it is simply easier for people to recall self-confirmatory feedback due to the manner in which the feedback was encoded and stored in memory. In support of this interpretation, Snyder and Cantor (1979) report that in recalling information about a job candidate, participants tended to remember only information that was compatible with a hypothesis they had been asked to test about her. As there were no obvious reasons for people to work harder to recall confirmatory information in this study, it was probably just easier for them to do so. Finally, self-schema provide an organizational framework for information, and information that fits into the framework is better integrated and better recalled (Markus, 1977).

Selective Interpretation. When individuals receive feedback there are a number of questions they might ask about the validity of the feedback and the reliability of the feedback source. Research has shown that individuals will endorse the validity of tests only if the scores they receive fit with their self-conceptions (Bernstein & Lecomte, 1979; Crary, 1966; Korman, 1968; Markus, 1977). Similarly, Shrauger and Lund (1975) reported that individuals expressed relatively more confidence in the perceptiveness of someone posing as a clinician when his diagnosis confirmed their self-conceptions.

A great deal of data supports individuals bias towards self-confirming evidence. Individuals attend to, recall, and interpret feedback in ways that support their self-views. Why do individuals prefer self-confirmatory feedback? Research showed that when individuals were given information consistent and inconsistent with their self-conceptions individuals rated consistent feedback as more informative or diagnostic (Bernstein & Lecomte, 1979; Swann & Read, 1981a Expt. 3). It appears that confirmatory evidence is preferred because it is found to be informative, diagnostic and accurate. Disconfirming evidence may also be discounted and therefore not available in memory.

There are several differences between the current research and the prior research supporting self-enhancement and self-consistency theories. First, most research has been conducted using global self-evaluations or self-expectancies, while the current study utilizes task-specific self-expectations. Second, the

research cited above has focused on reactions to personality feedback, while the proposed study utilizes performance feedback.

Task-specific self-expectancies. Self-enhancement theory and self-consistency theory emphasize global levels of self-esteem, or self-expectancy. However both theories can be applied to task-specific expectancies (cf. Brockner & Hulton, 1978; Dipboye, 1977; Korman, 1970; Moreland & Sweeny, 1984; Shrauger, 1972; Shrauger & Osberg, 1980; Shrauger & Sorman, 1977). Task-specific expectancies are important because an individual's level of self-appraisal is typically not consistent across all situations (Dipboye, 1977; Korman, 1970; Shrauger, 1972; Shrauger & Osberg, 1980). Workers who are generally confident about themselves may still believe they have performed poorly on a specific task or assignment. This belief that one has performed poorly on a task is most likely to occur after a learning experience or after receiving feedback about performance (Korman, 1970; Stone & Stone, 1984; 1985).

Wurf and Markus (1983) advocate using differentiated measures of self-conceptions because the self should no longer be explored as if it were a unitary, monolithic entity (Swann, 1987; Wurf & Markus, 1983). Utilizing task-specific self-expectancies stems from this recommendation. According to Wurf and Markus (1983), even nondepressed high self-esteem individuals can have negative self-conceptions that may be elaborated into their self-schemas. These researchers have found individuals who describe themselves as shy, lazy,

or fat; who feel bad about these characteristics; who feel these are important aspects of their self-definition; yet who maintain overall high self-esteem.

Research investigating whether specific and global self-expectancies have similar effects on behavior has provided mixed results. Self-generated global self-expectancies (e.g. self-esteem) have had stronger effects than self-generated task-specific expectancies on the following dependent variables: actual performance (Brockner & Hulton, 1978; Shrauger & Sorman, 1977), perceived performance (Shrauger, 1972), and task persistence (Shrauger & Sorman, 1977). However, Shrauger (1972) found that task-specific expectancies affected actual performance to a greater extent than did global self-expectancies. Further, Shrauger and Osberg (1980) found that task-specific expectancies moderated the relationship between general self-expectancies and performance. It appears the impact of general self-expectations has been stronger, but the results are far from equivocal.

One factor common to the research cited above is all studies utilized self-generated global and self-generated task-specific performance expectancies. Other researchers have experimentally manipulated task-specific expectancies in a laboratory setting and have found strong effects on performance (Feather, 1966; Feather, 1968) attributions (Feather, 1968) and satisfaction with performance ratings (Ilgen, 1971; Ilgen & Hamstra, 1972), and self-perceived task competence (Stone & Stone, 1984; 1985). The manner in which task-specific expectancies are operationally defined (i.e., self-generated



versus manipulated in the experiment) may account for these inconsistent results. Task-specific expectancies manipulated by the experimenter have had reliable effects on dependent variables, while the effects of self-generated task-specific expectancies have been less consistent. Perhaps the weaker results when using task-specific expectancies occur because the self-generated task-specific expectancies are less strongly developed than are global self-expectancies. Manipulating or creating task-specific expectancies by providing task feedback will make the task-specific expectancies stronger. However the experimenter must be sure the manipulation of task-specific expectancies is strong enough to produce reliable differences between the different expectancy groups. Under these conditions, task-specific expectancies should have a strong effect on memory.

Personality versus Performance Feedback. Most research cited above has investigated the processing of personality feedback, which has different characteristics than performance feedback. Personality feedback is global while performance feedback is more specific. For example, feedback that one is "extroverted" may apply to many situations in one's life. Therefore, the effects of the global personality feedback are more pervasive and potentially more threatening. On the other hand, feedback that one has performed poorly on the sales presentation is domain or task-specific, and therefore not applicable to as many aspects of one's life. Behaviorally specific feedback is verifiable

and harder to deny, but it may also be less threatening and more accepted than general evaluative "personality-type" feedback.

Research suggests that individuals' reactions to global feedback is different from their reactions to specific behavioral feedback. Jacobs, Jacobs, Feldman and Cavior (1973) found that descriptive feedback presented in behavioral terms was perceived as more accurate than evaluative, emotionally-toned feedback. Research has also shown that specific feedback is seen as more accurate and more helpful than is global feedback (Ilgen, Mitchell, & Fredrickson, 1981; Liden & Mitchell, 1985). Therefore, reactions to specific performance feedback may not be as defensive as reactions to global personality feedback.

Self-Enhancement versus Self-Consistency. Research has supported both self-consistency and self-enhancement theory. Which theory is correct? Shrauger (1975) attempted to answer this question by suggesting that some dependent variables tended to produce consistency effects and others tended to produce self-enhancement effects. In particular, measures of certain cognitive processes (e.g., recall, perceptions of the self-descriptiveness of feedback) seemed to support self-consistency theory. In contrast, affective measures (e.g., satisfaction) seemed to support the self-enhancement position. Although Shrauger's (1975) hypothesis was reasonably consistent with the existing data, researchers were slow to accept it. The problem was that Shrauger provided little theoretical justification for his notion that cognitive and affective

responses were independent. In addition, he was unable to provide direct empirical evidence for his hypothesis. One problem was that researchers tended to measure either cognitive or affective reactions; no one examined both in the same study. Since Shrauger's review, two studies have tested the independence hypothesis. Moreland and Sweeney (1984) assessed the relationship between scores on a midterm exam and students' subsequent affective states and cognitive appraisal of the exam. Contrary to self-consistency theory and Shrauger's hypothesis, both cognitive and affective responses supported the self-enhancement position. Individuals with low self-esteem generally regarded positive feedback as more self-descriptive than negative feedback.

Swann, Griffith, Predmore, and Gaines (1987) supported the independence of the cognitive and affective systems. In this study individuals with positive and negative self-concepts were presented with favorable or unfavorable social feedback. Cognitive (e.g., perceived self-descriptiveness) and affective (e.g., mood states) reactions were measured. Cognitive and affective responses were independent in that: (a) cognitive responses were primarily driven by the consistency of the feedback and affective responses were controlled by how enhancing it was; (b) cognitive reactions persisted over time but affective reactions faded; and (c) a factor analysis suggested that cognitive and affective reactions were orthogonal. This data suggests that people are sometimes caught in a crossfire between their cognitions and their

affects. Although individuals may value feedback on a cognitive level, they may also find it affectively abhorrent.

The potential impact of self-expectations on reactions in performance appraisal situations is clear. Employees generally enter performance appraisal interviews with expectations about the feedback he or she is going to receive. These expectations are formed from task feedback and informal feedback from supervisors. These expectations may then bias the employee to accurately process feedback consistent with their expectations. This bias will cause feedback to have less than maximum performance enhancement effects because inconsistent feedback is not available in memory.

Employees generally have positive perceptions of their work. Meyer (1975) found that over 70 percent of all employees rated their performance in the top 25 percent of their cohort group. Both self-enhancement and self-consistency theory predict that individuals with positive expectancies will selectively process and recall positive information. Therefore most employees will be biased towards recalling positive feedback. Further, subordinates rate their performance more highly than do their supervisors (Ilgen, Peterson, Martin, & Boeschen, 1981; Kay, Meyer, & French, 1965; Parker, Taylor, Barrett, & Martens, 1959; Smircich & Chesser, 1981; Pearce & Porter, 1986). Consequently, most employees will receive some form of negative feedback, and both self-enhancement and self-consistency theory predict individuals will ignore or discount this information. Although the end result is the same (i.e.,

most employees being biased toward positive information), the motivation causing the selective processing of feedback is very different and has implication for designing interventions to overcome these biases.

It can be argued that the self-consistency motive is more problematic than the self-enhancement motive, especially for individuals with negative self-expectancies. Self-enhancement predicts individuals with low expectations will not process negative feedback accurately, and this implies the performance improvement information included in negative feedback will not be utilized. Although self-consistency theory predicts that individuals with low self-expectations will accurately process negative feedback, it also predicts that individuals are motivated to maintain their negative expectations. Therefore, even if these individuals do accurately process and recall negative feedback, they will not utilize the performance improvement information embedded in the negative feedback to improve performance. They may even engage in other behaviors to confirm these negative self-conceptions such as exerting less effort, etc. Therefore self-enhancement theory and self-consistency theory have pessimistic views about subordinates' ability to utilize performance improvement information embedded in negative feedback.

### Competence Motivation

The third self-motive that may affect subordinates' processing of performance feedback is competence motivation (White, 1959). According to White (1959), people are motivated to attain competence in dealing with their

environment. Individuals achieve this competence by continually engaging in challenging situations and exploring their environment. Further, conquering these challenging situations and demonstrating competence, leads to feelings of satisfaction, competence and efficacy (White, 1959). Similarly, Ashford and Cummings (1983) propose that people are motivated to master their work environment in order to achieve the goals they value.

The unique characteristics of the performance appraisal setting may evoke competence motivation, which will influence how employees process performance feedback. Competence motivation has never been utilized as a causal explanation for the processing and retrieval of performance feedback. However, as presented earlier, the Ashford and Cummings (1983) model postulates that competence motivation affects feedback seeking behavior in organizations.

In an empirical test of the model, Ashford (1986) found that employees who had negative performance expectations sought greater amounts of feedback than individuals with positive performance expectations. This occurred even though the risk of obtaining negative feedback was greater for those with low expectations. Based on these results, Ashford (1986) concluded the competence motive was stronger than the self-enhancement motive. However, these results may support consistency theory. Because the investigation did not measure the type of feedback (e.g., positive or negative) that was sought by the employees, the operation of self-consistency motive cannot

be excluded. Individuals with low (high) expectations may have been selectively seeking negative (positive) feedback in their feedback search. Although self-consistency motive is an alternative explanation, consistency theory does not make predictions why low expectancy individuals sought more feedback than high expectancy workers (Ashford, 1986).

Accurately processing relevant performance feedback should also enhance one's ability to attain competence on the job. Although there is some individual variation, employees performing the same job tend to share a set of implicit expectations about their job (Borman, 1987; Guion, 1987), and included in these shared expectations are assumptions about what information is relevant to successful job performance (Hauenstein & Foti, in press). The extent to which employees accurately process specific performance feedback is likely to be mediated by these perceptions of relative importance. That is, feedback may vary in terms of its perceived diagnostic value for leading to better overall job performance.

Diagnostic Value. Diagnostic value of feedback is the worker's subjective judgement of the relationship between performance on each job dimension and overall performance. According to competence motivation, individuals should be motivated to accurately process feedback about dimensions with high relative to low diagnostic value, for the former dimensions are more important, and thus contain more information for improving future performance. Therefore, competence motivation is optimistic

about subordinates' ability to utilize performance improvement information contained in negative feedback, as long as the feedback has high diagnostic value.

Most feedback studies assume that all types of feedback are equally useful to the employee. This is an unrealistic view of feedback in organizations. All job dimensions are not equally important in determining successful performance; some job dimensions are critical determinants of successful performance while others are less critical. Subordinates' judgements of diagnostic value are influenced by three sources: 1) one's own schema about the job 2) outcome information, and 3) direct communication from significant others in the workplace. The first two sources of diagnostic value information require the subordinate to interpret indirect evidence of the importance of certain tasks, while the third source provides direct prioritization of performance dimensions and requires no interpretation.

Given that subordinates often feel that supervisors do not communicate important aspects of the job clearly (Landy et al., 1978), subordinates may rely more heavily on indirect sources of diagnostic value. On the other hand, supervisors have optimistic views of the amount of feedback information they provide to subordinates. Research by Greller (1980) indicates that supervisors overestimate the importance and amount of feedback they provide to subordinates, and underestimate the value subordinates place on feedback from other sources (e.g., coworkers, the task). Apparently supervisors and subordinates



have different perceptions of the work environment, and may not agree on the diagnostic value of job dimensions. This suggests that if diagnostic value is a main determinant of memory for feedback, the organization must standardize subordinates' and supervisors' perceptions of diagnostic value. This would ensure that subordinates are accurately processing and retaining the most important behavior change information.

The role of competence motivation in the work environment is apparent. Given that work is often a central part of a person's life, and individuals value their careers, it follows that demonstrating competence at work is important for most individuals. What behaviors could increase the likelihood that a worker would demonstrate competence in their future job performance? Seeking feedback (Ashford, 1986) and accurately processing feedback about how to improve performance are two avenues that may help employees master their environment. If this motive explains memory for feedback in the appraisal interview, feedback will have maximum enhancing effects on performance when the ratee perceives feedback to be diagnostic for how to demonstrate competence in the future.

In summary, three self-motivation theories are offered as potential determinants of memory for performance feedback delivered during appraisal sessions. Each theory predicts employees selectively interpret, process and retrieve particular aspects of the performance feedback. All three theories are tested in this study by manipulating variables relevant for testing the

predictions of each theory. This follows the "strong inference" method of research advocated by Platt (1964).

### Purpose of the study

The purpose of the present study is to test the adequacy of the three self-motive theories to describe the manner in which ratees process and retain performance feedback. Three measures are included to assess how individuals process performance feedback: free recall, recognition, and ratings of feedback accuracy. The free recall measure assesses whether individuals selectively retrieve a certain type of feedback statement from memory. The recognition measure is included to assess memory sensitivity. Sensitivity refers to accuracy in discriminating feedback statements that were presented, from those that were not presented, independent of individual differences in response criteria (bias). A measure of sensitivity is especially useful since a raw count of true positives (hits), and false positives (false alarms) etc., could be strongly affected by general response tendencies; an individual who responds "present" to every item on the recognition test will correctly identify every feedback statement that was presented, but clearly shows no discrimination. In general, measures of memory sensitivity will increase, indicating greater sensitivity for feedback statements, to the extent that the hit rate is high and the false alarm rate is low (Larson, Lingle & Scerbo, 1984).

Both measures of memory are included for several reasons. First, recognition does not require the subject to retrieve the feedback statements

from memory, therefore recognition measures are generally more sensitive than recall measures (Srull, 1984). Second, including both measures allows the researcher to determine whether experimental manipulations affect the encoding or retrieval stages of information processing. Some researchers advocate the use of a between-subjects designs (i.e., different subjects completing recall and recognition measures) because the recall task may affect performance on the recognition task. Others feel that it does not matter whether a within-subjects design or a between-subjects design is used because research has shown no difference between the two approaches. To date there is no simple answer to this problem (Srull, 1984). Finally, ratings of feedback accuracy are included to replicate previous feedback research (Ilgen, Fisher & Taylor, 1979; Stone & Stone, 1984; 1985).

### Hypotheses

Three self-motive theories predict ratees will retain different aspects of performance feedback delivered in a performance appraisal situation. According to self-enhancement theory (Dittes, 1959; Jones, 1973; Rogers, 1959; Rosenberg, 1967), individuals are motivated to enhance or protect their level of self-esteem. Therefore, individuals will accurately process positive feedback, regardless of self-expectations and perceived diagnostic value of the feedback statements.

On the other hand, self-consistency theory (Korman, 1970; Lecky, 1945; Markus, 1977; Secord & Backman, 1961; Swann & Read, 1981a; 1981b; Swann,

1984), predicts individuals are motivated to maintain their self-expectations by accurately processing feedback congruent with their level of expectation. This will occur regardless of the diagnostic value of the feedback statements.

Alternatively, competence motivation (Ashford & Cummings, 1983; White, 1959) predicts individuals are motivated to attain competence in dealing with their environment. This theory predicts that regardless of feedback sign and self-expectations, individuals will accurately process feedback statements with high diagnostic value.

### Free Recall

Enhancement Hypothesis 1: Individuals will recall more positive feedback statements relative to negative feedback statements.

Consistency Hypothesis 1: Individuals with high task-specific self-expectations will recall more positive relative to negative feedback statements; those with low task-specific self-expectations will recall more negative relative to positive feedback statements.

Competence Hypothesis 1: Individuals will recall more feedback statements with high diagnostic value relative to low diagnostic value.

### Memory Sensitivity

Enhancement Hypothesis 2: Memory sensitivity will be greater for positive feedback statements relative to negative feedback statements.

Consistency Hypothesis 2: Individuals with high task-specific self-expectations will have greater memory sensitivity for positive relative to negative feedback statements; Individuals with low task-specific self-expectations will have greater memory sensitivity for negative relative to positive feedback statements.

Competence Hypothesis 2: Memory sensitivity will be greater for feedback with high diagnostic value relative to low diagnostic value.

### Ratings of Feedback Accuracy

Enhancement Hypothesis 3: Individuals will rate positive feedback statements as more accurate than negative feedback statements.

Consistency Hypothesis 3: Individuals with high task-specific self-expectations will rate positive feedback as more accurate than negative feedback statements; those with low task-specific self-expectations will rate negative feedback as more accurate than positive feedback statements.

## METHOD

### Subjects

Seventy five juniors and seniors enrolled in upper level management courses at Virginia Polytechnic Institute and State University served as subjects for the current investigation. In order to better generalize the results of this study to real organizations, it was important for subjects to be interested in the task, and value the feedback they received. The experimental tasks were based upon managerial assessment center exercises. Business majors were expected to view managerial feedback as relevant and valuable, therefore they were utilized as subjects in the current study.

### Design

The study consisted of a 3 (expectancy: high, low, control) x 2 (diagnostic value: high, low) x 3 (feedback sign: positive, negative, no sign) mixed factor design. The between subjects factor was expectancy; within subjects factors were diagnostic value and feedback sign.

### Procedure

The study required subjects to participate in two experimental sessions. Session one was conducted using groups of 30 - 40 subjects and lasted 45 minutes. Subjects were tested individually during session two, which lasted 2 hours.

Session One. The experimenter introduced herself as a Ph.D. candidate in the Industrial Psychology program at Virginia Tech, who was working on a

consulting project for an AT&T Assessment Center (see Appendix A for a full protocol). The experimenter then explained the purpose of the research was to assess the relationship between four management assessment exercises used to select new managers at AT&T. Subjects were told they would perform four tasks during the experiment: one during the session one, and three during session two.

The experimenter then explained the administrative details of the experiment (e.g., number of experimental sessions, length of sessions, number of extra credit points etc.). Subjects signed a consent form (see Appendix B), and then completed a series of demographic questions (see Appendix C). Next, the experimenter briefly described Task One, the Leadership Effectiveness and Adaptability Description (LEAD; Hersey & Blanchard, 1974) (see Appendix D). Subjects were instructed on how to complete the LEAD, and were given twenty minutes to finish the task. After subjects had completed the LEAD, the experimenter scheduled each subject to return for session two.

Session Two. Approximately five to twenty one days after session one, subjects returned for session two. Subjects were told they would perform 3 additional tasks during the session: Task 2 (managerial in-basket #1), Task 3 (numerical reasoning test), and Task 4 (in-basket #2). Subjects were also told they would be asked various questions about the tasks.

Next, the experimenter briefly reviewed what the LEAD was designed to measure, how it was scored, and explained the relationship between the LEAD

and other managerial tasks. Subjects then reviewed a chart containing correlations between the LEAD and the 3 managerial tasks, and a correlation between the Lead and future managerial performance:

<u>Managerial Task</u>	<u>LEAD</u>
Task 2 (In-basket #1)	$r = .64$
Task 3 (numerical reasoning)	$r = .45$
Task 4 (In-basket #2)	$r = .56$
Future managerial performance	$r = .55$

The experimenter interpreted the correlations for the subjects; she explained that those subjects who performed well on the LEAD performed well on the upcoming managerial tasks, and also perform well on the job. Next, those subjects not in the expectancy control group received feedback about their performance on the LEAD (see Appendix E).

After the LEAD feedback was delivered, the experimenter delivered verbal and written instructions for Task 2, a managerial in-basket exercise (see Appendix F). Subjects were given thirty minutes to complete the in-basket exercise. After thirty minutes the experimenter collected the subject's in-basket and explained that the first in-basket was a practice trial. Subjects were told the experimenter would evaluate their performance on the in-basket and provide some suggestions for how they could improve their performance on the second in-basket task.

