To the Graduate Council:

I am submitting herewith a dissertation written by Tammy Dawn Allen entitled "Examining the Effects of Performance Beyond Role Requirements: A Field and Laboratory Study." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Industrial/Organizational Psychology.

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We have read this dissertation
and recommend its acceptance:

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Accepted for the Council:

Associate Vice Chancellor and
Dean of The Graduate School

EXAMINING THE EFFECTS OF PERFORMANCE BEYOND ROLE REQUIREMENTS: A FIELD AND LABORATORY STUDY

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Tammy Dawn Allen

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DEDICATION

This dissertation is dedicated to Mark and Ethan

who bring joy, inspiration, and meaning to me each and every day.

Through them I experience the truly important parts of life.

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ABSTRACT

The purpose of this study was to extend existing theoretical and empirical knowledge regarding the processes whereby extrarole performance influences performance judgments. Two existing overarching theoretical perspectives were posed as useful frameworks for understanding how extrarole performance impacts overall evaluation and reward recommendations. Moreover, several variables thought to mediate and moderate the relationship between extrarole performance and the dependent measures were investigated.

A number of specific hypotheses were proposed. Extrarole performance was predicted to add to the variance associated with the outcome measures above and beyond the variance contributed by in-role performance. The relationship between the dependent variables and extrarole performance was also hypothesized to vary as a function of the level of in-role performance. Liking, perceived affective commitment, and the causal motive attributed to the extrarole behavior were predicted to mediate the relationship between extrarole performance and the outcome measures after controlling for in-role performance. Job expectations were predicted to moderate the relationship between extrarole performance and liking and the relationship between extrarole performance and perceived affective commitment. Finally, it was predicted that ratee gender would moderate the relationship between extrarole performance and the dependent measures after controlling for in-role performance.

A field and laboratory study were conducted. The field study consisted of managers who rated the performance and reported their perceptions regarding 148 subordinates. Participants in the laboratory study consisted of 136 students who participated in one of eight experimental conditions. Participants viewed and then rated a videotaped segment of teaching performance that consisted of either a male or a female

instructor exhibiting either high or low in-role performance and exhibiting either high or low extrarole performance.

Several convergent results were found across the lab and field study. In both studies, extrarole performance added to the prediction of overall evaluation and reward recommendations above and beyond that of in-role performance. Additionally, in both studies, interaction effects were suggested between in-role and extrarole performance. The results of both studies also indicated that liking and perceived affective commitment mediate the relationship between extrarole performance and overall evaluation.

The field study also afforded the opportunity to examine the effects of the motive attributed by the manager for the employee's extrarole behavior. The results indicated that causal motive mediated the relationship between extrarole performance and overall evaluation. Post hoc results of the field study also revealed that perceived affective commitment and altruistic causal motives moderated the relationship between extrarole performance and reward recommendations. No effects were found for job expectations or ratee gender in either study. Limitations to the research, theoretical and practical implications, and directions for future research are also presented.

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CHAPTER 1

INTRODUCTION

Performance evaluations have traditionally focused on appraising a job incumbent's role-prescribed task performance. Task performance is the proficiency with which incumbents perform the activities that are formally recognized as part of their job. However, it is also commonly accepted that organizations need employees who are willing to exceed their formal job requirements (Barnard, 1938; Katz & Kahn, 1978). Behavior that exceeds prescribed job requirements is denoted by constructs such as organizational citizenship behavior (Bateman & Organ, 1983; Smith, Organ, & Near, 1983) and prosocial behavior (Brief & Motowidlo, 1986). These constructs are encompassed under the umbrella of "extrarole" performance and include behavior such as constructive or cooperative gestures that are neither mandatory in-role behavior nor directly or contractually compensated for by formal organizational reward systems, but that enhance the effective functioning of the organization (e.g., volunteering to do extra work that is not formally part of the job; persisting with extra effort to complete a task) (Borman & Motowidlo, 1993; Organ & Knovosky, 1989).

Although extrarole performance is not formally recognized as relevant criteria in performance appraisal systems, recent research indicates that managers do *informally* consider extrarole performance in their evaluations. These studies indicate that both task performance and extrarole performance contribute independently to overall performance evaluations and that supervisors perceive extrarole behaviors to contribute to the value of an employee's performance (Borman, White, & Dorsey, 1995; MacKenzie, Podsakoff, & Fetter, 1991; Motowidlo & Van Scotter, 1994; Orr, Sackett, & Mercer, 1989; Werner, 1994). In fact, it has been suggested that beyond a minimal level of task performance, many managers may place more value on extrarole performance factors than on outstanding in-role performance (Organ, 1977; Schnake, 1991).

Despite the recognition that the occurrence of extrarole performance is critical to organizational effectiveness and the recent research indicating that this class of behavior informally influences managerial evaluations, the empirical literature lacks any systematic investigation of the psychological processes that govern this phenomenon. This area of inquiry is critical to extending theory in the area of performance appraisal and to better understanding reward allocation decisions. Accordingly, the purpose of the present research is to examine how varying levels of in-role (i.e., task) and extrarole performance impact overall performance evaluations and the recommendation of rewards. More importantly, this research explores several theoretical perspectives as to why these effects occur and attempts to identify psychological factors that moderate and mediate these effects.

To address these issues, this research has a number of objectives. First, this investigation examines the extent that liking for the ratee and perceived organizational commitment mediate the relationship between extrarole performance and the dependent variables of overall evaluations and reward recommendations. Previous research has found that liking is positively related to traditional performance evaluations (e.g., Cardy & Dobbins, 1994a). It is expected that extrarole performance triggers positive affect for a ratee and subsequently leads to more favorable evaluations and reward recommendations. Additionally, recent research has found that perceived organizational commitment is positively related to reward recommendations (Allen & Russell, 1995; Allen, Russell, & Rush, 1994). Similar to liking, it is expected that extrarole performance positively influences manager perceptions of an employee's affective commitment to the organization and hence results in more favorable performance judgments.

The study also examines individual expectations with regard to extrarole performance. Recent research has indicated that managerial views regarding what is expected in-role behavior and what is considered above and beyond the call of duty

varies across persons (Morrison, 1994). It is hypothesized that to the extent that an individual views the set of behaviors traditionally classified as extrarole as an expected part of everyday performance, the less "added value" extrarole behavior will have in terms of influencing liking and perceived affective commitment. That is, if extrarole performance is viewed as expected job behavior, it will have less of an impact than if it is viewed as extraordinary.

Another objective of this investigation is to examine how the perceived motive for extrarole performance impacts evaluations and reward recommendations. Ingratiation or political tactics and extrarole performance share common characteristics (Eastman, 1994). Managers may attribute the occurrence of extrarole performance to different causes or motives. The dissertation develops a theoretical line of reasoning that these distinctions lie along two dimensions. The motive to perform extrarole behavior may be attributed to altruistic causes (e.g., the performer cares about and wants to help others) or the behaviors may be attributed to instrumental motives (e.g., the performer wants to look good to his or her manager). It is proposed the motive attributed to the extrarole behaviors will mediate the relationship between extrarole performance and the dependent measures. Ratees whose extrarole performance is perceived as instrumental in nature will receive less favorable evaluations and reward recommendations than individuals whose extrarole performance is seen as altruistic.

Finally, another objective of the dissertation is to investigate whether or not the relationship between extrarole performance and overall evaluation varies as a function of the ratee's gender. For example, stereotypes regarding men and women may result in different evaluations and expectations regarding the performance of extrarole behavior. Further, societal norms regarding appropriate behavior for males and females may result in differential value placed on the occurrence of the behavior depending on whether the ratee is male or female. These differences may be reflected in overall evaluations and

reward recommendations. It is expected that extrarole performance by a male will have a greater enhancing effect on overall evaluations and reward recommendations than will extrarole performance by a female.

Two studies, a field study, and a laboratory experiment were conducted to examine the hypotheses of interest. The use of two designs provides a rigorous and comprehensive investigation that considers both internal and external validity. More importantly, since many of the hypotheses of interest deal with perceptual variables, the lab study provides the opportunity to study the relationships of interest based on controlled objective levels of in-role and extrarole performance. The laboratory experiment consisted of asking students to view and rate examples of teaching performance where ratee gender, levels of extrarole performance, and levels of in-role performance were manipulated. In the field study, managers were asked to provide performance data and other evaluative information regarding subordinates.

The results of this research should have a number of implications for both theory and practice. This research should extend theoretical development in the area of performance appraisal by further delineating the processes influencing raters when evaluating performance and allocating organizational rewards. Further, as the face of the workforce continues to change, it continues to be important to examine how demographic variables effect evaluations and reward decisions. Finding differences in the patterns of how extrarole performance is considered for men and women implies that the judgments associated with rating men and women differ. Consequently, the results of this study may help explain the disparity that continues to exists between men and women with regard to career and salary progression.

As noted by Podsakoff and MacKenzie (1993), if extrarole behavior is an important component of measures of performance, it is vital that employees understand this, or it may undermine employee motivation, reduce employee satisfaction, or decrease

perceptions of fairness. The results of this study may help practitioners develop improved performance evaluation systems that consider individual performance beyond traditional task activities and that are better accepted by organizational constituents. Although hundreds of studies have been conducted examining performance appraisal issues, human resource professionals still cite the area of performance appraisal as one of the most problematic in the field (Bernardin & Russell, 1993). Advising employees that extrarole performance is a component of evaluation and reward decisions may strengthen perceived fairness and satisfaction with the system. A fair and valid system for evaluating performance and allocating organizational rewards is one of the most critical components of effective human resource management. Finally, a better understanding of extrarole performance may help in gathering useful information relevant to improving career development systems. If extrarole performance is related to the allocation of organizational rewards, then the implications for career outcomes should be presented to employees.

CHAPTER 2

REVIEW OF THE LITERATURE

Most work in the area of performance evaluation has focused on task-relevant or role-prescribed behavior (Borman & Motowidlo, 1993). However, there has been a growing interest in examining the social, situational, and affective context of performance evaluation decisions (Cardy & Dobbins, 1986; Dipboye, 1985; Ferris, Judge, Rowland, & Fitzgibbons, 1994; Judge & Ferris, 1993). Additionally, recent research has revealed that organizational citizenship or extrarole behavior plays an important part in performance evaluations (e.g., MacKenzie et al., 1991; Orr, Sackett, & Mercer, 1989; Werner, 1994). In concert, the results of these lines of inquiry suggest that raters are influenced by multiple factors in addition to task behavior when evaluating performance.

Despite the growing interest in examining the influence of extrarole behaviors on performance evaluation, little research has gone beyond demonstrating that the effect occurs. That is, additional work is needed to address what processes may underlie the impact that extrarole performance has on evaluations. Moreover, research is needed to examine other consequences of demonstrating extrarole behaviors. Specifically, since performance evaluations are typically used as a basis for administrative decisions, the variables that impact performance evaluations are also likely to impact managerial judgments such as reward allocation decisions (e.g., promotions, salary increases). What follows is a review of the literature that has investigated the impact of extrarole performance, two overarching theoretical frameworks for examining the impact of extrarole performance, and a review of each of the factors proposed to influence the relationship between extrarole performance and the two outcome variables under study, overall evaluation and recommendations for organizational rewards.

Aspects of Performance

Performance evaluations have traditionally consisted of appraising a job incumbent's role-prescribed task performance. Task performance is the proficiency with which incumbents perform the activities that are formally recognized as part of their jobs. Researchers have suggested however, that the field turn attention to other types of performance variables (Staw, 1984). Hence, constructs such as organizational citizenship behavior (Smith, Organ, & Near, 1983; Bateman & Organ, 1983) and prosocial behavior (Brief & Motowidlo, 1986) are currently receiving substantial attention in the literature.

Though the concepts of organizational citizenship behavior and prosocial behavior differ from each other, they both denote various individual behaviors that contribute to the organization but do not inhere in more traditional definitions of performance. Instances of both represent constructive or cooperative gestures that are neither mandatory in-role behavior nor directly or contractually compensated for by formal organizational reward systems (Organ & Knovosky, 1989). Borman and Motowidlo (1993) used elements of both of these concepts and coined the term contextual performance. The authors explicate that contextual activities differ from task activities in that they are not likely to be role-prescribed and include behaviors such as volunteering to do extra work that is not formally part of the job and persisting with extra effort to complete a task. Figure 2.1 illustrates the differences between contextual activities and task activities, while Figure 2.2 provides definitions and examples of the five categories of organizational citizenship behavior outlined by Organ (1988).

There are good reasons for considering extrarole behavior when evaluating performance. Employees who perform organizational citizenship behaviors may make the manager's job easier and promote the effective functioning of the organization (cf., Katz & Kahn, 1978; Organ, 1988; Williams & Anderson, 1991). In fact, it has been suggested that beyond a minimal level of performance, many managers may place more

Source of Variation	In-role	Extrarole
Primary target of contribution	Technical core	Organizational, social, and psychological environment
Content	Varies between jobs in the same organization	Common to many or all jobs
Important human characteristics	KSAOs that covary with task proficiency	Volition and predisposition
Prescription	Role-prescribed	Not explicitly prescribed

Based on Borman and Motowidlo (1993).

Figure 2.1. Differences between in-role and extrarole activities.

Category and Definition	Examples
Altruism Discretionary behaviors that have the effect of helping a specific other person with an organizationally relevant task or problem	• An experienced manager helps a new manager "learn the ropes" even though this activity is not part of the experienced managers job description. • A Senior Accountant comes back from vacation earlier than planned, so she can help her supervisor with a problem that came up.
Conscientiousness Discretionary behaviors on the part of an employee that go well beyond the minimum role requirements of the organization, in the areas of attendance, obeying rules and regulations, taking breaks, and so forth.	• An office employee who exerts the extra effort to come to work during a snow storm, even when other employees use the storm as an excuse not to come in. • A clerical employee who skips her break, or comes back early from lunch, when her work load is heavy.
Sportsmanship Willingness of an employee to tolerate less than ideal circumstances without complaining-to "...avoid complaining, petty grievances, railing against real or imagined slights, and making federal cases out of small potatoes" (Organ, 1988, p.11).	• A manufacturing manager who is willing to adapt to new company human resource policies, rather than complain about them. • A secretary who accepts temporary assignments without any complaint, even though he or she has every right to refuse. • A route salesperson who "shrugs off" the personal inconvenience of being assigned a new territory.
Courtesy Discretionary behavior on the part of an individual aimed at preventing work-related problems with others from occurring.	• An industrial sales person who first checks with shipping and delivery people before making a non-routine commitment to a customer. • A computer systems analyst who asks for input from operations managers before redesigning the data reports supplied to them.
Civic Virtue Behavior on the part of the individual that indicates that he/she responsibly participates in, is involved in, or is concerned about the life of the organization.	• A faculty member who attends meetings that are not mandatory, but that help the image of the school. • A computer software developer who is concerned that the fast growth of the company may result in poorly designed products, so he/she discusses this issue with fellow employees.

Adapted from Podsakoff, MacKenzie, and Hui (1993).

Figure 2.2. Definitions and examples of organizational citizenship behavior.

value on contextual performance factors such as regular attendance, cooperation, and following rules and regulations than on outstanding job performance (Schnake, 1991; Organ, 1977). Recent empirical work supports the notion that extrarole behavior contributes to organizational performance (Karambayya, 1990; Podsakoff & MacKenzie, 1994). Moreover, research also indicates that managers do *informally* consider extrarole performance in their evaluations. Support for this position has emerged from both laboratory and field studies. The relevant research is briefly reviewed below:

Laboratory Studies

Orr et al. (1989) found that supervisors perceive extrarole behaviors to contribute to the value of an employee's performance. The authors utilized a policy-capturing approach to examine how supervisors use information when attaching dollar values to performance. The results indicated that most supervisors take nonprescribed behaviors into account when they make dollar judgments of work performance. Werner (1994) manipulated levels of task performance and extrarole performance and found that when task performance was low, overall ratings were low, regardless of the level of extrarole performance. However, as task performance increased, ratings increased more steeply for individuals depicted as high extrarole performers than for individuals depicted at an average level of extrarole performance. Finally, Park and Sims (1989) found that both objective sales productivity and prosocial behavior had a positive effect on manager evaluations. In addition, the authors found a significant interaction between the two factors, indicating that citizenship behavior had the greatest impact on managerial evaluations when sales performance was moderate.

Field Studies

Podsakoff and his associates have conducted a series of field studies examining the impact of citizenship behavior on manager's evaluations. Their research has indicated that extrarole behavior has a strong and consistent impact on managerial

evaluations across a variety of sales contexts (e.g., insurance; pharmaceutical sales) (MacKenzie, et al., 1991; MacKenzie, Podsakoff, & Fetter 1993; Podsakoff & MacKenzie, 1994). Specifically, these studies demonstrated that managers can discriminate between several dimensions of organizational citizenship behavior, that dimensions of organizational citizenship behavior are distinct from objective measures of productivity, that a combination of organizational citizenship behaviors and objective productivity account for a substantial portion of the variance in managers' evaluations, and that organizational citizenship behaviors typically account for a greater proportion of the variance in managerial evaluations than do objective productivity. Similarly, several other studies that have examined sales performance have found that managers incorporate components of extrarole performance into their performance evaluations (Avila, Fern, & Mann, 1988; Jackson, Keith, & Schlacter, 1983).

Similar results were found by Motowidlo and Van Scotter (1994) with a sample that consisted of air force mechanics. Their measure of contextual performance explained a significant amount of the variance in overall performance above and beyond the variance explained by task performance. Likewise, Borman, White and Dorsey (1995) found that interpersonal variables such as dependability and trustworthiness, which are similar to components of extrarole performance, significantly predicted supervisory performance ratings of army soldiers.

It seems likely that extrarole performance may also be a determinant of career success by enhancing the probability of receiving organizational rewards. The Park and Sims (1989) study, discussed previously, is the only study known to the present author that has investigated this issue. The results of this study indicated that prosocial behavior and objective sales productivity both had positive main effects and interactive effects on sales managers' promotion decisions. The interaction effect was such that the influence of prosocial behavior on promotion decisions increased as the level of sales productivity

increased. Additionally, sales productivity and prosocial behavior had a positive effect on salary allocation decisions, but did not interact. On the basis of this research, the following hypotheses are proposed for the present study:

H1a: Extrarole performance will add to the prediction of overall evaluation beyond that of in-role performance.

H1b: Extrarole performance will add to the prediction of reward recommendations beyond that of in-role performance.

H2a: The relationship between extrarole performance and overall evaluation will vary as a function of in-role performance such that extrarole performance will have a greater impact on overall evaluation when in-role performance is at or above a moderate level.

H2b: The relationship between extrarole performance and reward recommendations will vary as a function of in-role performance such that extrarole performance will have a greater impact on reward recommendations when in-role performance is at or above a moderate level.

Theoretical Framework

As previously discussed, little work has been done to theoretically or empirically address *why* extrarole performance influences managerial judgments. The present study offers two theoretical perspectives that may be useful in understanding how extrarole performance impacts evaluations and reward decisions. These perspectives are based on social information processing theory (e.g. Lord, 1985) and Naylor, Pritchard, and Ilgen's (1980) theory of behavior in organizations. Further elaboration of these theories is provided in the following sections.

Social Information Processing

Podsakoff, MacKenzie, and Hui (1993) proposed several possible reasons why managers include organizational citizenship behaviors in their evaluations of employees. The factors they outlined included: norms of reciprocity and fairness, schema-triggered affect, informational distinctiveness and accessibility, illusory correlations, and implicit performance theories. The majority of these explanations focus on the rater's cognitive processes. Indeed, a large body of research has emerged within the fields of both leadership and performance appraisal based on the development of social cognition models designed to explain how we perceive and evaluate one another (e.g., Feldman, 1981; Landy & Farr, 1980; Lord, 1985). Figure 2.3 provides an illustration of the social information process.

The social information processing model stipulates that humans have limited information processing capabilities, hence many shortcuts are taken when attaching meaning to and forming expectations about other individual's traits and behaviors. Effects in information processing can be traced to the use of these cognitive simplifications as our evaluations of others are based on only part of the available information. Moreover, these expectations form a cognitive context that affects future interactions with individuals (Lord & Maher, 1991). Terms such as prototypes, schemata, implicit theories, and cognitive categories have been adopted to describe the processes that individuals use to simplify and organize the multitude of information received. As stated previously, a number of models to explain these processes have been proposed. However, in general, the primary stages in the processing of information consist of attention, categorization, recall, and information integration. Numerous studies have supported the basic principles of the cognitive orientation (see Cardy & Dobbins, 1994b, for a review).



Figure 2.3. Social information processing model (adapted from Lord, 1985).

It is proposed that the occurrence of extrarole performance affects the cognitive information processes of raters and consequently influences managerial judgments. Cognitive models propose that individuals are most likely to attend to salient information (e.g., DeNisi, Cafferty, & Meglino, 1984). Since extrarole performance is not required by an organization, it is likely to be a particularly distinctive behavioral cue. The underlying cognitive categorization process proposes that supervisors mentally assign employees to categories based on salient characteristics. Consequently, instances of extrarole performance may be used to categorize the individual. Since extrarole behaviors consist of performance that is "above and beyond the call of duty" and is geared toward the effective functioning of the organization, employees who demonstrate extrarole performance are likely to match the prototype of the "good employee."

Once an individual is categorized, encoding, storage, and retrieval of information about the individual are biased toward the stereotypical characteristics of the category (Feldman, 1981). Research indicates that some of the consequences of categorization are that behaviors that are consistent with the categorization will be attended to and remembered and will be incorrectly assumed as occurring (Cantor & Mischel, 1977; Cohen, 1977; Jones, 1982). Furthermore, schematic theories predict errors in judgments of covariations or illusory correlations (Cooper, 1981). An illusory correlation is the erroneous perception of association between two variables or events (Hamilton, 1981). These illusory correlations result in rating errors in the form of halo. In fact, Organ (1990) proposed that organizational citizenship behavior would explain a portion of the halo effect often present in performance ratings. Moreover, Werner (1994) found empirical support for this contention. Specifically, ratings for individuals who demonstrated a high level of organizational citizenship behavior were more highly correlated than ratings for individuals who did not display organizational citizenship behavior.

Naylor, Pritchard, and Ilgen Theory

Naylor et al.'s (1980) theory of behavior in organizations provides another framework that can be used to understand how extrarole performance influences managerial judgment. While a thorough review of this comprehensive theory is beyond the scope of the present paper, a brief explanation regarding the components of the theory that are germane to the performance evaluation process follow.

The theory states that there are three systems that an evaluator uses to process information received from an individual and to respond to it. These three systems are the *measurement* system, the *evaluation* system, and the *reward* system. Figure 2.4 provides an illustration of this process. Individuals engage in a number of performance acts that result in a variety of products. Due to selective attention, only a portion of the products that are produced by an individual are encoded or measured by the evaluator. Of the subset of products that are encoded, a still smaller subset is considered by the manager as important enough to evaluate. The *measurement* system serves as a filtering process wherein specific products that are deemed relevant in assessment are encoded. The evaluator then makes a judgment with regard to the quality or the nature of each of the products observed. Hence, there is a two-stage process whereby the evaluator encodes a subset of the products produced and then assesses how much and how well the nature of the product produced conforms to expectations.