While the experimenter was supposedly evaluating the subjects' performance, the subject was asked to study a chart containing the definitions and the diagnostic value of the six performance dimension of the in-basket (see



Appendix G). Diagnostic value was described as the relationship between the performance dimension and overall performance, or the criticality/importance of the dimension in determining overall performance. Subjects were told that dimensions with high diagnostic value were strongly correlated with future managerial performance, while those with low diagnostic value were weakly correlated with future managerial performance.

To insure subjects processed the diagnostic value of each performance dimension, subjects performed a fifteen minute task. The following rationale was given for performing the task: subjects were told that AT&T was interested in potential managers' explanations for why certain dimensions are highly related to overall performance and why other dimensions are not. Therefore subjects were required to generate 3 reasons why each dimension with high (low) diagnostic value is a good (poor) predictor of overall performance as a manager (see Appendix H). After 15 minutes, the experimenter provided the subject with performance feedback about how he/she performed on the 6 managerial dimensions. All subjects received the same verbal and written "bogus" feedback, which consisted of three feedback statements for each of the 6 performance dimensions (see Appendix I).

After the verbal and written in-basket feedback was delivered, subjects were given 10 minutes to complete the numerical ability portion of the Wesman Personnel Classification Test (WPCT; Wesman, 1965; see Appendix J). This task was included to eliminate the effects of short term memory.

Next, subjects completed a free recall measure (see Appendix K). Subjects were given ten minutes to freely recall the 18 feedback statements. Subjects then completed a recognition memory measure (see Appendix L), a measure of perceived accuracy (Appendix M), and a series of manipulation check items (Appendix N). Finally, subjects were informed that they would not perform the second in-basket task, and were debriefed concerning the true purpose of the study (see Appendix O).

### Experimental Exercises and Stimuli

Task One: Leadership Effectiveness and Adaptability Description. The LEAD was a paper and pencil measure of leadership style and adaptability (Hersey & Blanchard, 1974). The LEAD consisted of twelve scenarios describing a managerial situation or problem. Each scenario was followed by four alternative courses of action. The subject was to read each scenario and select the most appropriate course of action (see Appendix D).

LEAD Feedback. Upon arriving for session two, subjects not in the expectancy control group received feedback about their performance on the LEAD. The feedback included: a RAW score, and a percentile score indicating their performance relative to college students who have completed the LEAD (see Appendix E). The following feedback was delivered:

Your RAW score was \_\_\_\_ out of 200 points. This places your performance at the \_\_\_\_ percentile. The percentile score indicates you scored better than \_\_\_\_ percent of all college students who have completed the LEAD.

**Task Two: Managerial In-Basket Task.** The in-basket required the subject to pretend he or she was a new manager, who must sort through a hypothetical in-basket. The in-basket contained memos which the subject was to sort through and initiate the appropriate action to solve the problems presented (see Appendix F). The subject was to write memos, schedule meetings, delegate responsibility to a subordinate etc. The in-basket was scored on 6 managerial dimensions: Creativity/Sensitivity, Initiative & Decisiveness, Organization/Planning & Communication, Delegation & Management Control, Analysis & Judgement, and Personal Impact & Leadership. In accordance with typical in-basket exercises, the task was too long to be completed within the time allowed. This insured subjects was uncertain of their actual performance and enhanced the credibility of the feedback.

**Task Three: Numerical Ability Test.** The third managerial assessment exercise was the numerical ability portion of the Wesman Personnel Classification Test (WPCT; Wesman, 1965). The test contained 20 multiple choice items assessing numerical reasoning ability (see Appendix K).

**In-Basket Feedback Statements.** Subjects received a feedback form which contained 18 handwritten feedback statements. The experimenter read the statements aloud as the subject followed along. (see Appendix I). Feedback was structured in the following manner. First, subjects were given a one sentence definition of the performance dimension. Next, subjects received

a percentile score indicating how he/she performed on the dimension relative to other college students. The experimenter then read three feedback statements for each dimension which indicated how the subject could improve his/her performance on the next in-basket. Each feedback statement was followed by a one sentence verbal elaboration of the main point of the feedback statement. A generic example of feedback is presented below:

ANALYSIS is the ability to identify and analyze problems. "You scored at the \_\_\_ percentile on this dimension which is ABOVE/BELOW the norm (circle one). However, you could improve your performance by: relating information from multiple memos more effectively. That is, you should integrate information from more than one memo in your analysis of the situations."

Pilot Study. The "bogus" feedback statements were pilot tested on 70 subjects to determine whether certain feedback statements were preferentially recalled, or were more salient. Forty-eight statements (8 statements for each of 6 performance dimensions) were generated and tested in a free recall procedure. Each subject received a list of 12 feedback statements including two statements for each performance dimension. Subjects were given 3 minutes to memorize the feedback statements and 10 minutes to recall the statements in any order. To minimize order and contrast effects, each list of 12 statements was randomly generated, with each statement being presented approximately an equal number of times.

Percent recall scores were computed for the 48 feedback statements by dividing the total number of times the statement was recalled by the total

number of times presented. Thirty six statements (six from each performance dimension) with nonsignificantly different percent recall scores were selected (see Appendix P). Eighteen statements were used to construct the feedback stimulus, and 18 additional statements served as foil items on the recognition measure.

### Manipulations of Independent Variables

Three independent variables were experimentally manipulated. Performance expectations were manipulated as a between subjects factor, while diagnostic value and feedback sign were manipulated as a within subjects factors.

Expectations. Subjects' performance expectations were manipulated at the beginning of session two by presenting each subject with bogus feedback about his/her performance on the LEAD (see Appendix E). Subjects assigned to the high expectation condition received a RAW score of 170, which placed the subject at the 85th percentile. Subjects assigned to the low expectation condition received a RAW score of 70, which placed the subject at the 35th percentile. Finally, subjects assigned to the no expectation condition received no feedback about their performance on the LEAD.

Diagnostic Value. Diagnostic value is the relationship (correlation) between performance on a particular managerial performance dimension and future overall managerial performance. Diagnostic value was manipulated by varying the correlation between performance on the dimension and actual

managerial performance. Subjects received a chart with a description of the dimension and the diagnostic value associated with each dimension (see Appendix G). The following three dimensions had high diagnostic value ( $r$ 's  $> .3$ ; average  $r = .40$ ): Analysis/Judgement, Initiative/Decisiveness, Personal Impact & Work Standards, while the following three dimensions have high diagnostic value ( $r$ 's  $\leq .1$ ; average  $r = .05$ ): (Delegation/Management Control, Planning/Organization & Communication, Creativity/Sensitivity).

**Feedback Sign.** Feedback sign was manipulated by providing subjects with normative feedback (e.g., percentile scores) about each of the 6 managerial dimensions assessed by the in-basket exercise (see Appendix I). Percentile scores above 50 were interpreted as ABOVE the norm and indicated positive feedback, while percentile scores below fifty were interpreted as BELOW the norm, and indicated negative feedback. "No sign" feedback statements were not associated with a percentile score. Positive feedback percentile scores actually ranged from 60 to 90, while negative feedback statements ranged from 10 to 40. Six positive, six negative, and six no sign feedback statements were delivered. Examples of negative, positive and control feedback are presented below:

**ANALYSIS** is the ability to identify and analyze problems. "You scored at the (10th - 40th) percentile on this dimension which is BELOW the norm."

**ANALYSIS** is the ability to identify and analyze problems. "You scored at the (60th - 90th) percentile on this dimension which is ABOVE the norm."

**ANALYSIS** is the ability to identify and analyze problems. "Your score is unknown at this point, but you will have that information later in the session."

Feedback sign was crossed with diagnostic value to produce the following eighteen feedback statements: 3 high diagnostic value-positive, 3 high diagnostic value-negative, 3 high diagnostic value-no sign, 3 low diagnostic value-positive, 3 low diagnostic value-negative 3 low diagnostic value-no sign.

### **Dependent Measures**

**Free Recall.** Free recall was assessed by subjects' responses to the following question: "Write down everything you can remember concerning the feedback you received about your performance on the in-basket exercise." The task was completely unstructured by the experimenter, and subjects were given 10 minutes to generate information in any order (see Appendix K).

**Recognition Memory.** The recognition memory measure consisted of 36 feedback statements. The measure consisted of the 18 feedback statements that were actually presented to the subject (3 high diagnostic value-positive, 3 high diagnostic value-negative, 3 high diagnostic value-no sign, 3 low diagnostic value-positive, 3 low diagnostic value-negative 3 low diagnostic value-no sign), and 18 statements that were-not presented to the subject. Therefore the measure included 6 feedback statements for each dimension: three "old" statements that were previously presented and three "new" statements that were not previously presented (see Appendix L).

The 36 statements were randomly intermixed on the Recognition

Memory test. Subjects were asked to make a yes or no decision about whether the item was presented. Because the true status of each item is known, it was possible to compute the number of true positives, false positives, etc., as well as accuracy indices based on Signal Detection Theory. For each subject, memory sensitivity estimates for each type of feedback (i.e., positive, negative, no sign, high diagnostic value, and low diagnostic value) were computed.

Ratings of Feedback Accuracy. The final dependent variable was subjects' ratings of the feedback accuracy. Subjects rated the accuracy of the feedback received for each of the six performance dimensions. Subjects responded to the following question: "How accurate was the feedback you received about the following dimension?" Ratings of perceived accuracy were obtained on a 7-point Likert type scale where "1 = not at all accurate" and "7 = extremely accurate." (see Appendix M).

Manipulation Checks. A number of manipulation check items for each factor were included in the final questionnaire (see Appendix N). Expectancy was assessed from subjects' ratings on the following item "how well did you expect to perform on the in-basket task prior to performing it." The effect of feedback sign was determined from subject ratings of the positive or negative nature of each statement, and the diagnostic value manipulation was assessed by subjects' ratings of the relationship between each feedback dimension and future managerial performance.



## RESULTS

### Manipulation Checks

Items designed to assess experimental manipulations were included in the final questionnaire. Summary tables for these analyses are presented in Appendix Q.

Suspicion. Subjects who were suspicious of experimental hypotheses and procedures were identified by their response to the following question: What was the purpose of the study? Six of 72 subjects were suspicious of the experimental procedure, and 6 additional subjects were tested in their place.

Incorrect Responders. Several unanticipated problems arose concerning subjects' responses to the feedback sign manipulation check. Three levels of feedback sign (positive, negative, no sign) were manipulated by giving subjects high, low and no percentile scores respectively. The impact of this manipulation was then assessed at the end of session 2 by having subjects select either the interval containing the percentile score received for each dimension, or a "Did Not Receive Percentile Score" option. Twenty three of 72 subjects either incorrectly indicated they received a percentile score for a no sign dimension, or incorrectly indicated they did not receive a percentile score for a dimensions on which they did receive a percentile score. Thirty five percent of the incorrect responders were in the high expectancy condition, 48 % were in the low expectancy condition, and 17 % were in the control condition.



Performance expectancy was manipulated and assessed in a similar manner. Expectancies were manipulated by varying the subject's percentile score on the LEAD. At the end of session 2, subjects were then asked to select the interval containing the percentile score received, or select the "Did Not Receive Feedback" option. Three of 72 subjects incorrectly indicated they received (did not receive) feedback on the LEAD when they did not (did) receive feedback about their performance on the LEAD. In total, 26 subjects incorrectly responded to the feedback sign or expectancy manipulation check items.

Two factors may have caused subjects to respond incorrectly to manipulation check items. First, subjects were presented with a large amount of information during the experimental session (i.e., definitions of 6 performance dimensions, 18 feedback statements, 6 percentile scores, and the diagnostic value of 6 dimensions). Given the time constraints of the experiment, subjects may have been able to process only a subset of the information presented. Therefore, processing limitations may have caused subjects to answer the manipulation check items incorrectly. Second, the manipulation check questions were assessed at the final phase of the experiment while the manipulations occurred throughout the session. Information received after each manipulation, but subsequent to the final questionnaire, may have interfered with the subjects' ability to accurately reproduce all information presented during the experiment.

The most conservative strategy for dealing with the 26 subjects who answered the manipulation check items incorrectly was to drop them from all analyses. This decision was appropriate because greater confidence can be placed in conclusions drawn from the restricted sample containing only the subjects who processed the experimental manipulations in the intended manner. Second, the within subjects experimental design has adequate power to test the experimental hypotheses, even with the smaller sample size. Thus, subsequent analyses are based on only those subjects who answered the experimental manipulation checks correctly ( $N = 46$ ).

Feedback Sign. As stated previously, subjects were asked to select the appropriate percentile score interval (or the Did Not Receive Feedback Option) for each of the 6 feedback dimensions. The four dimensions for which the subjects received a percentile score were analyzed using a 3 (Expectancy: high, low, control) X 3 (Feedback Sign: positive, negative, no sign) X 2 (Diagnostic Value: high, low) Mixed Factor Analysis of Variance (ANOVA), with the last two factors being within subjects factors. The 2 dimensions for which subjects received no percentile scores were excluded from the analysis because they were dichotomously scored (i.e., received feedback, or did not receive feedback). A main effect of feedback sign emerged in this analysis. Subjects reported receiving a higher percentile score for positive feedback dimensions ( $M = 5.14$ ) than for negative feedback dimensions ( $M = 2.93$ )  $F$

(1, 43) = 219.41,  $p < .01$  (see Table Q-1). It appears that the feedback sign manipulation had the intended effect.

Expectancy. The performance expectancy manipulation was assessed by subjects' responses to the following question: "How well did you expect to perform on the in-basket task?" A 3 (expectancy: high, low, control) ANOVA was performed on this item. The anticipated main effect of expectancy emerged on this question  $F(2,43) = 3.49$ ,  $p < .01$  (see Table Q-2). As predicted, subjects in the low expectancy group expected to perform significantly worse on the in-basket ( $M = 4.00$ ) than subjects in the high expectancy condition ( $M = 4.88$ ),  $t(27) = 2.40$ ,  $p < .05$ , and subjects in the expectancy control group ( $M = 4.53$ ),  $t(28) = 1.89$ ,  $p < .05$ . However, subjects in the expectancy control group did not expect to perform significantly worse than subjects in the high expectancy group,  $t(31) = 1.08$ ,  $p > .05$ .

The expectancy manipulation check results are problematic. Although the control group was not statistically different from the high expectancy groups, the three levels of expectancy are retained for several reasons. First, the group means were in the appropriate sequence: those in the high expectancy condition expected to perform better than those in the control condition, who in turn expected to perform better than those in the low expectancy condition. Second, and more importantly the high and low expectancy groups were significantly different from each other, which is critical to testing the experimental hypotheses.

45) = 41.90,  $p < .01$ . However, the differences within each level of feedback sign fluctuate, thus causing the interaction.

Although this interaction qualifies the expected main effects, it does not prevent the retention of the diagnostic value manipulation. First, for all levels of feedback sign, high diagnostic value dimensions were perceived as more diagnostic than low diagnostic value dimensions. Second, because feedback sign and diagnostic value are both within subjects factors, the  $F$  test is very sensitive to small deviations in means. Therefore, even small differences in ratings emerged as significant.

Although the expectancy manipulation was not as strong as expected, the pattern of results does not threaten the internal validity of the experiment. The expectancy manipulation did not produce a reliable difference between subjects in the high expectancy group and subjects in the control expectancy group. This finding is not alarming because college students have high expectations in general (Swann, 1987). Control subjects, who had to rely on their own performance expectations, showed a positive bias when rating their expectation level. This upward bias eliminated the difference between high expectancy subjects and control expectancy subjects. All other comparisons between expectancy groups were significant and in the predicted directions. These results suggest the subject's own rating of their expectancy level may be a better measurement of expectancy because the experimental manipulation of expectancy was weak. The manipulation check results are not extreme enough

to warrant discarding the expectancy manipulation. However these results do raise the issue of whether subjects may have been misclassified into the wrong expectancy condition due to the weak expectancy manipulation. The experimental expectancy manipulation is maintained for the initial analysis of free recall as originally proposed, but the issue of misclassified subjects is explored in subsequent analyses.

The interval between session one and session two varied from 5 to 21 days. To determine whether the inter-session interval was related to assignment into conditions, a  $3 \times 3$  (Inter-session Interval: 5-9 days, 12-16 days, 18-21 days)  $\times$  3 (Expectancy condition: High, Low, Control) Chi-square analysis was performed. This analysis was nonsignificant  $X^2(4) = 1.53, p > .05$ . Therefore the inter-session interval was not related to expectancy condition.

### Free Recall

The free recall protocols were scored for two types of statements: (1) specific feedback statements presented, and (2) general statements about the 6 feedback dimensions. The scoring was completed by 2 trained judges who were blind to experimental conditions. The inter-rater agreement among the two judges was .86, and on those occasions where the two judges disagreed, a third judge decided how to categorize the feedback statement.

Specific Feedback Statements. The first analysis was performed on the number of specific feedback statements recalled for each feedback dimension. This data was positively skewed because subjects often recalled zero or one

feedback statement for each dimension. Therefore a  $\log(n + 1)$  transformation recommended for positively skewed distributions was applied to the number of specific feedback statements recalled (Winer, 1971).

The transformed free recall data were analyzed using a 3 (Expectancy: high, low, control) X 3 (Feedback Sign: positive, negative, no sign) X 2 (Diagnostic Value: high, low) Mixed Factor ANOVA, with the last two factors as within subjects factors. The ANOVA on the transformed free recall data revealed three significant effects (see Table R-1). Main effects emerged for feedback sign,  $F(2, 86) = 30.79, p < .01$ ; and diagnostic value,  $F(1, 43) = 12.76, p < .01$ . In addition, a 3-way interaction among expectancy, feedback sign, and diagnostic value was significant,  $F(4, 86) = 3.05, p < .05$  (see Table R - 3). Simple interaction effects analyses established that a significant feedback sign x diagnostic value interaction occurred for subjects in the low expectancy condition  $F(2, 86) = 4.40, p < .05$ , but not for subjects in the high expectancy and control expectancy conditions,  $F_s < 1.0$  and  $2.3$  respectively.

Further analyses of the diagnostic value x feedback sign interaction revealed subjects in the low expectancy condition recalled less negative feedback statements with high diagnostic value ( $M = .37$ ) than low diagnostic value ( $M = .91$ ),  $F(1,86) = -12.53, p < .01$  (see Table R-2). This effect of diagnostic value approached significance in the control feedback condition  $F(1,86) = 3.86, p < .08$ , and did not emerge in the positive feedback condition  $F(1,86) = .40, p > .05$ . It appears the three-way interaction is produced by



low expectancy subjects recalling less negative feedback with high diagnostic value relative to low diagnostic value.

This unexpected three-way interaction is difficult to interpret. One explanation for the unusual recall behavior of low expectancy subjects stems from the reliability and strength of the expectancy manipulation. Subjects assigned to the low (high) expectancy condition may have discounted the negative (positive) feedback about the LEAD and maintained their original self-generated performance expectations. This may have lead to subjects with high expectations self-generated expectations to be classified into the low expectancy experimental condition. Similarly, subjects assigned to the high experimental expectancy condition may in fact have had low self-generated performance expectations. To test whether the unexpected interaction was an artifact of misclassifying subjects, an alternative operational definition of expectancy was investigated. Subjects were categorized based on their responses to the 7-point expectancy manipulation check item "How well did you expect to perform on the in-basket task?" Subjects' ratings ranged from 2 to 6, with 80 percent of the responses ( $N = 36$ ) falling between the ratings of 4 and 5. The distribution of ratings made a split into the original three levels of expectancy impossible while maintaining an adequate number of subjects per level. Therefore, a median split on expectancy was utilized. Subjects with ratings less than or equal to 4 were assigned to the low expectancy condition ( $N = 24$ ) and subjects with ratings greater than or equal to 5 were assigned to

the high expectancy condition ( $N = 21$ ). The median split resulted in 31 percent of those subjects in the high expectancy condition being reclassified into the low expectancy condition, and 23 percent of those in the low expectancy condition being reclassified into the high expectancy condition. Fifty nine percent of the control group were reclassified into the low expectancy condition and 41 percent were reclassified into the high expectancy condition.

The log transformed free recall data were reanalyzed using a 2 (Self-Reported Expectancy: high, low) X 3 (Feedback Sign: positive, negative, no sign) X 2 (Diagnostic Value: high, low) Mixed Factor ANOVA. The results of this analysis are presented in Tables R-4 and R-5. The ANOVA revealed two significant effects. As found with the original analysis, a main effect of feedback sign emerged,  $F(2,88) = 30.88$ ,  $p < .01$  (see Table R-4). Matched pairs t-tests showed subjects recalled less control feedback statements ( $M = .31$ ) than positive ( $M = .64$ ),  $t(45) = -5.32$ ,  $p < .01$  and negative ( $M = .76$ ),  $t(45) = -8.93$ ,  $p < .01$  feedback statements respectively. In addition, subjects tended to recall more negative feedback statements ( $M = .76$ ) than positive feedback statements ( $M = .64$ ),  $t(45) = 1.92$ ,  $p < .06$ . Although the difference between recall of positive and negative feedback only approached accepted levels of significance, the trend warrants mentioning because it is opposite the predictions made by self-enhancement theory. Apparently in

performance situations individuals are slightly biased toward retrieving negative information about their performance.