The *evaluation* system reflects the process whereby the evaluator determines the evaluative worth (good vs. poor) of the products an individual has produced. That is, once evaluation has occurred, the evaluator has placed the measured product on an evaluative continuum that ranges from bad to good. Importantly, recognized products may vary in how much influence they have on the evaluation. The amount of influence that a product has characterizes the salience or importance of that particular product to

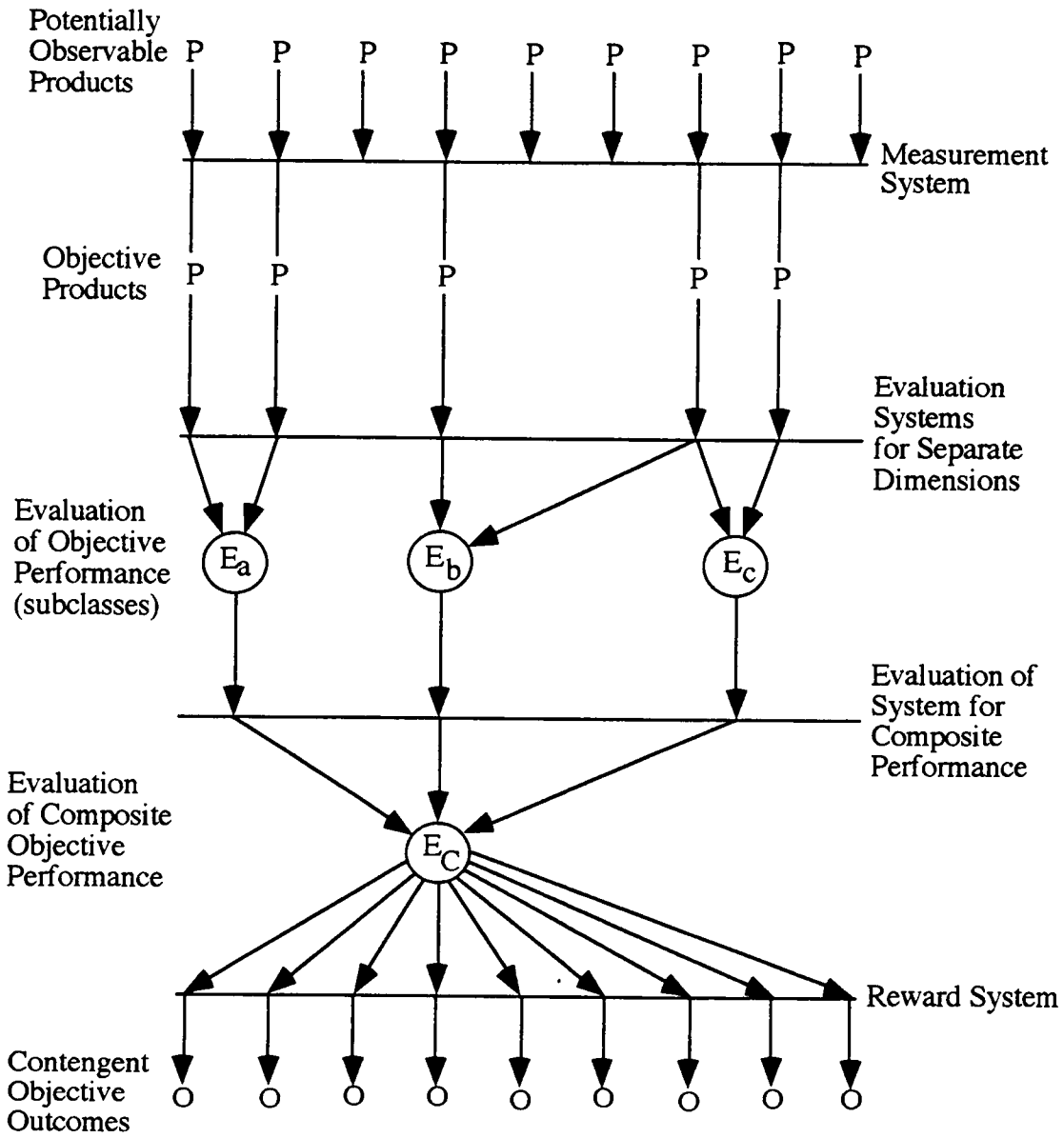

Figure 2.4. The measurement, evaluation, and reward system (adapted from Naylor, Pritchard, and Ilgen, 1980).

the evaluator. Furthermore, the theory views performance as multidimensional. That is, performance may be evaluated along a series of dimensions. These dimensions represent major classes of products in the mind of the evaluator. A subset of observable products is measured and then combined into dimensions. These dimensions are then combined into an overall evaluation of performance.

The *reward* system reflects the set of rules that evaluators use in attaching outcomes to an individual's performance. Outcomes are things or events that are provided to the individual as a function of the evaluation system. This includes rewards such a salary increases, promotions, and recognition. The amount of the outcome received is contingent upon the level of evaluated performance. These outcomes can be viewed as part of the organization's formal reward system that reacts to an individual's behavior. Typically, it is overall performance that is related to different outcomes. However, in some circumstances, outcomes may be a function of the level of performance on a specific performance dimension, rather than on overall performance.

It seems likely that extrarole performance reflects a dimension of performance that managers use when evaluating overall performance. According to the theory, behavior that is viewed as important or salient will be filtered into the measurement system and will subsequently be evaluated. Since extrarole performance consist of performance acts that are not explicitly mandated by the organization, but result in enhancing the effective functioning of the organization, they may be particularly notable behaviors for evaluators.

Summary

Both of these theoretical perspectives provide reasonable overarching explanations for why extrarole performance influences evaluations and rewards. However, as stated previously, little is actually known regarding the specific factors that determine the degree of influence that extrarole performance has on managerial

judgments and how and why these factors operate as they do. It should be noted that the two theoretical frameworks described above, while highly similar, evoke different hypotheses with regard to the nature of the interrelationships among the variables of interest. Essentially, the two models operate in the same fashion at an abstract level of analysis, but differ in their implications at a more precise level of analysis. Specifically, in the initial stages, both theories are very similar. That is, extrarole performance represents a particularly salient form of behavior and hence is more liked to be attended to and encoded (or measured). However, after this stage in the process, the two theories diverge somewhat in terms of how evaluations are formed.

In contrast, Naylor et al.'s theory suggests that the degree of effect that a dimension of performance has on overall evaluation is determined by a variety of contingencies. A contingency reflects the degree to which changes in the evaluation along that dimension are followed by changes in the overall evaluation. Hence, intervening variables in this model would serve to moderate or enhance the degree of the slope of the relationship between extrarole performance and managerial judgments.

In as much as the primary intent of the present paper is to extend rather than confirm theoretical perspectives within this area of inquiry, an investigation of a set of variables that may be interrelated with the extrarole performance to managerial judgment relationship will be conducted in the presented study. The following sections elaborate with regard to several variables thought to impact the relationship between extrarole performance and managerial judgments. In offering hypotheses with regard to each of these variables, both theories were considered as well empirical evidence from related literatures. These variables are described below. Figure 2.5 provides an illustration of these proposed relationships.

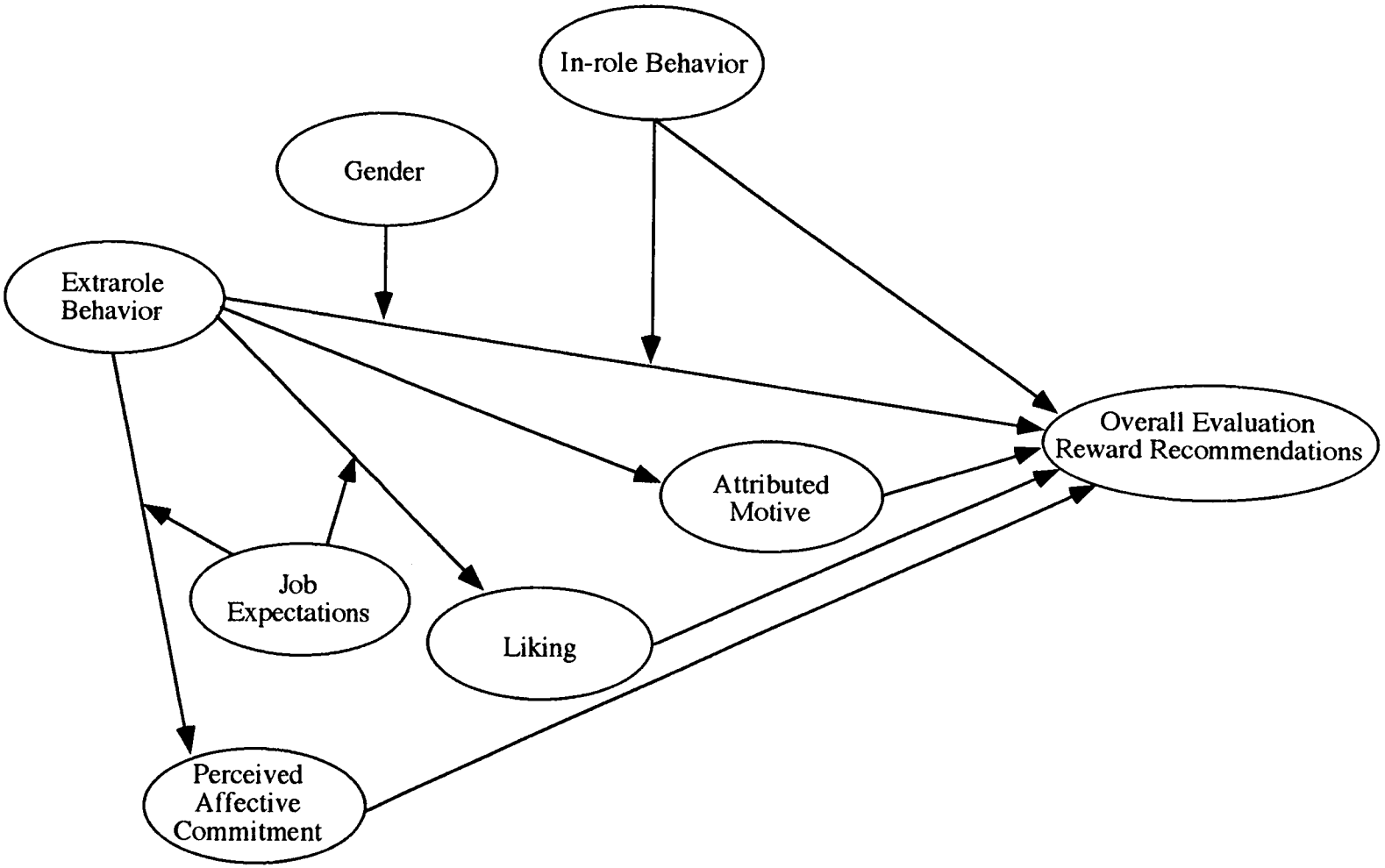

Figure 2.5. Proposed relationships among study variables.

Proposed Mediating and Moderating Variables

Affect/Liking

Research has demonstrated that performance evaluations are influenced by rater affect or liking for the ratee (see Cardy & Dobbins, 1994a for a review). Liking has been linked with performance ratings (Cardy & Dobbins, 1986; Judge & Ferris, 1993; Kingstrom & Mainstone, 1985; Tsui & Barry, 1986), reward behavior (Kipnis & Vanderveer, 1971; Pandey & Bohra, 1984; Podsakoff, 1982), and choice of disciplinary actions (Dobbins & Russell, 1986; Fandt, Labig, & Urich, 1990). Generally, the findings have suggested that positive affect toward a subordinate has a positive effect on supervisory performance ratings and the allocation of organizational rewards, and results in the lesser likelihood of disciplinary action.

Since individuals who perform extrarole activities make a manager's job easier, the occurrence of extrarole performance may enhance a manager's liking for a subordinate. Fiske's (1981; 1982) theory of schema-triggered affect may be useful in explaining these processes. The theory asserts that affective values are stored at the top level of a schema, accessible immediately upon categorization of an instance as matching the affect-laden schema. It seems likely that individuals who perform beyond role requirements will trigger positive affect from their managers. That is, "good citizens" may match the manager's category of "good employee" (Podsakoff et al., 1993). Consequently, it seems likely that individuals who display high levels of extrarole performance will be better liked by their manager.

Support for the impact of extrarole performance on liking may also be found by turning to the impression management literature. Several authors have noted that impression management or ingratiation tactics share common characteristics with extrarole behaviors (e.g., Eastman, 1994). Research examining subordinate influence in the performance evaluation process has shown that impression management tactics are

positively related to supervisor liking for subordinates. For example, Wayne and Ferris (1990) found that supervisor-focused impression management tactics were positively related to both supervisor liking for the subordinate and to performance ratings. Similarly, Ferris et al. (1994) found that the impact of influence tactics on performance appraisal was mediated through supervisor affect. Likewise, it may be that extrarole performance positively affects liking, which in turn positively influences managerial evaluative judgments. The following hypotheses are posed:

H3a: When controlling for in-role performance, the relationship between extrarole performance and overall evaluation will be partially mediated by manager liking for the ratee.

H3b: When controlling for in-role performance, the relationship between extrarole performance and reward recommendations will be partially mediated by manager liking for the ratee.

Perceived Affective Commitment

Two types of commitment have been identified in the literature (Meyer & Allen, 1984). Continuance commitment is developed because employee investments within an organization may make leaving too costly. The second type of commitment is referred to as affective commitment and it suggests that employees are committed to and remain with an organization because of an emotional attachment and identification with the goals of the organization. Recently, researchers have begun to look at organizational commitment from the perspective of the manager as a perceiver (Allen & Russell, 1995; Allen et al., 1994; Shore, Barksdale, & Shore, 1995). That is, researchers have begun to investigate the factors related to a manager's belief regarding how committed an employee is to the organization.

As stated by Allen et al. (1994), employees who are considered highly committed to an organization are expected to work long hours when necessary, to relocate, and to place a greater importance on the interest of the organization than on personal interests when the two are in conflict. These types of behavior are also characteristic of the "good organizational citizen", hence, it seems likely that individuals who engage in extrarole performance will be perceived as more committed to the organization. Jones and Davis (1965) suggested that we can infer less about a person if behavior is a role requirement. Since extrarole performance is volitional in nature, engaging in extrarole performance also provides information regarding an individual's motivation (Borman & Motowidlo, 1991). These efforts may in turn be interpreted as an indication of commitment to the organization. Indeed, Shore et al. (1995) found that organizational citizenship behaviors predicted perceived affective commitment.

There is also preliminary evidence to suggest that perceptions of organizational commitment are positively related to other managerial judgments. Since highly committed employees are seen as vital to an organization, employers may find it desirable to offer more rewards to their committed employees or managers (Powell, 1993). There is some empirical evidence to support this assertion. Shore et al. (1995) found that perceived affective commitment was positively related to managerial potential and promotability ratings. Using a global measure of perceived organizational commitment, Allen et al. (1994) found a positive relationship with recommendations for reward allocation. Similarly, Allen and Russell (1995) detected a significant positive relationship between perceived affective commitment and reward allocation recommendations. Accordingly, the following hypotheses are offered:

H4a: When controlling for in-role performance, the relationship between extrarole performance and overall evaluations will be partially mediated by perceived affective commitment

H4b: When controlling for in-role performance, the relationship between extrarole performance and reward recommendations will be partially mediated by perceived affective commitment

Job Expectations

Several researchers have commented on the degree of ambiguity regarding the boundary between in-role behavior and extrarole behavior (e.g., Graham, 1991; Morrison, 1994; Schnake, 1991; Van Dyne, Cummings, & Parks, 1995). While some support has been found indicating that managers can and do distinguish between in-role and extrarole behavior (e.g., Werner, 1994; Williams & Anderson, 1991), there is also evidence to indicate that behavior that has been assumed to be and operationalized as discretionary in nature may actually be considered an expected part of the job. For example, Morrison (1994) found that there were differences among clerical employees regarding what they defined as in-role and extrarole behavior. Hence, there is a somewhat subjective side to extrarole performance. That is, there are differences among individuals with regard to work behaviors that are believed to be discretionary versus those behaviors that are believed to be nondiscretionary. Furthermore, these differences are likely to be exacerbated in jobs such as managerial positions where job responsibilities are less likely to be clearly defined.

Research has yet to examine this issue from the perspective of the rater. As stated by Morrison (1994), if a behavior is thought of as an in-role requirement, the behavior will be conceptualized differently than if the behavior is perceived as extrarole. It seems likely that differences in beliefs regarding expected job behaviors has implications in

terms of the extent of influence that extrarole performance may have in the managerial judgment process. That is, extrarole performance may not have the same positive effect on liking and perceived affective commitment when the rater views the behavior as an ordinary part of the individual's job versus when the rater views the behavior as above and beyond the call of duty. If the rater does not view the behavior as extraordinary, it is not likely to carry special significance beyond that of task performance. Accordingly, the following hypotheses are posed (Figure 2.6 illustrates the hypotheses):

H5a: The relationship between extrarole performance and liking will vary as a function of the extent that extrarole performance is viewed a part of the ratee's job requirements such that the extent of extrarole performance's enhancing effect on liking will be greater when extrarole performance is not viewed as part of the job than when it is expected as part of the job.

H5b: The relationship between extrarole performance and perceived affective commitment will vary as a function of the extent that extrarole performance is viewed a part of the ratee's job requirements such that the extent of extrarole performance's enhancing effect on perceived affective commitment will be greater when extrarole performance is not viewed as part of the job than when it is expected as part of the job.

Attribution/Motive

Attribution theory has been useful for attempting to understand how perceptions of performance are interpreted. The central tenet of attribution theory is that humans' construct causal explanations for their own (the actor' s perspective) and others' (the observer's perspective) behavior in a need to predict and control the environment

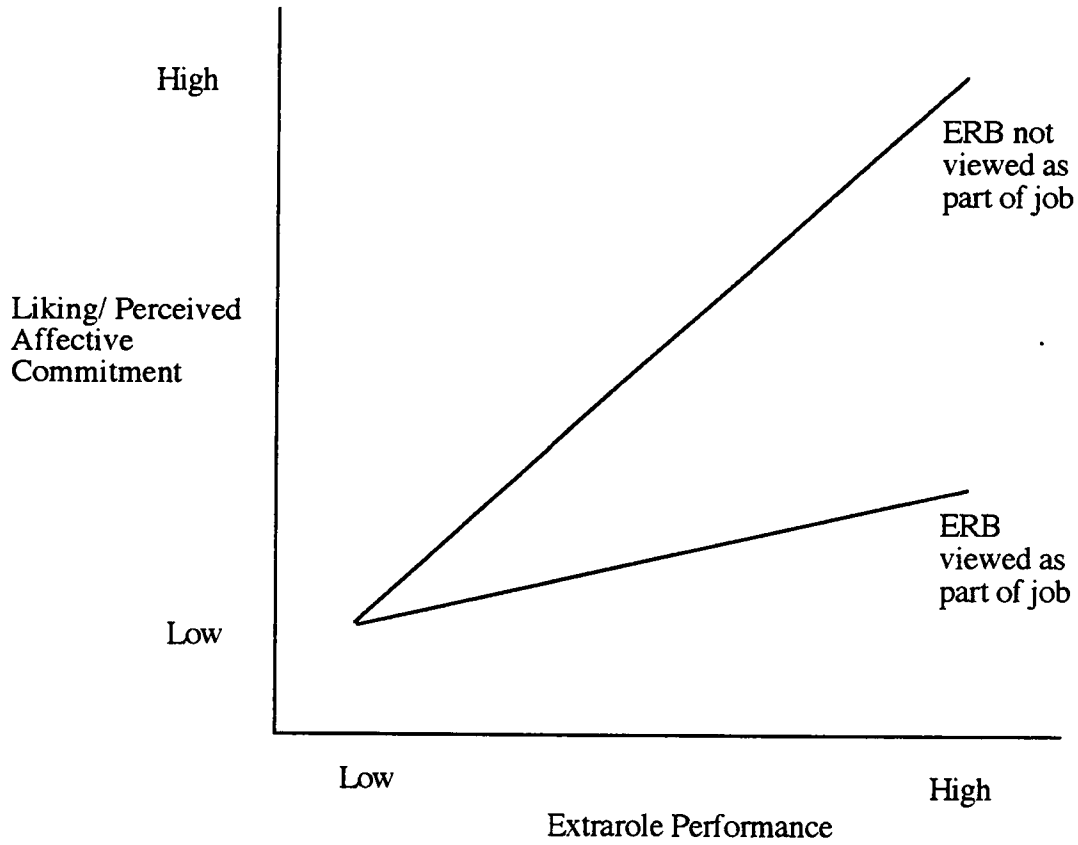

Figure 2.6. Illustration of hypotheses 5a and 5b.

(Heider, 1958). Implications within the context of performance evaluation and the manager/subordinate relationship are clear. When the manager encodes performance information about a subordinate, the manager searches for an explanation underlying the events that they have observed (Crocker, 1981). In turn, these causal attributions have been found to affect supervisory responses toward subordinates. For example, research has shown that coercive or corrective actions are seen as appropriate if a subordinate's failure is determined as due to a lack effort (Green & Mitchell, 1979; Mitchell, Green, & Wood, 1981). On the other hand, failure seen as due to factors outside of the subordinate's control do not merit immediate corrective action (Pence, Pendleton, Dobbins, & Sgro, 1982).

To date, the research examining the effect of causal attributions has focused on traditional or in-role performance. It seems likely that individuals also construct causal explanations for extrarole performance. Along these lines, several researchers have begun to recognize that individuals may engage in extrarole performance for different reasons or motives. For example, Ferris et al. (1994) argued that employees may engage in extra-role performance because they want to promote the welfare of others, or the organization, or that they may do so as a form of political influence in an effort to help themselves. That is, individuals may engage in this behavior because they want to help others or the organization, while others may do so in an effort to look favorable to their manager. Likewise, Folger (1993) reasoned that extrarole behavior may be motivated by what he termed achievement striving (i.e., attempting to achieve recognition and reward by performing above and beyond expectations and engaging in exceptional actions at work) or for altruistic reasons (i.e., dispositional factors or out of loyalty wherein it is not cared if the exceptional actions are recognized).

Limited research has examined these motivations from the perspective of the observer. The observer or manager may view the same act of extrarole performance

being performed by two different subordinates, yet construct a different causal explanation for why each of the subordinates performed in that manner. Likewise, a single set of extrarole behaviors can evoke different responses from different supervisors. This is likely due to the fact that acts of extrarole behavior share common characteristics with another set of behaviors known as ingratiation tactics (Jones, 1964). This includes behavior such as rendering favors and conformity. Indeed, Eastman (1994) found that the labels applied to targets who had exhibited the same set of extrarole behaviors varied across ratees. That is, different raters viewed the target as either a good citizen or as an ingratiator.

The attribution made for the behavior has noteworthy implications as differential causal explanations are likely to lead to different consequences. As noted earlier, research has demonstrated that the causal attributions made for performance affect supervisory actions. Additionally, research in traditional attribution theory that has found that behavior linked to internal causes is perceived as more likely to be maintained in the future (McMahon, 1973; Valle, 1974; Valle & Frieze, 1976; Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1972).

Along these lines, several studies suggest that ingratiation tactics are successful only when the target of the ingratiation does not view the behavior as ingratiation. For example, when blatant ingratiation was used, ingratiators did not receive greater rewards than noningratiators (Fodor, 1974). Additionally, research indicates that individuals typically form negative attitudes about others identified as ingratiators (Gurevitch, 1985) and that those labeled as ingratiators may be less well liked (Jones & Wortman, 1973). Moreover, Eastman (1994) found supervisor responses to employees differed depending on whether they labeled subordinate extrarole behaviors as ingratiation or as organizational citizenship behavior. Employees whose behavior was perceived as good

citizenship rather than ingratiation received higher overall performance evaluations and greater pay raises.