When the subjects' self-generated expectancy level was utilized, the significant three-way interaction among expectancy, feedback sign and diagnostic value disappeared (see Figure R-6). Low expectancy subjects recalled more negative feedback with high diagnostic value when the new expectancy definition was utilized. Conversely, high expectancy subjects recalled less negative feedback with high diagnostic value when the new expectancy manipulation was used. The following explanation is offered: high expectancy subjects who were originally assigned to the low expectancy group recalled very few negative statements (as would be predicted by self-consistency theory). This lowered the average number of negative statements recalled by low expectancy subjects under the original expectancy manipulation. When these high expectancy subjects (according to their self-reported expectancy) were replaced with low expectancy subjects, the average number of negative feedback statements recalled increased. Conversely, the low expectancy subjects who were originally classified as high expectancy subjects behaved as low expectancy subjects (as self-consistency theory would predict) and recalled large amounts of negative information, which increased the mean number of negative statements recalled. When these low expectancy subjects were replaced by high expectancy subjects, the average number of negative statements recalled decreased.

The second significant source of variance was a main effect of diagnostic value  $F(1,44) = 11.51, p < .01$ . Contrary to the predictions of competence motivation theory, subjects recalled more low diagnostic value dimensions ( $M = 1.95$ ) than high diagnostic value dimensions ( $M = 1.46$ ). One explanation for this effect is that low and high diagnostic value dimensions were processed differently. Schul and Bernstein (1983) offer an opinion formation model which divides information processing into several distinct mental operations: initial encoding, elaborative encoding, integration, and decision. This opinion formation model is applied to the current study because the experimenter tried to influence subjects' opinions about the diagnostic value of performance dimensions. According to Schul and Bernstein (1983) the type of processing statements receive is based upon the "informativeness" or "information value" contained in the statements. Information value is defined by the amount of new information a statement provides. The authors found that statements containing "new" information were very informative and received elaborative processing, while information that was not informative received minimal processing (Schul and Bernstein, 1983).

The current experimental stimuli (feedback dimensions) were selected from actual managerial assessment center exercises, which are predictive of managerial performance. Therefore all dimensions have high diagnostic value. However subjects were told, contrary to face value, that 3 dimensions had low diagnostic value. The low diagnostic value dimensions then became more

"informative" because they contained "new" information. Because low (high) diagnostic value dimensions were now more (less) informative, they were given elaborative (minimal) processing which resulted in superior (inferior) recall respectively.

In addition subjects were asked to generate reasons why the low (high) diagnostic value dimensions were poor (good) predictors of performance. It may have been more difficult to generate reasons why seemingly good predictors of performance were actually poor predictors of performance. This may also have contributed to the low diagnostic value dimensions receiving more elaborative processing. Therefore the superior recall of low diagnostic value dimension may be an artifact of the manner in which diagnostic value was manipulated rather than evidence disconfirming competence motivation theory.

Main effects of diagnostic value and feedback sign emerged when the original expectancy manipulation and the self-reported expectancy levels were utilized. However the three-way interaction among expectancy, feedback sign, and diagnostic value was not significant when subjects were categorized according to their self-reported expectancies. The unexpected three-way interaction was most likely an artifact due to a weak expectancy manipulation, which resulted in subjects with high (low) expectations being misclassified as having low (high) expectations. Because a large percentage of subjects were reclassified, all subsequent analyses utilize subjects' self-reported expectancy as

the operational definition of expectancy. Using subjects' self-reported expectancy level only affected the free recall results, analyses of memory sensitivity and perceived accuracy ratings produced the same effects with both operational definitions of expectancy. In addition, analyses of all dependent variables using the entire sample ( $N = 72$ ) produced the same results as the analyses using the restricted sample ( $N = 46$ ).

Total Recall. Subjects were expected to recall a portion of the specific feedback statements presented, plus general information about the performance dimensions. Total recall was defined as the number of specific feedback statements recalled plus the number of general statements recalled about the feedback dimension. Although the measures of specific recall and total recall are highly correlated ( $r$ 's  $> .82$ ), it is important to assess total recall because subjects may have been unable to recall the exact behavioral feedback statement, but may have been able to recall general information about the feedback dimension. Therefore total recall is a better measure of what type of feedback information is more available in the subjects' memory. As with the specific recall data, the total recall data was transformed using the  $\log(\text{total recall} + 1)$  transformation recommended for skewed distributions (Winer, 1971).

A 2 (Self-Reported Expectancy: high, low) X 3 (Feedback Sign: positive, negative, no sign) X 2 (Diagnostic Value: high, low) Mixed Factor ANOVA, was performed on total recall. Results for these analyses are presented in

Tables R-7 and R-8. First, a main effect of feedback sign emerged,  $F(2,88) = 28.83$ ,  $p < .01$  (see Table R-7). Matched pairs t-tests showed subjects recalled more total information about negative feedback dimensions ( $M = 1.75$ ) than positive ( $M = 1.47$ ),  $t(45) = 2.15$ ,  $p < .05$  and control ( $M = .81$ ),  $t(45) = 9.05$ ,  $p < .01$  feedback dimensions respectively. Subjects also recalled more information about positive feedback dimensions than control feedback dimensions,  $t(45) = 4.76$ ,  $p < .01$ . The pattern of means for total recall is similar to the data for specific recall presented above, however the bias towards recalling more negative feedback information is significant in this case (see Figure R -9).

The second significant effect for total recall was a main effect of diagnostic value  $F(1,44) = 11.51$ ,  $p < .01$ . As found with the number of specific statements recalled, subjects recalled more total information about low diagnostic value dimensions ( $M = .76$ ) than high diagnostic value dimensions ( $M = .58$ ). The explanation cited above for the superior recall of low diagnostic value is also appropriate for this finding. Low diagnostic value dimensions became more informative because of the manner in which diagnostic value was manipulated, while the information value of high diagnostic value dimensions did not change. Therefore low diagnostic value dimensions received "elaborative processing" and the high diagnostic value dimensions received "minimal processing" (Schul & Bernstein, 1983). Overall,

the free recall data does not clearly support any of the three self-motive theories as originally presented.

**Memory Sensitivity Scores.** Signal detection theory procedures used to compute indices of memory sensitivity and response bias for the feedback recognition measure were based on an analysis of each subject's Memory Operating Characteristic (MOC) curve (Banks, 1970; Swets, 1973). A MOC curve is a theoretical curve derived from a plot of the subject's hit rate (i.e., the rate at which feedback statements actually presented to the subject are in fact reported as having been presented) against his/her false alarm rate (i.e., the rate at which feedback statements not actually presented to the subject are in fact reported as having been presented). Both parametric and nonparametric indices of memory sensitivity have been developed. Of these, the parametric indices ( $d'$ ) are potentially more sensitive, however they require strong assumptions of normality and homogeneity of variance, which are often not met in memory research (cf. Hartwick, 1979). Therefore, a less restrictive nonparametric index  $A'$  is utilized (Grier, 1971). This measure ( $A'$ ) is especially desirable in situations in which only a single point on an MOC curve has been obtained, as in a Yes-No experiment with a single payoff matrix and presentation probability.  $A'$  is calculated according to the following formula:

$$A' = 1/2 + \frac{(HITS - FALSE\ ALARM)(1 + HITS - FALSE\ ALARM)}{(4\ HITS)(1 - FALSE\ ALARMS)}$$



Subjects memory sensitivity scores ( $A'$ ) were analyzed using a 2 (Self-Reported Expectancy: high, low) X 3 (Feedback Sign: positive, negative, no sign) X 2 (Diagnostic Value: high, low) Mixed Factor ANOVA. Results for this analysis are presented in Tables R-10 and R-11. No significant effects emerged for memory sensitivity scores (see Table R-10). Unlike the recall data, feedback sign and the diagnostic value of performance dimensions did not affect memory sensitivity.

Response Bias. The nonparametric measure for response bias  $B''$  recommended by Grier (1973) is calculated using the following formula:

$$B'' = \frac{\text{HITS} (1 - \text{HITS}) - \text{FALSE ALARMS} (1 - \text{FALSE ALARMS})}{\text{HITS} (1 - \text{HITS}) + \text{FALSE ALARMS} (1 - \text{FALSE ALARMS})}$$

However,  $B''$  was inappropriate for the current study. One property of the nonparametric  $B''$  formula is that when the number of false alarms is zero,  $B''$  (response bias) automatically equals 1, regardless of the subjects hit rate.

Thus, when the data includes many subjects who do not have any false alarms, their response bias is artificially inflated to one. For each feedback dimension, an average of 70 percent of the subjects did not commit any false alarms.

Therefore, each subjects' false alarm rate was utilized as an alternative measure of response bias.

A 2 (Self-Reported Expectancy: high, low) X 3 (Feedback Sign: positive, negative, no sign) X 2 (Diagnostic Value: high, low) Mixed Factor ANOVA was performed on subjects' false alarm rates. The results for this analysis are

presented in Tables R-12 and R-13. Three significant effects emerged (see Table R-9). Significant main effects emerged for diagnostic value  $F(1, 44) = 9.28, p < .01$ , and feedback sign  $F(2, 88) = 5.08, p < .01$ . However, these main effects are qualified by a significant feedback sign by diagnostic value interaction  $F(2, 88) = 7.54, p < .01$  (see Figure R-14).

Simple effects analyses showed a significant effect of feedback sign for low diagnostic value dimensions  $F(1, 86) = 6.10, p < .05$ , but not for high diagnostic value dimensions  $F(2, 86) = 1.60, p > .05$ . For low diagnostic value dimensions, subjects' false alarm rates for control feedback statements ( $M = .27$ ) were significantly lower than both positive  $t(45) = 3.44, p < .01$  and negative feedback statements  $t(45) = 3.97, p < .01$  respectively. However subjects' false alarm rates for positive feedback dimensions ( $M = .47$ ) did not differ from negative feedback dimensions ( $M = .46$ ),  $t(45) = .13, p > .05$ .

These findings imply subjects said "yes" to "signed" low diagnostic value feedback statements that were not presented, but not to make similar mistakes for high diagnostic value statements that were not presented. These results are in line with the results from the free recall data presented earlier. Subjects' false alarm rates were generally higher for dimensions recalled with greater frequency, or those receiving elaborative processing (i.e., low diagnostic value dimensions). The lack of any significant effects for memory sensitivity indicates the increase in false alarms for "signed" low diagnostic value statements covaried with an increase in true hits for these dimensions.

**Ratings of Feedback Accuracy.** The final dependent measure was subjects' ratings of feedback accuracy. These ratings were analyzed using a 2 (Self-Reported Expectancy: high, low) X 3 (Feedback Sign: positive, negative, no sign) X 2 (Diagnostic Value: high, low) Mixed Factor ANOVA. Results for these analyses are presented in Tables R-15 and R-16. Two effects were significant. First, a significant main effect of feedback sign emerged  $F(2,88) = 12.48, p < .01$  (see Table R-15). Matched pairs t-tests revealed subjects rated positive feedback as more accurate ( $M = 5.41$ ) than negative feedback ( $M = 4.79$ ),  $t(45) = 3.68, p < .05$ , and no sign feedback ( $M = 4.66$ ),  $t(45) = 5.12, p < .05$ . However, subjects' accuracy ratings for negative and no sign feedback statements did not differ  $t(45) = .78, p > .05$ .

This main effect of feedback sign is qualified by a significant feedback sign x diagnostic value interaction  $F(2,88) = 6.16, p < .01$  (see Figure R-17). Simple effects analyses revealed main effects for feedback sign at both levels of diagnostic value: high  $F(2,90) = 10.16, p < .01$ , and low  $F(2,90) = 6.60, p < .01$  respectively. Follow-up matched pairs t-tests showed that for dimensions with high diagnostic value, individuals rated positive feedback ( $M = 5.59$ ) as more accurate than negative feedback ( $M = 4.59$ ),  $t(45) = 4.15, p < .01$ , and no sign feedback ( $M = 4.89$ ),  $t(45) = 3.79, p < .01$  respectively. However ratings of negative feedback and no sign feedback did not differ  $t(45) = 1.40, p > .05$ .

For dimensions with low diagnostic value, individuals rated no sign feedback ( $\underline{M} = 4.44$ ) as less accurate than positive feedback ( $\underline{M} = 5.24$ ),  $t(45) = 4.40$ ,  $p < .01$  and negative feedback ( $\underline{M} = 5.00$ ),  $t(45) = 2.53$ ,  $p < .01$  respectively. However unlike high diagnostic value dimensions, positive feedback was not rated as more accurate than negative feedback  $t(45) = 1.24$ ,  $p > .05$ . T-tests investigating differences within each level of feedback sign showed subjects rated positive feedback with high diagnostic value ( $\underline{M} = 5.59$ ) as more accurate than positive feedback with low diagnostic value ( $\underline{M} = 5.24$ ),  $t(45) = 2.14$ ,  $p < .05$ . Similarly, subjects rated no sign feedback with high diagnostic value ( $\underline{M} = 4.89$ ) as more accurate than no sign feedback with low diagnostic value ( $\underline{M} = 4.43$ ),  $t(45) = 2.49$ ,  $p < .05$ . The difference between negative feedback with high diagnostic value ( $\underline{M} = 4.58$ ) and negative feedback with low diagnostic value only approached significance ( $\underline{M} = 5.00$ ),  $t(45) = -1.77$ ,  $p < .08$ .

Although the main effect of feedback sign is qualified by a feedback sign by diagnostic value interaction, these results can be interpreted from a self-enhancement framework. For dimensions with high diagnostic value, or dimensions important in determining managerial performance, subjects perceived positive feedback as more accurate than negative feedback. However, for relatively unimportant dimensions, or those with low diagnostic value, subjects did not perceive positive feedback as more accurate than negative feedback. Evidently when the feedback is more important, or

potentially more threatening, subjects engage in self-enhancing processes in order to view themselves positively. Subjects also rated high diagnostic positive feedback as more accurate than low diagnostic positive feedback. However, the reverse was true for negative feedback. Subjects tended to rate negative feedback with low diagnostic value as more accurate than negative feedback with high diagnostic value. This occurred because negative feedback about an unimportant dimension does not threaten self-esteem, while negative feedback about important dimensions does threaten one's esteem level.

## DISCUSSION

The goal of the present study was to test the adequacy of three self-motive theories to predict recall, memory sensitivity, and ratings of performance feedback accuracy. Each theory hypothesizes individuals are biased information processors who selectively process certain aspects of the feedback message. None of the hypotheses were supported as originally stated, however several conclusions are possible based upon the pattern of results.

### Free Recall

The results clearly show individuals are biased toward recalling negative feedback. Individuals tended to recall more specific negative feedback statements than positive feedback statements ( $p < .06$ ). Subjects also recalled significantly more total information about negative feedback dimensions than positive feedback dimensions (i.e., specific statements plus general information about the dimensions). This superior recall of negative feedback does not support any of the three theories as originally stated. However these results can be explained by two self-motive theories: a modified version of competence motivation theory, and a modified version of self-enhancement theory. Self-consistency theory cannot explain the increased recall of negative feedback statements, regardless of expectancy level.

Competence motivation theory, as originally presented, stated individuals are motivated to master their environment. This theory predicted individuals would recall more feedback with high relative to low diagnostic value because

the former is more helpful for improving performance and attaining competence. This prediction names diagnostic value as the only critical factor denoting which feedback is helpful for mastering the environment.

Unfortunately this prediction was not adequately tested in the current investigation due to the manner in which diagnostic value was manipulated. However, the feedback message is a rich source of information for how an employee can improve performance. Recalling information about important dimensions, or those with high diagnostic value, is only one manner for achieving competence and improving performance. Therefore competence motivation may be supported by preferentially recalling more than one aspect of the feedback message.

In addition to diagnostic value, feedback sign also provides information that will help the individual attain competence. By definition, negative feedback indicates which behaviors were performed below standard, while positive feedback indicates behaviors that were performed at or above standard (Taylor, Fisher & Ilgen, 1984). Recalling behaviors that need to be changed in order to improve performance also leads to mastery. Negative feedback sign establishes an implicit priority that changing behaviors below standard is more important than changing behaviors currently being performed at or above standard. This superior recall of negative feedback is adaptive, for it increases the probability that this information will be applied to the job, and a performance improvement will result.

Another finding that supports competence motivation theory is the superior recall of feedback associated with feedback sign relative to no sign feedback. This implies that specific, self-relevant information is retained and retrieved more readily than general suggestions not linked to individual behaviors. Recalling specific, self-relevant information will also help the individual improve performance and attain competence. Taken together, these results suggest a competence motivation interpretation.

The second interpretation of these findings supports self-enhancement theory, and stems from the work of Wyer and Frey (1983) who investigated the cognitive processes involved in esteem maintenance. Wyer and Frey (1983) told subjects they performed well or poorly on an intelligence test (i.e., gave positive or negative feedback). Subsequently they were asked to read a report containing pro-intelligence test statements and anti-intelligence test statements. After reading the report about intelligence tests, subjects were asked to freely recall statements from the report. This experiment tested two hypotheses: selective encoding, and amount-of-processing. The selective encoding hypothesis predicts individuals maintain esteem by selectively attending to esteem enhancing information. Therefore this theory predicted those who received negative feedback about their performance on the intelligence test would recall more anti-intelligence test arguments relative to those who receive positive feedback. This would occur because the anti-intelligence arguments question the validity of the negative feedback. In contrast, the amount-of-



processing hypothesis predicts recipients of negative feedback think more extensively about pro-intelligence test arguments in an attempt to refute them. This increased processing given to pro-intelligence test arguments results in negative feedback recipients recalling more pro-arguments than positive feedback recipients. Both hypotheses predicted an "asymmetrical effect" of positive and negative feedback. Positive feedback recipients would not be motivated to refute the validity of positive feedback, and would recall equal amounts of pro- and anti-intelligence test arguments.

The results supported the "amount-of-processing" hypothesis (Wyer & Frey, 1983). Subjects who received negative feedback about their performance on an intelligence test recalled more pro-intelligence test arguments than did individuals who received positive feedback about their performance on the intelligence test. The asymmetry hypothesis was also supported. Individuals who received positive feedback about their performance on the intelligence test recalled equal amounts of anti-intelligence test arguments and pro-intelligence arguments. Thus there was evidence that subjects tried to refute the validity of negative information, but no evidence that subjects tried to refute information that calls the validity of positive feedback into question (Wyer & Frey, 1983).

Wyer and Frey's (1983) results may explain the current findings. The superior recall of negative feedback may have been caused by a self-enhancement motive rather than a competence motive. Subjects may have

attempted to refute the threatening information contained in negative feedback, while automatically accepting the validity of positive feedback. The generation of counterarguments denying the validity of negative feedback may have resulted in greater processing of negative feedback and subsequently superior recall. Unfortunately the current data do not provide enough information to determine which of these interpretations is correct. Future research should investigate the factors underlying the biased recall for negative feedback.

It is important to determine which theory underlies recall behavior because the two theories have different implications for how the negative feedback will be used in the future. Competence motivation theory predicts individuals recall negative information because it denotes which behaviors must be changed in order to improve performance. If recall behavior is best explained this theory, supervisors can be optimistic about a workers motivation to utilize the information contained in negative feedback to improve performance on the job. The self-enhancement interpretation is less optimistic about an employees motivation to utilize the performance improvement information contained in negative feedback. According to this theory employees recall the negative feedback with greater frequency because they attempt to refute its validity. The process of refuting the validity of the feedback is what leads to the superior recall of negative feedback (Wyer &

Frey, 1983). Thus, individuals are not likely to apply the performance improvement information in negative feedback on their jobs in the future.

One additional effect found in the free recall data warrants discussion. First, feedback with "sign information" (i.e., normative scores) was recalled more often than "no sign feedback" (i.e., no normative scores). This creation of "no sign" feedback and "signed" feedback is similar to a distinction made by Greller & Herold (1975). According to Greller & Herold (1975), feedback is comprised of two types of information: referent information and appraisal information. Referent information is that which tells the worker what is required of him/her to function successfully. Appraisal information is that which tells the worker that he or she is functioning successfully. In the current study, referent information is similar to the no sign feedback, which only contained suggestions for how to improve performance. Feedback associated with normative scores (e.g., positive & negative feedback) contained referent and appraisal information. The superior recall of positive and negative feedback relative to no sign feedback suggests that both referent and appraisal information are necessary to promote maximum retrieval of feedback. Therefore supervisors should structure feedback so that both types of information are communicated to the employee. The feedback must provide specific behavioral examples for how performance can be improved, and some indication of the performance level of others in the organization.

### Memory Sensitivity

The results for memory sensitivity did not support any of the three theories. Unlike free recall, memory sensitivity was not affected by feedback sign and diagnostic value. The differences found between free recall and memory sensitivity are interesting. One would expect the free recall results to mirror the memory sensitivity results. That is, the superior recall of negative feedback statements should be associated with an increase in memory sensitivity for negative feedback statements. This was not the case. One potential explanation for the differences between recall and memory sensitivity stems from the different theoretical mechanisms underlying recall and recognition. According to the generation-recognition theory of memory, recall is considered a two stage process in which a person must independently retrieve a particular item and then perform some recognition check on whether the item was presented in a particular context (i.e., experiment). Recognition tasks on the other hand are thought to bypass the retrieval stage and thus only involve the single stage of the discrimination check (Anderson & Bower, 1972; Kintsch, 1970). This perspective allows for differences between recall performance and memory sensitivity, plus provides a framework for interpreting differences between the two measures.