In concert, it seems likely that the causal explanation constructed for extrarole performance will affect the manager's response to the behavior. It is proposed that these explanations may manifest themselves along two causal dimensions: altruistic and instrumental. Elements of altruistic motives include personal values, loyalty to the organization, and a sense of moral standards, whereas elements of instrumental motives include a desire to impress the boss, the desire to obtain recognition or other organizational rewards, or the desire to build up favors for later exchange. For example, if the manager perceives that the employee is performing these behaviors in an attempt to look good, the behavior may be discounted (Podsakoff et al., 1993). In contrast, if the manager believes that the employee's intentions are to be helpful to others or the organization, the behavior may enhance the individual's evaluation.

Additionally, these explanations may have a somewhat analogous effect to that of traditional internal/external attributions. That is, extrarole performance attributed to dispositional or altruistic factors may be perceived as internally caused and hence more likely to continue. On the other hand, if the behavior is perceived as occurring for instrumental causes, the perceiver may attach external attributions. This has implications for future career outcomes, as research has demonstrated that managers are more likely to recommend organizational rewards to employees whose high performance has been attributed to internal causes (Allen et al., 1994). Along these lines, the following hypotheses are proposed:

H6a: When controlling for in-role performance, the relationship between extrarole performance and overall evaluation will be partially mediated by the causal motive attributed to extrarole performance. Extrarole

performance attributed to altruistic motives will have a positive effect on overall evaluation, while extrarole behavior attributed to instrumental motives will have a negative effect on overall evaluation.

H6b: When controlling for in-role performance, the relationship between extrarole performance and reward recommendations will be partially mediated by the causal motive attributed to extrarole performance. Extrarole performance attributed to altruistic motives will have a positive effect on reward recommendations, while extrarole performance attributed to instrumental motives will have a negative effect on reward recommendations.

Ratee Gender

A considerable amount of research has been directed toward examining differences in the evaluation of men and women (cf., Nieva & Gutek, 1980). This research has primarily been motivated by efforts to explain the disparity in career progress realized by men and women (Blau & Ferber, 1992; Morrison, White, Van Velsor & Center for Creative Leadership). Researchers attempting to account for these various differences in career outcomes have controlled for factors such as years of experience, level of education, and organizational tenure (e.g., Stroh, Brett, & Reilly, 1992). These factors have not been able to account for all the variance, leading some to conclude that the differences are due to sex discrimination.

Recent meta-analytic efforts have determined that gender does have a significant effect on evaluative ratings of men and women; however, the average effect size is small (Eagly, Makhijani, & Klonsky, 1992; Pulakos, White, Oppler, & Borman, 1989; Swim, Borgida, Maruyama, & Myers, 1989). In concert, these findings seem to suggest that decisions regarding women in the workplace are being made on factors other than task

performance. It may be that ratings of or perceptions of performance by women in other areas such as extrarole performance may be a factor.

As pointed out by Van Dyne et al. (1995), few studies conducted regarding extrarole behavior have reported the gender make-up of their sample. While some research indicates that there are no differences between men and women with regard to the frequency ratings of extrarole performance (Organ & Ryan, 1995) virtually no studies have been conducted examining if the outcomes associated with extrarole performance differ across gender.

Stereotyping has frequently been cited as a source of gender-based bias (e.g., Dobbins, Cardy, & Truxillo, 1988). On the basis of schematic processing theories of social cognition we would expect to find specific biases in the prototypes held for men and women. Cognitive information-processing frameworks as described by Ashmore and Del Boca (1979), Neisser (1976), and Taylor and Crocker (1981) propose that raters possess sex-role stereotypes that serve as categories for predicting and understanding the behavior of others. Once an individual is categorized on the basis of their biological sex, encoding, storage, and retrieval of information about the individual are biased toward the stereotypical characteristics of the category (Feldman, 1981).

As stated earlier, one of the consequences of categorization is that errors in judgments of covariation can occur. Hence, gender stereotypes may result in misjudgments regarding the expected proportion of men and women with various characteristics (Martin, 1987) and may cause behavior performed by a female to be interpreted differently than the same behavior performed by a male (Fiske, Bersoff, Borgida, Deaux, & Heilman, 1991).

There are several reasons why men and women may be evaluated differently with regard to extrarole performance. Stereotypes about a particular group can be defined as a set of beliefs about the frequency of certain traits or behaviors within that category of

people (Swim, 1993). Several studies have indicated that beliefs about male and female behavior can be summarized in a general way in terms of differences on two dimensions, the *communal* and the *agentic* (Bakan, 1966). Men are expected to embody high levels of agentic qualities such as independence, being assertive, and instrumentally competent. On the other hand, women are expected to possess high levels of communal attributes such as being friendly, unselfish, and concerned with others (e.g., Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972).

Furthermore, other research investigating characteristics of men, women, and managers has resulted in similar findings. Heilman, Block, Martell, and Simon (1989) found that characteristics used to describe successful managers such as helpful, understanding, and aware of others' feelings were rated as more similar to women than men, while characteristics such as independent, dominant, and less sympathetic were more likely to be attributed to men than women. These findings seem to suggest that extrarole behavior is more likely to be expected from females than males. These differences in expectations may differentially impact the weight or importance accorded to acts of extrarole performance across gender.

Additionally, research has shown that gender bias is less likely to occur under circumstances where there is unambiguous and undeniable information about performance (Heilman, Martell, & Simon, 1988; Nieva & Gutek, 1980; Pheterson, Kiesler, & Goldberg, 1971). Further, several studies have found that the more ambiguous the job or evaluation criteria, the more likely it is that stereotypical evaluations will occur (Clayton, Baird, & Levinson, 1984; Dobbins, Stuart, Pence, & Sgro, 1985; Gerdes & Garber, 1983). Extrarole performance is not explicitly described or prescribed by the organization, consequently, it is more ambiguous in nature than task-related behavior.

The above issues suggest that extrarole performance performed by a male may be less expected and hence accredited more weight than extrarole performance performed by

a female. Along these lines, the following hypotheses are posed (an illustration of these hypotheses are presented under Figure 2.7):

H7a: The relationship between extrarole performance and overall evaluation will vary as a function of the ratee's gender such that the extent of extrarole performance's enhancing effect on overall evaluation will be greater for men than for women.

H7b: The relationship between extrarole performance and reward recommendations will vary as a function of the ratee's gender such that the extent of extrarole performance's enhancing effect on reward recommendations will be greater for men than for women.

Levels of in-role and extrarole performance may also play a part in gender differences with regard to managerial judgments. The literature examining gender effects on evaluation has been conflicting with regard to the impact of level of performance. In their review of the of sex bias and evaluation literature, Nieva and Gutek (1980) concluded that females were evaluated less favorably than males when both were highly qualified or performed well. Conversely, females were evaluated more favorably than males when both were not well qualified or were unsuccessful performers. Additionally, Allen and Dobbins (1993) found that under conditions of high performance, females were rated more accurately than males, however, males were given higher overall performance ratings.

In contrast, several studies have found that under conditions of known high performance ability, women are less likely to be viewed differentially (Allen et al., 1994; Heilman et al., 1988; Pheterson et al., 1971). Moreover, Allen and Russell (1995) found

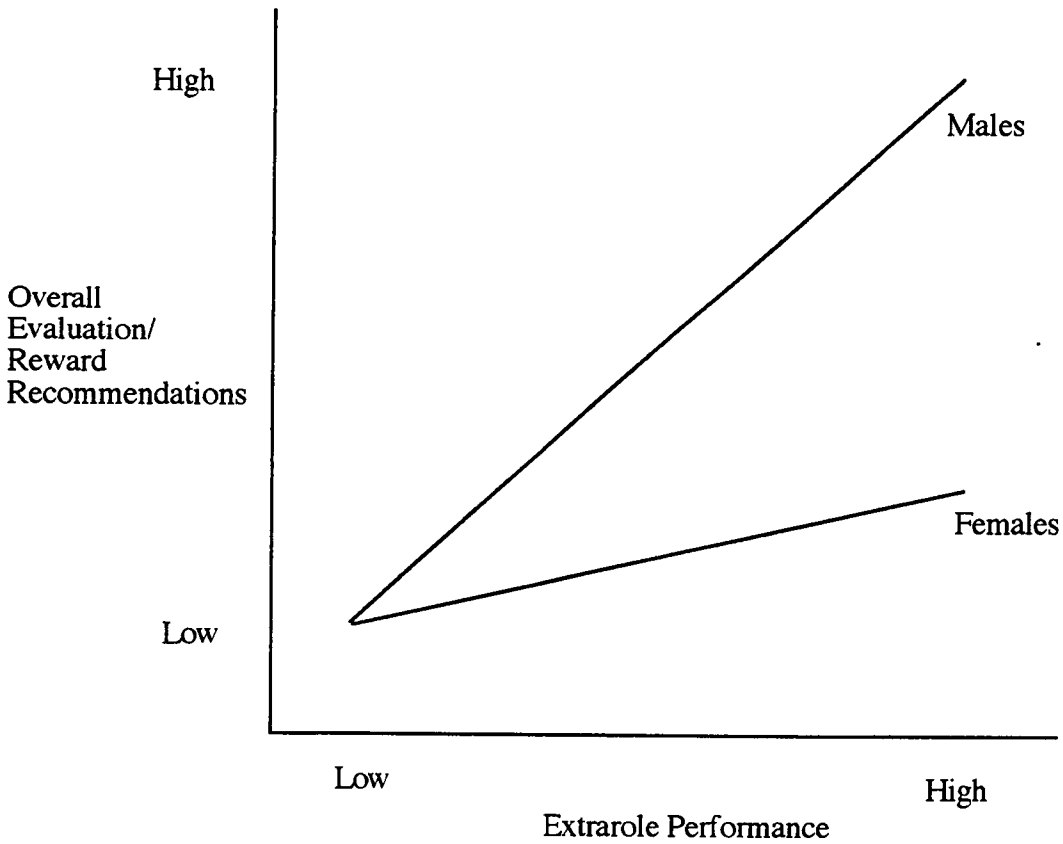

Figure 2.7. Illustration of hypotheses 7a and 7b.

that under certain conditions, males were less likely to be recommended for organizational rewards than females. Accordingly, it appears worthwhile to examine how level of in-role performance and extrarole performance may interact along with ratee gender in impacting performance judgments. Hence, the following research questions are posed:

RQ1a: Will the relationship between extrarole performance and overall evaluation vary as a function of ratee gender and in-role performance?

RQ1b: Will the relationship between extrarole performance and reward recommendations vary as a function of ratee gender and in-role performance?

Overview and Summary of Hypotheses

In summary, the present research was designed to investigate several variables thought to be related to extrarole performance and managerial judgments. This was believed to be an important area of inquiry considering the growing attention given to examining factors effecting performance evaluation other than task performance. Below is a summary list of the hypotheses and research questions that were tested. All of the hypotheses, with the exception of 6a and 6b, were tested in the laboratory study. Each of the hypotheses were tested in the field study.

H1a: Extrarole performance will add to the prediction of overall evaluation beyond that of in-role performance.

H1b: Extrarole performance will add to the prediction of reward recommendations beyond that of in-role performance.

H2a: The relationship between extrarole performance and overall evaluation will vary as a function of in-role performance such that extrarole

performance will have a greater impact on overall evaluations when in-role performance is at or above a moderate level.

H2b: The relationship between extrarole performance and reward recommendations will vary as a function of in-role performance such that extrarole performance will have a greater impact on reward recommendations when in-role performance is at or above a moderate level.

H3a: When controlling for in-role performance, the relationship between extrarole performance and overall evaluation will be partially mediated by liking for the ratee.

H3b: When controlling for in-role performance, the relationship between extrarole performance and reward recommendations will be partially mediated by liking for the ratee.

H4a: When controlling for in-role performance, the relationship between extrarole performance and overall evaluation will be partially mediated by perceived affective commitment.

H4b: When controlling for in-role performance, the relationship between extrarole performance and reward recommendations will be partially mediated by perceived affective commitment.

H5a: The relationship between extrarole performance and liking will vary as a function of the extent that extrarole performance is viewed a part of the ratee's job requirements such that the extent of extrarole performance's enhancing effect on liking will be greater when extrarole performance is not viewed as part of the job than when it is expected as part of the job.

H5b: The relationship between extrarole performance and perceived affective commitment will vary as a function of the extent that extrarole

performance is viewed a part of the ratee's job requirements such that the extent of extrarole performance's enhancing effect on perceived affective commitment will be greater when extrarole performance is not viewed as part of the job than when it is expected as part of the job.

H6a: When controlling for in-role performance, the relationship between extrarole performance and overall evaluation will be partially mediated by the causal motive attributed to extrarole performance. Extrarole performance attributed to altruistic motives will have a positive effect on overall evaluation, while extrarole behavior attributed to instrumental motives will have a negative effect on overall evaluation.

H6b: When controlling for in-role performance, the relationship between extrarole performance and reward recommendations will be partially mediated by the causal motive attributed to extrarole performance. Extrarole performance attributed to altruistic motives will have a positive effect on reward recommendations, while extrarole performance attributed to instrumental motives will have a negative effect on reward recommendations.

H7a: The relationship between extrarole performance and overall evaluation will vary as a function of the ratee's gender such that the extent of extrarole performance's enhancing effect on overall evaluation will be greater for men than for women.

H7b: The relationship between extrarole performance and reward recommendations will vary as a function of the ratee's gender such that the extent of extrarole performance's enhancing effect on reward recommendations will be greater for men than for women.

RQ1a: Will the relationship between extrarole performance and overall evaluations vary as a function of ratee gender and in-role performance?

RQ1b: Will the relationship between extrarole performance and reward recommendations vary as a function of ratee gender and in-role performance?

CHAPTER 3

METHODS

Overview

The research project consisted of two studies, a field study and a laboratory experiment. The use of two studies permits an assessment of the robustness of the findings and helps to insure both internal and external validity. In study 1, the field data provide an initial examination of the hypotheses of interest within an applied setting. Study 2, the laboratory experiment, provides many of the controls necessary to insure internal validity. Moreover, the lab investigation furnishes a vehicle for demonstrating that the phenomena under study are based on actual behavior as level of task performance, level of extrarole performance, and gender were purposefully manipulated. The following sections include a description of the field methodology and then the laboratory methodology. The final section of this chapter includes a description and the results of a pilot study conducted prior to the present research. The purpose of the pilot study was to examine the psychometric soundness of several of the study measures.

Study 1 - Field Study

Participants

The participants in the field study consisted of managers with ongoing supervisory responsibilities for one or more subordinates within a business setting. Target subjects were the subordinates of participants. The sample consisted of a total of 148 subordinate ratings provided by the participating managers. Participants were solicited from several different sources. The sample included a convenience sample of managers contacted via the author or colleagues of the author, managers of participants in a university-based management development program, and managers employed by a paper manufacturing firm. Overall sample demographics as well as demographics by sample source are provided in Table 3.1.

Table 3.1

Field Study Sample Demographics.

Variable	Mean	SD	N	%
Overall Sample[a]				
Gender				
Male			59	76.6
Female			18	23.4
Race				
White			73	96.1
Black			3	3.9
Age	47.29	9.76		
Organizational Tenure	13.66	10.21		
Job Tenure	4.35	4.35		
Paper Company Sample				
Gender				
Male			3	30.0
Female			7	70.0
Race				
White			7	77.8
Black			2	22.2
Age	36.44	6.46		
Organizational Tenure	10.73	6.26		
Job Tenure	1.45	1.14		
Convenience Sample				
Gender				
Male			10	62.5
Female			6	37.5
Race				
White			10	100.0
Black			0	0.0
Age	41.88	10.33		
Organizational Tenure	12.69	11.99		
Job Tenure	5.05	5.66		
TEDP Sample				
Gender				
Male			46	90.2
Female			5	9.8
Race				
White			50	98.0
Black			1	2.0
Age	51.30	7.75		
Organizational Tenure	15.23	10.38		
Job Tenure	3.69	2.52		

[a]Several participants did not provide complete demographic information, hence some data are missing.

Response Rate

With regard to the convenience sample, a total of 35 survey packets were distributed. Of those 35, 16 were returned, yielding a response rate of 45.7%. With regard to the managers of the participants within the management development program, there were a total of 14 program participants. Each of the 14 participants were given five surveys to distribute to up to five of their higher-level managers for a total of 70 potential responses. A total of 54 of the potential 70 surveys were returned for a response rate of 77.1%. Within the paper manufacturing organization, a total of 10 survey packets were distributed to managers. Of those 10, 10 were returned, yielding a response rate of 100%. Across the entire sample, there were a total of 80 different managers who rated a total of 148 different subordinates.

Procedure

The participants were asked to complete a survey that contained questions regarding their perceptions and performance ratings of one of their subordinates. Each participant was asked to complete a survey for up to four subordinates. Instructions were provided on how to determine which four subordinates to rate in situations where a manager had more than four subordinates. The instructions provided to managers were as follows:

> *Identify four subordinates whose performance you will rate.*
>
> *If you have more than four subordinates, the following decision criteria should be used (in order), until you have narrowed the pool of subordinates down to four:*
>
> *a) Select subordinates that you have had a supervisory relationship with for at least six months*
>
> *b) Select subordinates who work in nonmanagerial positions*
>
> *c) Select the subordinate you have worked with the longest and then the subordinate that you have worked with the least longest. Repeat this process until you have narrowed the pool of subordinate ratees down to four.*

The surveys were mailed directly back to the university in self-addressed stamped envelopes. All respondents were assured of confidentiality.

Measures

In order to test the hypotheses proposed for this study, measures of eight constructs were collected. Some of the measures had been used in previous research, whereas some were developed specifically for the present research. Except where noted, the mean of the scale items was used for each scale in the analyses.

In-role Performance. The 7-item in-role performance measure developed by Williams and Anderson (1989) was adapted for use in the present study (Figure 3.1). These authors reported a Cronbach reliability estimate of .91.

Directions: Please indicate how effective this employee is at completing each of the following job behaviors.

	Items
1.	Completing assigned duties
2.	Fulfilling responsibilities specified in job description
3.	Performing tasks that are expected of him/her
4.	Meeting formal performance requirements of the job
5.	Engaging in activities that will directly affect his/her performance evaluation
6.	Completing aspects of the job he/she is obligated to perform
7.	Performing essential duties

Note: Items are rated on a five-point scale (1 = ineffective to 5 = highly effective).

Figure 3.1. Items measuring the in-role performance of employees in the field study; Williams and Anderson (1991).

Extrarole Performance. Extra-role performance was measured utilizing the 24-item scale developed by Podsakoff, MacKenzie, Moorman, and Fetter (1990). These items are based on the five dimensions of organizational citizenship behavior proposed by Organ (1988). Responses were based on a five-point scale ranging from strongly disagree to strongly agree. Podsakoff et al. (1990) reported reliabilities ranging from .70 to .85 for each of the five subscales. Using a variation of the same scale, MacKenzie et al. (1991) reported similar reliabilities (.70 to .84). See Figure 3.2.

Liking. The 4-item measure developed by Wayne and Ferris (1990) was adapted for use in the present study (Figure 3.3). These authors reported a Cronbach reliability estimate of .94 (laboratory study) and .86 (field study).

Perceived Affective Commitment. Perceived affective commitment was assessed using the 4-item affective commitment subscale of Shore et al's. (1995) Manager-rated Commitment Scale (Figure 3.4). Previous internal consistency estimates reported for the scale are .87 (Shore et al., 1995) and .89 (Allen & Russell, 1995).

Job Expectations. Similar to the process used by Morrison (1994), the same 24 items used to measure extrarole performance were presented and respondents were asked to classify each behavior into one of two categories: 1) This behavior is viewed as an expected part of the job; or 2) This behavior is viewed as somewhat above and beyond what is expected for the job (see Figure 3.5). Additionally, any negatively worded items, were positively reworded. Pre-testing by Morrison indicated that employees were able to provide a more valid response when presented with a dichotomous scale rather than a continuous one. Behaviors that were considered expected were coded "0" while behaviors considered beyond expectations were coded "1." A scale mean was computed by summing the number of behaviors indicated as beyond expectations and then dividing by the total number of behaviors. Hence, scale responses could range from .00 to 1.0, with a score of .00 indicating that every behavior was expected, and a score of 1.0

Directions: Please indicate the extent to which you agree that each of the following behaviors are descriptive of this employee's typical behavior.

	Items
1.	Attendance at work is above the norm
2.	Does not take extra breaks
3.	Obeys company rules and regulations even when no one is watching
4.	Is one of my most conscientious employees
5.	Believes in giving an honest day's work for an honest day's pay
6.	Consumes a lot of time complaining about trivial matters.
7.	Always focuses on what's wrong, rather than the positive side
8.	Tends to make "mountains out of molehills"
9.	Always finds fault with what the organization is doing
10.	Is the classic "squeaky wheel" that always needs greasing
11.	Attends meetings that are not mandatory, but are considered important
12.	Attends meetings that are not required, but help the company image
13.	Keeps abreast of changes in the organization
14.	Reads and keeps up with organization announcements, memos, and so on.
15.	Takes steps to try to prevent problems with other workers
16.	Is mindful of how his/her behavior affects other people's jobs
17.	Does not abuse the rights of others
18.	Tries to avoid creating problems for coworkers
19.	Considers the impact of his/her actions on coworkers
20.	Helps others who have been absent
21.	Helps others who have heavy work loads
22.	Helps orient new people even though it is not required
23.	Willingly helps others who have work related problems
24.	Is always ready to lend a helping hand to those around him/her

Note: Items are rated on a five-point scale (1 = strongly disagree to 5 = strongly agree). Items 1 through 5 measure conscientiousness; items 6 through 10 measure sportsmanship; items 11 through 14 measure civic virtue; items 15 through 19 measure courtesy; items 20 through 24 measure altruism.

Figure 3.2. Items measuring extrarole performance in the field study; Podsakoff et al. (1990).

Directions: Please indicate the extent to which you agree with each of the following statements regarding your relationship with this subordinate.

Items
1. I like this subordinate
2. I get along well with this subordinate
3. Supervising this subordinate is a pleasure
4. I think this subordinate would make a good friend

Note: Items are rated on a five-point scale (1 = strongly disagree to 5 = strongly agree).

Figure 3.3. Items measuring liking in the field study; Wayne and Ferris (1990).

Directions: Indicate the extent that you agree with each of the following statements regarding this employee.

This employee...

Items
1. Appears to be highly committed to the organization
2. Appears to be "emotionally" attached to this organization
3. Views the organization's problems as his/her own
4. Really cares about the fate of this organization

Note: Items are rated on a five-point scale (1 = strongly disagree to 5 = strongly agree).

Figure 3.4. Items measuring perceived affective commitment in the field study; Shore et al. (1995).

Directions: For each of the behaviors below, please indicate whether you believe the behavior is an expected part of the job performed by the subordinate you are rating or a behavior that is somewhat above and beyond what is expected for the this employee's job. Check the appropriate box. Remember, in this section we are not interested in whether these behaviors have actually been performed, rather we are interested in whether or not they are viewed as an expected part of the job.

	Behaviors	Expect	Above and Beyond
1.	Attendance at work that is above the norm	☐	☐
2.	Not taking extra breaks	☐	☐
3.	Obeying company rules and regulations even when no one is watching	☐	☐
4.	Being extremely conscientious	☐	☐
5.	Giving an honest day's work for an honest day's pay	☐	☐
6.	Not consuming a lot of time complaining about trivial matters	☐	☐
7.	Always focusing on positive side, rather than what's wrong	☐	☐
8.	Not blowing problems out of proportion	☐	☐
9.	Never finding fault with what the organization is doing	☐	☐
10.	Keeping the wheels of the organization always turning	☐	☐
11.	Attending meetings that are not mandatory, but are considered important	☐	☐
12.	Attending meetings that are not required, but help the company image	☐	☐
13.	Keeping abreast of changes in the organization	☐	☐
14.	Reading and keeping up with organization announcements, memos, and so on	☐	☐
15.	Taking steps to try and prevent problems with other workers	☐	☐
16.	Being mindful of how behavior affects other people's jobs	☐	☐
17.	Not abusing the rights of others	☐	☐
18.	Trying to avoid creating problems for coworkers	☐	☐
19.	Considering the impact of actions on coworkers	☐	☐
20.	Helping others who have been absent	☐	☐
21.	Helping others who have heavy work loads	☐	☐
22.	Helping orient new people even though it is not required	☐	☐
23.	Willingly helping others who have work related problems	☐	☐
24.	Always being ready to lend a helping hand to others	☐	☐

Figure 3.5. Items measuring job expectations in the field study; Morrison (1994).

indicating that every behavior was beyond expectations.

Attribution of Motive. Perceived motive was measured with a 12-item scale developed specifically for this study (Figure 3.6). The items were designed to measure two dimensions. Six items were used to assess attribution of motive to altruistic causes and six items were designed to tap attribution of motive to instrumental reasons. The psychometric properties of this scale were assessed in a pilot-study which is described at the end of this chapter.

Overall Evaluation. Five items were developed specifically for this study to assess the manager's overall evaluation of the value of the ratee to the organization (Figure 3.7). The psychometric properties of this scale were assessed in a pilot-study which is described later in this chapter.

Reward Recommendations. A measure designed specifically for this study was developed to assess the extent to which the rater would recommend the ratee for five common organizational rewards (Figure 3.8).

Demographic Variables. Data was collected on a variety of demographic variables, including age, sex, race, job tenure, and organizational tenure. Additionally, information was collected regarding the *dyadic duration* of the manager/subordinate relationship.

Directions: To what extent do you agree that the following may be the reason for or cause of this individual's actions on those occasions when he/she does exhibit behaviors that could be considered "Above and Beyond the Call of Duty."

Items
Altruistic Motives
1. Personal values of right and wrong
2. Commitment to the organization
3. Involvement in their work
4. Loyalty to the organization
5. Sense of moral standards
6. Desire to share expertise in an effort to help others learn
Instrumental Motives
7. Desire enhance his or her image (e.g., to make others believe they are a helpful individual)
8. Desire to build up favors for later exchange
9. Desire to "show-off" expertise
10. Desire to impress the boss
11. Desire to seek the spotlight
12. Desire to obtain recognition or other organizational rewards

Note: Items are rated on a five-point scale (1 = strongly disagree to 5 = strongly agree).

Figure 3.6. Items used to measure causal attribution of motives in the field study.

Directions: Indicate the extent that you agree with each of the following statements regarding this employee.

This employee...

Items
1. Makes an important contribution to the organization
2. Is indispensable to the organization.
3. Is a vital part of our organization.
4. Is extremely valuable to the organization
5. Would be extremely costly to replace

Note: Items are rated on a five-point scale (1 = strongly disagree to 5 = strongly agree).

Figure 3.7. Items measuring overall evaluation in the field study.

Directions: Please indicate the extent that would you recommend this employee for each of the following organizational rewards.

Items
1. Salary increase
2. Promotion
3. High profile project
4. Public recognition (e.g., company award)
5. Opportunities for professional development

Note: Items rated on a five-point scale anchored by (1 = would definitely not recommend 5 = would recommend with confidence and without reservation).

Figure 3.8. Items used to measure reward recommendations in the field study.

Study 2 - Laboratory Study

Participants

The participants in the laboratory study were students at a large southeastern university enrolled in upper-division undergraduate business and introductory psychology courses. Participants were asked to sign-up for two sessions in exchange for course credit from their course instructor. A total of 154 students participated in the first session. Of those 154, 136 returned for the second session. The sample of 154 included 86 men and 68 women who ranged in age from 18 to 47 years ($M = 22.97$, $SD = 4.64$). Their racial background was as follows: White (90.3%), Black (3.2%), Asian (4.5%), and 1.9% were of other racial background. Most participants (92.9%) were in their junior or senior year of school. A majority of the participants were currently employed (86.8%).

Sample demographics for the 136 students who participated in both sessions included 75 men and 61 women who ranged in age from 18 to 47 years ($M = 23.07$, $SD = 4.87$). Their racial background was as follows: White (89.7%), Black (3.7%), Asian (4.4%), and 2.2% were of other racial background. Most participants were in their junior or senior year of school (94.1%). Most of the participants were currently employed (86.7%). From a demographic standpoint, there appeared to be few differences between the students who participated in both sessions and those who participated in only the first session.

Procedure

Participants were given the cover story that the research was being done in an effort to investigate effective teaching behaviors. They were informed that as part of this effort, the researcher was soliciting participation from students to complete a university survey and to view and rate video-taped segments of graduate student teaching performance. Participants were told that their feedback would help provide the

researchers with information regarding the development of future training programs for graduate student teaching assistants. During the first session, participants were given a survey containing the job expectations measure and miscellaneous other filler measures (e.g., satisfaction with the university) to complete. The second session was held approximately one to two weeks later. As stated above, a total of 154 students participated in the first session. Of those 154, 136 returned for the second session.

During the second session, participants viewed a nine-minute color video-tape of an instructor interacting with a class and delivering a lecture. Each group of subjects was randomly assigned to one of the eight experimental conditions as depicted in Figure 3.9.

At the beginning of each experimental session, subjects were given a brief introduction regarding the nature of the activities depicted on the videotape. After viewing the video-tape, the participants were giving a booklet containing the dependent measures, manipulation checks, and questions soliciting demographic information.

Development of Materials

Scripts. The development of the scripts proceeded through a multiple-stage process. First, structured interviews were conducted with six undergraduate students. The students were asked to provided examples of effective and ineffective expected teaching behaviors. The students were also asked to provide examples where they believed an instructor had gone above and beyond the call of duty. The information gathered during the structured interviews was used to develop a survey used in the second stage. The survey was comprised of the behavioral examples of teaching behaviors that interviewees had classified as above and beyond the call of duty. A group of 40 students completed this survey. The students indicated on a 5-point scale the extent to which they believed that each of the behaviors went above and beyond the call of duty. The behaviors that were most highly rated as being above and beyond the call of duty were incorporated into the scripted material. The list of critical incidents of teaching

Male Target			
Low In-role		High In-role	
Low Extrarole	High Extrarole	Low Extrarole	High Extrarole

Female Target			
Low In-role		High In-role	
Low Extrarole	High Extrarole	Low Extrarole	High Extrarole

Figure 3.9. Experimental design for laboratory study.

performance developed by Sauser, Evans, and Champion (1980) was also consulted for script development.

Videotapes. A total of 16 different video-taped segments were developed for this research (see Figure 3.10). Four different actors played the role of instructor (two females and two males). Two males and two females were used in order to rule-out the possibility that any observed effects were due to some personal characteristic of the individual actor as opposed to the experimental conditions. Each of the four actors had the following background and experience: (a) advanced doctoral degree student, (b) experienced graduate teaching assistant, and (c) experienced role-player for training and/or assessment center purposes. Potential rater biases were also controlled by having the actors wear the same type of attire, display similar mannerisms, etc.

Prior to filming, each actor was provided with a prepared script and the key behaviors to be demonstrated. The roles of the actors changed in the matter called for by the experimental manipulations. Each of the four actors played all of the roles. Practice and verbal feedback regarding the portrayal of the roles described was included prior to final filming.

The filming took place within an actual classroom. Because some behaviors involved interaction with students, several additional individuals also played the role of "students." The camera remained focused on the instructor at all times. With one exception, when "students" were called upon, only their voices were heard. The exception was at the beginning of each segment where the same actor, playing the role of a student, walked to the front of the class and spoke with the instructor. The final product was a realistic depiction of a 9-minute lecture that included student-teacher interaction.

Video Pilot Test. In order to ensure the effectiveness of the experimental manipulations and the fidelity of the classroom scenes, each of the 16 video segments

	Experimental Condition[a]			
Female One	**Low-Low**	**Low-High**	**High-Low**	**High-High**
Female Two	**Low-Low**	**Low-High**	**High-Low**	**High-High**
Male One	**Low-Low**	**Low-High**	**High-Low**	**High-High**
Male Two	**Low-Low**	**Low-High**	**High-Low**	**High-High**

[a]Represents the level of in-role and extrarole level depicted in each segment.

Figure 3.10. Video-taped segments across gender and performance levels.

was subjected to pilot-testing. An independent group of 12 doctoral students who were all trained assessment center assessors agreed to view and rate the video-tapes.

A Latin-squares type design was used wherein each of the raters watched four of the teaching segments and provided ratings regarding the level of in-role and extrarole behavior observed. Each of the individual 16 vignettes were observed and rated by 3 expert judges. For the four segments that represented in-role performance judges were asked to rate the instructor's performance with regard to performing the in-role or expected behaviors of an instructor. Scale responses ranged from 1 = "Highly Ineffective" to 5 = "Highly Effective". Mean ratings under the low performance condition ranged from 1 to 3 with an overall mean of 1.63 (SD = .48). For the segments that represented high in-role performance the judges mean ratings ranged from 4 to 5 with an overall mean of 4.46 (SD = .33). For the segments that represented extrarole performance the judges were asked to indicate if the instructor demonstrated behaviors that could be considered extrarole or that went above and beyond the call of duty for an instructor on a scale ranging from 1 = "There were no examples of extrarole behavior" to 3 = "There were definitely several examples of extrarole behavior." Mean ratings under the low performance condition ranged from 1 to 2 (on a 3-point scale) with an overall mean of 1.21 (SD = .26). For the segments that represented high extrarole performance the judges' ratings all converged at 3.

The expert judges also rated how realistic the videotapes were in terms of depicting an actual classroom scene on a scale ranging from 1 = "Unrealistic" to 4 = "Very Realistic". The overall mean from the ratings of the 12 judges was 3.25 (SD = .62). The judges were also asked to rate the overall quality of the videotape in terms of sound and picture on a scale ranging from 1 = "Poor" to 4 = "Excellent." The overall mean rating of the 12 judges was 2.92 (SD = .67).

Measures

Liking. The same 4-item measure used in the field study that was developed by Wayne and Ferris (1990) was modified to fit the present situation. See Figure 3.11.

Perceived Affective Commitment. Shore et al's. (1995) Manager-rated Commitment Scale was adapted for use in the present situation. See Figure 3.12.

Job Expectations. Students were presented with a list 20 teaching behaviors and asked to indicate if they believed each behavior was an expected part of teaching performance or if the behavior was somewhat above and beyond expectations for this job. See Figure 3.13. Higher scores indicated that the behaviors were more likely to be viewed as beyond expectations while lower scores indicated that the behaviors were more likely to be viewed as expected.

Overall Evaluation. The five items that were used in the field study were again used in the laboratory study, but were adapted to fit the laboratory context. See Figure 3.14.

Reward Recommendations. Three rewards that could be offered to instructors were developed for use in the laboratory study. These are described in Figure 3.15.

Manipulation Checks

Several questions were designed to assess the effectiveness of the manipulations. Specifically, after responding to the items related to the study constructs, raters were asked to rate the in-role performance of the instructor and the extrarole behavior of the instructor.

Participants were also asked to specify the gender of the instructor they rated. Research has also shown that physical attractiveness influences ratings (e.g., Marlowe, Schneider, & Nelson, 1996), hence a question was included to assess the attractiveness of the instructor as rated by the student. Figure 3.16 illustrates these questions.

Items
1. I think I would get along well with this GTA
2. Attending a class taught by this GTA would be a pleasure
3. I like this GTA
4. I think this GTA would probably make a good friend

Note: Items are rated on a five-point scale (1 = strongly disagree to 5 = strongly agree).

Figure 3.11. Items measuring liking in the laboratory study.

Items
1. This GTA appears to be highly committed to students
2. This GTA appears to be "emotionally" attached to students
3. This GTA views student problems as his/her own
4. This GTA really cares about the fate of students

Note: Items are rated on a five-point scale (1 = strongly disagree to 5 = strongly agree).

Figure 3.12. Items measuring perceived affective commitment in the laboratory study.

Items
1. Instructor gets to know every student's name
2. Instructor provides an advanced schedule of homework due dates so students can pace themselves
3. Instructor reads drafts of papers of before they are due and gives detailed feedback
4. Instructor brings real life experiences of his/her work to class
5. Instructor takes the class on a field trip
6. Instructor gives practice questions before each exam
7. Instructor initiates conversations with students before and after class.
8. Instructor is always enthusiastic about the course material
9. Instructor provides his/her phone number to students
10. Instructor takes extra time with students who are struggling with the course
11. Instructor has flexible office hours
12. Instructor encourages class participation
13. Instructor tries to get to know students personally by speaking with them about non-course related matters
14. Instructor brings in outside materials such as articles from business periodicals
15. Instructor goes through the course outline/syllabus
16. Instructor discusses grading
17. The instructor presents material in a clear and logical manner
18. Instructor communicates information well
19. Instructor has a great deal of expertise regarding the course subject
20. Instructor sees students outside of his/her regularly scheduled office hours

Note: Items are rated on a five-point scale (1 = definitely expected of every instructor to 5 = definitely beyond normal expectations).

Figure 3.13. Items measuring job expectations in the laboratory study.

Items
1. This GTA is a vital part of the "University of ..."
2. This GTA is extremely valuable to the "University of ..."
3. This GTA is indispensable to the "University of ..."
4. This GTA makes an important contribution to the "University of ..."
5. This GTA would be extremely costly for the "University of ..." to replace

Note: Items are rated on a five-point scale (1 = strongly disagree to 5 = strongly agree).

Figure 3.14. Items measuring overall evaluation in the laboratory study.

Items
1. Annual College of Business Administration Outstanding Graduate Teaching Assistant award
2. Appointment to a full-time faculty position
3. Graduate Fellowship Financial Award

Note: Items are rated on a five-point scale (1 = would definitely not recommend to 5 = would recommend with confidence and without reservation).

Figure 3.15. Items measuring reward recommendations in the laboratory study.

How would you rate this instructor's performance with regard to performing the in-role or expected behaviors of a instructor? *(In-role behaviors* are those that are expected and mandated by the organization - in this context, it would be the performance of an instructor at the "University of ...").

1 Highly Ineffective
2 Somewhat Ineffective
3 Moderately Effective
4 Very Effective
5 Highly Effective

Did this instructor demonstrate teaching behaviors that could be considered extrarole or that went above and beyond the call of duty for an instructor? *(Extrarole behaviors* are those that are not prescribed or mandated by the organization - behaviors that go above and beyond the call of duty).

1 There were no examples of extrarole behavior
2 There might of been some examples of extrarole behavior
3 There were definitely several examples of extrarole behavior

What was the gender of the GTA you rated: ❒ Male ❒ Female

How would you rate the physical attractiveness of this GTA?

❒ Not Attractive
❒ Somewhat Attractive
❒ Very Attractive

Figure 3.16. Manipulation checks completed by lab participants.

Pilot Study

Prior to collecting data for the laboratory or field study, survey data collected in conjunction with executive development program provided the opportunity to examine the psychometric soundness of several of the research measures. Data was collected on the following variables: in-role performance, extrarole performance, overall evaluation, perceived affective commitment, job expectations, and causal attribution of motive. All of the above measures were exhibited earlier within this chapter except the initial in-role performance and job expectations measures which are illustrated under Figures 3.17 and 3.18, respectively. In addition to the pilot study, a power analysis was conducted to help identify the number of subjects that would be needed to test the hypotheses involving moderators. The computations for the power analysis are shown in the Appendix. While the sample size indicated by the power analysis was not obtained in the present research, sample size did not appear to effect the results. This is discussed in more detail in the discussion section.

Participants

The respondents were 103 upper-level managers of 28 participants in an executive development program. Of those providing demographic data, 85.7% were male (N=84) and 95.9% were white (N=94). Additionally, the average organizational tenure of the respondents was 16.43 years (SD = 9.92) and their mean job tenure was 4.32 years (SD = 3.89). Moreover, respondents had supervisory status over the targets for an average of 3.23 years (SD = 3.84). A summary of the demographic information is provided in Table 3.2.

Procedure

Surveys were distributed to 28 participants of an executive development program. Each of the program participants were instructed to ask up to 5 of their upper-level

	Items
1.	**Analysis** (perceives subtle relationships: attends to detail; assimilates relevant information; draws logical conclusions)
2.	**Decision-Making** (uses logical, sound judgment; decides when to do things as well as what to do; takes action; demonstrates confidence
3.	**Organizing/Planning** (structures tasks, plans & objectives; establishes priorities; schedules task assignments effectively; manages personal time effectively)
4.	**Communication** (communicates effectively [written and oral] with others; seeks information & suggestions; shares needed information)
5.	**Delegation** (directs & coordinates activities of others effectively; maintains control of situations; effectively uses staff to accomplish goals)
6.	**Interpersonal** (exhibits consideration for the needs & feelings of others; develops rapport & trust; deals effectively with others regardless of level of status)
7.	**Initiative** (demonstrates drive; self-starting ability'; acts promptly; strives to attain goals)
8.	**Job Knowledge** (demonstrates awareness of relevant duties and responsibilities; exhibits skills necessary to perform effectively)
9.	Using the same scale, please rate this individuals **OVERALL PERFORMANCE**

Note: Items are rated on a seven-point scale (1 = very poor to 7 = outstanding).

Figure 3.17. Items measuring in-role performance in pilot study.

Directions: Individuals may have differing opinions regarding the behaviors that they expect employees to perform as part of their job. Indicate the extent to which you agree that the following categories of behavior are an expected part of an employee's job".

Items
1. Category 1 (e.g., not taking excess time off, obeying company rules and regulations, coming to work early if needed).
2. Category 2 (e.g., not consuming a lot of time complaining about trivial matters, focusing on the positive versus the negative, keeping the wheels of the organization turning).
3. Category 3 (e.g., keeping abreast of changes in the organization, attending meetings that are not required but that may be important or that could help the company).
4. Category 4 (e.g., taking steps to try to prevent problems with other workers, being mindful of how his/her behavior affects other people's jobs, not abusing the rights of others).
5. Category 5 (e.g., helping others who have been absent, readily lending a helping hand to others, helping others who have work related problems).

Note: Items are rated on a five-point scale (1 = strongly disagree - this is above and beyond what is expected on the job to 5 = strongly agree - this is an expected part of the job).

Figure 3.18. Items used to measure job expectations in the pilot study.

Table 3.2

Demographic Statistics for Pilot Sample.

Variable	N	Percentage[a]
Gender		
Male	84	81.6
Female	14	13.6
Race		
Caucasian	94	91.3
African-American	3	2.9
Other	1	1.0

Variable	N	Mean	SD	Range
Organizational Tenure	96	16.43	9.92	.33-40
Job Tenure	95	4.32	3.89	.25-22
Experience	56	3.23	3.84	.00-15

N = 103

[a]Percentages do not sum to 100 due to missing data.

managers to complete a survey regarding the upper-level manager's perceptions of the participant. The respondents completed the surveys on their own time and returned them directly to the researchers. Hence, there was a potential maximum of 140 responses. A total of 103 surveys were returned for a response rate of 74%.

Results

Descriptive statistics. Summary descriptive statistics for each of the measures examined in the pilot study are presented in Table 3.3. As can be seen, with the exception of the job expectations measure, each of the constructs measures demonstrated acceptable internal consistency as assessed by Cronbach's alpha. All were greater than .70 with most in the .80's and .90's. The job expectations measure demonstrated poor reliability as well as limited variance (SD = .41), hence it was modified to the version described earlier in the methods section. Additionally, the distribution of many of the measures was negatively skewed and leptokurtic. However, these characteristics may be a function of the sample rather than a function of the measures. The ratees in the pilot study were individuals selected for an executive level management development program, hence they had been previously identified as high performers. It is likely measures taken from samples drawn from other populations will show greater variance and less skew.

Intercorrelations. A correlation matrix of the study variables is provided in Table 3.4. A review of the results indicate that most of the relationships among the variables were in the expected direction.

Factor Analyses

In-role performance dimensions. A factor analysis was conducted on the items intended to measure in-role performance. A principle components factor analysis

Table 3.3

Descriptive Statistics for Original Measures Used in Pilot Study.

Variable	# Items	N	Mean	SD	Range	Alpha
Overall Value	5	103	4.22	.51	3.0-5.0	.74
Task Performance	8	103	5.93	.62	4.25-7.0	.84
Global Task Performance	1	102	6.06	.66	4.0-7.0	NA
Extrarole Performance	24	101	4.14	.54	3.0-5.0	.92
Global Extrarole Performance	1	100	3.65	1.42	2.0-5.0	NA
Conscientiousness	5	101	4.64	.46	3.0-5.0	.84
Sportsmanship	5	101	3.72	1.16	2.0-5.0	.86
Civic Virtue	4	101	3.91	.56	2.75-5.0	.73
Courtesy	5	101	4.29	.65	2.4-5.0	.90
Altruism	5	101	4.07	.58	3.0-5.0	.88
Perceived Affective Commitment	4	103	4.35	.55	3.0-5.0	.77
Expectations	5	100	4.56	.41	3.0-5.0	.69
Altruistic Motive	6	101	4.38	.48	3.0-5.0	.84
Instrumental Motive	6	101	2.20	.84	1.0-4.5	.90

Table 3.4

Intercorrelations Among Study Variables - Pilot Study.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Overall Evaluation	-													
2. In-role perform.	.44	-												
3. Global in-role	.47	.80	-											
4. Conscientiousness	.32	.37	.33	-										
5. Sportmanship	.41		.51	.50	-									
6. Civic Virtue	.26	.49	.42	.48	.49	-								
7. Courtesy	.28	.55	.40	.47	.49	.48	-							
8. Altruism	.33	.53	.44	.49	.39	.61	.63	-						
9. Combined ERP[a]	.43	.66	.56	.71	.84	.74	.78	.75	-					
10. Global ERP[b]	.40	.43	.40	.35	.60	.44	.31	.40	.58	-				
11. Affective Commitment	.46	.29	.29	.59	.35	.38	.39	.31	.50	.24	-			
12. Job Expectations	.33	.34	.29	.37	.35	.49	.33	.49	.46	.14	.37	-		
13. Altruistic Motive	.45	.50	.41	.65	.61	.59	.58	.59	.77	.49	.54	.45	-	
14. Instrumental	-.34	-.33	-.26	-.34	-.48	-.27	-.34	-.38	-.49	-.35	-.07	-.29	-.39	-

Note: Correlations ≥ .20 are significant at $p < .05$, correlations ≥ .26 are significant at $p < .01$.

[a]Represents extrarole performance dimensions combined

[b]Respresents single item measure of extrarole performance frequency

followed by varimax rotation was performed. The factor structure is provided in Table 3.5. Two factors were extracted with eigenvalues greater than one and together accounted for 62.6% of the variance. The first factor extracted explained 50.1% of thevariance. This factor consisted of seven of the total of nine items. The remaining two items loaded onto the second factor, which explained an additional 12.4% of the variance. It was decided that the Williams and Anderson (1991) measure of in-role performance described earlier would be a more appropriate assessment of this construct. The Williams and Anderson measure was explicitly designed to assess mandated task performance. Moreover, previous research has found the measure to be distinct from measures of extrarole performance or organizational citizenship behavior.