Some researchers argue that a comparison of free recall and recognition performance can sometimes be used to illuminate those mental processes that are responsible for a given effect. Any experimental manipulation that affects

recall, but not recognition is assumed to tap a process that is localized in the retrieval stage of information processing (Srull, 1984). In the current study, feedback sign and diagnostic value affected free recall of feedback, but not memory sensitivity. This suggests that the effects produced by feedback sign and diagnostic value lie in the retrieval stage of information processing rather than the encoding phase.

The self-enhancement interpretation presented above can explain these differences between recall and recognition. This theory hypothesizes that individuals generate arguments that refute the validity of negative feedback, which causes in-depth processing of the negative feedback and subsequently superior recall. This greater processing afforded to negative feedback statements relative to positive feedback statements may lead to a better organizational network linking negative feedback statements. The more organized associative network facilitates recall of negative feedback because a well developed network aids in the search and location of feedback items presented, but does not help the discrimination phase (Srull, 1984). Because the recognition process bypasses the search phase, recognition performance is not affected by feedback sign (Kintsch, 1970). Similarly, the increased processing given to low diagnostic value statements may have created a more highly organized network without increasing memory sensitivity.

The memory processes underlying free recall are more applicable to organizational settings than are the mental process underlying memory

sensitivity. For feedback to be most effective at improving job performance, the employee must be able to freely recall the feedback while performing the job. This involves search his or her memory and discriminating what information has been previously presented and what information has not. Because employees are generally not presented with any form of recognition measure, memory sensitivity is of less importance. Therefore it is necessary to focus on the free recall results and interventions that promote maximum recall of feedback information.

#### Ratings of Feedback Accuracy

The results for ratings of feedback accuracy clearly supported a modified version of self-enhancement theory. Individuals rated positive feedback as more accurate than negative feedback, but only for high diagnostic value dimensions. The bias toward rating positive feedback as more accurate than negative feedback did not emerge for low diagnostic value dimensions. When the feedback is important, or a good predictor of future managerial performance, there is a tendency for subjects to self-enhance (rate positive feedback as more accurate than negative feedback). However when the feedback is less important, or less predictive of future managerial performance, the need to self-enhance is lessened because the information contained in the feedback is less indicative of managerial potential. A similar pattern of results was obtained by Miller (1976) who found that self-enhancing attributions were more likely to occur under conditions of high ego-involvement than under

conditions of low ego-involvement. In other words, highly involved individuals who failed a task made more attributions to luck than did less ego-involved subjects. Conversely, highly involved individuals who succeed on a task tended to made more attributions to ability than did subjects who were less involved in the task. Thus, when the feedback is potentially more threatening, individuals are more motivated to save face.

The results of the current study are consistent with previous research on ratings of feedback accuracy. Research has shown positive feedback is generally perceived as more accurate than negative feedback (Jacobs, Feldman & Cavior, 1973; Halperin, Snyder, Shenkel, & Houston, 1976; Stone & Stone, 1984; 1985). In these studies subjects were presented with either all positive feedback or all negative feedback, and were then asked to rate the accuracy of the feedback. The current results show that when individuals are given both positive and negative feedback simultaneously, they also rate positive feedback as more accurate than negative feedback. However this only occurred when the feedback is diagnostic of future performance. This finding is highly applicable to the work place because employees generally receive both positive and negative feedback during an appraisal session.

The Wyer and Frey (1983) study discussed earlier also included dependent measures that were similar to ratings of feedback accuracy. Individuals received either positive or negative feedback about their performance on an intelligence test, and were then asked to read a report

containing pro-intelligence test arguments and anti-intelligence test arguments. Subjects were then asked to judge the reliability and validity of intelligence tests in general. The results showed those who received negative feedback about their performance on an intelligence test rated intelligence tests as less reliable and less valid than those individuals who received positive feedback about their performance on the intelligence test (Wyer & Frey, 1983). These results concur with the current study. Individuals questioned the validity of negative feedback but did not question the validity of positive feedback.

Perceived accuracy research is based on the assumption that perceived feedback accuracy (or feedback acceptance) is a direct mediator between feedback perception and responses to feedback (Ilgen, Fisher & Taylor, 1979). Therefore, if the feedback is viewed as accurate, individuals will be more likely to apply it to their performance. On the other hand, if the feedback is viewed as inaccurate, it will be discounted and will not be applied to performance. Some empirical support has been obtained for this assumption (Cederblom & Lounsbury, 1980; O'Reilly & Anderson, 1980). An individuals' memory for the feedback message is another mediator of the relationship between receiving feedback and responding to it. If an employee cannot remember the feedback delivered, then he/she cannot use it to change performance. Although neither dependent variable measures actual behavioral responses such as performance improvement, each measures a factor which potentially limits whether the feedback will be applied on the job.



It is beyond the scope of the current study to determine whether perceived accuracy or recall is a better indicator of whether the feedback will be used to change behavior. However one major goal of the study was to assess a dependent variable other than perceived accuracy. The feedback literature has focused almost exclusively on ratings of feedback accuracy, and the findings clearly supports self-enhancement theory. The current findings question whether individuals always react to feedback in a self-enhancing manner.

The perceived accuracy data clearly support self-enhancement theory, but the recall data can be explained by self-enhancement theory or competence motivation theory. If individuals recall negative feedback more frequently because they generate arguments denying its validity, then self-enhancement theory explains the results of both dependent variables. However, if individuals recall more negative feedback because they are motivated to improve their performance, this presents a contradiction between the recall data and ratings of feedback accuracy data. How can one dependent variable be predicted by one theory and another dependent variable be predicted by another theory? One explanation stems from the nature of the dependent variables. Free recall measures memory processes, while perceived accuracy ratings assess judgments. There is empirical literature suggesting memory and judgments are made independently, or there is no relationship between measures of memory and judgments (Hastie & Park, 1986). The lack of a

relationship between memory and judgment most likely to be found when the memory task is "on-line," or when individuals make judgments immediately, rather than making a judgment based on information recalled from long-term memory. Although ratings of feedback accuracy were obtained at the final stages of the experiment, it is likely that individuals made judgments while the feedback was being presented. In fact, judgments are almost always made "on-line" (Hastie & Park, 1986). This suggests "impression memory" which is responsible for recalling judgments, and "verbal memory," which is responsible for recalling the feedback statements, may be controlled by different motives.

#### Limitations of the Study

One limitation of this investigation is the weak effect of the experimental expectancy manipulation. Subjects disregarded the LEAD feedback which was designed to alter their performance expectations for the upcoming in-basket task. Consequently, subjects were assigned to expectancy conditions that did not match their self-generated expectancy level. When manipulating performance expectations, the researcher must make sure the manipulation is strong enough to produce the desired effect without being discredited by the subjects. Researchers should also measure subjects' self-ratings of expectancy level as check for whether the expectancy manipulation had the desired effect. These ratings provide an alternative operational definition of expectancy if the original expectancy manipulation turns out to be ineffective.

The second limitation has to do with the experimental manipulation of diagnostic value. Although the manipulation check results showed that subjects correctly perceived the diagnostic value manipulation, the manner in which diagnostic value was manipulated inadvertently affected the "information value" of feedback statements (Schul & Bernstein, 1983). Low diagnostic value dimensions contained "new" information and became more "informative" while high diagnostic value statements did not contain "new" information and did not become more informative. The information value of the statements affected the type of processing the statements received. Low diagnostic value statements received elaborative processing and high diagnostic value statements received minimal processing (Schul & Bernstein, 1983). This change in processing given to high and low diagnostic value statements consequently affected recall. Therefore, in order to fairly test free recall of high versus low diagnostic value dimensions, one must insure that each is being processed in the same manner.

The final limitation concerns the ability to generalize laboratory research to real organizations. The major benefit of conducting laboratory research is the ability to standardize the feedback stimulus. In organizations each employee receives unique feedback, and it would be difficult to compare recall because "set size", or the number of positive and negative statements would be different for each person. The current study was designed to capitalize on the

strengths of a laboratory research while making the experimental context as realistic as possible (Ilgen & Favaro, 1983).

Feedback in organizations is often linked to salary treatment, as in merit pay (Landy & Farr, 1980). Consequently employees are highly ego-involved in the feedback they receive. To approximate this situation in the lab, upper class business majors were given feedback about their managerial potential. It was assumed the subjects would be highly interested in this feedback. Subjects were also given both positive and negative feedback statements because employees generally receive a combination of positive and negative feedback. This design extends previous performance feedback research which has generally used all positive or all negative feedback (cf. Stone & Stone, 1984; 1985; Bannister, 1986).

### Future Research

The study presented here provides a starting point for future research. It has been established that individuals recall negative performance feedback more frequently than positive and "no sign" performance feedback. The next steps are to replicate this finding with a more reliable expectancy manipulation, and to determine whether this effect is robust. Next, research should determine what cognitive processes are responsible for the superior recall of negative performance feedback. This would involve further testing of the self-enhancement explanation offered by Wyer and Frey (1983) and the competence motivation theory offered by White (1959; 1974). The final step

would be to test memory for feedback in an organizational setting.

Determining which self-motive produces the superior recall of negative feedback has implications for the strategies managers can use to help employees accurately process, retain, and retrieve the feedback delivered during performance feedback sessions. The ultimate research goal is to investigate the relationship between recall of performance feedback and performance change. It is assumed that if individuals cannot remember the feedback then they cannot use it on the job, and that if they do remember the feedback it will be applied on the job. As of yet this relationship remains an empirical question.

## References

- Anderson, J.R., & Bower, G.H. (1972). A propositional theory of recognition memory. Memory and Cognition, 2, 406-412.
- Arkin, R.M., Gleason, J.M., & Johnston, S. (1976). Effects of perceived choice, expected outcome, and observed outcome of an actor on the causal attributions of actors. Journal of Experimental Social Psychology, 12, 151-158.
- Ashford, S.J. (1986). Feedback-seeking in individual adaptation: A resource perspective. Academy of Management Journal, 29, 465-497.
- Ashford, S.J. & Cummings, L.L. (1983). Feedback as an individual resource: Personal strategies of creating information. Organizational Behavior and Human Performance, 32, 370-398.
- Banks, W.P. (1970). Signal detection theory and human memory. Psychological Bulletin, 74, 81-99.
- Bannister, B.D. (1986). Performance outcome feedback and attributional feedback: Interactive effects on recipient responses. Journal of Applied Psychology, 71, 203-210.
- Baumgardner, A.H. & Arkin, R.M. (1988). Affective state mediates causal attribution for success and failure. Motivation and Emotion, 12, 99-111.
- Bernstein, B.L., & Lecomte, C. (1979). Supervisory-type feedback effects: Feedback discrepancy level, trainee psychological differentiation, and immediate responses. Journal of Counseling Psychology, 26, 295-303.

- Borman, W.C. (1987). Personal constructs, performance schemata, and "folk theories" of subordinate effectiveness: Exploration in an army officer sample. Organizational Behavior and Human Decision Processes, 40, 307-322.
- Bradley, G.W. (1978). Self-serving biases in attribution processes: A reexamination of the fact or fiction question. Journal of Personality and Social Psychology, 36, 56-71.
- Brockner, J. & Hulton, J.B., (1978). How to reverse the vicious cycle of low self-esteem: The importance of attentional focus. Journal of Experimental Social Psychology, 14, 564-578.
- Campbell, D.J. & Lee, C. (1988). Self-appraisal in performance evaluation: Development versus evaluation. Academy of Management Review, 13, 302-314.
- Cederblom, D., & Lounsbury, J.W. (1980). An investigation of user acceptance of peer evaluations. Personnel Psychology, 33, 567-579.
- Crary, W.G. (1966). Reactions to incongruent self-experiences. Journal of Consulting Psychology, 30, 246-252.
- DeNisi, A.S., Randolph, W.A., & Blencoe, A.G. (1983). Potential problems with peer feedback. Academy of Management Journal, 26, 457-464.
- Dipboye, R.L. (1977). A critical review of Korman's self-consistency theory of work motivation and occupational choice. Organizational Behavior and Human Performance, 18, 108-126.

- Dittes, J.E. (1959). Attractiveness of group as a function of self-esteem and acceptance by the group. Journal of Abnormal and Social Psychology, 59, 77-82.
- Epstein, S. (1973). The self-concept revisited: On a theory of a theory. American Psychologist, 28, 404-416.
- Feather, N.T. (1966). Effects of prior success and failure on expectations of success and subsequent performance. Journal of Personality and Social Psychology, 3, 287-298.
- Feather, N.T. (1968). Change in confidence following success or failure as a predictor of subsequent performance. Journal of Personality and Social Psychology, 9, 38-46.
- Fisher, C.D. (1979). Transmission of positive and negative feedback to subordinates: A laboratory investigation. Journal of Applied Psychology, 64, 533-540.
- Fletcher, C. & Williams, R. (1976) The influence of performance feedback in appraisal interviews. Journal of Occupational Psychology, 49, 75-83.
- Greller, M.M. (1980). Evaluation of feedback sources as a function of role and organizational level. Journal of Applied Psychology, 65, 24-27.
- Greller, M.M. & Herald, D.M. (1975). Sources of feedback: A preliminary investigation. Organizational Behavior and Human Performance, 21, 47-60.



- Grier, J. B. (1971). Nonparametric indexes for sensitivity and bias: Computing formulas. Psychological Bulletin, 75, 424-429.
- Guion, R.M. (1987). Changing views for personnel selection research. Personnel Psychology, 40, 199-213.
- Halperin, K., Snyder, C.R., Shenkel, R.J., & Houston, B.K. (1976). Effect of source status and message favorability on acceptance of personality feedback. Journal of Applied Psychology, 61, 85-88.
- Hartwick, J. (1979). Memory for trait information: A signal detection analysis. Journal of Experimental Social Psychology, 15, 533-552.
- Harvey, O.J. (1962). Personality factors in resolution of conceptual incongruities. Sociometry, 25, 336-352.
- Harvey, O.J., Kelley, H.H. & Shapiro, M.M., (1957). Reactions to unfavorable evaluation of the self made by other persons. Journal of Personality, 25, 393-411.
- Hastie, R., & Park, B. (1986). The relationship between memory and judgement depends on whether the judgement task is memory based or on-line. Psychological Review, 93, 258-268.
- Hauenstein, N.M.A., & Foti, R.J. (1989). From laboratory to practice: Neglected issues in implementing frame-of-reference rater training. Personnel Psychology, in press.
- Hersey, P., & Blanchard, K.H., (1974). "So you want to know your leadership style?" Training and Development Journal, February.

Higgins, E.T., & Bargh, J.A. (1987). Social Cognition and Social Perception. Annual Review of Psychology, 38, 369-425.

Ilgen, D.R. (1971). Satisfaction with performance as a function of the initial level of expected performance and the deviation from expectations. Organizational Behavior and Human Decision Processes, 6, 345-361.

Ilgen, D.R., & Favaro, J. (1985). Limits in generalization from psychological research to performance appraisal processes. Academy of Management Journal, 10, 311-321.

Ilgen, D.R., Fisher, C.D., & Taylor, M.S. (1979). Consequences of individual feedback on behavior in organizations. Journal of Applied Psychology, 64, 349-371.

Ilgen, D.R., & Hamstra, W.B. (1972). Performance satisfaction as a function of the difference between expected and reported performance at five levels of reported performance. Organizational Behavior and Human Decision Processes, 7, 359-370.

Ilgen, D.R., Mitchell, T.R., & Fredrickson, J.W. (1981). Poor performers: Supervisors' and subordinates' response. Organizational Behavior and Human Decision Processes, 27, 386-410.

Ilgen, D. R., Peterson, R. B., Martin, B., & Boeschen, D.A. (1981). Supervisor and subordinate reactions to performance appraisal sessions. Organizational Behavior and Human Performance, 28, 311-330.

- Ivancevich, J.M. & McMahon, J.T. (1982). The effects of goal setting, external feedback, and self-generated feedback on outcome variables: A field experiment. Academy of Management Journal, 25, 359-372.
- Jacobs, M., Jacobs, A., Feldman, G., & Cavior, N. (1973). Feedback II - the credibility gap: Delivery of positive and negative emotional and behavior feedback in groups. Journal of Consulting and Clinical Psychology, 41, 215-223.
- Janis, I. & Mann, L. (1977). Decision Making. New York: Free Press.
- Jones, E.E., & Gerard, H.B. (1967). Foundations of Social Psychology. New York: John Wiley & Sons.
- Jones, S.C. (1973). Self- and interpersonal evaluations: Esteem theories versus consistency theories. Psychological Bulletin, 79, 185-199.
- Kay, E., Meyer, H.H. & French, J.R.P. (1965). Effects of threat in a performance appraisal interview. Journal of Applied Psychology, 49, 311-317.
- Kintsch, W. (1970). Models for free recall and recognition. In D.A. Norman (Ed.), Models of human memory, New York: Academic Press.
- Korman, A. (1970). Toward a hypothesis of work behavior. Journal of Applied Psychology, 54, 31-41.
- Landy, F.J., & Farr, J.L. (1980). Performance Rating. Psychological Bulletin, 87, 72-107.

- Larson, J.R., Lingle, J.H., & Scerbo, M.M. (1984). The impact of performance cues on leader-behavior ratings: The role of selective information availability and probabilistic response bias. Organizational Behavior and Human Performance, 33, 323-349.
- Lawler, E.E. (1973). Motivation in work organizations. Monterey, California: Brooks/Cole.
- Lecky, P. (1945). Self-consistency: A theory of personality. Long Island, NY: The Island Press.
- Liden, R.C. & Mitchell, T.R. (1985). Reactions to feedback: The role of attributions. Academy of Management Journal, 28, 291-308.
- Locke, E.A. (1968). Toward a theory of task performance and incentives. Organizational Behavior and Human Performance, 3, 157-189.
- Locke, E.A., Shaw, K.N., Saari, L.M. & Latham, G.P. (1981). Goal setting and task performance: 19669-1980. Psychological Bulletin, 90, 125-152.
- Lord, C.G., Ross, L., Lepper, M.R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. Journal of Personality and Social Psychology, 37, 2098-2109.
- Lord, R. (1985). Accuracy in behavioral measurement: An alternative definition based on raters' cognitive schema and signal detection theory. Journal of Applied Psychology, 70, 66-71.
- Markus, H. (1977). Self-Schemata and processing information about the self. Journal of Personality and Social Psychology, 35, 63-78.

- Markus, H., & Wurf, E. The Dynamic Self-Concept: A Social Psychological Perspective. Annual Review of Psychology. New York: Free Press.
- Meyer, H.H. (1975). The pay performance dilemma. Organizational Dynamics, 3, 39-50.
- Miller, D.T. (1976). Ego involvement and attributions for success and failure. Journal of Personality and Social Psychology, 34, 901-906.
- Miller, D.T., & Ross, M. (1975). Self-serving biases in the attribution of causality. Fact or fiction? Psychological Bulletin, 82, 213-225.
- Mischel, W., Ebbesen, E.B. & Zeiss, A.R. (1973). Selective attention to the self: Situational and dispositional determinants. Journal of Personality and Social Psychology, 27, 129-142.
- Moreland, R.L., & Sweeney, P.D., (1984). Self-expectancies and reactions to evaluations of personal performance. Journal of Personality, 52, 156-176.
- O'Reilly, C. & Anderson, J. (1980). Trust and the communication of performance appraisal information: The effects of feedback on performance and job satisfaction. Human Communication Research, 6, 290-298.
- Parker, J. W., Taylor, E. K., Barrett, R. S., & Martens, L. (1959). Rating scale content III: Relationship between supervisory- and self-ratings. Personnel Psychology, 12, 49-63.
- Pavett, C.M. (1983). Evaluation of the impact of feedback on performance and motivation. Human Relations, 36, 641-654.

- Payne, R.B., & Hauty, G.T. (1955). The effect of psychological feedback upon work decrement. Journal of Experimental Psychology, 50, 343-351.
- Pearce, J.L. Porter, L.W. (1986). Employee responses to formal performance appraisal feedback. Journal of Applied Psychology, 71, 211-218.
- Platt, J.R. (1964). Strong Inference. Science, 146, 347-353.
- Powers, W.T. (1973). Behavior: The control of perception. Chicago: Aldine.
- Pyszczynski, T., Greenberg, J. & LaPrelle, J. (1985). Social comparison after success and failure: Biased search for information consistent with self-serving conclusion. Journal of Experimental Social Psychology, 21, 195-211.
- Regan, J.W. (1976). Liking for evaluators: Consistency and self-esteem theories. Journal of Experimental Social Psychology, 12, 159-169.
- Riggs, J.M. & Cantor, N. (1984). Getting acquainted: The role of the self-concept and preconceptions. Personality and Social Psychology Bulletin, 10, 432-445.
- Rogers, C.R. (1959). A theory of therapy, personality, and interpersonal relationships as developed in the client-centered framework. In S. Koch (Ed.), Psychology: A study of science, New York: McGraw Hill.
- Rosenberg, M. (1967). Psychological selectivity in self-esteem formation. In C.W. Sherif & M. Sherif (Eds.), Attitude, ego-involvement, and change, New York: John Wiley.