Extrarole performance. A factor analysis was conducted on the 24 items intended to measure extrarole behaviors. A principle components factor analysis followed by varimax rotation was conducted. The factor structure is provided in Table 3.6. Six factors were extracted with eigenvalues greater than one and together accounted for 73.3% of the variance. The first factor extracted explained 40% of the variance. The five items intended to measure courtesy loaded onto this factor. The second factor, which explained an additional 9.9% of the variance included the five items intended to measure conscientiousness. The third factor, which explained an additional 7.5% of the variance included the five items intended to measure sportsmanship. The fourth factor explained 6.8% of the variance and consisted of the 5 items intended to measure altruism. The fifth factor explained 4.6% of the variance and included two of the four items intended to measure civic virtue. The sixth factor explained an additional 4.4% of the variance and consisted and the other two items intended to measure civic virtue.

Overall evaluation and perceived affective commitment. A factor analysis was conducted on the items designed to measure overall evaluation and perceived affective commitment. The adequacy of the 9 items was examined by computing a principle

Table 3.5

Factor Analysis of In-role Performance Scale - Pilot Study.

Item	Factor One	Factor Two
Job knowledge	.75	-.12
Decision-making	.73	.19
Analysis	.73	.33
Overall performance	.70	.51
Initiative	.69	.31
Organizing/planning	.65	.25
Delegation	.60	.36
Interpersonal	.09	.88
Communication	.30	.82

Table 3.6

Factor Analysis of Items used to Measure Extrarole Performance - Pilot Study.

Item	One	Two	Three	Four	Five	Six
Considers impact of behavior on others	.83	.09	.17	.22	.23	.13
Mindful of how behavior affects others	.80	-.06	.26	.30	.08	.07
Avoids creating problems for coworkers	.74	.40	.11	.18	.00	.07
Does not abuse the rights of others	.72	.46	.12	.14	.04	.02
Takes steps to prevent problems	.71	.06	.11	.42	.14	.10
Believes in giving honest day's work	.32	.76	.12	.08	.14	.18
Obeys company rules and regulations	.13	.75	.24	.05	.00	.33
One of the most conscientious	.17	.74	.09	.30	-.04	.21
Attendance is above the norm	.01	.72	.22	.19	.27	-.04
Does not take extra breaks	-.01	.64	.34	.18	.19	-.40
Is the "squeaky wheel"	-.03	.04	.81	.20	.02	.08
Makes "mountains out of molehills"	.12	.26	.76	.17	-.04	.10
Finds fault with the organization	.22	.07	.75	.14	.28	.03
Complains about trivial matters	.22	.29	.69	.06	.20	.29
Focuses on what's wrong	.34	.26	.66	-.13	.00	.04
Helps others with heavy work loads	.15	.28	.07	.75	.21	.10
Helps others with work related problems	.39	.02	.17	.74	-.01	.12
Ready to lend helping hand to others	.28	.15	.32	.72	-.02	.11
Helps others who have been absent	.16	.15	.01	.72	.29	.28
Helps orient new people	.32	.26	.04	.62	.36	-.08
Attends meetings that are not mandatory, but are important	.11	.13	.22	.16	.78	-.01
Attends meetings that are not required, but help company image	.13	.10	.01	.19	.73	.30
Keeps abreast of organizational changes	.15	.19	.32	.34	.16	.68
Reads and keeps up with organization announcements, memos, and so on	.20	.29	.25	.26	.26	.66

components factor analysis followed by varimax rotation. The factor structure is provided in Table 3.7. Two factors were extracted with eigenvalues greater than one and together accounted for 57.2% of the variance. The first factor extracted explained 42.6% of the variance. The four items intended to measure perceived affective commitment loaded onto this factor. The second factor, which explained an additional 14.6% of the variance included the five items intended to measure overall evaluation.

Causal attribution of motive. A factor analysis was conducted on the items intended to measure causal attribution of motive for performance extrarole behaviors. The adequacy of the 12 items used to measure the two causal dimensions was examined by computing a principle components factor analysis followed by varimax rotation. The factor structure is provided in Table 3.8. Two factors were extracted with eigenvalues greater than one and together accounted for 62.8% of the variance. The first factor extracted explained 43.5% of the variance. The six items intended to measure instrumental motives loaded onto this factor. The second factor, which explained an additional 19.3% of the variance included the six items intended to measure altruistic motives. Additionally, all item loadings were greater that .60.

Summary

In summary, the majority of measures used in the pilot study appeared to adequately assess the constructs of interest. However, two changes were made as a result of the pilot study. The measure used to test job expectations was modified to follow the format used by Morrison (1994) and the Williams and Anderson (1991) measure was substituted for assessing in-role performance.

Table 3.7

Factor Analysis of Overall Evaluation and Perceived Affective Commitment Scales - Pilot Study.

Item	Factor One	Factor Two
Appears to be "emotionally" attached to this organization	.77	.15
Views the organization's problems as his/her own	.77	.11
Appears to be highly committed to the organization	.73	.19
Really cares about the fate of this organization	.66	.14
Would be extremely costly to replace	.17	.77
Is indispensable to the organization	-.09	.74
Makes an important contribution to the organization	.29	.71
Is a vital part of our organization	.42	.59
Is extremely valuable to the organization	.51	.58

Table 3.8

Factor Analysis of Attributed Motive Scale - Pilot Study.

Item	Factor One	Factor Two
Desire to impress the boss	.90	-.20
Desire to "show-off" expertise	.87	-.23
Desire to seek the spotlight	.87	-.22
Desire to build up favors for later exchange	.78	-.07
Desire to obtain recognition or other organizational rewards	.77	-.21
Desire to enhance his/her image	.68	-.02
Loyalty to the organization	-.13	.82
Commitment to the organization	-.17	.81
Sense of moral standards	-.17	.76
Involvement in their work	.00	.69
Desire to share expertise in an effort to help others learn	-.22	.65
Personal values of right and wrong	-.14	.63

CHAPTER 4

RESULTS

Study 1 - Field Study

Descriptive Statistics

Summary statistics for the variables used in the study are presented in Table 4.1. Due to missing data, the total number of subjects varied across the variables (N's ranged from 134 to 148). Additionally, while the distribution appeared to be slightly leptokurtic, most scales had responses that spanned across the full range of available scale points. Each of the multiple item constructs demonstrated strong internal consistency as assessed by coefficient alpha, with values ranging from .83 to .95.

Intercorrelations

Intercorrelations among the variables in the study are presented in Table 4.2. With the exception of ratee gender and job expectations, each of the independent variables was significantly correlated with overall evaluation. Moreover, each of the relationships was in the expected direction. Additionally, with the exception of job expectations, all of the independent variables were significantly related to reward recommendations. Each relationship was in the expected direction. Interestingly, ratee gender was negatively related to reward recommendations, indicating that males were more likely to be recommended for organizational rewards than females. Inspection of the correlation matrix also revealed that a number of variables were highly intercorrelated, arousing concerns about levels of collinearity and independence of the measured constructs. To address these concerns, confirmatory factor analysis was used to examine the discriminate validity of each of the constructs measured. The procedure and the results obtained are described below.

Table 4.1

Descriptive Statistics for Study Variables - Field Study.

Variable	# Items	n	Mean	SD	Range	Alpha
In-role Performance	7	146	4.01	.67	2.00-5.00	.95
Extrarole Performance	24	142	3.90	.56	1.96-5.00	.93
Liking	4	134	4.07	.73	1.00-5.00	.87
Perceived Commitment	4	148	3.61	.86	1.00-5.00	.88
Job Expectations	24	136	.25	.21	.00-1.00	.86
Altruistic Motive	6	147	3.85	.63	2.00-5.00	.83
Instrumental Motive	6	148	2.54	.86	1.00-5.00	.89
Overall Evaluation	5	148	3.52	.86	1.00-5.00	.91
Reward Recommendations	5	146	4.00	1.00	1.40-5.00	.90

Table 4.2

Zero-Order Correlation Coefficients Among Study Variables - Field Study.

Variable	1	2	3	4	5	6	7	8	9	10
1. In-role Performance[a]	-									
2. Extrarole Performance[a]	.66**	-								
3. Ratee Gender[b]	-.03	-.15	-							
4. Liking[a]	.52**	.74**	-.14	-						
5. Perceived Commitment[a]	.52**	.66**	-.25**	.61**	-					
6. Job Expectations[c]	.00	.09	.01	.03	.06	-				
7. Altruistic Motive[a]	.55**	.72**	-.15	.60**	.76**	.08	-			
8. Instrumental Motive[a]	-.19*	-.59**	.18*	-.49**	-.37**	-.17*	-.46**	-		
9. Overall Evaluation[a]	.65**	.63**	-.14	.63**	.67**	.02	.66**	-.27**	-	
10. Reward Recommendations[a]	.77**	.73**	-.20*	.70**	.67**	.07	.66**	-.30**	.78**	-

Note: Samples sizes ranges from 134 to 148. Probability values based on two-tailed test.

[a]Based on a 5-point scale with higher values indicating a greater degree of the construct (e.g., higher extrarole performance).

[b]Dummy coded (0 = male; 1 = female).

[c]Dummy coded (0 = expected behavior; 1 = above and beyond expectations).

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

Confirmatory Factor Analyses

Confirmatory factor analysis (CFA) was used to assess how well the scale items designed to measure in-role performance, extrarole performance, liking, perceived affective commitment, altruistic motives, instrumental motives, overall evaluation, and reward recommendations, loaded onto their respective constructs. Due to the analogous nature of the job expectations measure with the extrarole performance measure, and it's limited bivariate relationship with the other variables, job expectations was not included in the confirmatory analysis. In the case of extrarole performance, as opposed to using the 24 scale items, the scale mean of each of the five dimensions was used to represent the manifest indicators of the overall construct.

These analyses were conducted using the LISREL VII computer program (Jöreskog & Sörbom, 1989). The measurement model of LISREL assesses the relationship between the items (i.e., manifest variables) and the intended constructs (i.e., latent variables). Since the items were specifically developed to reflect a priori constructs, the CFA model was deemed more appropriate and powerful than an exploratory factor analysis (Hughes, Price, & Marrs, 1986; Jöreskog & Sörbom, 1983). "Fit" of latent-variable models is determined by comparing the covariance matrix derived from a specific model to the covariance matrix of the sample data. If only a small difference exists between the implied and observed matrices, then the hypothesized factor structure is presumed to by consistent with the data.

In the present analysis, the correlation matrix of the study items was utilized as the CFA input matrix. The indicator to sample size ratio was 42 to 148. The fit of the model to the data was examined with six goodness-of-fit indices, including chi-square, the goodness-of-fit index (GFI; Jöreskog & Sörbom, 1986), root mean square residual (RMSR) (Jöreskog & Sörbom, 1983), the normed-fit index (NFI) (Bentler & Bonett, 1980), the comparative fit index (CFI) (Bentler, 1990), and the Tucker-Lewis fit index

(Tucker & Lewis, 1973). The first three indices provide a measure of the extent to which the covariance matrix estimated by the hypothesized model reproduces the observed covariance matrix (James, Muliak, & Brett, 1982). The NFI assesses a model's fit relative to the worst fit attainable rather than as a function of the difference between the implied and observed covariance matrices. The CFI and Tucker-Lewis avoids the small sample bias (i.e., underestimation of fit) associated with the NFI. A good fit is indicated by a non-significant chi-square value, a RMSR value which approaches zero, and GFI, NFI, CFI, and Tucker-Lewis values which approach unity. Computation of CFI, NFI, and Tucker-Lewis required that a comparison model be estimated in addition to the a priori measurement model. This comparison model was a most-restrictive, "worst-fit" null model in which no factors were specified to represent the individual items. Additionally, in order to provide further evidence regarding discriminability, a one factor model was also estimated in which all of the 42 indicators were loaded onto one factor.

The results of each of these analyses are presented in Table 4.3. Based on the goodness-of-fit indices, the eight factor model appears to provide a reasonable fit to the data. Moreover, the eight factor model represents a significant improvement in fit over the one factor model. Lambda, t-scores, and standard errors for each of the specific items based on the eight factor model are presented in Table 4.4. Lambdas are an indicator of the relationship between the items and their latent constructs. As can be seen, each of the items significantly (and highly) loaded onto their intended constructs. Further, 100% of the lambda values exceeded an absolute value of .462, and the median lambda value was .801. Moreover, the standard error associated with each of the items was relatively low, ranging from .062 to .080. The results of these analyses provide reasonable support for the discriminant validity of the constructs measured.

Given the reasonable fit of the data and the theoretical distinctiveness of the

Table 4.3

Goodness-of-Fit Indices - Field Study.

Model	Chi-square	df	GFI	RMSR	NFI	CFI	T-LI
Null	6100.14***	861	.111	.433			
One Factor	2904.50***	819	.417	.112	.524	.602	.582
Measurement	1607.72***	791	.664	.083	.736	.844	.830

Note: GFI = goodness-of-fit index; RMSR = root mean square residual; NFI = normed-fit-index; CFI = comparative fit index; T-LI = Tucker-Lewis Index.
*** $p < .001$

Table 4.4

Lambdas, T Values, and Standard Errors for Eight-Factor Measurement Model - Field Study.

Item	Lambda	T Value	Standard Error
REWARD1	.766	10.818	.071
REWARD2	.849	12.635	.067
REWARD3	.815	11.872	.069
REWARD4	.848	12.610	.067
REWARD5	.752	10.546	.071
OVERALL EVALUATION1	.633	8.441	.075
OVERALL EVALUATION2	.929	14.781	.063
OVERALL EVALUATION3	.949	15.248	.062
OVERALL EVALUATION4	.805	11.707	.069
OVERALL EVALUATION5	.825	12.161	.068
LIKE1	.861	12.745	.068
LIKE2	.851	12.528	.068
LIKE3	.781	10.989	.071
LIKE4	.780	10.973	.071
COMMITMENT1	.776	10.975	.071
COMMITMENT2	.694	9.392	.074
COMMITMENT3	.898	13.794	.065
COMMITMENT4	.849	12.590	.067
ALTRUISTIC MOTIVE1	.513	6.429	.080
ALTRUISTIC MOTIVE2	.492	6.122	.080
ALTRUISTIC MOTIVE3	.583	7.471	.078
ALTRUISTIC MOTIVE4	.863	12.810	.067
ALTRUISTIC MOTIVE5	.643	8.442	.076
ALTRUISTIC MOTIVE6	.862	12.794	.067
INSTRUMENTAL MOTIVE1	.906	13.998	.065
INSTRUMENTAL MOTIVE2	.920	14.346	.064
INSTRUMENTAL MOTIVE3	.633	8.348	.076
INSTRUMENTAL MOTIVE4	.604	7.875	.077
INSTRUMENTAL MOTIVE5	.727	10.016	.073
INSTRUMENTAL MOTIVE6	.636	8.395	.076
IN-ROLE PERFORMANCE1	.851	12.764	.067
IN-ROLE PERFORMANCE2	.870	13.222	.066
IN-ROLE PERFORMANCE3	.884	13.584	.065
IN-ROLE PERFORMANCE4	.845	12.623	.067
IN-ROLE PERFORMANCE5	.776	11.076	.070
IN-ROLE PERFORMANCE6	.869	13.189	.066
IN-ROLE PERFORMANCE7	.828	12.224	.068
EXTRAROLE PERFORMANCE1	.797	11.416	.070
EXTRAROLE PERFORMANCE2	.653	8.719	.075
EXTRAROLE PERFORMANCE3	.462	5.786	.080
EXTRAROLE PERFORMANCE4	.777	11.014	.071
EXTRAROLE PERFORMANCE5	.650	8.667	.075

constructs, each of the items used to initially measure the constructs of interest were retained and used to represent each of the intended constructs in all subsequent analyses.

Hypotheses Tests

General Analytic Strategy. All hypotheses were tested through the use of hierarchical multiple regression. Since the focus of the present study was on the testing of specific linkages as opposed to an overall theoretical model and contained both mediator and moderator analyses, it was thought that regression techniques would be more appropriate than structural equation modeling techniques (SEM). While methods for testing moderator hypothesis through SEM have been developed, interactions terms are difficult to assess using standard SEM techniques (Kenny & Judd, 1983). A dummy-coded variable was created to distinguish between males and females (male = 0; female = 1) for hypotheses postulating gender effects.

With regard to the hypotheses proposing mediator effects, the criteria established by Baron and Kenny (1986) and James and Brett (1984) were used to determine if a mediation effect did indeed exist. Briefly, Baron and Kenny outlined four criteria that must be met to establish a mediating relationship. First, the predictor variables should be correlated with the proposed mediator variable. Second, it should be shown that the predictor variable is predictive of the outcome variable. Finally, it must be shown that the effect of the predictor variable on the outcome variable is weaker when the mediator variable is included in the regression equation.

The procedures described by James and Brett (1984) were used as a basis for testing hypotheses involving moderator effects. Moderation is supported when the addition of the interaction term (the product of the moderator and the predictor) results in a significant increment in variance associated with the dependent variable beyond the variance accounted for by the effects entered in the prior steps.

Hypotheses 1a and 1b. Hypothesis 1a stated that extrarole performance would add to the prediction of overall evaluation beyond that of in-role performance, while hypothesis 1b stated that extrarole performance would add to the prediction of reward recommendations beyond that of in-role performance. Hierarchical regression analysis was used to test these hypotheses. In the first step, the dependent variable (overall evaluation or reward recommendations) was regressed onto in-role performance. In the second step, extrarole performance was added to the first equation. Results for each of these analyses are presented in Tables 4.5 and 4.6.

An incremental F test assessing R^2 change was used to determine support for the hypotheses. The R^2 change is the proportion of variance that contributes to the dependent variable, net of the effects of all other independent variables previously entered. With regard to overall evaluation, the results demonstrate that the addition of extrarole performance in step two added a significant increment in variance accounted for beyond the variance accounted for by in-role performance alone ($R^2\Delta = .07$, $p < .001$). Likewise, with regard to reward recommendations, the addition of extrarole performance added a significant increment in variance accounted for beyond the variance accounted for by in-role performance ($R^2\Delta = .09$, $p < .001$). Hence, full support was found for hypotheses 1a and 1b, indicating that extrarole performance adds to the prediction of overall evaluation and reward recommendations beyond that of in-role performance.

Hypothesis 2a. Hypothesis 2a proposed that the relationship between extrarole performance and overall evaluations would vary as a function of in-role performance such that extrarole performance will have a greater impact on overall evaluation when in-role performance is at or above a moderate level. Hierarchical multiple regression was used to test this hypothesis. In-role performance was entered first into the equation, followed by extrarole performance. Next, the interaction term was entered (in-role

Table 4.5

Regression Results With Overall Evaluation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights	
	Step 1	Step 2
In-role Performance	.65**	.41**
Extrarole Performance		.36**
R^2 at each step	.42	.49
$R^2\Delta$		.07***
Final F		66.76***

N = 140
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.6

Regression Results with Reward Recommendations as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights	
	Step 1	Step 2
In-role Performance	.77***	.51***
Extrarole Performance		.39***
R^2 at each step	.59	.68
$R^2\Delta$		.09***
Final F		142.89***

N = 138
† p < .10 * p < .05 ** p < .01 *** p < .001

performance multiplied by extrarole performance). The results of the analysis are presented under Table 4.7.

The addition of the interaction term resulted in a marginally significant increment in explained variance ($R^2\Delta = .01$, $p < .10$). Median splits were used to help interpret the nature of the marginal interaction. Specifically, individuals with scores less than or equal to the median were classified into respective low in-role and low extrarole sub-groups. Individuals scoring above the median were classified into respective high in-role and high extrarole performance sub-groups. The median score for both in-role performance and extrarole performance was 4.0. This process was conducted for interpretive purposes only.

Table 4.7

In-Role Performance by Extrarole Performance Interaction for Overall Evaluation - Field Study.

	Standardized Regression Weights		
Independent Variable	Step 1	Step 2	Step 3
In-Role Performance	.65**	.41***	.96**
Extrarole Performance		.36***	.82**
In-Role x Extrarole			-.92†
R^2 at each step	.42	.49	.50
$R^2\Delta$		.07***	.01†
Final F			45.99***

N = 140
† $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Figure 4.1 provides an illustration of the nature of the observed relationships. Individuals who were classified as high in-role performers received similar ratings of overall evaluation when they were also classified as low extrarole performers ($\underline{M} = 3.85$) as when they were classified as high extrarole performers ($\underline{M} = 3.97$). In contrast, for individuals classified as low in-role performers, low extrarole performance and high extrarole performance resulted in different overall evaluation ratings with low extrarole performers being rated lower than high extrarole performers (low extrarole $\underline{M} = 3.00$; high extrarole $\underline{M} = 3.59$). Given that the direction of the interaction was opposite to that which was predicted, no support was found for hypotheses 2a.

Hypothesis 2b. Hypothesis 2b stated that the relationship between extrarole performance and reward recommendations would vary as a function of in-role performance such that extrarole performance will have a greater impact on reward recommendations when in-role performance is at or above a moderate level than when in-role performance is at a low level.

The same multiple regression procedure described above was used with reward recommendations as the dependent variable. The results are shown under Table 4.8. The addition of the interaction term resulted in a marginally significant change in explained variance ($R^2\Delta = .01$, $\underline{p} < .08$). The same median split procedure described under hypothesis 2a was conducted to help interpret the nature of these relationships and is depicted under Figure 4.2.

At high in-role performance, mean ratings of reward recommendations were somewhat higher under high extrarole role performance ($\underline{M} = 4.66$) than under low extrarole performance ($\underline{M} = 4.31$). On the other hand, under low in-role performance, low extrarole performance was rated substantially lower than high extrarole performance

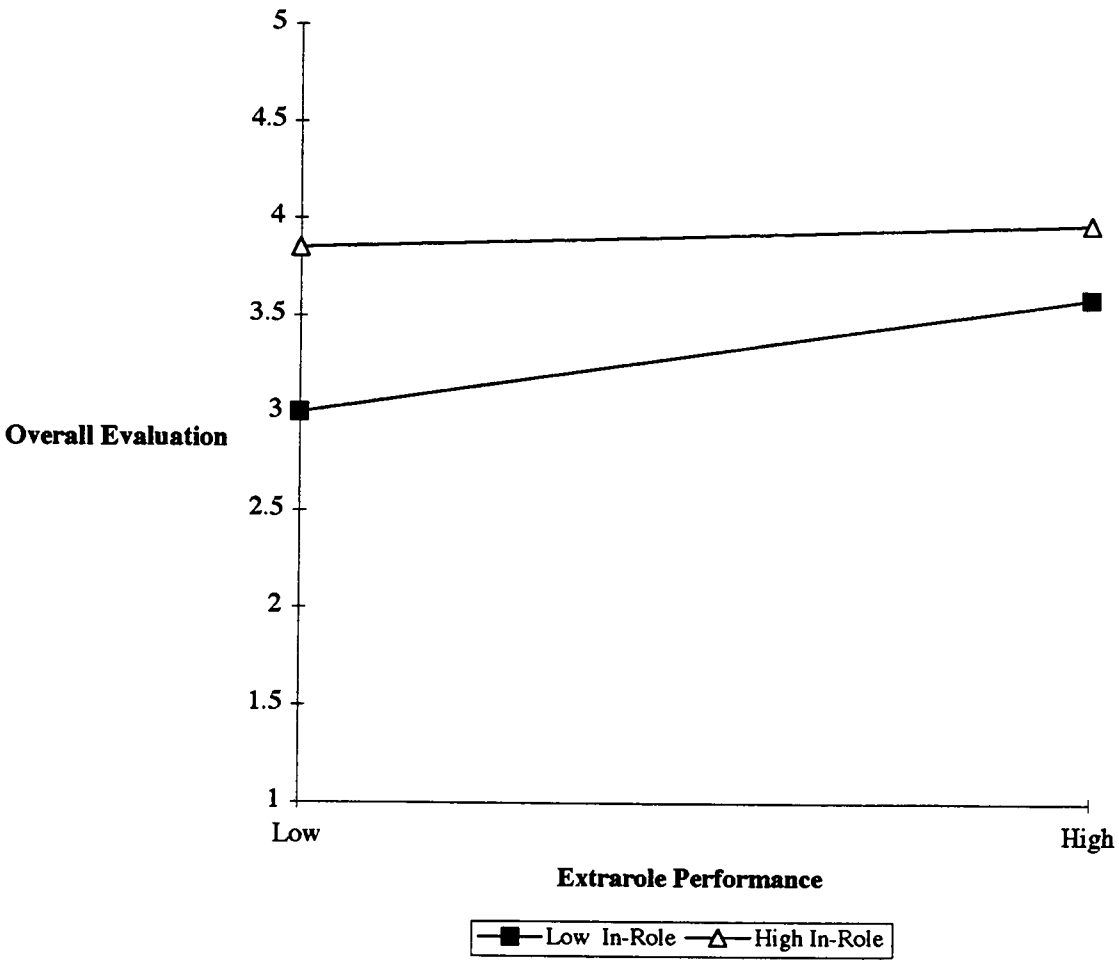

Figure 4.1. In-role Performance by Extrarole Performance Interaction for Overall Evaluation - Field Study.

Table 4.8

In-Role Performance by Extrarole Performance Interaction for Reward Recommendations - Field Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
In-Role Performance	.77***	.51***	.99***
Extrarole Performance		.39***	.79***
In-Role x Extrarole			-.80†
R^2 at each step	.59	.68	.69
$R^2\Delta$		.09***	.01†
Final F			97.96

N = 138
† p < .10 * p < .05 ** p < .01 *** p < .001

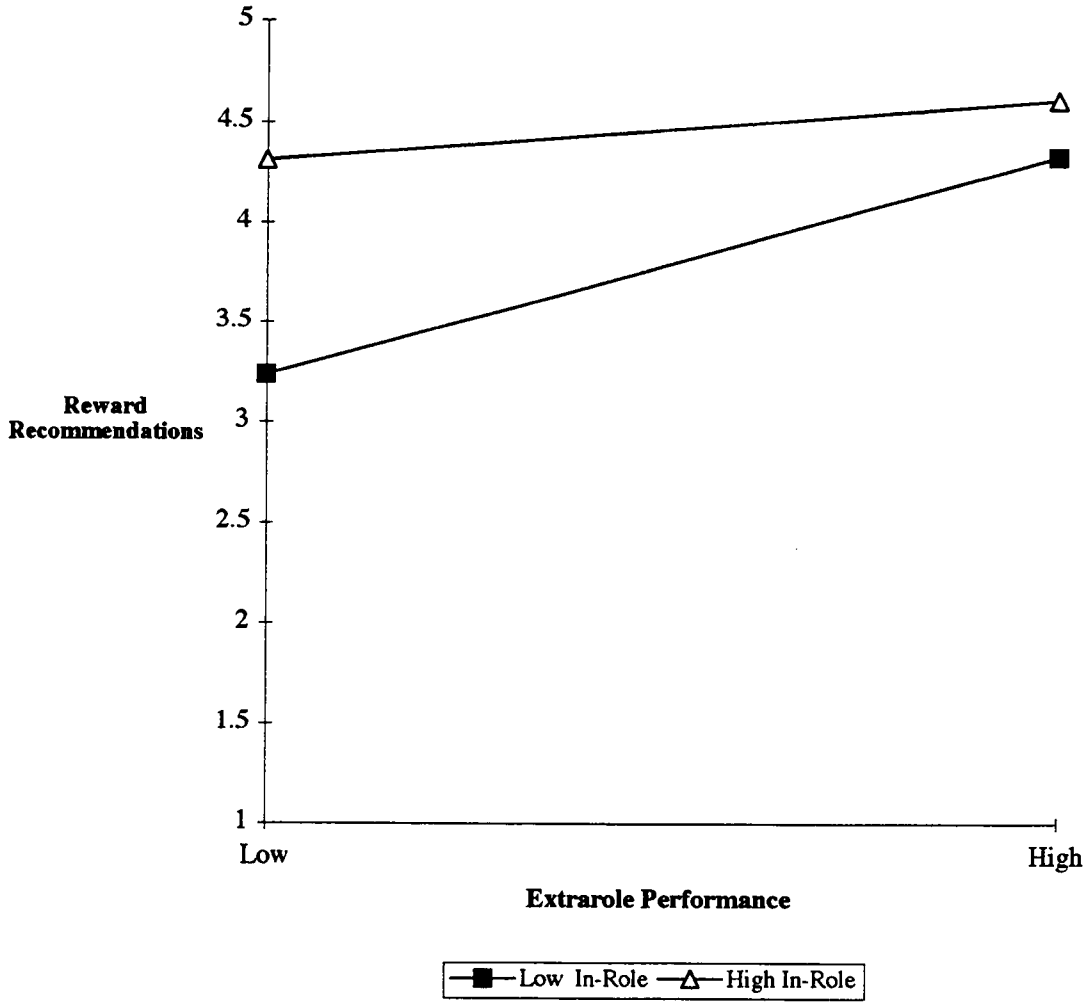

Figure 4.2. In-role Performance by Extrarole Performance Interaction for Reward Recommendations - Field Study.

(low extrarole $\underline{M}$ = 3.23; high extrarole $\underline{M}$ = 4.33). Thus, no support was found for hypothesis 2b, as the results were in the direction opposite to what was expected.

Hypothesis 3a and 3b. Hypothesis 3a proposed that when controlling for in-role performance, the relationship between extrarole performance and overall evaluation would be partially mediated by liking for the ratee. Hierarchical multiple regression analysis was used to test this hypothesis. Two sets of equations were conducted. In the first set of equations, overall evaluation was regressed onto in-role performance as a control variable in the first step. In the second step, extrarole was added to the equation. In the third step, the proposed mediator variable, liking, was added to the equation. In the second set of equations, the dependent variable was regressed onto the control variable, in-role performance as the first step. In the second step, the mediator variable, liking, was added to the equation. In the third step, extrarole performance was added to the equation. In order for hypothesis 3a to be supported, liking should add significantly to the prediction of overall evaluation in the first set of equations, and extrarole performance should not add significantly to prediction in the second set of equations

As shown in Table 4.9, under the first set of equations, when extrarole performance was first added to the equation, it was significantly related to overall evaluation. The addition of liking in the next step resulted in a significant increment in variance accounted for in overall evaluation beyond the variance accounted for by extrarole performance ($R^2\Delta = .07$, $\underline{p} < .001$). In the second set of equations, liking was significantly related to overall value. However, the addition of extrarole performance did not result in a significant increment in the variance accounted for in the dependent variable ($R^2\Delta = .00$, n.s.). Taken together, these results support hypotheses 3a, indicating that when controlling for in-role performance, liking mediates the relationship between extrarole performance and overall evaluation.

Table 4.9

Liking as a Mediator with Overall Evaluation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Set One			
In-role Performance	.64***	.43***	.41***
Extrarole Performance		.31***	.03
Liking			.40***
R^2 at each step	.40	.46	.53
$R^2\Delta$		.06***	.07***
Set Two			
In-role Performance	.64***	.42***	.41***
Liking		.42***	.40***
Extrarole Performance			.03
R^2 at each step	.40	.53	.53
$R^2\Delta$		.13***	.00
Final F			47.83***

N = 129
† p < .10 * p < .05 ** p < .01 *** p < .001

Hypothesis 3b proposed that when controlling for in-role performance, the relationship between extrarole performance and reward recommendations would be partially mediated by liking for the ratee. The same procedures described above were conducted utilizing reward recommendations as the dependent variable. The results of these analyses are presented in Table 4.10.

As shown in Table 4.10, when extrarole performance was first added to the equation, it was significantly related to reward recommendations. The addition of liking in the next step resulted in a significant increment in variance accounted for in the dependent variable beyond the variance accounted for by extrarole performance ($R^2\Delta$ = .05, $p < .001$). In the second set of equations, liking was significantly related to reward recommendations. In the next step, the addition of extrarole performance resulted in a marginally significant increment in the variance accounted for in reward recommendations ($R^2\Delta = .01$, $p < .10$). Taken together, these results provide marginal support for hypotheses 3b, indicating that when controlling for in-role performance, liking partially mediates the relationship between extrarole performance and reward recommendations.

Hypothesis 4a and 4b. Hypothesis 4a stated that when controlling for in-role performance, the relationship between extrarole performance and overall evaluations would be partially mediated by perceived affective commitment. Hierarchical multiple regression analysis was used to test this hypothesis. In the first set of equations, overall evaluation was regressed onto in-role performance as a control variable as the first step. In the second step, extrarole was added to the equation. In the third step, the proposed mediator variable, perceived affective commitment, was added to the equation. In the second set of equations, the dependent variable was regressed onto the control variable,

Table 4.10

Liking as a Mediator with Reward Recommendations as the Dependent Variable - Field Study.

	Standardized Regression Weights		
Independent Variable	Step 1	Step 2	Step 3
Set One			
In-role Performance	.76***	.51***	.50***
Extrarole Performance		.39***	.14†
Liking			.34***
R^2 at each step	.58	.67	.72
$R^2\Delta$		.09***	.05***
Set Two			
In-role Performance	.76***	.55***	.50***
Liking		.42***	.34**
Extrarole Performance			.14†
R^2 at each step	.58	.72	.72
$R^2\Delta$		.13***	.01†
Final F			107.86***

N = 127
† $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

in-role performance in the first step. In the second step, the mediator variable, perceived affective commitment, was added to the equation. In order for hypothesis 4a to be supported, perceived affective commitment should add significantly to the prediction of overall evaluation in the first set of equations, and the extrarole performance should not add significantly to the prediction in the second set of equations.

The results are presented in Table 4.11. As shown, when extrarole performance was first added to the equation, it was significantly related to overall evaluation. The addition of perceived affective commitment in the next step resulted in a significant increment in variance accounted for in the dependent variable beyond the variance accounted for by extrarole performance ($R^2\Delta = .08$, $p < .001$). In the second set of equations, perceived affective commitment was significantly related to overall evaluation. However, the addition of extrarole performance did not result in a significant increment in the variance accounted for in overall evaluation ($R^2\Delta = .01$, n.s.). Taken together, these results support hypotheses 4a, indicating that when controlling for in-role performance, perceived affective commitment mediates the relationship between extrarole performance and overall evaluation.

Hypothesis 4b stated that when controlling for in-role performance, the relationship between extrarole performance and reward recommendations would be partially mediated by perceived affective commitment. The same hierarchical multiple regression procedures described above were used to test this hypothesis with reward recommendations as the dependent variable.

The results are provided in Table 4.12. As indicated, when extrarole performance was first added to the equation, it was significantly related to reward recommendations. The addition of perceived affective commitment in the next step resulted in a significant increment in variance accounted for in the dependent variable beyond the variance

Table 4.11

Perceived Affective Commitment as a Mediator with Overall Evaluation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Set One			
In-role Performance	.65***	.41***	.36***
Extrarole Performance		.36***	.14
Perceived Commitment			.39***
R^2 at each step	.42	.49	.58
$R^2\Delta$		.07***	.08***
Set Two			
In-role Performance	.65***	.42***	.36***
Perceived Commitment		.45***	.39***
Extrarole Performance			.14
R^2 at each step	.42	.57	.58
$R^2\Delta$		.15***	.01
Final F			62.08***

N = 140

† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.12

Perceived Affective Commitment as a Mediator With Reward Recommendations as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Set One			
In-role Performance	.77***	.51***	.47***
Extrarole Performance		.39***	.22***
Perceived Commitment			.27***
R^2 at each step	.59	.68	.72
$R^2\Delta$		.09***	.04***
Set Two			
In-role Performance	.77***	.58***	.47***
Perceived Commitment		.37***	.27***
Extrarole Performance			.24***
R^2 at each step	.59	.69	.72
$R^2\Delta$		.10***	.03***
			113.94***

N = 138
† p < .10 * p < .05 ** p < .01 *** p < .001

accounted for by extrarole performance ($R^2\Delta = .04$, $p < .001$). In the second set of equations, perceived affective commitment was significantly related to reward recommendations. In the next step, the addition of extrarole performance resulted in another significant increment in the variance accounted for in reward recommendations ($R^2\Delta = .03$, $p < .001$). Hence, it appears that both extrarole performance and perceived affective commitment have significant direct relationships with reward recommendations, indicating no support for hypotheses 4b.

Hypothesis 5a. Hypothesis 5a proposed that the relationship between extrarole and liking would vary as a function of the extent that extrarole performance is viewed a part of the ratee's job requirements such that the extent of extrarole performance's enhancing effect on liking will be greater when extrarole performance is not viewed as part of the job than when it is expected as part of the job.

This hypothesis of moderation was tested through the use of hierarchical multiple regression. The dependent variable, liking, was regressed onto extrarole performance. Then the moderator variable (job expectations) and the interaction term (job expectations multiplied by extrarole performance) were added to the equation.

The results are presented in Table 4.13. The results failed to show a significant increment in variance accounted for when the interaction term was entered into the equation ($R^2\Delta = .00$, n.s.). This indicates that the relationship between extrarole performance and liking is not moderated by job expectations. Thus, no support was found for hypothesis 5a.

Hypothesis 5b. Hypothesis 5b stated that the relationship between extrarole performance and perceived affective commitment would vary as a function of the extent that extrarole performance is viewed a part of the ratee's job requirements such that the extent of extrarole performance's enhancing effect on perceived affective commitment

Table 4.13

Job Expectations as a Moderator with Liking as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Extrarole Performance	.72***	.72***	.67***
Add Job Expectations		.05	-.19
Add Expect x Extrarole			.24
R^2 at each step	.52	.52	.52
$R^2\Delta$		.00	.00
Overall F			43.03***

N = 122
† p < .10 * p < .05 ** p < .01 *** p < .001

will be greater when extrarole performance is not viewed as part of the job than when it is expected as part of the job.

This hypothesis of moderation was tested through the use of hierarchical multiple regression. The dependent variable, perceived affective commitment, was regressed onto extrarole performance. Then the moderator variable (job expectations) and the interaction term (job expectations multiplied by extrarole performance) were added to the equation.

The results are presented in Table 4.14. The results failed to show a significant increment in variance accounted for when the interaction term was entered into the equation ($R^2\Delta = .00$, n.s.). This indicates that the relationship between extrarole performance and perceived affective commitment is not moderated by job expectations. Thus, no support was found for hypothesis 5b.

Hypothesis 6a. Hypothesis 6a stated that when controlling for in-role performance, the relationship between extrarole performance and overall evaluation will be partially mediated by the causal motive attributed to extrarole performance. Hierarchical multiple regression was again used to test this hypothesis. Attributions were assessed in two thematic dimensions: altruistic and instrumental. The two causal dimensions were entered as a set in the regression equation. Table 4.15 presents the results of this analysis.

In the first set of equations, overall evaluation was regressed onto in-role performance as a control variable as the first step. In the second step, extrarole was added to the equation. In the third step, altruistic and instrumental motives were added as a set to the equation. In the second set of equations, the dependent variable was regressed onto the control variable, in-role performance, in the first step. In the second step, the altruistic and instrumental causal motive variables were added to the equation.

Table 4.14

Job Expectations as a Moderator with Perceived Affective Commitment as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Extrarole Performance	.68***	.68***	.76***
Add Job Expectations		.00	.42
Add Expect x Extrarole			-.43
R^2 at each step	.46	.46	.46
$R^2\Delta$		.00	.00
Overall F			37.04

N = 132
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.15

Causal Motive as a Mediator with Overall Evaluation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Set One			
In-role Performance	.65***	.41***	.34***
Extrarole Performance		.36***	.16
Altruistic Motive[a]			.39***
Instrumental Motive[a]			.06
R^2 at each step	.42	.49	.56
$R^2\Delta$		.07***	.07***
Set Two			
In-role Performance	.65***	.41***	.34***
Altruistic Motive[a]		.44***	.39***
Instrumental Motive[a]		.00	.00
Extrarole Performance			.16
R^2 at each step	.42	.55	.56
$R^2\Delta$		.14***	.01
Final F			43.54***

N = 140

[a]Altruistic and Instrumental Motives were entered simultaneously as a set

† p < .10 * p < .05 ** p < .01 *** p < .001

The results indicate that when extrarole performance was first added to the equation, it was significantly related to overall evaluation. The addition of the causal motive variables in the next step resulted in a significant increment in variance accounted for in the dependent variable beyond the variance accounted for by extrarole performance ($R^2\Delta = .07$, $p < .001$). In the second set of equations, causal motives were significantly related to overall evaluation. However, the addition of extrarole performance did not result in a significant increment in the variance accounted for in overall evaluation ($R^2\Delta = .01$, n.s.). Hence, support was found for hypothesis 6a, indicating that the relationship between extrarole performance and overall evaluation was mediated by the causal motive ascribed to the occurrence of the extrarole behavior. Moreover, inspection of the beta weights for the two causal motive variables reveals that the mediation effect is occurring solely through motives attributed to altruistic causes. Instrumental attributions appear to have no effect on overall evaluation.

Hypothesis 6b. Hypothesis 6b proposed that when controlling for in-role performance, the relationship between extrarole performance and reward recommendations would be partially mediated by the causal motive attributed to extrarole performance. The procedures described under hypothesis 6a were repeated utilizing reward recommendations as the dependent variable. The results are shown in Table 4.16.

The results indicate that when extrarole performance was first added to the equation, it was significantly related to reward recommendations. The addition of the causal motive variables in the next step resulted in a significant increment in variance accounted for in the dependent variable beyond the variance accounted for by extrarole performance ($R^2\Delta = .02$, $p < .01$). In the second set of equations, the causal motive variables were significantly related to overall evaluation. In the next step, the addition of

Table 4.16

Causal Motive as a Mediator with Reward Recommendation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Set One			
In-role Performance	.77***	.51***	.47***
Extrarole Performance		.39***	.29**
Altruistic Motive[a]			.22**
Instrumental Motive[a]			.05
R^2 at each step	.59	.68	.70
$R^2\Delta$		.09***	.02**
Set Two			
In-role Performance	.77***	.54***	.47***
Altruistic Motive		.32***	.22**
Instrumental Motive[a]		-.04	.05
Extrarole Performance[a]			.29**
R^2 at each step	.59	.67	.70
$R^2\Delta$		.08***	.03**
Final F			77.64***

N = 138

[a]Altruistic and Instrumental Motives were entered simultaneously as a set

† $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

extrarole performance also resulted in a significant increment in the variance accounted for in overall evaluation ($R^2\Delta = .03$, $p < .01$). Hence, no support was found for the hypothesis that motives mediate the impact of extrarole performance on reward recommendations. That is, both extrarole performance and causal motives exhibited direct effects on reward recommendations. Further, it should again be noted that only altruistic motives appeared to be related to the dependent variable.

Hypothesis 7a. Hypothesis 7a stated that when controlling for in-role performance, the relationship between extrarole performance and overall evaluation would vary as a function of the ratee's gender such that the extent of extrarole performance's enhancing effect on overall evaluation will be greater for men than for women. This hypothesis of moderation was tested through the use of hierarchical multiple regression. In-role behavior was entered into the equation first as a control variable. Then the dependent variable, overall evaluation, was regressed onto extrarole performance. Then the moderator variable (the dummy-coded variable for gender) and the interaction term (gender multiplied by extrarole performance) was added to the equation.

The results are presented in Table 4.17. The results failed to show a significant increment in variance accounted for when the interaction term was entered into the equation ($R^2\Delta = .00$, n.s.). Thus no support was found for hypothesis 7a.

Hypothesis 7b. Hypothesis 7b proposed that when controlling for in-role performance, the relationship between extrarole performance and reward recommendations would vary as a function of the ratee's gender such that the extent of extrarole performance's enhancing effect on reward recommendations would be greater for men than for women.

The same procedure as described above was used with reward recommendations as the dependent variable. The results are shown in Table 4.18. The results failed to

Table 4.17

Ratee Gender as a Moderator with Overall Evaluation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.65***	.41***	.42***	.42***
Add Extrarole Performance		.36***	.34***	.27*
Add Ratee Gender			-.07	-.53
Add Gender x Extrarole Perf				.46
R^2 at each step	.42	.49	.50	.50
$R^2\Delta$		.07***	.01	.00
Overall F				34.14***

N=140
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.18

Ratee Gender as a Moderator with Reward Recommendations as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.77***	.51***	.53***	.53***
Add Extrarole Performance		.39***	.36***	.35***
Add Ratee Gender			-.13	-.21
Add Gender x Extrarole Perf				.08
R^2 at each step	.59	.68	.69	.69
$R^2\Delta$		.09***	.02**	.00
Overall F				75.86***

N=138
† p < .10 * p < .05 ** p < .01 *** p < .001

show a significant increment in variance accounted for when the interaction term was entered into the equation ($R^2\Delta = .00$, n.s.).

While the interaction term did not add significantly to prediction, there was a significant main effect for gender. Inspection of the means for male and female ratings for reward recommendations indicated that males were more likely to be recommended for organizational rewards than females ($\underline{M} = 4.20$ and $\underline{M} = 3.81$, respectively).

Research Question Testing

Research Question 1a. Research question 1a asked if the relationship between extrarole performance and overall evaluations would vary as a function of ratee gender and in-role performance. Moderated regression was used to examine this research question. Overall evaluation was regressed onto (1) gender, (2) extrarole performance, (3) in-role performance, along with all possible interactions. Main effects were entered first, followed by each possible two-way interaction, then followed by the three-way interaction. The significance of the R^2 increment contributed by the interaction term above and beyond the lower order terms was used to determine the significance. The results are shown in Table 4.19.

As indicated, the addition of the three-way interaction term did not result in a significant increment in explained variance ($R^2\Delta = .00$, n.s.). In addition, none of the two-way interaction terms were significant. Hence, the results indicate that the relationship between extrarole performance and overall evaluation does not vary as a function of in-role performance and gender.

Research Question 1b. Research question 1b asked if the relationship between extrarole performance and reward recommendations would vary as a function of ratee gender and in-role performance. The same moderated regression procedure described above was used with reward recommendations as the dependent variable. The results are presented in Table 4.20.

Table 4.19

Three-Way In-Role Performance, Extrarole Performance, Ratee Gender Interaction with Overall Evaluation as the Dependent Variable - Field Study.

	Standardized Regression Weights						
Independent Variable	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
In-role Performance	.65***	.41***	.42***	.95**	.93**	.90*	1.12†
Add Extrarole Performance		.36***	.34***	.78**	.70*	.71*	.88†
Add Ratee Gender			-.07	-.07	-.51	-.54	.31
Add In-role x Extrarole				-.88	-.87	-.85	-1.21
Add Extrarole x Gender					.44	.35	-.55
Add Inrole x Gender						.13	-.83
Add Inrole x Extra x Gender							1.03
R^2 at each step	.42	.49	.50	.51	.51	.51	.51
$R^2\Delta$		.07***	.01	.01	.00	.00	.00
Overall F							19.83***

N = 140
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.20

Three-Way In-Role Performance, Extrarole Performance, Ratee Gender Interaction with Reward Recommendations as the Dependent Variable - Field Study.