- Ross, L., Lepper, M.R., Hubbard, M. (1975). Perseverance in self-perception: Biased attributional processes in the debriefing paradigm. Journal of Personality and Social Psychology, 32, 880-892.
- Russell, J.S. & Goode, D.L. (1988). An analysis of managers' reactions to their own performance appraisal feedback. Journal of Applied Psychology, 73, 63-67.
- Schul, Y., & Burnstein, E. (1983). The informational basis of social judgements: Memory for Informative and Uninformative Arguments. Journal of Experimental Social Psychology, 19, 422-433.
- Secord, P.F., & Backman, C.W. (1961). Personality theory and the problem of stability and change in individual behavior: An interpersonal approach. Psychological Review, 68, 21-32.
- Shavit, H., & Shouval, R. (1980). Self-esteem and cognitive consistency effects on self-other evaluation. Journal of Experimental Social Psychology, 16, 417-425.
- Shrauger, J.S. (1972). Self-esteem and reactions to being observed by others. Journal of Personality and Social Psychology, 23, 192-200.
- Shrauger, J.S. (1975). Responses to evaluation as a function of initial self-perceptions. Psychological Bulletin, 82, 581-596.
- Shrauger, J.S., & Lund, A. (1975). Self-evaluation and reactions to evaluations from others. Journal of Personality, 43, 94-108.

- Shrauger, J.S., & Osberg, T.M. (1980). The relationship of time investment and task outcome to causal attributions and self-esteem. Journal of Personality, 48, 360-378.
- Shrauger, J.S., & Rosenberg, S.E. (1970). Self-esteem and the effects of success and failure feedback on performance. Journal of Personality, 38, 404-417.
- Shrauger, J.S., & Sorman, P.B. (1977). Self-evaluations, initial success and failure, and improvement as determinants of persistence. Journal of Consulting and Clinical Psychology, 45, 784-795.
- Sicoly, F. & Ross, M. (1977). Facilitation of ego-biased attributions by means of self-serving observer feedback. Journal of Personality and Social Psychology, 35, 734-741.
- Silverman, I. (1964). Self-esteem and differential responsiveness to success and failure. Journal of Abnormal and Social Psychology, 69, 115-119.
- Smircich, L., & Chesser, R. J. (1981). Superiors' and subordinates' perceptions of performance: Beyond disagreement. Academy of Management Journal, 24, 198-205.
- Snyder, C.R. & Shenkel, R.J. (1976). Effects of favorability, modality, and relevance on acceptance of general personality interpretations prior to and after receiving diagnostic feedback. Journal of Consulting and Clinical Psychology, 44, 34-41.



- Snyder, M., Cantor, N. (1979). Testing hypotheses about other people: The use of historical knowledge. Journal of Experimental Social Psychology, 15, 330-342.
- Snyder, M.L., Stephan, W.G., & Rosenfield, D. (1976). Egotism and attribution. Journal of Personality and Social Psychology, 33, 435-441.
- Srull, T. K. (1984). Methodological Techniques for the study of person memory and social cognition. Handbook of Social Cognition (Vol. 2, pp 1-71). Hillsdale, New Jersey: LEA.
- Stone, D.L., Gueutal, H.G. & MacIntosh, B. (1984). The effect of feedback sequence and expertise of rater on perceived feedback accuracy. Personnel Psychology, 37, 487-506.
- Stone, D.L. & Stone, E.F. (1985). The effects of feedback consistency and feedback favorability on self-perceived task competence and perceived feedback accuracy. Organizational Behavior and Human Decision Processes, 36, 167-185.
- Stone, E.F. & Stone, D.L. (1984) The effects of multiple sources of performance feedback and feedback favorability on self-perceived task competence and perceived feedback accuracy. Journal of Management, 10, 371-378.
- Suinn, R.M., Osborne, D., & Page, W. (1962). The self-concept and accuracy of recall of inconsistent self-reported information. Journal of Clinical Psychology, 18, 473-474.

- Swann, W.B. (1983). Self-Verification: Brining social reality into harmony with self. In J. Suls & A.G. Greenwals (Eds.), Social psychological perspectives on the self (Vol. 2, pp. 33-66). Hillsdale, NJ: Erlbaum.
- Swann, W.B. (1984). Quest for accuracy in person perception: A matter of pragmatics. Psychological Review, 91, 457-477.
- Swann, W.B. (1987). Identity Negotiation: Where two roads meet. Journal of Personality and Social Psychology, 53, 1038-1051.
- Swann, W.B., Griffin, J.J., Predmore, S.C., & Gaines, B. (1987). Cognitive-affective crossfire: When self-consistency meets self-enhancement. Journal of Personality and Social Psychology, 52, 881-889.
- Swann, W.B., & Read, S.J. (1981a). Acquiring self knowledge: the search for knowledge that fits. Journal of Personality and Social Psychology, 41, 1119-1128.
- Swann, W.B., & Read, S.J. (1981b) Self-verification processes: How we sustain our self-conceptions. Journal of Experimental Social Psychology, 17, 351-372.
- Swets, J.A. (1973). The relative operating characteristics in psychology. Science, 182, 990-1000.

- Taylor, M.S., Fisher, C.D., & Ilgen, D.R. (1984). Individuals' reactions to performance feedback in organizations: A control theory perspective. In K. Rowland & G. Ferris (Eds.) Research in Personnel and Human Resources Management, (Vol. 2, pp. 81-124). JAI Press.
- Tesser, A. & Paulhus, D. (1983). The definition of self: Private and public self-evaluation management strategies. Journal of Personality and Social Psychology, 44, 672-682.
- Trope, Y. (1975). Seeking information about one's own ability as a determinant of choice among tasks. Journal of Personality and Social Psychology, 32, 1004-1013.
- Trope, Y. (1985). Self-enhancement and self-assessment in achievement behavior. In R.M. Sorrentino and E.T. Higgins (Eds.), Handbook of Motivation and SocialCognition: Foundations of SocialBehavior. New York: Guilford, 350-78.
- Vroom, V.H. (1964). Work and Motivation. New York: Wiley.
- White, R.W. (1959). Motivation reconsidered: The concept of competence. Psychological Review, 66, 297-333.
- White, R.W. (1974). Strategies of adaptation: An attempt at systematic description. In G.V. Coelho, D.A. Hamberg, & J.E. Adams (Eds.), Coping and adaptation, New York: Basic books.
- Wiener, N. (1948). Cybernetics. New York: Wiley.

Winer, B. J. (1971). Statistical principles in experimental design. New York: McGraw-Hill.

Wyer, R.S., Jr., & Frey, D. (1983). The effects of feedback about self and others on the recall and judgments of feedback-relevant information. Journal of Experimental Social Psychology, 19, 540-559.

Zuckerman, M. (1979). Attribution of success and failure revisited, or: The motivational bias is alive and well in attribution theory. Journal of Personality, 47, 245-287.

Zuckerman, M., Brown, R.H., Fox, G.A. Lathin, D.R., & Minasian, A.J. (1979). Determinants of information seeking behavior. Journal of Personality, 13, 161-174.

## **APPENDICES**

**APPENDIX A**  
**EXPERIMENTAL PROTOCOL**

Hello, My name is Joanne Mac and I am a fourth year graduate student working towards a Ph.D. in Industrial Psychology at Virginia Tech. I have asked professor \_\_\_\_\_ if I could utilize his/her students to help me with a consulting project my advisor and I am currently working on for AT&T. I have had two internships at AT&T, and I plan to work for them when I graduate. I had one summer internship which lasted for three months, and one internship that lasted for six months. Both internships were at a managerial assessment center. During these internships I was trained to administer and evaluate several managerial assessment tasks that were used at the center. We are also in the process of developing several other measures as well.

I am here today to ask you to help me with a consulting project for AT&T. Other summer interns who are getting their degrees at other Universities are also working on similar project. We are trying to collect data on several hundred business majors who are going to graduate in the next few years.

The purpose of the study is to validate several assessment center tasks that are specifically used to select recent college graduates and are sometimes used to select summer interns. These tasks will be called "tests," of "management potential." These tests are designed to predict future managerial performance. Based on subjects' scores on several tests, AT&T makes a decision on whether to hire the applicant. Because AT&T has made a commitment to bring new blood into the organization (recent college graduates), they are interested in how upper level college students perform on several managerial assessment exercises. This is an ongoing project which began in 1987. Many students have been tested at other Universities, but AT&T is interested in gathering more data on these tests. This is where your participation comes in.

The study requires you to attend two sessions. The first session lasts approximately forty-five minutes, and the second lasts approximately two hours. Professor \_\_\_\_\_ will give you X credits toward your final grade for your participation in this study.

#### Session One

Thank you for agreeing to participate in the current validation study of managerial assessment exercises. These exercises will potentially be used to select recent college graduates for managerial positions. Therefore, AT&T wants to gather information on how college students perform on each task, how they react to each task, whether the directions are straight forward etc. My main goal is to measure over 100 upper level college students' performance on four managerial assessment tasks to determine the inter-correlations among performance on the four tasks. This project is in the start-up phase and I will be collecting data from other business classes this summer. If you participate in the study once, I ask that you refrain from participating in it again at a later time. These tasks that you will be asked to perform have been validated on a number of college aged students, but more data is needed. We are also interested in how college students perform on the tasks, and to see their reactions to performing the tasks. This information will allow us to make any modifications necessary before using these exercises at AT&T assessment centers.

The first task will be performed today during the first session, and the three remaining exercises will be administered during the second experimental session. I will begin this session by asking you to complete a consent form required by the University for any project utilizing college students. Next you will be asked to complete a short demographic questionnaire. Please indicate your social security number in the top right hand corner of all pages. There is no reason to write your name on the papers because I do not need to know your names. Social security numbers are important in case the pages get separated.

#### **HAND OUT CONSENT FORM AND DEMOGRAPHIC QUESTIONNAIRE WAIT FOR SUBJECTS TO COMPLETE, AND COLLECT FORMS**

The first test is the LEAD, stands for Leadership Effectiveness and Adaptability Description. This is a paper and pencil measure of "management potential." The benefits of this measure is that it is easy to administer and score, and does not take that long to complete. But by far the greatest asset of this measure is it's predictive validity of future managerial performance. It has sizable validity coefficients, and is therefore a good predictor. Norms for

entry level managers have been developed, and your performance will lead to the development of college student norms.

#### HAND OUT TASK/REVIEW DIRECTIONS

Pretend that you are actually applying for a managerial position and that you want to work for AT&T. Do your best, and do not rush through the exercise. Take your time in answering the items, and think carefully about your responses. You may begin.

#### COLLECT TASK IN 20 MINUTES

Thank you for your help with this consulting project. I will now pass around a sign up sheet for the second session.

#### Session Two

Thank you for returning for the second session of the study. Remember the LEAD questionnaire you performed during the last session? I want to begin by telling you a little bit more about what the LEAD measures, how it is related to other management exercises and managerial performance. I will also describe how the test is scored.

After I tell you about the LEAD, you will be asked to perform 3 additional tasks during this second session: a managerial in-basket (Task 2), a math reasoning test (Task 3), and another managerial in-basket task (Task 4). You will be asked many questions about your perceptions of the tasks, their difficulty level, clarity of directions etc. This will allow us to modify and edit the exercises.

The reason I am telling you about the LEAD is because... First, most people find the task interesting and like to find out what the task measures. Second, giving students information about what the LEAD measures, makes them aware of what managerial skills are important to companies such as AT&T. This insures the students benefit from participating in the study as much as AT&T benefits. The student receives valuable information, and AT&T gets data on how college students perform on these managerial tasks. This way everyone benefits.

Next I would like to tell you a little bit more about what the LEAD is and why it is important. Because it has been found that changing leadership style to fit the situation is most effective in organizations (i.e., adaptability), this predictor is highly related to future performance. Superior managers are those who can adapt their decision making and leadership style to fit the special needs of the situation.

In fact, the correlation between performance on this test (LEAD) and future performance is .55. In addition, research has shown that leadership adaptability is highly correlated with the other managerial tasks, and especially the three tasks you will perform in this session. The correlation between the LEAD and the first in-basket task is .64, and the correlation between the LEAD and the second managerial task is .56. The correlation between the LEAD and the numerical reasoning task is .45.

The LEAD is scored in the following manner: Each option for the scenarios has been scaled for its effectiveness in dealing with the situation, and has a weight associated with it. Options that are most effective for dealing with the given situation are given large weights (i.e., 10), and options that are least effective for dealing with the situation are given small weights (i.e., 1). As you probably noticed, some scenarios are more difficult than others. The items are also scaled for difficulty. The effectiveness weight is multiplied by the item difficulty score, to produce the score for each item. The item scores of the 12 scenarios are then totaled to determine the leadership effectiveness and adaptability score. One's RAW LEAD score is then compared to percentile norms developed from the college students who have taken these tests.

Subjects not assigned to the expectancy control condition were told: I have scored your performance on the LEAD, and I am going to tell you how you scored. Most people like to receive feedback about their performance because they are interested in their management potential.

#### HAND OUT LEAD FEEDBACK

Your RAW score on the LEAD was \_\_\_\_\_ points out of 200 total points. This score places you at the \_\_\_\_\_ percentile compared to other entry level managers who have taken the



LEAD. The percentile score should be interpreted as: \_\_\_\_ percent of the people who took the LEAD performed worse than you. Conversely, it may be interpreted as you scored better than \_\_\_\_ percent of the people. Because the managerial tasks are highly intercorrelated, how you performed on the LEAD is a good indication of how you will perform on the upcoming managerial tasks. Therefore you can expect to do about as well on the upcoming tasks in this experimental session. Those assigned to the expectancy control group will not be told how they performed on the test.

Now I am going to explain how to complete task 2, a managerial in-basket task.

#### READ DIRECTIONS FOR IN-BASKET TASK

The in-basket is another measure of managerial potential used at assessment centers. The in-basket requires you to pretend you are a new manager, who must sort through a hypothetical in-basket, which contains memos, brief reports, social items etc. You must go through the basket and take the appropriate action to solve the problems presented. You may write memos, schedule meetings, delegate responsibility to a subordinate etc. You will be given thirty minutes to complete this exercise.

#### COLLECT IN-BASKET TASK AFTER THIRTY MINUTES

The in-basket exercise is scored on 6 managerial dimensions: Creativity/Sensitivity, Initiative/Decisiveness, Organization/Planning & Communication, Delegation/Management Control, Analysis/Judgement, Personal Impact/Work Standards. Because the in-basket task is very new to most college students, the in-basket you just performed will be considered a practice test, and I will give you information about your performance so you can perform better on the upcoming in-basket. You will then complete a short fifteen minute assignment while I am evaluating your performance. After I give you feedback about your performance, you will perform a measure of analytical ability and then a second in-basket task.

While I am scoring your in-basket task, which takes approximately 15 minutes, you will perform this short task which I will now explain. In our research we have found that some performance dimensions are more strongly related to overall managerial performance than other dimensions. Strong positive correlations indicate that those who perform well on that dimension also perform well on the job overall. Low/weak correlations indicate that those who perform well and those who perform poorly on the task do not perform better on the job overall. Those that are highly related (or have a high correlation) are considered important managerial dimensions, while those with low correlations are less important managerial dimensions.

#### HAND OUT DIAGNOSTIC VALUE MANIPULATION CHART

Listed below are the 6 dimensions assessed on the in-basket followed by the definitions of each dimension and the correlation with overall performance. Those dimensions with correlations above .30 are considered important managerial dimensions, while those dimensions with a correlation below .30 are considered relatively unimportant.

We are interested in college students' (or potential managers') explanations for why certain managerial dimensions are good predictors of managerial performance and other dimensions are poor predictors of managerial performance. This will lead us to better understanding the relationship between performance on in-basket exercises and overall managerial performance. Therefore, I am asking subjects to generate reasons why they think the dimensions with high correlations are good predictors, or are important components of a managers' job. Also, you will be asked to generate reasons why you think the dimensions with weak correlations are poor predictors, or are less important components of a managers' job. You will be given approximately 15 minutes to complete this task while I evaluate your performance on the in-basket.

#### RETURN IN 15 MINUTES WITH FEEDBACK

I am now going to give you feedback about your performance on the in-basket task. You will receive feedback about each of the 6 managerial dimensions. After I give you this feedback, you will be asked to perform two more tasks: a numerical abilities task, and another in-basket.

#### HAND OUT IN-BASKET SCORING FORM

This is the in-basket scoring sheet. You can read along with me as I explain your performance on each dimension.

The first dimension is Analysis.

**ANALYSIS** is the ability to identify and analyze problems. "You scored at the 81st percentile on this dimension which is ABOVE the norm. However, you could improve your performance by: relating information from multiple memos more effectively. What I mean is that you should integrate information from more than one memo in your analysis of the situations." This feedback delivery procedure will be followed for each of 6 dimensions.

You will now perform the third managerial test. AT&T is also interested in the relationship between numerical reasoning and managerial performance. Because managers must deal with budgets, forecasts etc., analytical reasoning is an important managerial skill. Therefore we are interested in determining the relationship between analytical ability and performance on the other management exercises.

#### ADMINISTER WPCT

##### COLLECT WPCT IN 10 MINUTES AND ADMINISTER FREE RECALL TASK

Before you perform the second 20 minute managerial task, we would like you to answer a few questions. First, we would like to see what candidates can remember about the feedback they received. Please recall everything you can about the in-basket feedback you just received. If you cannot remember exactly what was said, do the best you can.

##### COLLECT FREE RECALL IN 10 MINUTES

This next questionnaire contains 36 common suggestions that I tell students for how they can improve their performance. Some of these statements were presented to you and some were not. I would like you to circle yes for those you received and circle no for those you did not receive.

##### ADMINISTER RECOGNITION MEASURE AND COLLECT IN 5 MINUTES

This questionnaire asks you to rate the accuracy of the feedback you received for each of the performance dimensions.

##### ADMINISTER THE PERCEIVED ACCURACY MEASURE

These final questionnaires ask you about different aspects of what has happened so far. After you answer these questions you will perform the final in-basket task and then you can go. The second in-basket is shorter than the first one, so you will get out of here on time.

##### ADMINISTER MANIPULATION CHECKS

##### COLLECT MANIPULATION CHECKS

You will not be required to perform a second in-basket task during this session.

##### ADMINISTER DEBRIEFING

##### DISMISS SUBJECTS

**APPENDIX B**  
**CONSENT FORM**

### Department of Psychology

In this study, you will be asked to participate in two experimental sessions. The first session requires you to answer a few background questionnaires and complete one managerial assessment exercise. The first session will last approximately forty-five minutes. Each individual will be required to return individually for the second session, which will last approximately two hours. In the second study you will be asked to complete three additional management assessment exercises. The purpose of this study is to correlate your performance on the various managerial assessment tasks you will be performing in both sessions.

If you wish to participate please know that:

1. You may cease your participation at any time without penalty.
2. You will be given (x) credits toward your final grade for satisfactory completion of the study.
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 the research director of this project.
4. Due to a variety of factors, such as time pressure, experimental procedure, etc., the purpose of the study may not be fully explained at the outset. However, you may ask extensive questions at a later time.
5. If you would like a copy of this form, you may have one.
6. If you are interested in the final analysis of the results, they will be available from the research director in about 6 weeks. However, since individual data is anonymous and it will be analyzed as such, you will not be able to obtain information directly pertinent to any responses you make. Only a summary of the final data (i.e., average responses) will be available.

If you wish to participate, please SIGN YOUR NAME BELOW. Thank you.

Dr. Neil Hauenstein X-5716  
Research Director

Joanne Mac X-6851  
Graduate Assistant

Dr. Helen Crawford X-6520  
Human Subjects Committee  
SIGNED: \_\_\_\_\_

Chuck Waring X-5284  
Chair Institutional Review Board

SOCIAL SECURITY NUMBER: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

**APPENDIX C**  
**DEMOGRAPHIC QUESTIONNAIRE**

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

Gender: MALE FEMALE Major: \_\_\_\_\_

Year in School: FRESHMAN SOPHOMORE JUNIOR SENIOR

Number of Business Courses Taken (including summer session) \_\_\_\_\_

Please list them below: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please list the job titles for the last three Management Positions  
you have held, and the responsibilities associated with each position:

1) \_\_\_\_\_

\_\_\_\_\_

2) \_\_\_\_\_

\_\_\_\_\_

3) \_\_\_\_\_

\_\_\_\_\_

Have you ever worked for AT&T? YES NO

If so, what was your position and location \_\_\_\_\_

Have you ever participated in an assessment center? YES NO

How important is it for you to become a successful manager?

1	2	3	4	5	6	7
NOT AT ALL					VERY	
IMPORTANT					IMPORTANT	

**APPENDIX D**

**LEADERSHIP EFFECTIVENESS AND ADAPTABILITY DESCRIPTION**

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

### LEADERSHIP EFFECTIVENESS AND ADAPTABILITY DESCRIPTION

**DIRECTIONS:** Assume that you are selected to a middle-level manager position and in this new position you are involved in each of the following situations. Each situation has four alternative actions from which you are to choose one. THINK about what YOU would do in each circumstance. Then circle the letter of the alternative action which you think would most closely describe YOUR behavior in the situation presented. Circle only one choice. Remember, in responding to these situations, you should assume that you have been hired for the job. We want to know how you would handle these situations if we were to hire you.

---

**1. SITUATION:** Your subordinates are not responding to your friendly conversation and obvious concern for their welfare. Their performance is declining rapidly. YOU ...

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

**2. SITUATION:** The performance of your employees is increasing. You have been making sure that all employees are aware of their responsibilities and what you expect of them. YOU ...