	Standardized Regression Weights						
Independent Variable	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
In-role Performance	.77***	.51***	.53***	.96***	.96***	.94**	1.41**
Add Extrarole Performance		.39***	.36***	.72**	.71**	.72**	1.09**
Add Ratee Gender			-.13**	-.12*	-.20	-.22	1.60
Add In-role x Extrarole				-.73†	-.73†	-.72	-1.48†
Add Extrarole x Gender					.07	.01	-1.90
Add Inrole x Gender						.09	-1.97
Add Inrole x Extra x Gender							2.21
R^2 at each step	.59	.68	.69	.70	.70	.70	.70
$R^2\Delta$		.09***	.02**	.01†	.00	.00	.00
Overall F							44.31

N = 138
† p < .10 * p < .05 ** p < .01 *** p < .001

The addition of the three-way interaction term did not result in a significant increment in explained variance ($R^2\Delta = .00$, n.s.). In addition, none of the two-way interaction terms were significant. Hence, the results indicate that the relationship between extrarole performance and reward recommendations does not vary as a function of in-role performance and gender.

Summary of Field Results

In summary, the results of the field study provided evidence indicating that (1) extrarole performance adds variance beyond that of in-role performance in explaining the dependent variables, (2) in-role and extrarole performance interact in their effect on the dependent variables, (3) liking mediates the relationship between extrarole performance and the dependent variables after controlling for in-role performance, and (4) perceived affective commitment and causal motives mediate the relationship between extrarole performance and overall evaluation after controlling for in-role performance.

On the other hand, the results failed to find any interaction effects for gender and job expectations. Further, no mediating effects were found for perceived affective commitment and causal motives in terms of the relationship between extrarole performance and reward recommendations after controlling for in-role performance.

Despite the generally clear results, the cross-sectional nature of the field study leave critical unanswered questions regarding the causal direction of the relationships observed. For example, it could be argued that liking leads to higher ratings of extrarole performance. Further, given that the data are all perceptual, there is no objective base from which conclusions may be drawn. To help address this issue, a conceptual replication of the field study was conducted utilizing an experimental laboratory methodology. Confirmation from the laboratory experiment will support the assertion that extrarole performance influences the intervening and outcome variables studied and not vice-versa. The laboratory study also provides a comparison against a standard

(manipulated levels of performance) which can be used to identify the levels of performance where there is likely to be an effect on the variables studied.

Study 2 - Laboratory Experiment

Overview

In the laboratory study raters were shown videotaped segments of teaching performance. The fully crossed, between subjects design included male or females instructors performing at low or high levels of in-role performance and at low or high levels of extrarole performance. After viewing the videotapes, students responded to questions regarding how much they liked the instructor, how committed they believed the instructor was to teaching, their overall evaluation of the instructor, and the extent to which they would recommend the instructor for organizational rewards.

Descriptive Statistics

Summary statistics for all of the variables used in the study are presented in Table 4.21. Due to missing data, the total number of subjects varied across the measures, ranging from 135 to 142. Each of the multiple item constructs demonstrated strong internal consistency as assessed by coefficient alpha. The internal consistency reliabilities ranged from .79 to .92. Additionally, range restriction did not appear to be of concern. With the exception of the job expectations variable, each of the variables measured had responses that fell across the entire range of each respective scale.

The means and standard deviations by each of the experimental conditions are presented in Table 4.22. As expected, mean ratings for each of the measured variables were higher under the high in-role than in the low in-role condition. Likewise, most ratings were higher under the high extrarole condition than under the low extrarole condition. The ratings appeared to be similar for male and female ratees.

Table 4.21

Descriptive statistics for Study Variables- Lab Study.

Variable	# Items	n	Mean	SD	Range	Alpha
Liking	4	136	2.69	.98	1.00-4.75	.89
Affective Commitment	4	135	2.62	1.09	1.00-5.00	.91
Job Expectations	20	142	2.01	.53	1.10-4.40	.79
Overall Evaluation	5	136	2.36	.96	1.00-4.60	.92
Combined Recommendations	3	136	2.38	1.23	1.00-5.00	.92

Table 4.22

Means for Measured Variables by Experimental Condition - Lab Study.

	In-role Performance		Extrarole Performance		Gender	
Variable	Low	High	Low	High	Male	Female
Liking	2.18	3.17	2.22	3.18	2.66	2.71
Affective Commitment	2.25	2.96	1.90	3.38	2.61	2.63
Job Expectations	2.01	1.97	2.04	1.94	1.96	2.02
Overall Evaluations	1.82	2.88	2.12	2.61	2.41	2.32
Combined Recommendations	1.64	3.09	1.94	2.84	2.33	2.44

Intercorrelations

Intercorrelations among the variables in the study are presented in Table 4.23. A visual inspection of the correlation coefficients suggests several interesting patterns of relationships among the variables. Both in-role and extrarole performance were positively related to the dependent measures, however, the relationship between in-role performance and the dependent measures was stronger than the relationship between extrarole performance and the dependent measures.

A substantial degree of multicollinearity was observed among the variables. For example, the variables liking and affective commitment were highly intercorrelated (r = .81). However, given that the manipulations were designed to engender specific reactions, it is not surprising that there would be strongly correlated relationships, particularly given highly effective manipulations. Despite these considerations and the distinct conceptual differences among the measured constructs, it was thought to be important to empirically assess the discriminate validity of the measured variables. These analyses are presented in the following section.

Confirmatory Factor Analyses

Confirmatory factor analysis (CFA) was used to assess how well the scale items designed to measure reward recommendations, overall evaluation, liking, and perceived affective commitment loaded onto their respective constructs. This model was then compared with a three-factor model where the items intended to measure liking and perceived affective commitment were loaded onto a single factor. These analyses were conducted using the LISREL VII program and procedures described under study 1.

The fit of the model to the data was examined with five goodness-of-fit indices, including chi-square, the goodness-of-fit index (GFI; Jöreskog & Sörbom, 1986), root

Table 4.23

Zero-Order Correlation Coefficients Among Study Variables - Lab Study.

Variable	1	2	3	4	5	6	7	8
1. In-role Performance[a]	-							
2. Extrarole Performance[a]	-.07	-						
3. Ratee Gender[b]	.00	-.01	-					
4. Liking[c]	.50**	.49**	.02	-				
5. Affective Commitment[c]	.33**	.68**	.01	.81**	-			
6. Job Expectations[d]	-.03	-.10	.06	.01	-.02	-		
7. Overall Evaluation[c]	.56**	.26**	-.05	.80**	.66**	.04	-	
8. Combined Recommendation[c]	.59**	.37**	.04	.83**	.71**	-.03	.76**	-

Note: Sample sizes for correlations ranged from 135 to 142. Probability values based on two-tailed test.

[a]Dummy coded (0 = low; 1 = high).

[b]Dummy coded (0 = male; 1 = female).

[c]Based on a 5-point scale with higher values indicating a greater degree of the construct (e.g., greater liking).

[d]Based on 5-point scale with higher values indicating more behaviors were considered as beyond expectations.

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

mean square residual (RMSR) (Jöreskog & Sörbom, 1983), the normed-fit index (NFI) (Bentler & Bonett, 1980), and the comparative fit index (CFI) (Bentler, 1990). A comparative "worst-fit" null model in which no factors were specified to represent the individual items was also obtained.

The results of each of these analyses are presented in Table 4.24. Based on the goodness-of-fit indices, the four factor model appears to provide the best fit to the data. With regard to the four-factor model, lambda, t-scores, and standard errors for each of the specific items are presented in Table 4.25. Lambdas are an indicator of the relationship between the items and their latent constructs. As can be seen, each of the items significantly (and highly) loaded onto their intended constructs. Further, 100% of the lambda values exceeded an absolute value of .67, and the median lambda value was .859. Moreover, the standard error associated with each of the items was relatively low, ranging from .066 to .073. The results of these analyses provide additional support for the discriminant validity of the constructs measured.

While the substantial degree of intercorrelation between liking and perceived affective commitment represented some initial cause for concern, it appears that the two variables represent two distinct empirical as well as conceptual constructs. Additionally, the majority of the pattern of relationships observed in the present study were similar to those observed in the field study. Hence, all items used to initially measure the constructs of interest were retained and used to represent each of the intended constructs in all subsequent analyses.

Table 4.24

Goodness-of-Fit Indices - Lab Study.

Model	Chi-square	df	GFI	RMSR	NFI	CFI
Null	2226.06***	120	.143	.593		
3-Factor	298.72***	101	.779	.063	.866	.906
4-Factor	233.78***	98	.824	.052	.895	.936

Note: GFI = goodness-of-fit index; RMSR = root mean square residual; NFI = normed-fit-index; CFI = comparative fit index.
*** $p < .001$

Table 4.25

Lambdas, T Values, and Standard Errors for Four-Factor Measurement Model - Lab Study.

Item	Lambda	T Value	Standard Error
REWARD1	.930	14.129	.066
REWARD2	.892	13.162	.068
REWARD3	.852	12.210	.070
OVERALL1	.866	12.520	.069
OVERALL2	.910	13.595	.067
OVERALL3	.774	10.539	.073
OVERALL4	.875	12.729	.069
OVERALL5	.773	10.510	.074
LIKE1	.846	12.114	.070
LIKE2	.671	8.719	.077
LIKE3	.874	12.764	.068
LIKE4	.880	12.908	.068
COMMITMENT1	.828	11.601	.071
COMMITMENT2	.908	13.486	.067
COMMITMENT3	.810	11.223	.072
COMMITMENT4	.852	12.150	.070

Manipulation Checks

Gender. Ninety-five percent of the participants correctly identified the gender of the instructor whose performance they rated. Participants who had mis-specified instructor gender were identified and their completed questionnaire was reviewed. A review of the open-ended comment sections indicated that all ($N = 7$) of these individuals were correctly aware of the gender of the instructor they had rated via their use of appropriately gender-matched pronouns in their open-ended responses. Hence, it was deemed appropriate to include these participants in the analyses.

In-role and Extrarole Performance. T-tests of the difference between performance ratings made by the participants in the low versus high in-role performance condition and the low versus high extrarole performance conditions are presented in Table 4.26. The t-tests revealed that ratings made by participants in the low in-role performance condition were significantly lower than the ratings made by participants in the high in-role performance condition. Likewise, ratings made by participants in the low extrarole performance condition were significantly lower than the performance ratings made by participants in the high extrarole performance condition. As such, the manipulations were deemed to have been effective.

Equivalency Across Ratees. Analysis of variance was used to determine if there were significant differences in the in-role and extrarole performance ratings across the four ratees. The results of these tests are shown in Table 4.27. As demonstrated, no significant differences were detected in in-role ratings or extrarole ratings across the four ratees. These results help support the assertion that any effects found are due to the nature of the manipulations versus any unique characteristics of the actors who portrayed each of the ratees.

Table 4.26

T-Tests of the Difference Between Ratings of In-Role and Extrarole Performance in the Low Versus High Performance Experimental Conditions - Lab Study.

	Low Performance		High Performance			
Manipulation	Mean	SD	Mean	SD	t	p
In-role Performance[a]	1.73	.87	3.33	.97	-10.10	.000
Extrarole Performance[b]	1.28	.48	2.10	.72	-7.91	.000

N = 136

[a]Based on a three-point scale.

[b]Based on a five-point scale.

Table 4.27

Analysis of Variance Results for Equivalency Across Ratees - Lab Study.

Source	df	MS	F	p
In-role Performance	3	.03	<1.0	.997
Extrarole Performance	3	.28	<1.0	.676

N = 135

Attractiveness. The respondents were asked to rate the attractiveness of the instructor they viewed. Analysis of variance was used to determine if there were significant differences in how attractive the respondents found each of the ratees. The result of this analysis is shown in Table 4.28. As indicated, there were significant differences in the attractiveness rating assigned to each of the four ratees. To explore how this finding might affect the results of hypothesis testing, additional analysis of variance tests were conducted examining the effect of the attractiveness rating on each of the constructs of interest. The results indicated that attractiveness did not affect the mean ratings of liking, perceived affective commitment, overall evaluation, and reward recommendations. As such, although there were differences in attractiveness across the ratees, attractiveness did not appear to influence the ratings of any of the measured variables. Consequently, it was deemed appropriate to exclude further consideration of this finding within the context of the posed hypotheses.

Table 4.28

Analysis of Variance Results for Attractiveness Ratings Across Actors - Lab Study.

Source	df	MS	F	p
Actor	3	1.812	8.307	.000

N = 130

Hypotheses Tests

General Analytic Strategy. Multivariate analysis of variance procedures were used to tests hypotheses involving dichotomous independent variables. MANCOVA was used to test hypotheses involving a covariate. Due to unequal sample sizes across conditions, unique sums of squares were used in these analyses. Partial eta-square values were used to estimate effect size. While partial eta-squares are not equivalent to squared semipartial coefficients in regression analyses, they do provide a general sense of the relative magnitude of the observed effects in the study.

Hypotheses 1a, 1b and all hypotheses involving continuous variables were tested using hierarchical multiple regression (HMR). Dummy-coded variables were created to represent the distinction between the low versus high in-role performance condition and the low versus high extrarole performance conditions (low = 0; high = 1).

With regard to the hypothesis postulating mediator effects, the criteria established by Baron and Kenny (1986) and James and Brett (1984) were used to determine if a mediation effect did indeed exist. The procedures described by James and Brett (1984) were used to test hypotheses involving moderator effects.

Hypotheses 1a and 1b. Hypothesis 1a stated that extrarole performance would add to the prediction of overall evaluation beyond that of in-role performance, while hypothesis 1b stated that extrarole performance would add to the prediction of reward recommendations beyond that of in-role performance. Hierarchical regression analysis was used to test these hypotheses. In the first step, the dependent variable (overall evaluation or reward recommendations) was regressed onto in-role performance. In the second step, extrarole performance was added to the first equation. Results for each of these analyses are presented in Tables 4.29 and 4.30.

Table 4.29

Regression Results With Overall Evaluation as the Dependent Variable - Lab Study.

Independent Variable	Standardized Regression Weights	
	Step 1	Step 2
In-role Performance	.56***	.58***
Extrarole Performance		.30***
R^2 at each step	.31	.40
$R^2\Delta$		.09***
Final F		69.84***

N = 135
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.30

Regression Results with Reward Recommendations as the Dependent Variable - Lab Study.

Independent Variable	Standardized Regression Weights	
	Step 1	Step 2
In-role Performance	.59***	.62***
Extrarole Performance		.41***
R^2 at each step	.34	.51
$R^2\Delta$		.17***
Final F		69.92***

N = 135
† p < .10 * p < .05 ** p < .01 *** p < .001

An incremental F test assessing R^2 change was used to determine support for the hypotheses. The results demonstrate that the addition of extrarole performance in step two added a significant increment in variance accounted for overall evaluation ($R^2\Delta$ = .09, $p < .001$). Likewise, the addition of extrarole performance added a significant increment in variance accounted for in reward recommendations beyond that of in-role performance alone ($R^2\Delta = .17$, $p < .001$). Hence, support was found for hypotheses 1a and 1b, indicating that extrarole performance adds to the prediction of overall evaluation and reward recommendations beyond that of in-role performance.

Hypothesis 2a. Hypothesis 2a proposed that the relationship between extrarole performance and overall evaluation would vary as a function of in-role performance such that extrarole performance will have a greater impact on overall evaluations when in-role performance is at or above a moderate level than when in-role performance is at a low level. To test this hypothesis, a 2 (low in-role, high in-role) x 2 (low extrarole, high extrarole) MANOVA was conducted on overall evaluation ratings. Results of the MANOVA are presented in Table 4.31.

A significant two-way interaction was detected ($F = 7.99$, $p < .01$). The nature of this interaction is depicted in Figure 4.3. Under the low in-role performance condition, mean ratings of overall evaluation were similar under both the low ($M = 1.70$) and high ($M = 1.91$) extrarole performance conditions. In contrast, under the high in-role performance condition, high extrarole performance had a substantial positive influence on overall evaluation ratings (low extrarole $M = 2.46$; high extrarole $M = 3.38$). Hence, support was found for hypothesis 2a indicating that the relationship between extra-role performance and overall evaluation varies as a function of level of in-role performance.

Table 4.31

Analysis of Variance Results for In-role Performance by Extrarole Performance Interaction With Overall Evaluation as the Dependent Variable.

Source	df	MS	F	p	Effect Size
In-role Performance	1	41.89	79.29	.000	.38
Extrarole Performance	1	10.77	20.39	.000	.13
In-role x Extrarole	1	4.22	7.99	.005	.06

N = 136

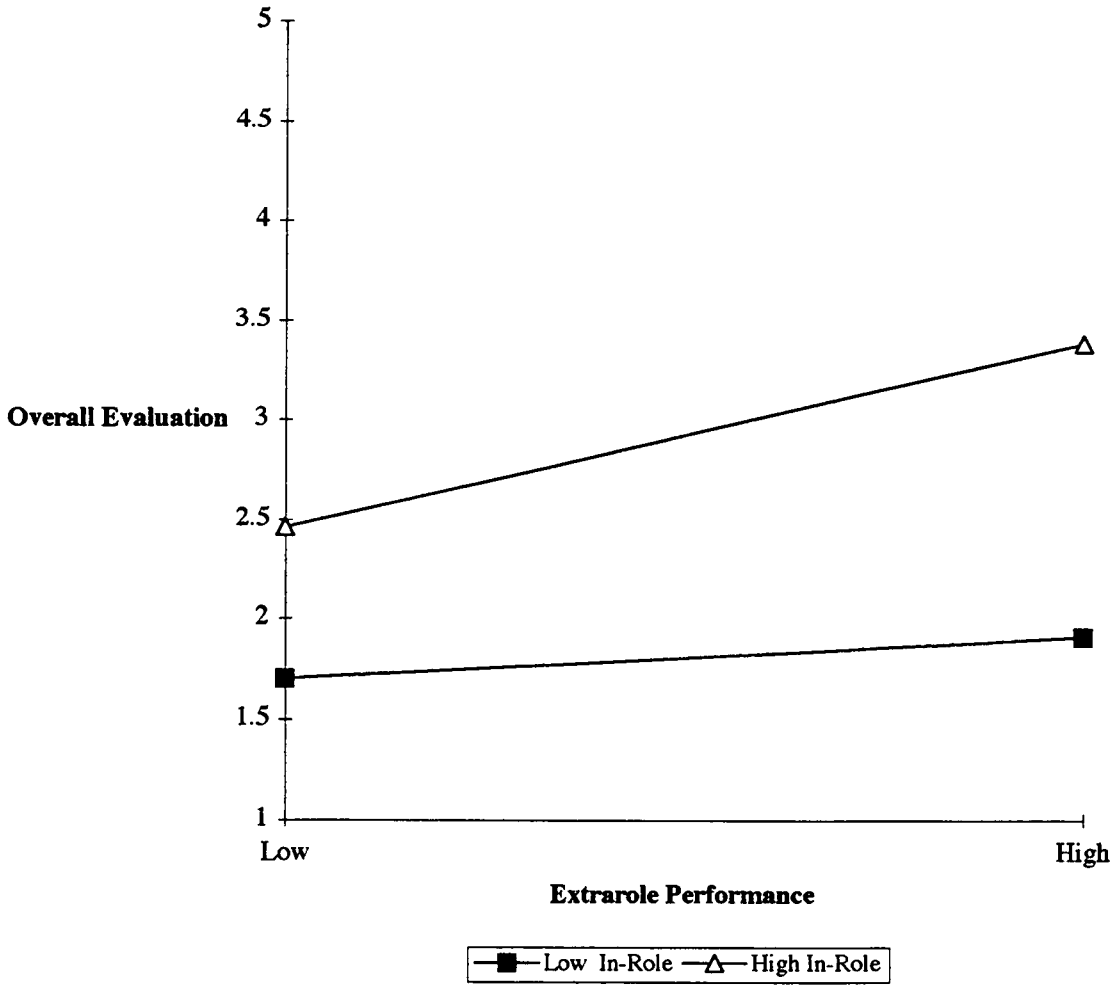

Figure 4.3. In-role Performance by Extrarole Performance Interaction for Overall Evaluation - Lab Study.

Hypothesis 2b. Hypothesis 2b stated that the relationship between extrarole performance and reward recommendations would vary as a function of in-role performance such that extrarole performance will have a greater impact on reward recommendations when in-role performance is at or above a moderate level. The same analysis of variance procedure described above was conducted with reward recommendations as the dependent variable (see Table 4.32). A significant interaction was detected ($F = 16.57$, $p < .001$).

The nature of this interaction is depicted in Figure 4.4. Under the low in-role performance condition, ratings under the low ($M = 1.42$) and high ($M = 1.84$) extrarole performance conditions were somewhat similar. However, under the high in-role performance condition, instructors under the high extrarole performance condition ($M = 2.37$) received significantly higher reward recommendations than did instructors depicted under the low extrarole performance condition ($M = 3.67$). Hence, support was found for hypothesis 2b.

Table 4.32

Analysis of Variance Results for In-role Performance by Extrarole Performance Interaction With Reward Recommendations as the Dependent Variable.

Source	df	MS	F	p	Effect Size
In-role Performance	1	78.49	116.40	.000	.47
Extrarole Performance	1	33.37	49.49	.000	.27
In-role x Extrarole	1	11.18	16.57	.000	.11

$N = 136$

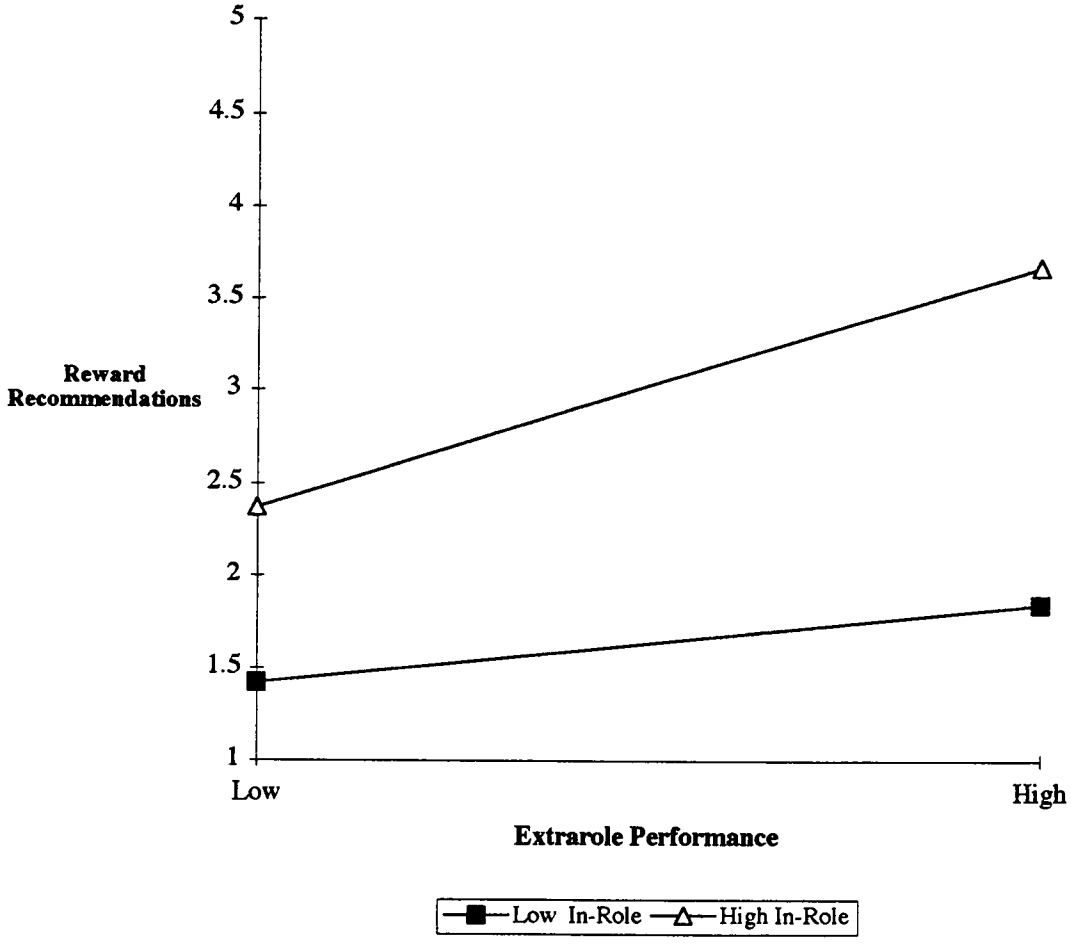

Figure 4.4. In-role Performance by Extrarole Performance Interaction for Reward Recommendations - Lab Study.