- A. Engage in friendly interaction, but continue to make sure that all employees are aware of their responsibilities and your expectations.
- B. Take no definite action.
- C. Do what you can to make the group feel important and involved.
- D. Emphasize the importance of deadlines and responsibilities.

**3. SITUATION:** Your employees are unable to solve a problem themselves. You have normally left them alone. Group performance and interpersonal relations have been good. YOU...

- A. Work with the group and together engage in problem solving.
- B. Let the group work it out.
- C. Act quickly and firmly to solve the problem.
- D. Encourage your employees to work on the problem and you are supportive of their efforts.

**4. SITUATION:** You are considering a change. Your subordinates have a good record of accomplishment, but they respect the need for change. YOU ...

- A. Allow the employees to get involved in developing the change, and you avoid being too directive.
- B. Announce the changes and implement them with close supervision.
- C. Allow the employees to direct the change themselves.
- D. Listen to the input of your employees, but you direct the change.



5. SITUATION: You stepped into an efficiently run department. The previous administrator tightly controlled the situation. You want to maintain a productive situation, but would like to create a more pleasant working environment. YOU...

- A. Do what you can to make the employees feel important and involved
- B. Emphasize the importance of deadlines & responsibilities
- C. Intentionally do not intervene
- D. Get employees involved in decision-making, but directly make sure that objectives are met.

6. SITUATION: the performance of your employees has been dropping during the last few months. Employees have been unconcerned with meeting their objectives. Redefining their roles and responsibilities has helped in the past. They have continually needed prodding and reminding to get their jobs done on time. YOU...

- A. Allow them to make their own changes
- B. Incorporate their recommendations, but see that the changes are made yourself.
- C. Redefine their roles and responsibilities and supervise them carefully.
- D. Allow employees to be involved in determining their roles and responsibilities but you aren't too directive.

7. SITUATION: You are considering changing to a structure that will be new for your employees. Some employees have made suggestions about needed change. Overall, your employees have been productive and demonstrated flexibility in meeting objectives. YOU...

- A. Define the change and supervise carefully.
- B. Participate with the employees in developing the change, but allow employees to organize the implementation
- C. Are willing to make changes as recommended by your employees, but you maintain control of the implementation
- D. Avoid confrontation; leave things alone.

8. SITUATION: Group performance and interpersonal relations are good, but you feel somewhat unsure about the lack of direction you have given your employees. YOU ...

- A. Leave well enough alone
- B. Discuss the situation with your employees and then initiate the necessary changes.
- C. Take steps to direct your employees toward working in a well-defined manner.
- D. Allow group involvement in setting goals and you don't take a great deal of control in implementing the goal-setting program.

**9. SITUATION:** Your superior has appointed you to head a task force that is far overdue in making changes. Your employees are not clear on their goals. Attendance at planning sessions has been poor. Meetings have turned into social gatherings. Potentially the employees have the talent necessary to help. YOU...

- A. Let them work out their problems
- B. Incorporate group recommendations, but directly make sure that they are met.
- C. Redefine goals and supervise carefully.
- D. Allow group involvement in setting goals, and you don't take complete control.

**10. SITUATION:** Your subordinates, usually able to take responsibility, are not responding to your recent redefining of objectives. YOU...

- A. Allow group involvement in redefining objectives, but you don't take complete control.
- B. Redefine standards and supervise carefully
- C. Avoid confrontation by not applying pressure; leave the situation alone.
- D. Incorporate group recommendations, but directly see that objectives are met.

**11. SITUATION:** The previous supervisor was uninvolved in the affairs of the employees. The employees had adequately handled goals and objectives. Group inter-relations are good. YOU ...

- A. Take steps to direct employees toward working in a well-defined manner.
- B. Involve subordinates in decision-making and reinforce good contributions.
- C. Discuss past performance with employees and then you examine the need for new practices.
- D. Continue to leave the employees alone.

**12. SITUATION:** Recent information indicates some internal difficulties among subordinates. The group has a remarkable record of accomplishment. Members have effectively maintained long-range goals. They have worked in harmony for the past year. All are well qualified for their jobs. YOU ...

- A. Try out you solution on subordinates and examine the need for new practices.
- B. Allow employees to work things out themselves.
- C. Act quickly and firmly to improve relations.
- D. Participate in problem discussion with employees while providing them with support.

**APPENDIX E**  
**LEAD SCORING FORM**

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

### LEAD SCORING FORM

**SCORING OF LEAD:** Each option for the scenarios has been scaled for its effectiveness in dealing with the situation, and has a weight associated with it. Options that are most effective for dealing with the given situation are given the large weights (i.e., 10), and options that are least effective for dealing with the situation are given the small weights (i.e., 1). Some scenarios are more difficult than others, and each item is also scaled for difficulty. The effectiveness weight is multiplied by the item difficulty score, to produce your score for each item. The item scores of the 12 scenarios are then totaled to determine your leadership effectiveness and adaptability score.

Your RAW score on the LEAD was \_\_\_\_\_ points out of 200 points.

<u>Raw Score</u>	<u>Percentile Score Range</u>
190-200	95 - 100
160-189 (HIGH EXP)	80 - 94
130-159	65 - 79
70-129 (LOW EXP)	35 - 64
40-69	20 - 34
10-39	5 - 19
0-9	0 - 4

This score puts you at the \_\_\_\_\_ percentile.

Therefore, approximately \_\_\_\_\_ percent of college students who have completed the LEAD scored below you.

**APPENDIX F**  
**IN-BASKET TASK**

**Foreman's In-Basket****Instructions for participant**

You are Bill Donlin, an employee of the Sellsomore Manufacturing Company. You have worked in the Parts Distribution Warehouse #1 on the north side of town for five years in a variety of jobs, from picking merchandise off shelves to assigning merchandise to trucks and rail cars. For the last year you have been groomed by management for a foreman's position and have on several occasions substituted for foremen during their vacation periods.

Two weeks ago, Tom Early, foreman of the Packing Unit in Warehouse #3 on the south side of town, was in a serious automobile accident. Although he will probably survive, he is still in intensive care and it will be a very long time before he will be able to return to work. Bob Tomers, warehouse supervisor in Warehouse #3 called you yesterday (Friday) and offered you Tom's job. You immediately accepted the job, but explained to Bob that you had already paid for a one week Caribbean cruise for you and your spouse. The plane leaves today at 12:00 to take the two of you to Florida to meet the cruise ship. Since the trip is paid for and the two of you had been planning the trip as an anniversary vacation for a number of years, you asked if you could delay your reporting date one week until February 28.

Under the circumstances, Mr. Tomers agreed to your request but stated that your official starting date would be Monday, February 21, and you will be responsible for the Packing Unit starting that day. Until you report on the 28th, Jerry Fischer, a management trainee on temporary assignment from the home office, will fill in as foreman. He was given this temporary position as soon as it was learned of Tom's accident and has been covering for Tom for two weeks.

Although Mr. Tomers agreed to your vacation request, he made a request of you. He stated that things were not going well in the Packing Unit and said that he would appreciate your coming in before you left on your trip to look over the situation and give Jerry Fischer some advice. He estimated that you would have to spend no more than half an hour at your new desk.

It is now Saturday, February 19, and you are at your new desk. You will have thirty minutes to look over the material that Mr. Tomers and Jerry Fischer have left for you. At that time your spouse will pick you up and you will go directly to the airport to leave on your trip. The central switchboard is closed, so you cannot make phone calls. You must work alone, and you have access only to the materials which have been left for you. You want to do well to make a good impression on Mr. Tomers and the others in the warehouse. It is important that you let your associates know exactly what you plan to do with each item in the basket, so everything you do or plan to do should be in writing. In going through the items, you can write notes, memos, and letters; plan meetings; and make decisions. You should also plan all phone calls you intend to make regarding any of the items when you return in one week to your job. You may write directly on the items or use the supply of stationery which is provided. When using the stationery, clip any notes or letters you write to the items to which they refer.

#### SITUATION SUMMARY

1. You are Bill Donlin.
2. You have been asked to replace Tom Early who was in a serious car accident on February 4, 1988.
3. You will head the Packing Unit of Warehouse #3. Your previous experience with the company had been at Warehouse #1. You know no one in Warehouse #3.
4. Jerry Fischer began working as Early's temporary replacement on Monday February 8.
5. Fischer had been on the job two weeks at the time you stopped in today, Saturday, February 19.
6. You are at your desk today Saturday, February 19, and then out again until Monday February 28. However, your official starting date is Monday, February 21, and you are responsible for the unit beginning the 21st.
7. You cannot call or get in touch with anyone until your return on February 28.
8. Tomers called Fischer to ask him to stay for one more week after learning from you on Friday that you had made vacation plans for the coming week.
9. You have thirty minutes to work on the materials left for you.

# ORGANIZATION CHART

Sellsomore Manufacturing Company  
Parts Distribution Warehouse #3

G. Don Horn

General Mgr.- Parts Distribution

Bob Tomers

Susie Brown

Warehouse #3 - Supervisor

Secretary

Margaret Blomquist

Tom Early

H. Crispey

Van Carrier

Foreman  
Merchandise Unit

Foreman  
Packing Unit

Foreman  
Loading Dock

Foreman  
Transport Unit

Stn.

## Stock Clerks

M. Sumter  
C. Bronson  
G. Peters  
A. Yates  
C. Melley

## #1 Packers

1. Harold King  
2. Al Falk  
3. Keith Rogers  
4. Jane Conners  
5. Bill Sutton  
6. Pete Gannon  
7. Abel Walters  
8. Joel Murray  
9. Davey Fields  
10. John Forbes  
11. Marge Smith  
12. Len Hawkins  
13. Bob Nutley  
14. Judy Coates  
15. Ben Durnell  
16. Dick Crane  
17. Barb McGuire  
18. Don Sellers

## Loaders

Jay Steward  
Ray Phillips  
E. Howard

## Drivers

Ace Polski  
Pete Sipe  
Jack Brill

## Assigners

H. Brown  
V. Slade  
T. Law

## Transporters

Bryan Murray  
Steve Cox  
Jim Stanton



2/18/89

TO: B. Donlin

FROM: Jerry

Last Wednesday I had just gotten to work and was standing by the receiving dock. I glanced over at the time clock and noticed Ben Durnell punching in two time cards. He didn't notice me, and after he left I checked the two cards. One was for Davey Fields, who didn't arrive until 10:00 that day. I didn't say anything at the time because I was not sure how to handle it. I thought I'd let you take care of it.

I didn't want Davey to get paid for the two hours he didn't work so I sent a note to payroll telling them to deduct the money. What should I tell him when he gets his check next week?

Jerry

2/18/88

Bill,

I am afraid I've caused a problem. Today I noticed Harold King took an extra 10 minutes during his morning break. In the afternoon when I happened to see him return late again, I made a comment to him. I didn't mean to make a big thing out of it, but Harold got all upset. He said he is going to "take care of matters on Monday." What should I do?

Jerry

To: Jerry Fischer

Date: 2/15/88

From: Ralph Crispey, Loading dock

Subject: Accidents

---

We had another near accident yesterday when one of your transporters, B. Murray, tried to squeeze the last two boxes of shipment onto the dock before we could make the necessary space available. His fork lift bumped a box near the edge and it barely missed one of my loaders when it fell off the dock.

Your people should know the rules on overloading the dock. This is the second near miss like this in the past month. Do I have to go to Bob Tomers with this, or can you inform your people to know how to do the job properly?

R. Crispey

To: B. Donlin

From: Jerry

Thought you'd better see this. I couldn't find any indication that Tom Early had taken care of this problem before his accident. What should I do during the week you'll be out so we can get something to Tomers by his meeting on the 23rd?

INTRA-COMPANY CORRESPONDENCE

Attention of: Bob Tomers

G. Don Horn  
General Manager  
Parts Distribution

From: G. Don Horn

Date: January 28, 1988

---

Accounting informs me we are 15 % over last years figures on the cost of our packing materials. These figures have been adjusted for our increase in business volume this year as well as the materials cost increases.

Warehouse # 2 is under last year's figures. I think you'd better look into this so we can discuss it at our next staff meeting on March 1st. Our wastage must be up considerably.

Mr. Late  
Ms. Blomquist

Any evidence of increased wastage?

Bob T.

INTRA-COMPANY CORRESPONDENCE

Attention of:                      Bob Tomers                      G. Don Horn  
   General Manager  
From:                                      G. Don Horn                      Parts Distribution  
Date:                                      January 28, 1988

---

Bob -

I'd like you to investigate this for me. We can't afford even 1 letter like this one.

Tom 2/3

I suggest you have a heart to heart with Nutley on station # 13. Another one like this and he goes on warning.

Bob T.

2/18

Bill, I didn't think this could wait so I've made an appointment to see Nutley. How should I handle it?

Jerry

4320 - 41st Street  
New York, NY 11104  
212/784/0714

January 15, 1988

General Manager Parts Distribution  
Sellsomore Manufacturing Company  
Centerville, New Jersey 08978

Dear Sir:

My firm has been doing business with SMC for over 15 years, and we've always received good service. Recently, the quality of that service has decreased. I was going to call my sales representative for SMS, but decided to write you and get right to the source of the problem.

Not only are incorrect items being sent more frequently now, but also the incidence of broken or damaged goods seems to be on the rise. I don't know why your service has changed so much, but unless it is corrected, NOP will be forced to do business with a better outfit.

I'd appreciate hearing from you to learn what you plan to do about this. I'm returning several damaged items we recently received. They were packed by # 13. I believe # 13 was also responsible for an incorrect order we received last month.

Hope to hear from you.

Sincerely,

K. B. Yonker  
Vice President - Sales

To: Tom Early  
From: Bryan Murray  
Date: 2/2/88

I've spoken to you three times already about my fork lift. I'm afraid I can't be held responsible for any damage to our goods which result from the lift dropping the last foot. It has probably cost us a lot more in broken goods than it would be to fix the lift or even buy a new one. Stanton & Cox both have the newest lifts. How about doing something about it this time

2/3 Reminder: Discuss with Bryan next Monday TE

MEMO TO: B. Donlin

I called Crispey to apologize, but he said since you are Tom's permanent replacement I'd better be sure you see this. He said he didn't want a "college smart-guy" messing things up!

Jerry



From the desk of: B. Tomers

2/2/88

Tom,

What do you think? Sounds like a good product. I'll authorize it if you think we should try P-100. I'd like your recommendation.

Bob

2/18 -----B. Donlin

This was in Tom's in-basket. I thought you should handle it.

Jerry

P.S. Our packing materials supply is running low. Harold King, our senior packer, says we normally order 20 rolls of 1,000 yards each from Ready Rolls. Should I start the paperwork for Tomers' approval or should we try this new product? I can do it on Monday the 21st.

**PRO-TECT-MOR**

January 23, 1988

Mr. Bob Tomers  
Supervisor, Warehouse #3  
Sellsomore Manufacturing Company  
Centerville, New Jersey 08978

Dear Mr. Tomers:

I'd like to take this opportunity to introduce you to our most recent development in low-cost packing materials. Our research department has recently completed tests of Protex 100 (P-100). this new development is already saving dozens of firms such as yours thousands of dollars by virtually eliminating the possibility of breakage of merchandise packed with P-100. Our tests have demonstrated the superior quality of this product by direct comparisons with conventional brands.

As part of our introductory offer, we would like to ask that you try P-100 at a special reduced rate. We will sell you 100-yard rolls for only \$300.00 per roll, with a minimum order of 2 rolls. These rolls would normally sell at \$450.00 per roll.

We's appreciate hearing from you soon to confirm you order and add you to our growing list of satisfied, permanent customers. If you would like to place an order now, you may call (201) 321 - 7783 at any time and our sales representative will be glad to help you. These special rates will only apply to orders received by Friday, February 24, 1988.

We look forward to your business.

Sincerely,

John Pushing  
Regional Sales Manager

**APPENDIX G**  
**DIAGNOSTIC VALUE CHART**

### PERFORMANCE DIMENSIONS AND DIAGNOSTIC VALUES

Carefully read and study the definitions of each job dimension. Each dimension is followed by the correlation between that dimension and overall managerial performance. This correlation indicates the diagnostic value of the performance dimension, or the importance of the dimension in determining overall future managerial performance.

After you have learned the definitions of the performance dimensions assessed on the in-basket task, turn to page two. There you are asked to list reasons why you think the dimensions with high correlations ( $r > .3$ ) are good predictors of managerial performance, and dimensions with correlations ( $r < .3$ ) are poor predictors of future managerial performance.

- 1) ANALYSIS/JUDGEMENT is the ability to identify, analyze, and evaluate the pertinent information in determining the source of a problem, and to make sound decisions based upon available facts  $r = .42$
- 2) DELEGATION/MANAGEMENT CONTROL is the ability to effectively make work assignments to one's employees, and establish control procedures to monitor the results of delegated assignments.  $r = .04$
- 3) INITIATIVE/DECISIVENESS is the ability to actively influence events, achieve goals, and commit oneself to action to solve previously unnoticed problems.  $r = .46$
- 4) PLANNING, ORGANIZATION & COMMUNICATION is the ability to establish a course of action to accomplish a specific goal, and express plans clearly in writing.  $r = .10$
- 5) PERSONAL IMPACT & WORK STANDARDS is the ability to establish a course of action to accomplish a specific goal and express plans clearly in writing.  $r = .32$
- 6) CREATIVITY & SENSITIVITY is the ability to demonstrate imagination when dealing with management issues, and show consideration for the feelings and needs of others.  $r = .01$

**APPENDIX H**  
**DIAGNOSTIC VALUE TASK**

**GOOD PREDICTORS OF MANAGERIAL PERFORMANCE**

Listed below are the dimensions that are good predictors of managerial performance ( $r > .3$ ). For each dimension, generate two reasons why you think it is a good predictor of managerial performance.

**ANALYSIS/JUDGEMENT** ( $r = .42$ )

1) \_\_\_\_\_

2) \_\_\_\_\_

**INITIATIVE/DECISIVENESS** ( $r = .46$ )

1) \_\_\_\_\_

2) \_\_\_\_\_

**PERSONAL IMPACT & WORK STANDARDS** ( $r = .32$ )

1) \_\_\_\_\_

2) \_\_\_\_\_

**POOR PREDICTORS OF MANAGERIAL PERFORMANCE**

Listed below are the dimensions that are poor predictors of managerial performance ( $r < .3$ ). For each dimension, generate two reasons why you think it is a poor predictor of managerial performance.

**DELEGATION/MANAGEMENT CONTROL** ( $r = .04$ )

1) \_\_\_\_\_

2) \_\_\_\_\_

**PLANNING, ORGANIZATION, & COMMUNICATION** ( $r = .10$ )

1) \_\_\_\_\_

2) \_\_\_\_\_

**CREATIVITY & SENSITIVITY** ( $r = .01$ )

1) \_\_\_\_\_

2) \_\_\_\_\_

**APPENDIX I**  
**IN-BASKET FEEDBACK**

ID Number \_\_\_\_\_

Date \_\_\_\_\_

### MANAGERIAL IN-BASKET SCORING FORM

1) ANALYSIS/JUDGEMENT is the ability to identify, analyze, and evaluate the pertinent information in determining the source of a problem, and to make sound decisions based upon available facts

Your performance on this dimension was at the \_\_\_\_\_ percentile which is ABOVE / BELOW the norm.

However, you could improve your performance by:

---



---



---

2) DELEGATION/MANAGEMENT CONTROL is the ability to effectively make work assignments to one's employees, and establish control procedures to monitor the results of delegated assignments.

Your performance on this dimension was at the \_\_\_\_\_ percentile which is ABOVE / BELOW the norm.

However, you could improve your performance by:

---



---



---

3) INITIATIVE/DECISIVENESS is the ability to actively influence events, achieve goals, and commit oneself to action to solve previously unnoticed problems.

Your performance on this dimension was at the \_\_\_\_\_ percentile which is ABOVE / BELOW the norm.

However, you could improve your performance by:

---



---



---



4) PLANNING, ORGANIZATION & COMMUNICATION is the ability to establish a course of action to accomplish a specific goal, and express plans clearly in writing.

Your performance on this dimension was at the \_\_\_\_\_ percentile which is ABOVE / BELOW the norm.

However, you could improve your performance by:

---

---

---

5) PERSONAL IMPACT & WORK STANDARDS is the ability to establish a course of action to accomplish a specific goal and express plans clearly in writing.

Your performance on this dimension was at the \_\_\_\_\_ percentile which is ABOVE / BELOW the norm.

However, you could improve your performance by:

---

---

---

6) CREATIVITY & SENSITIVITY is the ability to demonstrate imagination when dealing with management issues, and show consideration for the feelings and needs of others.

Your performance on this dimension was at the \_\_\_\_\_ percentile which is ABOVE / BELOW the norm.

However, you could improve your performance by:

---

---

---

**APPENDIX J**  
**WESSMAN PERSONNEL CLASSIFICATION TEST**

**APPENDIX K**

**FREE RECALL MEASURE**

**WRITE DOWN EVERYTHING YOU CAN REMEMBER CONCERNING  
THE IN-BASKET PERFORMANCE FEEDBACK YOU JUST RECEIVED.**

**APPENDIX L**

**RECOGNITION MEASURE**

ID # \_\_\_\_\_ Date \_\_\_\_\_

The following is a list of 36 feedback statements which may or may not have been presented to you when you received your IN-BASKET feedback. For each statement, please circle YES to indicate the statement was presented to you, and NO to indicate the statement was not presented to you.

- |  |     |    |
|--|-----|----|
| 1. outlining specific steps for achieving goals                    | YES | NO |
| 2. being aware of subordinates' needs for guidance and direction   | YES | NO |
| 3. accurately identifying the source of the problem                | YES | NO |
| 4. making more decisions in the time available                     | YES | NO |
| 5. commanding respect from employees without alienating them       | YES | NO |
| 6. considering how the outside environment will impact decisions   | YES | NO |
| 7. implementing new procedures to prevent anticipated problems     | YES | NO |
| 8. effectively discriminating which assignments can be delegated   | YES | NO |
| 9. requesting progress reports for delegated assignments           | YES | NO |
| 10. considering the audience when writing memos                    | YES | NO |
| 11. inventing new policies and procedures to solve problems        | YES | NO |
| 12. combining information from multiple sources                    | YES | NO |
| 13. recommend new procedures rather than accepting<br>current ones | YES | NO |
| 14. committing yourself to action after making a judgement         | YES | NO |
| 15. communicating with others in an appropriate manner             | YES | NO |
| 16. communicating an atmosphere for success in your memos          | YES | NO |
| 17. actively monitoring employee progress on<br>delegated projects | YES | NO |

18. considering how your decisions impact the employees	YES	NO
19. delegating decisions to superiors and subordinates	YES	NO
20. communicating organizational goals to your employees	YES	NO
21. developing and implementing novel solutions to work related problems	YES	NO
22. establishing a professional relationship with your subordinates	YES	NO
23. identifying actual problems and potential problems	YES	NO
24. being flexible in how you relate to different people	YES	NO
25. going beyond obvious procedures to achieve goals	YES	NO
26. making decisions when limited information is available	YES	NO
27. communicating instructions to subordinates more clearly	YES	NO
28. establishing priorities for dealing with management issues	YES	NO
29. emphasizing in memos that you must be kept informed	YES	NO
30. delegating assignments to the appropriate subordinates	YES	NO
31. creating detailed timelines for achieving goals	YES	NO
32. gathering relevant information from many sources	YES	NO
33. composing memos in a more concise manner	YES	NO
34. clearly communicating performance expectations to your employees	YES	NO
35. communicating a sense of assurance in your memos	YES	NO
36. considering the feelings of others when making decisions	YES	NO

**APPENDIX M**  
**PERCEIVED ACCURACY MEASURE**



## QUESTIONNAIRE # 1

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

**DIRECTIONS:** PLEASE CIRCLE THE NUMBER THAT BEST ANSWERS EACH QUESTION.Using the scale below, please rate the **ACCURACY** of the feedback you received about your performance on each of the following dimensions:

	NOT AT ALL ACCURATE		SOMEWHAT ACCURATE			VERY ACCURATE				
	1	2	3	4	5	6	7			
1) ANALYSIS/JUDGEMENT				1	2	3	4	5	6	7
2) DELEGATION/MGMT CONTROL				1	2	3	4	5	6	7
3) INITIATIVE/DECISIVENESS				1	2	3	4	5	6	7
4) PLANNING/ORGANIZATION & COMMUNICATION				1	2	3	4	5	6	7
5) PERSONAL IMPACT & WORK STANDARDS				1	2	3	4	5	6	7
6) CREATIVITY & SENSITIVITY				1	2	3	4	5	6	7

**APPENDIX N**  
**MANIPULATION CHECKS**

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

## FINAL QUESTIONNAIRE

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

1) According to your feedback, how well did you perform on the LEAD?

1	2	3	4	5	6	7	DNR
well below average			average		well above average		Did not receive LEAD Feedback

2) You were provided with a "percentile score" for your performance on the LEAD. Which of the following best represents that percentile score

1	2	3	4	5	6	DNR
0-16	17-33	34-50	51-67	68-84	85-100	DID NOT RECEIVE SCORE

3) How well did you expect to perform on the IN-BASKET task?

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

4) To what extent did you try to perform well on the IN-BASKET task?

1	2	3	4	5	6	7
not hard at all					very hard	

5) How would you rate your general mood now, as opposed to when you entered the room prior to the experiment?

1	2	3	4	5	6	7
negative		neutral			positive	

6) Overall, to what degree do you accept the IN-BASKET feedback provided by the researcher as adequately reflecting your performance?

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

You were provided with a "percentile score" for your performance on 6 performance dimensions assessed on the in-basket. For each dimension, please indicate which of the following best represents that percentile score

	0-16	17-33	34-50	51-67	68-84	85-100	DID NOT RECEIVE PERCENTILE SCORE				
	1	2	3	4	5	6	DNR				
7) ANALYSIS/JUDGEMENT					1	2	3	4	5	6	DNR
8) DELEGATION/MGMT CONTROL					1	2	3	4	5	6	DNR
9) INITIATIVE/DECISIVENESS					1	2	3	4	5	6	DNR
10) PLANNING/ORGANIZATION & COMMUNICATION					1	2	3	4	5	6	DNR
11) PERSONAL IMPACT & WORK STANDARDS					1	2	3	4	5	6	DNR
12) CREATIVITY & SENSITIVITY					1	2	3	4	5	6	DNR

Using the scale below, please rate the Diagnostic Value of each dimension, or strength of the relationship between each of the following dimensions and overall managerial performance:

	WEAK RELATIONSHIP		MODERATE RELATIONSHIP			STRONG RELATIONSHIP					
	1	2	3	4	5	6	7				
13) ANALYSIS/JUDGEMENT					1	2	3	4	5	6	7
14) DELEGATION MGMT CONTROL					1	2	3	4	5	6	7
15) INITIATIVE/DECISIVENESS					1	2	3	4	5	6	7
16) PLANNING/ORGANIZATION & COMMUNICATION					1	2	3	4	5	6	7
17) PERSONAL IMPACT & WORK STANDARDS					1	2	3	4	5	6	7
18) CREATIVITY & SENSITIVITY					1	2	3	4	5	6	7

19) How accurate was the feedback you received about your performance on the LEAD?

1	2	3	4	5	6	7	DNR
not at all accurate			somewhat			very accurate	Did not receive LEAD Feedback

20) Overall, how accurate was the feedback you received about your performance on the IN-BASKET?

1	2	3	4	5	6	7	DNR
not at all accurate			somewhat			very accurate	Did not receive In-Basket Feedback

21) What was the main purpose of the study?

22) Were there any other purposes that you can think of? If so, what were they.

23) How credible was the researcher?

1	2	3	4	5	6	7
not credible at all						very credible

24) How realistic was the experimental cover story?

1	2	3	4	5	6	7
not realistic at all						very realistic

**APPENDIX O**  
**CONFIRMATION OF DEBRIEFING**

### CONFIRMATION OF DEBRIEFING

There was more to this study than you were told at the beginning. This is often necessary in certain experiments. We do not tell participants the full purpose at the beginning because this might affect the way people act, and would not be an indication of every day life.

This investigation was not funded by AT&T. Although the experimenter has worked for AT&T on other projects, this particular study is not affiliated with the AT&T assessment centers. The true purpose of the study was to study the effects of performance expectations on memory for performance feedback. The feedback you received about your performance on the LEAD (Task 1) was false. Therefore, the feedback you received in no way reflects your managerial potential. Your performance was never evaluated, and you were randomly assigned to an experimental condition. Those in the high and low expectation conditions were given positive and negative feedback respectively. This was designed to manipulate your performance expectations for the upcoming in-basket task. You probably thought that the performance data you received was real. This is a very normal response. In fact, we pretested this study to make sure people believed the feedback.

Your performance feedback on the in-basket (Task 2) was also false. Your performance was never evaluated, and every subject received the same experimental feedback, which contained both positive and some negative statements. This was done for standardization purposes. Again, this feedback was pretested to make sure subjects believed it was real.

### PLEASE READ THE FOLLOWING AND SIGN BELOW:

I understand that the purpose of this experiment was to examine memory for performance feedback. The experimenters were interested in what type of information a subordinate can remember after it is delivered in a performance appraisal session. A secondary purpose was to examine various reactions to feedback.

Most importantly, I realize the feedback I received from the LEAD and the in-basket was false. That is my performance on the LEAD (session 1) and the in-basket (session 2) was not evaluated, and the feedback was an experimental manipulation rather than a report of my true performance. Also, my name is immediately removed from all experimental materials so as to preserve confidentiality. All data is coded and analyzed by my number rather than by my name.

I understand that any discussion of this research with other students in my class could lead to the contamination of the results of this research, and I agree to refrain from discussing this research for at least 2 months.

SIGNED \_\_\_\_\_  
DATE \_\_\_\_\_

**APPENDIX P**  
**PERCENT RECALL SCORES FOR FEEDBACK STATEMENTS**



**PERFORMANCE DIMENSION  
& FEEDBACK STATEMENT**

**PERCENT  
RECALL SCORE**

**ANALYSIS & JUDGEMENT**

Accurately identify the source of the problem	.33
Combine information from multiple sources	.33
Gather relevant information from many sources	.32
Identify actual problems and potential problems	.27
Consider how your decisions impact the employees	.42
Consider how the outside environment will impact your decisions	.43

**DELEGATION & MANGEMENT CONTROL**

Delegate decisions to superiors and subordinates	.45
Effectively discriminate which assignments can be delegated	.37
Delegate assignments to the appropriate subordinates	.41
Request progress reports for delegated assignments	.36
Emphasize in memos that you must be kept informed	.36
Actively monitor employee progress on delegated projects	.41

**INITIATIVE & DECISIVENESS**

Make decisions when limited information is available	.43
Make more decisions in the time available	.29
Commit yourself to action after making a judgement	.38
Recommend new procedures rather than accepting current ones	.45
Implement new procedures to prevent anticipated problems	.30
Go beyond obvious procedures to achieve goals	.41

**PLANNING, ORGANIZATION & COMMUNICATION**

Establish priorities for dealing with management issues	.28
Create detailed timelines for achieving goals	.36
Outline specific steps for achieving goals	.45
Communicate instructions to subordinates more clearly	.33
Compose memos in a more concise manner	.52
Consider the audience when writing memos	.55

**PERSONAL IMPACT & WORK STANDARDS**

Command respect from employees without alienating them	.36
Communicate an atmosphere for success in your memos	.34
Establish a professional relationship with your subordinates	.34
Communicate a sense of assurance in your memos	.50
Communicate organizational goals to your employees	.33
Clearly communicate performance expectations to your employees	.33

**CREATIVITY & SENSITIVITY**

Consider the feelings of others when making decisions	.38
Communicate with others in an appropriate manner	.30
Be aware of subordinates' needs for guidance and direction	.41
Be flexible in how you relate to different people	.27
Invent new policies and procedures to solve problems	.30
Develop and implement novel solutions to work related problems	.27

**APPENDIX Q**  
**SUMMARY TABLES FOR MANIPULATION CHECK ITEMS**

Table Q-1

**ANOVA Table for Feedback Sign Manipulation Check: Subjects'**  
**Ratings of Percentile Score Received for Feedback Dimensions**

Source	DF	Mean Square	F-Ratio	Eta Square
<b><u>BETWEEN SUBJECTS</u></b>	45			
Expectancy (E)	2	.06	.19	.009
Residual	43	.31		
<b><u>WITHIN SUBJECTS</u></b>	138			
Diagnostic Value (D)	1	1.49	1.23	.03
DV x E	2	1.74	1.43	
Residual	43	1.22		
Feedback Sign (F)	1	219.41	176.71**	.80
F x E	2	.20	.16	
Residual	43	1.24		
D x F	1	.16	.13	
E x D x F	2	2.15	1.80	
Residual	43	1.20		

\*\*  $p < .01$

Table Q-2

ANOVA Table for Subjects' Expected Performance on the In-Basket

Source	DF	Mean Square	F-Ratio	Eta Square
Expectancy (E)	2	2.76	3.49*	.14
Error	43	.79		
Total	45	.87		

\*  $p < .05$

Table Q-3

**ANOVA Table for Diagnostic Value Manipulation Check: Subjects Ratings of Diagnostic Value for In-Basket Dimensions**

Source	DF	Mean Square	F-Ratio	Eta Square
<b><u>BETWEEN SUBJECTS</u></b>	45			
Expectancy (E)	2	7.38	1.25	.05
Residual	43	5.88		
<b><u>WITHIN SUBJECTS</u></b>	230			
Diagnostic Value (D)	1	340.56	69.66**	.61
DV x E	2	6.00	1.23	
Residual	43	4.89		
Feedback Sign (F)	2	24.71	21.16**	.32
F x E	4	1.51	1.30	
Residual	86	1.17		
D x F	2	15.70	16.13**	
E x D x F	4	1.80	1.85	
Error	86	.97		

\*\* p < .01

**APPENDIX R**  
**SUMMARY TABLES FOR DEPENDENT VARIABLES**

Table R-1

ANOVA Table for Number Specific Statements Recalled Transformed by:  
Log (N+ 1) with Original Expectancy Manipulation

Source	DF	Mean Square	F-Ratio	Eta Square
<u>BETWEEN SUBJECTS</u>	45			
Expectancy (E)	2	.13	.57	.03
Residual	43	.23		
<u>WITHIN SUBJECTS</u>	230			
Diagnostic Value (D)	1	1.86	12.76**	.22
DV x E	2	.11	.73	
Residual	43	.15		
Feedback Sign (F)	2	4.78	30.79**	.40
F x E	4	.15	.98	
Residual	86	.16		
D x F	2	.15	.98	
E x D x F	4	.46	3.05*	.12
Residual	86	.15		

\*  $p < .05$

\*\*  $p < .01$

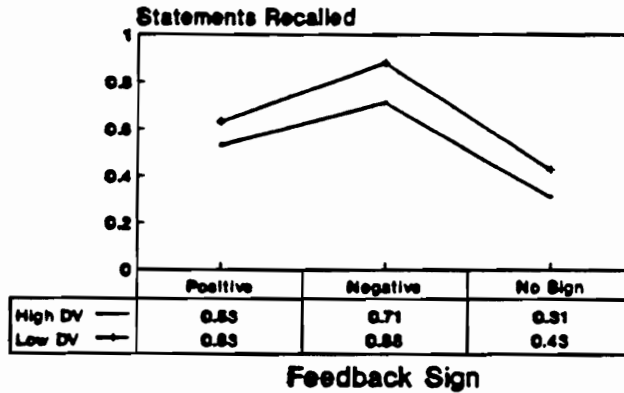


Table R-2

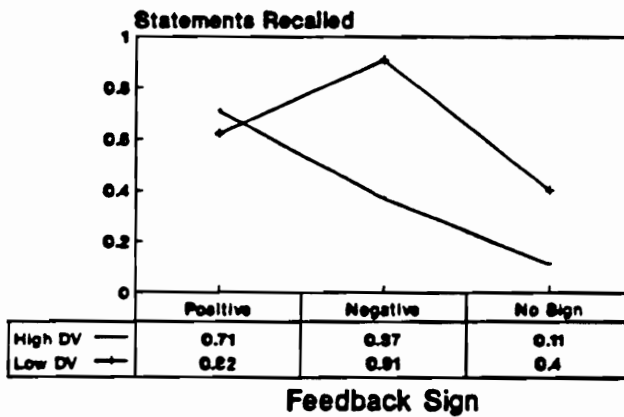
Log Transformed Data: Means of Specific Statements Recalled with Original Expectancy Manipulation

	Expectancy								
	High			Low			Control		
	(N = 16)			(N = 13)			(N = 17)		
	Feedback Sign								
Diagnostic Value	Pos	Neg	Con	Pos	Neg	Con	Pos	Neg	Con
High (SD)	.53 (.47)	.71 (.40)	.31 (.43)	.71 (.37)	.37 (.36)	.11 (.26)	.50 (.52)	.77 (.37)	.33 (.36)
Low (SD)	.63 (.47)	.88 (.27)	.43 (.35)	.62 (.57)	.91 (.21)	.40 (.40)	.85 (.43)	.84 (.46)	.27 (.39)

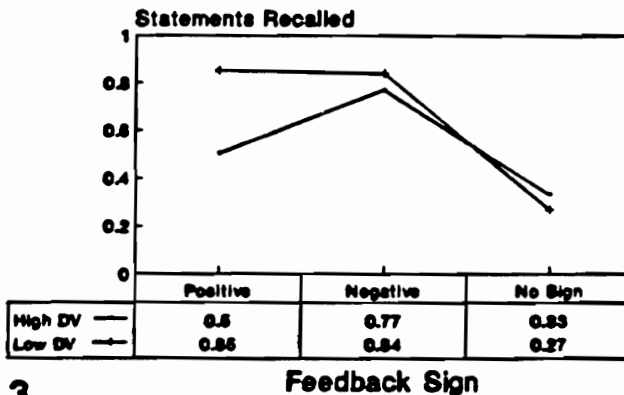
## High Expectancy (N = 16)



## Low Expectancy (N = 13)



## Control Expectancy (N = 17)



**Figure R - 3**  
**Log of Specific Statements Recalled with Original Expectancy Manipulation**

Table R-4

ANOVA Table for Number Specific Statements Recalled Transformed by:  
Log (N + 1) with Self-reported Expectancy

Source	DF	Mean Square	F-Ratio	Eta Square
<u>BETWEEN SUBJECTS</u>	45			
Expectancy (E)	1	.25	1.12	.03
Residual	44	.22		
<u>WITHIN SUBJECTS</u>	230			
Diagnostic Value (D)	1	1.69	11.51**	.21
DV x E	1	.04	.25	
Residual	44	.15		
Feedback Sign (F)	2	4.89	30.88**	.41
F x E	2	.01	.08	
Residual	88	.16		
D x F	2	.09	.52	
E x D x F	2	.15	.91	
Residual	88	.16		

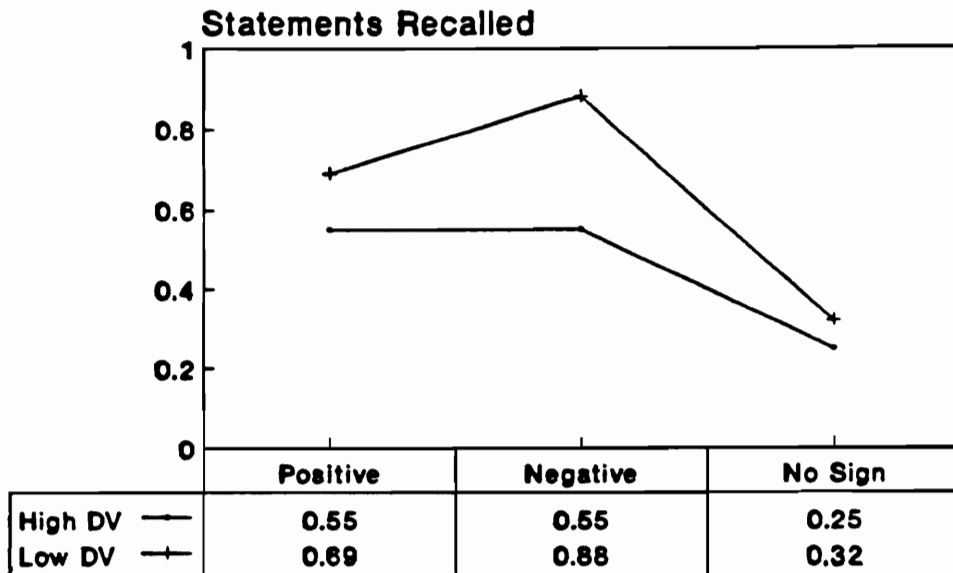
\*\*  $p < .01$

Table R-5

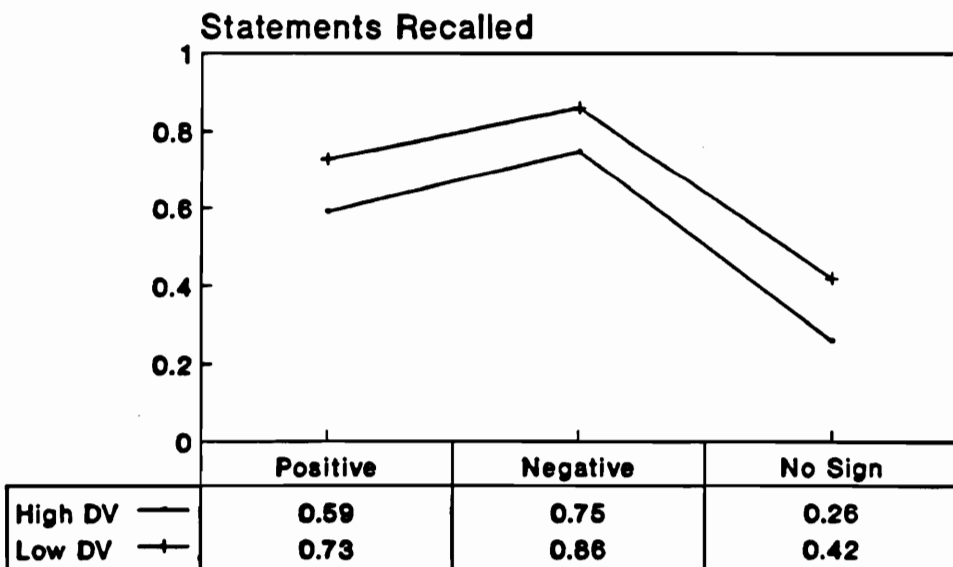
Log Transformed Data: Means of Specific Statements Recalled with  
Self-Reported Expectancy

Expectancy	Diagnostic Value					
	High			Low		
	Feedback Sign					
	Pos	Neg	Con	Pos	Neg	Con
High (n = 21) (SD)	.55 (.42)	.55 (.42)	.25 (.39)	.69 (.51)	.88 (.29)	.32 (.38)
Low (n = 24) (SD)	.59 (.52)	.75 (.37)	.26 (.34)	.73 (.47)	.86 (.39)	.42 (.38)

172  
**High Expectancy**  
 (N = 21)



**Low Expectancy**  
 (N = 24)



**Figure R - 6**  
**Log of Specific Statements Recalled with Self-Reported Expectancy**

Table R-7

ANOVA Table for Total Statements Recalled Transformed by: Log (N + 1)  
with Self-Reported Expectancy

Source	DF	Mean Square	F-Ratio	Eta Square
<u>BETWEEN SUBJECTS</u>	45			
Expectancy (E)	1	.25	1.12	.003
Residual	44	.03		
<u>WITHIN SUBJECTS</u>	230			
Diagnostic Value (D)	1	2.45	18.76**	.30
DV x E	1	.00	.03	
Residual	44	.13		
Feedback Sign (F)	2	5.30	28.83**	.40
F x E	2	.00	.00	
Residual	88	.18		
D x F	2	.05	.24	
E x D x F	2	.16	.82	
Residual	88	.19		

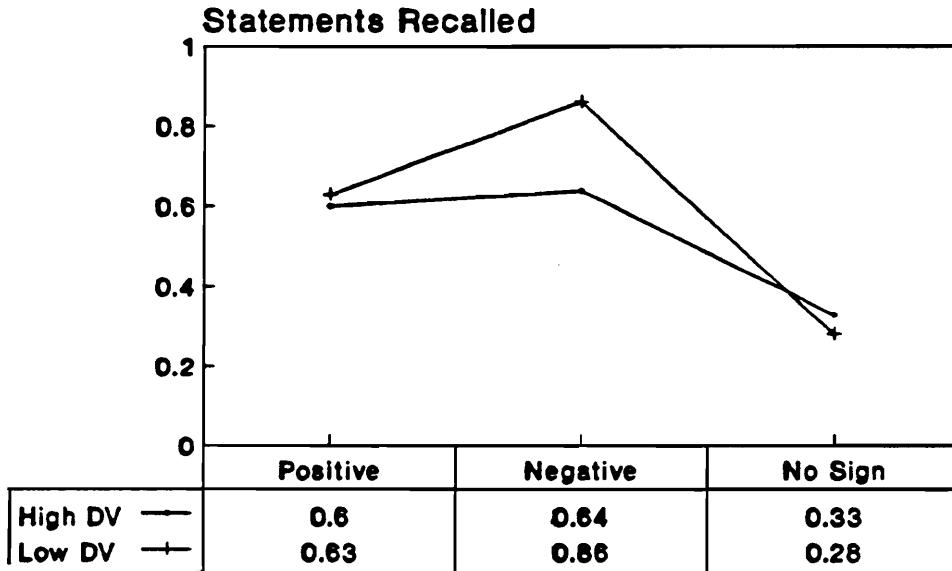
\*\*  $p < .01$

Table R-8

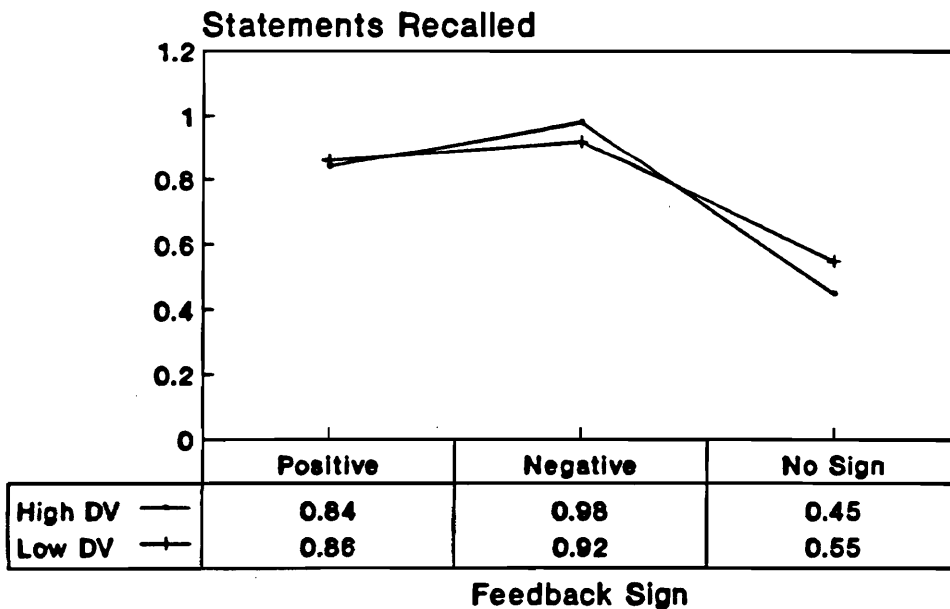
Mean Log Transformed Number of Total Statements Recalled with  
Self-Reported Expectancy

Expectancy	Diagnostic Value					
	High			Low		
	Feedback Sign					
	Pos	Neg	Con	Pos	Neg	Con
High (n = 21) (SD)	.60 (.44)	.74 (.42)	.33 (.40)	.84 (.47)	.98 (.33)	.45 (.43)
Low (n = 24) (SD)	.63 (.54)	.86 (.44)	.28 (.38)	.86 (.54)	.92 (.40)	.55 (.39)

## High Expectancy (N = 21)



## Low Expectancy (N = 24)



**Figure R - 9**  
**Log of Total Statements Recalled with Self-Reported Expectancy**



Table R-10

ANOVA Table for Memory Sensitivity Scores with Self-Reported Expectancy

Source	DF	Mean Square	F-Ratio	Eta Square
<hr/>				
<u>BETWEEN SUBJECTS</u>	45			
Expectancy (E)	1	14.87	2.57	.06
Residual	44	5.78		
<u>WITHIN SUBJECTS</u>	230			
Diagnostic Value (D)	1	6.76	2.29	.05
DV x E	1	.07	.00	
Residual	44	2.95		
Feedback Sign (F)	2	1.42	.68	.01
F x E	2	3.56	1.70	
Residual	88	2.09		
D x F	2	4.05	1.38	
E x D x F	2	.80	.00	
Residual	88	2.94		

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

Table R-11

Mean Memory Sensitivity Scores with Self-Reported Expectancy

Expectancy	Diagnostic Value					
	High			Low		
	Feedback Sign					
	Pos	Neg	Con	Pos	Neg	Con
High (n = 21) (SD)	.78 (.17)	.80 (.17)	.76 (.18)	.71 (.18)	.76 (.18)	.78 (.18)
Low (n = 24) (SD)	.87 (.15)	.84 (.16)	.78 (.19)	.80 (.19)	.80 (.19)	.79 (.17)

Table R-12

ANOVA Table for False Alarm Rates with Self-Reported Expectancy

Source	DF	Mean Square	F-Ratio	Eta Square
<b><u>BETWEEN SUBJECTS</u></b>				
	45			
Expectancy (E)	1	.49	2.85	.06
Residual	44	.17		
<b><u>WITHIN SUBJECTS</u></b>				
	230			
Diagnostic Value (D)	1	.69	9.28**	.17
DV x E	1	.01	.10	
Residual	44	.07		
Feedback Sign (F)	2	.33	5.08**	.10
F x E	2	.10	1.50	
Residual	88	.07		
D x F	2	.39	7.54**	.15
E x D x F	2	.01	.19	
Residual	88	.05		

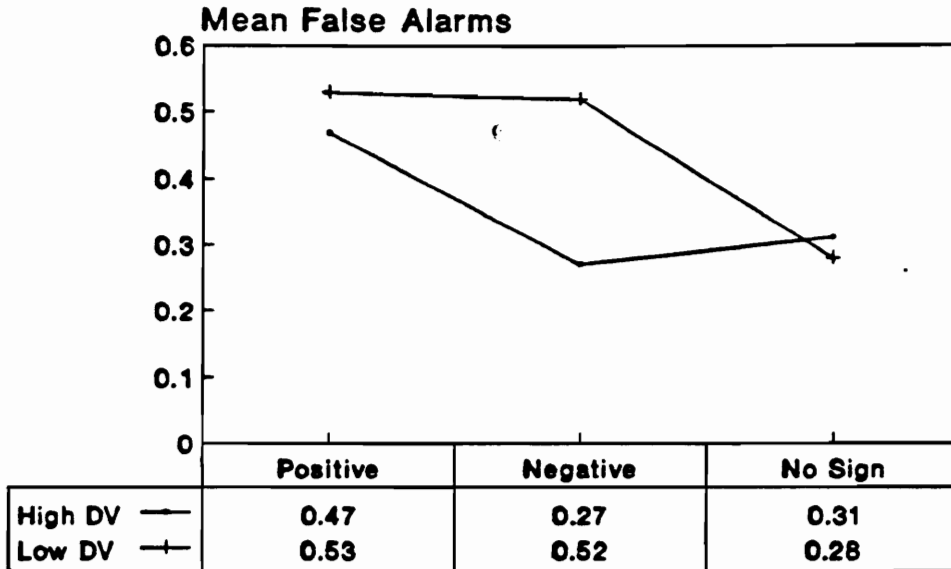
\*\*  $p < .01$

Table R-13

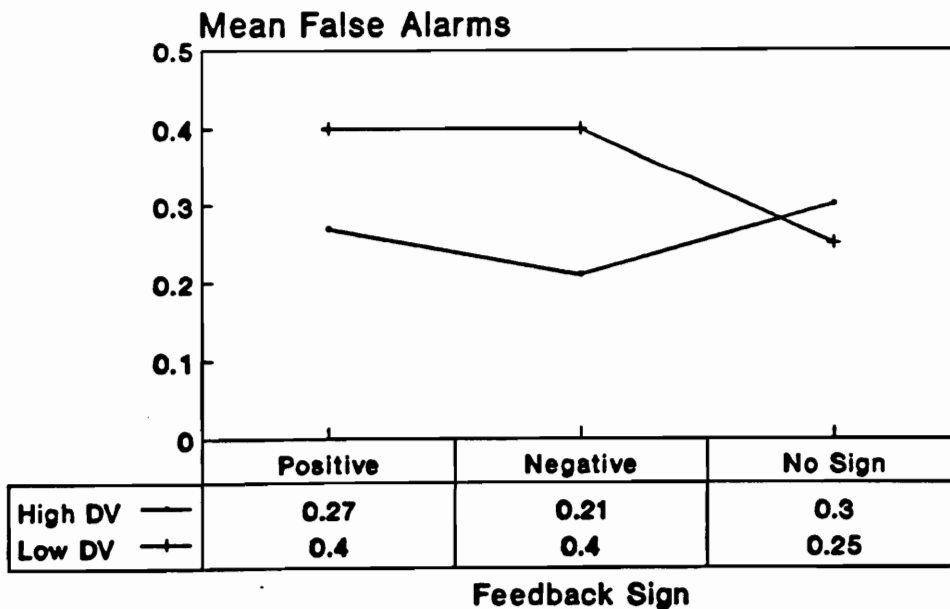
Mean False Alarm Rates with Self-Reported Expectancy

Expectancy	Diagnostic Value					
	High			Low		
	Feedback Sign					
	Pos	Neg	Con	Pos	Neg	Con
High (n = 21) (SD)	.47 (.26)	.27 (.26)	.31 (.30)	.53 (.29)	.52 (.29)	.28 (.29)
Low (n = 24) (SD)	.27 (.27)	.21 (.22)	.30 (.32)	.40 (.33)	.40 (.31)	.25 (.23)

## High Expectancy (N = 21)



## Low Expectancy (N = 24)



**Figure R - 14**  
**Mean False Alarm Rates with Self-Reported Expectancy**

Table R-15

ANOVA Table for Perceived Accuracy Ratings with Self-Reported Expectancy

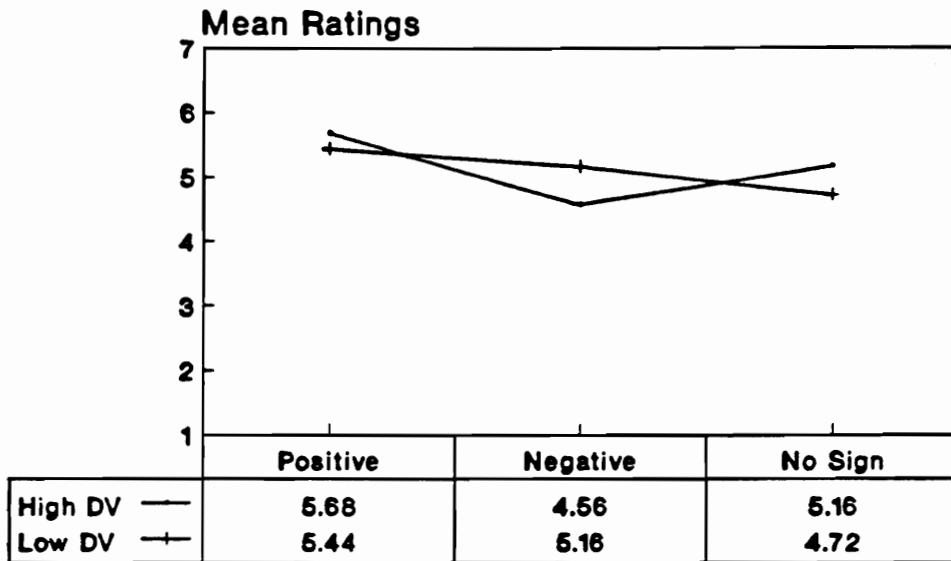
Source	DF	Mean Square	F-Ratio	Eta Square
<u>BETWEEN SUBJECTS</u>				
	45			
Expectancy (E)	1	8.78	2.93	.06
Residual	44	2.99		
<u>WITHIN SUBJECTS</u>				
	230			
Diagnostic Value (D)	1	1.35	1.28	.03
DV x E	1	.88	.84	
Residual	44	1.05		
Feedback Sign (F)	2	14.89	12.48**	.22
F x E	2	1.23	1.04	
Residual	88	1.19		
D x F	2	4.97	6.16**	.12
E x D x F	2	.20	.25	
Residual	88	.81		

\*\*  $p < .01$

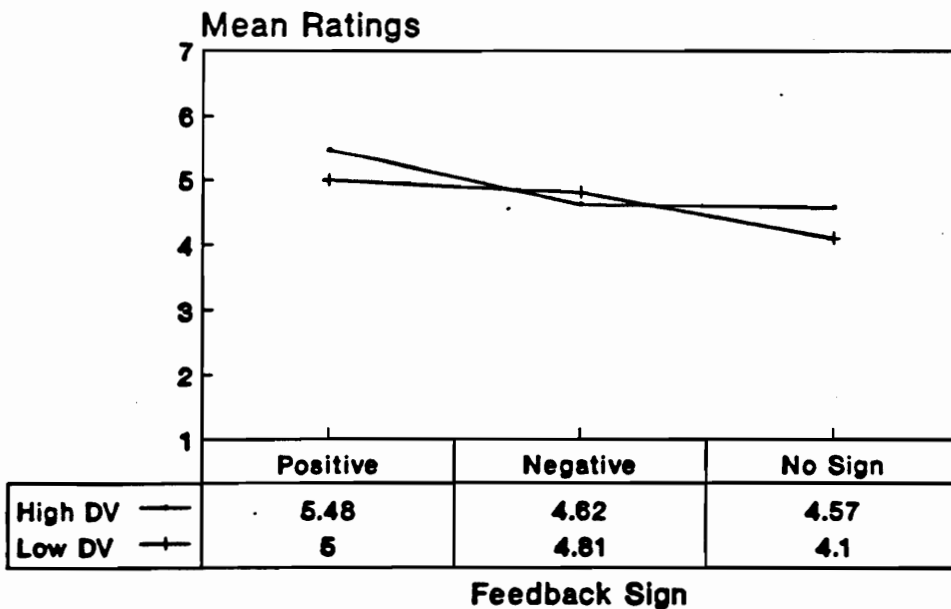
**Table R-16**  
**Mean Ratings of Perceived Accuracy with Self-Reported Expectancy**

Expectancy	Diagnostic Value					
	High			Low		
	Feedback Sign					
	Pos	Neg	Con	Pos	Neg	Con
High (n = 21) (SD)	5.68 (.63)	4.56 (1.53)	5.16 (1.10)	5.44 (1.08)	5.16 (1.34)	4.72 (1.13)
Low (n = 24) (SD)	5.48 (1.03)	4.62 (.97)	4.57 (1.07)	5.00 (1.14)	4.81 (1.32)	4.10 (1.22)

## High Expectancy (N = 21)



## Low Expectancy (N = 24)



**Figure R - 17**  
**Mean Ratings of Feedback Accuracy with Self-Reported Expectancy**



## VITA

### JOANNE M. DONLIN

#### Home Address

17 West Hanover Avenue  
Morris Plains, NJ 07950  
(201) 829-7120

#### Office Address

AT&T  
295 North Maple Avenue Rm 7129L3  
Basking Ridge, NJ 07920  
(201) 221-8959

#### PERSONAL DATA

Date of Birth: November 13, 1962  
Place of Birth: Denville, New Jersey  
Marital Status: Married, no children  
Social Security Number:

#### EDUCATION

- 1990      **Ph.D.** Virginia Polytechnic Institute and State University  
(Industrial/Organizational Psychology)
- DISSERTATION: Memory for Performance Feedback: A  
Test of Three Self-Motivation Theories**
- 1987      **M.S.** Virginia Polytechnic Institute and State University  
(Industrial/Organizational Psychology)
- THESIS: The Role of Self-Esteem and Self-Presentation Concerns  
on Reactions to Performance Feedback: A Preliminary Model.**
- 1985      **B.A.** Rutgers University - Rutgers College  
(Psychology) New Brunswick, New Jersey

#### ACADEMIC EXPERIENCE

- 9/88 - 5/89      Instructor - Department of Psychology, VPI.  
Responsible for teaching two Undergraduate Courses in  
Social Psychology. Lectured, Prepared & Graded Exams.

- 11/87 - 5/88      Graduate Lab Instructor - Department of Psychology, VPI. Responsible for teaching an Undergraduate Lab in Social Psychology. Designed and Conducted Experiments, Lectured, Analyzed Data, and Graded Lab Reports.
- 9/85 - 10/87      Graduate Teaching Assistant - Department of Psychology. Served as Teaching Assistant for the following courses: History and Systems of Psychology, Human Learning, Psycholinguistics, Sensation and Perception.

### **APPLIED EXPERIENCE**

- 9/89 - present      Research Analyst - AT&T, Basking Ridge, NJ 07920. Responsible for designing & analyzing customer satisfaction surveys for telecommunications services & internal employee services.
- 5/88 - 9/88      Summer Intern - AT&T - Responsible for Designing an In-House Organizational Development (OD) Consulting Group. Evaluated OD Resources Internal and External to AT&T, Wrote Job Descriptions for the OD Group & Recommended an OD Consulting Process.
- 6/87 - 9/87      Summer Intern - AT&T - Responsible for Designing the Human Resource Planning Process for the CM&S Organization. Researched and Analyzed Key Human Resources Issues, and Wrote the 1988 Strategic Human Resources Plan.

### **PROFESSIONAL AND RESEARCH PAPERS**

- Donlin, J.E., & Hauenstein, N. M. (1990). Memory for Performance Feedback: A Test of Three Self-Motivation Theories. Paper to be presented at the American Psychological Association Conference, Boston, MA.
- Mac, J.E., & Baumgardner, A.H. (1988). The Role of Self-Esteem and Self-Presentation in Reactions to Performance Feedback. Paper Presented at the American Psychological Association Conference, Atlanta, Georgia.
- Mac, J.E., Kalsher, M.J., & Rudd, J.R. (1986). Direct Versus Indirect Rewards for Promoting Safety Belt Use on a University Campus. Paper presented at the Virginia Academy of Science Convention, Harrisonburg, VA.

## MANUSCRIPTS IN PREPARATION

Donlin, J.E., & Hauenstein, N. M. (1990). Memory for Performance Feedback: A Test of Three Self-Motivation Theories.

Donlin, J.E. & Hauenstein, N. (1989). A Social Cognition Approach to the Perceived Fairness and Accuracy of Performance Appraisal Systems.

Donlin, J.E., & Baumgardner, A.H. (1988). The Role of Self-Esteem and Self-Presentation in Reactions to Performance Feedback.

## RELEVANT GRADUATE COURSES

Personnel	Human Resource Management
Criterion Development	Leadership
Work and Motivation	Field Research Design
Research Methods	Multivariate Statistics
Multiple Regression	Test Theory & Measurement
Job Analysis	Social Cognition
Social Psychology	Information Processing

## TEACHING INTERESTS

Organizational Behavior	Personnel
Research Methods	Performance Appraisal

## PROFESSIONAL AFFILIATIONS

American Psychological Association

## REFERENCES

Dr. Ann H. Baumgardner, Assistant Professor of Psychology, Michigan State University, East Lansing, MI, 48824-1117  
(517) 355-5255

Dr. Roseanne J. Foti, Assistant Professor of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, 24061 (703) 231-5814

Dr. Neil Hauenstein, Assistant Professor of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, 24061 (703) 231-5716

*Joanne MacDonlin*