Hypotheses 3a and 3b. Hypothesis 3a proposed that when controlling for in-role performance, the relationship between extrarole performance and overall evaluation would be partially mediated by liking for the ratee. Hierarchical multiple regression analysis was used to test this hypothesis. Two sets of equations were conducted. In the first set of equations, overall evaluation was regressed onto in-role performance as a control variable as the first step. In the second step, extrarole was added to the equation. In the third step, the proposed mediator variable, liking, was added to the equation. In the second set of equations, the dependent variable was regressed onto the control variable, in-role performance, as the first step. In the second step, the mediator variable, liking, was added to the equation. In the third step, extrarole performance was added to the equation. In order for hypothesis 3a to be supported, liking should add significantly to the prediction of overall evaluation in the first set of equations, and the extrarole performance dummy-variable should not add significantly to prediction in the second set of equations (James & Brett, 1984).

As shown in Table 4.33, under the first set of equations, when extrarole performance was first added to the equation, it was significantly related to overall evaluation. The addition of liking in the next step resulted in a significant increment in variance accounted for in overall evaluation beyond the variance accounted for by extrarole performance ($R^2\Delta = .27$, $p < .001$). In the second set of equations, liking was significantly related to overall value. However, the addition of extrarole performance did not result in a significant increment in the variance accounted for in the dependent variable ($R^2\Delta = .01$, n.s). Taken together, these results support hypotheses 3a, indicating that when controlling for in-role performance, liking mediates the relationship between extrarole performance and overall evaluation.

Table 4.33

Liking as a Mediator with Overall Evaluation as the Dependent Variable - Lab Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Set One			
In-role Performance	.56***	.58***	.17**
Extrarole Performance		.30***	-.10
Liking			.76***
R^2 at each step	.31	.40	.67
$R^2\Delta$		.09***	.27***
Set Two			
In-role Performance	.56***	.21***	.17**
Liking		.69***	.76***
Extrarole Performance			-.10
R^2 at each step	.31	.67***	.67
$R^2\Delta$		.35***	.006
Final F			90.34***

N = 135
† p < .10 * p < .05 ** p < .01 *** p < .001

Hypothesis 3b proposed that when controlling for in-role performance, the relationship between extrarole performance and reward recommendations would be partially mediated by liking of the ratee. The same procedures described above were conducted utilizing reward recommendations as the dependent variable. The results of these analyses are presented in Table 4.34.

As shown in Table 4.34, when extrarole performance was first added to the equation, it was significantly related to reward recommendations. The addition of liking in the next step resulted in a significant increment in variance accounted for in the dependent variable beyond the variance accounted for by extrarole performance ($R^2\Delta$ = .22, $p < .001$). In the second set of equations, liking was significantly related to reward recommendations. However, the addition of extrarole performance did not result in a significant increment in the variance accounted for in reward recommendations ($R^2\Delta$ = .00, n.s.). Taken together, these results support hypotheses 3b, indicating that when controlling for in-role performance, liking mediates the relationship between extrarole performance and reward recommendations.

Hypotheses 4a and 4b. Hypothesis 4a stated that when controlling for in-role performance, the relationship between extrarole performance and overall evaluation would be partially mediated by perceived affective commitment. Hierarchical multiple regression analysis was used to test this hypothesis. In the first set of equations, overall evaluation was regressed onto in-role performance as a control variable as the first step. In the second step, extrarole was added to the equation. In the third step, the proposed mediator variable, perceived affective commitment, was added to the equation. In the second set of equations, the dependent variable was regressed onto the control variable, in-role performance, in the first step. In the second step, the mediator variable, perceived

Table 4.34

Liking as a Mediator with Reward Recommendations as the Dependent Variable - Lab Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Set One			
In-role Performance	.59***	.62***	.25***
Extrarole Performance		.41***	.05
Liking			.68***
R^2 at each step	.34	.51	.73
$R^2\Delta$		.17***	.22***
Set Two			
In-role Performance	.59***	.23***	.24***
Liking		.72***	.68***
Extrarole Performance			.05
^{2} at each step	.34	.73	.73
$R^2\Delta$		.39***	.00
Final F			119.92***

N = 135
† p < .10 * p < .05 ** p < .01 *** p < .001

affective commitment, was added to the equation. In order for hypothesis seven to be supported, perceived affective commitment should add significantly to the prediction of overall evaluation in the first set of equations, and the extrarole performance dummy-variable should not add significantly to the prediction in the second set of equations (James & Brett, 1984).

As shown in Table 4.35, when extrarole performance was first added to the equation, it was significantly related to overall evaluation. The addition of perceived affective commitment in the next step resulted in a significant increment in variance accounted for in overall evaluation beyond the variance accounted for by extrarole performance ($R^2\Delta = .17$, $p < .001$). In the second set of equations, perceived affective commitment was significantly related to overall evaluation. However, the addition of extrarole performance did not result in a significant increment in the variance accounted for in the dependent variable ($R^2\Delta = .01$, n.s). Taken together, these results support hypothesis 4a, indicating that when controlling for in-role performance, perceived affective commitment mediates the relationship between extrarole performance and overall evaluation.

Hypothesis 4b stated that when controlling for in-role performance, the relationship between extrarole performance and reward recommendations would be partially mediated by perceived affective commitment. The same procedures as described above were used to test hypothesis 4b utilizing reward recommendations as the dependent variable. These results are reported in Table 4.36.

As shown in Table 4.36, when extrarole performance was first added to the equation, it was significantly related to reward recommendations. The addition of perceived affective commitment in the next step resulted in a significant increment in variance accounted for in the dependent variable beyond the variance accounted for by

Table 4.35

Perceived Affective Commitment as a Mediator with Overall Evaluation as the Dependent Variable - Lab Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Set One			
In-role Performance	.56***	.58***	.33***
Extrarole Performance		.30***	-.16
Perceived Commitment			.66***
R^2 at each step	.31	.40	.57
$R^2\Delta$		.09***	.17***
Set Two			
In-role Performance	.56***	.38***	.33***
Perceived Commitment		.53***	.66***
Extrarole Performance			-.16
R^2 at each step	.31	.56	.57
$R^2\Delta$		.25***	.01
Final F			58.86***

N = 134
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.36

Perceived Affective Commitment as a Mediator With Reward Recommendations as the Dependent Variable - Lab Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Set One			
In-role Performance	.58***	.61***	.40***
Extrarole Performance		.42***	.02
Perceived Commitment			.57***
R^2 at each step	.34	.51	.64
$R^2\Delta$		.17***	.13***
Set Two			
In-role Performance	.58***	.39***	.40***
Perceived Commitment		.58***	.57***
Extrarole Performance			.02
R^2 at each step	.34	.64	.64
$R^2\Delta$		.30***	.00
Final F			78.79***

N = 134
† p < .10 * p < .05 ** p < .01 *** p < .001

extrarole performance ($R^2\Delta = .13$, $p < .001$). In the second set of equations, perceived affective commitment was significantly related to reward recommendations. However, the addition of extrarole performance did not result in a significant increment in the variance accounted for in the dependent variable ($R^2\Delta = .00$, n.s.). Taken together, these results provide support for hypothesis 4b, indicating that when controlling for in-role performance, perceived affective commitment mediates the relationship between extrarole performance and reward recommendations.

Hypothesis 5a. Hypothesis 5a proposed that the relationship between extrarole performance and liking would vary as a function of the extent that extrarole performance is viewed a part of the ratee's job requirements. Specifically, the extent of extrarole performance's enhancing effect on liking will be greater when extrarole performance is not viewed as an expected part of the job than when it is expected as part of the job. This hypothesis of moderation was tested through the use of hierarchical multiple regression. The dependent variable, liking, was regressed onto extrarole performance. Then the moderator variable (job expectations) and the interaction term (job expectations multiplied by extrarole performance) were added to the equation. Support for a moderator relationship (interaction) is found if the addition of the interaction term results in a significant increment in the variance accounted for in the dependent variable beyond the variance accounted by the main effects in the prior steps.

The results of this analysis are presented in Table 4.37. As shown, the results failed to show a significant increment in variance accounted for when the interaction term was entered into the equation ($R^2\Delta = .00$, n.s.). This indicates that the relationship between extrarole performance and liking is not moderated by job expectations. Thus, no support was found for hypothesis 5a.

Table 4.37

Job Expectations as a Moderator with Liking as the Dependent Variable - Lab Study.

Independent Variable	Standardized Regression Weights		
	Step 1	Step 2	Step 3
Add Extrarole Performance	.48***	.50***	.56*
Add Job Expectations		.09	.15
Add Expect x Extrarole			-.08
R^2 at each step	.23	.24	.49
$R^2\Delta$		.01	.00
Final F			12.77***

N = 123
† p < .10 * p < .05 ** p < .01 *** p < .001

Hypothesis 5b. Hypothesis 5b stated that the relationship between extrarole performance and perceived affective commitment would vary as a function of the extent that extrarole performance is viewed a part of the ratee's job requirements such that the extent of extrarole performance's enhancing effect on perceived affective commitment will be greater when extrarole performance is not viewed as an expected part of the job than when it is expected as part of the job. The same hierarchical multiple regression procedures outlined above were used to test this hypothesis.

The results are shown in Table 4.38. As indicated, the results failed to show a significant increment in variance accounted for when the interaction term was entered into the equation ($R^2\Delta = .00$, n.s.). This indicates that the relationship between extrarole performance and perceived affective commitment is not moderated by job expectations. Thus, no support was found for hypothesis 5b.

Table 4.38

Job Expectations as a Moderator with Perceived Affective Commitment as the Dependent Variable - Lab Study.

	Standardized Regression Weights		
Independent Variable	Step 1	Step 2	Step 3
Add Extrarole Performance	.67***	.68***	.60***
Add Job Expectations		.07	.00
Add Expect x Extrarole			.10
R^2 at each step	.44	.45	.45
$R^2\Delta$		.01	.00
Final F			32.26***

N = 122
† p < .10 * p < .05 ** p < .01 *** p < .001

Hypotheses 6a and 6b. Hypotheses 6a and 6b were not tested in the laboratory study.

Hypotheses 7a and 7b. Hypothesis 7a stated that when controlling for in-role performance, the relationship between extrarole performance and overall evaluation would vary as a function of the ratee's gender such that the extent of extrarole performance's enhancing effect on overall evaluation will be greater for men than for women. A 2 (low extrarole, high extrarole) by 2 (male, female) MANCOVA was conducted to test this hypothesis. The results are presented in Table 4.39.

Support for hypothesis 7a would be indicated by a significant extrarole performance by ratee gender interaction. As seen in Table 4.39, a significant extrarole performance by ratee gender interaction was not detected ($F < 1.0$, n.s.). Hence, no support was found for hypothesis 7a.

Table 4.39

Analysis of Variance Results for Extrarole Performance by Ratee Gender Interaction with Overall Evaluation as the Dependent Variable While Controlling for In-role Performance - Lab Study.

Source	df	MS	F	p	Effect Size
Regression	1	41.85	74.75	.000	
Ratee Gender	1	.21	<1.0	.540	.00
Extrarole	1	10.84	19.37	.000	.13
Ratee Gender x Extrarole	1	.39	<1.0	.405	.00

N = 135

Hypothesis 7b proposed that when controlling for in-role performance, the relationship between extrarole performance and reward recommendations would vary as a function of the ratee's gender such that the extent of extrarole performance's enhancing effect on reward recommendations would be greater for men than for women.

A significant by ratee gender interaction would provide support for hypothesis 7b. The same MANCOVA procedure as described above was conducted to test this hypothesis. As demonstrated in Table 4.40, a significant interaction was not indicated ($F < 1.0$, n.s.). Hence, no support was found for hypothesis 7b. In sum, ratee gender appeared to have no effect on the relationship between extrarole performance and overall evaluation, nor on the relationship between extrarole performance and reward recommendations.

Table 4.40

Analysis of Variance Results for Extrarole Performance by Ratee Gender Interaction with Reward Recommendations as the Dependent Variable While Controlling for In-role Performance - Lab Study.

Source	df	MS	F	p	Effect Size
Regression	1	77.61	102.07	.000	
Ratee Gender	1	.51	<1.0	.413	.00
Extrarole	1	34.65	45.57	.000	.26
Ratee Gender x Extrarole	1	.07	<1.0	.770	.00

N = 135

Research Question Testing

Research Question 1a. Research question 1a asked if the relationship between extrarole performance and overall evaluation would vary as a function of ratee gender and in-role performance. A 2 (low extrarole performance, high extrarole performance) by 2 (male, female), by 2 (low in-role performance, high in-role performance) MANOVA was used to test this research question. The results of this test are presented under Table 4.41. The results of the analysis of variance test indicated a nonsignificant three-way interaction ($F = 1.13$, n.s.) hence overall value did not vary as a function of ratee gender, in-role performance, and extrarole performance.

Research Question 1b. Research question 1b asked if the relationship between extrarole performance and reward recommendations would vary as a function of ratee gender and in-role performance. A 2 x 2 x 2 MANOVA was gain used to test this hypothesis. As demonstrated in Table 4.42, no significant three-way interaction was found ($F < 1.0$, n.s.). Hence, reward recommendations did not vary as a function of ratee gender, in-role performance and extrarole performance.

Summary of Laboratory Results

In summary, the results of the laboratory study indicated full support for the majority of the hypotheses tested. Specifically, the results indicated that (1) extrarole performance adds variance associated with the dependent measures above and beyond that provided by in-role performance, (2) in-role performance and extrarole performance interact in their effect on the dependent variables, and (3) when controlling for in-role performance, extrarole performance and the dependent variables are mediated by liking and perceived affective commitment. In contrast, no support was found for the hypotheses proposing moderation effects for job expectations and ratee gender.

Table 4.41

Three-way Interaction Analysis of Variance Results for Ratings of Overall Evaluation - Lab Study.

Source	df	MS	F	p	Effect Size
In-role Performance	1	41.92	78.34	.000	.40
Extrarole Performance	1	10.56	19.73	.000	.13
Ratee Gender	1	.11	<1.0	.650	.00
In-role x Extrarole	1	4.00	7.47	.007	.06
In-role x Gender	1	.09	<1.0	.680	.00
Extrarole x Gender	1	.40	<1.0	.391	.01
In-role x Extrarole x Gender	1	.60	1.13	.290	.01
Error	128				

N = 135

Table 4.42

Three-way Interaction Analysis of Variance Results for Ratings of Reward Recommendations - Lab Study.

Source	df	MS	F	p	Effect Size
In-role Performance	1	76.42	115.76	.000	.47
Extrarole Performance	1	34.31	51.97	.000	.29
Ratee Gender	1	.70	1.06	.305	.01
In-role x Extrarole	1	11.28	17.09	.000	.12
In-role x Gender	1	3.40	5.15	.025	.04
Extrarole x Gender	1	.02	<1.0	.872	.00
In-role x Extrarole x Gender	1	.35	<1.0	.467	.00
Error	128				

N = 135

Summary of Field and Laboratory Results

A summary of the results of each test of the hypotheses for both studies is presented under Table 4.43. While the majority of the results were convergent across the lab and field studies, some notable differences were observed. For example, while both the field study and the lab study found support for the contention that in-role and extrarole performance interact in their effect on the dependent variables, the nature of the observed interaction differed across the two studies. Additionally, while perceived affective commitment mediated the relationship between extrarole performance and reward recommendations in the lab study, no mediation effect was found in the field study.

Table 4.43

Summary of Support for Hypotheses.

Hypothesis	Degree of Support	
	Study 1 - Field	Study 2 - Lab
1a: ERB adds variance beyond IRB for overall evaluation	Full Support	Full Support
1b: ERB adds variance beyond IRB for reward recommendations	Full Support	Full Support
2a: Extrarole by in-role interaction for overall evaluation	Marginal - Opposite Direction	Full Support
2b: Extrarole by in-role interaction for reward recommendations	Marginal - Opposite Direction	Full Support
3a: Liking as a mediator with overall evalution	Full Support	Full Support
3b: Liking as a mediator with reward recommendations	Marginal Support	Full Support
4a: Perceived affective commitment as a mediator with overall evaluation	Full Support	Full Support
4b: Perceived affective commitment as a mediator with reward recommendations	No Support	Full Support
5a: Job expectations as a moderator - liking as the dependent variable	No Support	No Support
5b: Job expectations as a moderator - perceived commitment as dependent variable	No Support	No Support
6a: Causal motive as a mediator with overall evaluation	Full Support	NA
6b: Causal motive as a mediator with reward recommendations	No Support	NA
7a: Ratee gender by ERB interaction for overall evaluation	No Support	No Support
7b: Ratee gender by ERB interaction for reward recommendations	No Support	No Support

Post Hoc Analyses

Two over-arching theoretical frameworks were offered in the introduction as potential frameworks for explaining how extrarole performance influences performance outcomes. As discussed, the cognitive processing framework suggests that intervening variables mediate the relationship between extrarole performance and the dependent variables. In contrast, the theory of organizational behavior (Naylor, et al., 1980) suggest that intervening variables serve as moderators. In order to more fully explore this line of thought, several analyses were conducted whereas each of the variables that were hypothesized as mediators a priori, were subjected to post hoc moderator analyses. Thus, liking, perceived affective commitment, and causal motives were subjected to moderator analyses. Job expectations was not subjected to mediation analyses since within the present context, it could only be feasibly considered as an exogenous variable (none of the variables studied could theoretically be considered causes of job expectations).

Another issue that emerges when viewing the results is the relative importance of each of the studied variables in terms of predicting the variance associated with the outcome variables. This seemed particularly important given the high degree of multicollinearity observed among several of the study variables. In order to help address this issue, dominance analysis (Budescu, 1993) was conducted for the variables studied in both the field study and the lab study.

The results of the moderator and dominance analyses are presented below. Results based on the field study are presented first, followed by the laboratory study.

Post Hoc Analyses - Field Study

Liking as a Moderator. Hierarchical multiple regression was used to assess if liking moderated the relationship between extrarole performance and the dependent measures after controlling for in-role performance. The dependent variable, overall evaluation, was examined first. The procedure was as follows. In-role performance was

entered into the equation first. Next, the predictor variable, extrarole performance was entered. This was followed by liking and the addition of the interaction term (extrarole performance multiplied by liking). To find support for the moderator relationship, the addition of the interaction term should result in a significant increment in the variance accounted for in the dependent variable beyond the variance accounted for by the main effects in the prior steps. The results of the analysis utilizing overall evaluation as the dependent variable are presented in Table 4.44 while the results utilizing reward recommendations as the dependent variable are presented in Table 4.45. As both tables show, the addition of the interaction term did not account for a significant increment in variance in either of the dependent measures. Hence, no support was found for the contention that liking moderated the relationship between the extrarole performance and the dependent variables after controlling for in-role performance.

Perceived Affective Commitment as a Moderator. The same hierarchical multiple regression procedures described above were used to determine if perceived affective commitment moderated the relationship between extrarole performance and the dependent measures after controlling for in-role performance. Table 4.46 presents the results utilizing overall evaluation as the dependent variable, while Table 4.47 presents the results utilizing reward recommendations as the dependent variable. With regard to overall evaluation, the addition of the interaction term did not add additional explained variance ($R^2\Delta = .00$, n.s.). With regard to reward recommendations, the addition of the interaction term added unique variance beyond that of the other effects ($R^2\Delta = .01$, $p < .01$). Hence, the results indicated that after controlling for in-role performance, the relationship between extrarole performance and reward recommendations was moderated by perceived affective commitment.

Table 4.44

Liking as a Moderator with Overall Evaluation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.64***	.43***	.41***	.43***
Add Extrarole Performance		.31***	.03	.26
Add Liking			.30***	.74*
Add Liking x Extrarole				-.55
R^2 at each step	.40	.46	.53	.54
$R^2\Delta$		.06***	.07***	.00
Overall F				36.28***

N = 129
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.45

Liking as a Moderator with Reward Recommendations as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.76***	.51***	.50***	.50***
Add Extrarole Performance		.39***	.14†	.22
Add Liking			.34***	.45†
Add Liking x Extrarole				-.17
R^2 at each step	.58	.67	.72	.72
$R^2\Delta$		.09***	.05***	.00
Overall F				80.42***

N = 127
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.46

Perceived Affective Commitment as a Moderator with Overall Evaluation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.65***	.41***	.36***	.36***
Add Extrarole Performance		.36***	.14	.25
Add Perceived Commitment			.39***	.62*
Add Perc. Com. x Extrarole				-.32
R^2 at each step	.42	.57	.58	.58
$R^2\Delta$		.15***	.01	.00
Overall F				46.56***

N = 140
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.47

Perceived Affective Commitment as a Moderator with Reward Recommendations as the Dependent Variables - Field Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.77***	.51***	.47***	.48***
Add Extrarole Performance		.39***	.22***	.56***
Add Perceived Commitment			.27***	.91***
Add Perc. Com. x Extrarole				-.89***
R^2 at each step	.59	.69	.72	.73
$R^2\Delta$		.10***	.03***	.01**
Overall F				90.89***

N = 138
† p < .10 * p < .05 ** p < .01 *** p < .001

Median splits were used to help interpret the nature of the interaction. Individuals with scores less than or equal to the median were classified into respective low extrarole performance and low perceived affective commitment sub-groups. Individuals scoring above the median were classified into respective high extrarole performance and high perceived affective commitment sub-groups. The median score for extrarole performance was 4.00 and the median score for perceived affective commitment was 3.75. Figure 4.5 provides an illustration of the observed relationships while controlling for in-role performance. At high perceived affective commitment reward recommendations were somewhat higher under high extrarole performance ($\underline{M} = 4.68$) than at low extrarole performance ($\underline{M} = 4.36$). In contrast, under low perceived affective commitment, individuals classified as high extrarole performers were rated considerable higher than individuals classified as low extrarole performers (low extrarole $\underline{M} = 3.21$; high extrarole $\underline{M} = 4.37$).

To further aid in the interpretation of this interaction, semipartial correlations between extrarole performance and reward recommendations were calculated after partialling out the effects of in-role performance. The relationship between extrarole performance and reward recommendations for individuals who scored at or below the median in perceived affective commitment was ($\underline{r} = .43$, $\underline{p} < .001$). For individuals scoring above the median in perceived affective commitment, the relationship was ($\underline{r} = .29$, $\underline{p} < .05$). Hence, it appears that after controlling for in-role performance, extrarole performance has a stronger effect on reward recommendations at lower levels of perceived affective commitment than at higher levels of perceived affective commitment.

Causal Motives. Hierarchical multiple regression procedures were again used to determine if the causal motive ascribed to the extrarole behavior moderated the relationship between extrarole performance and the dependent measures after controlling

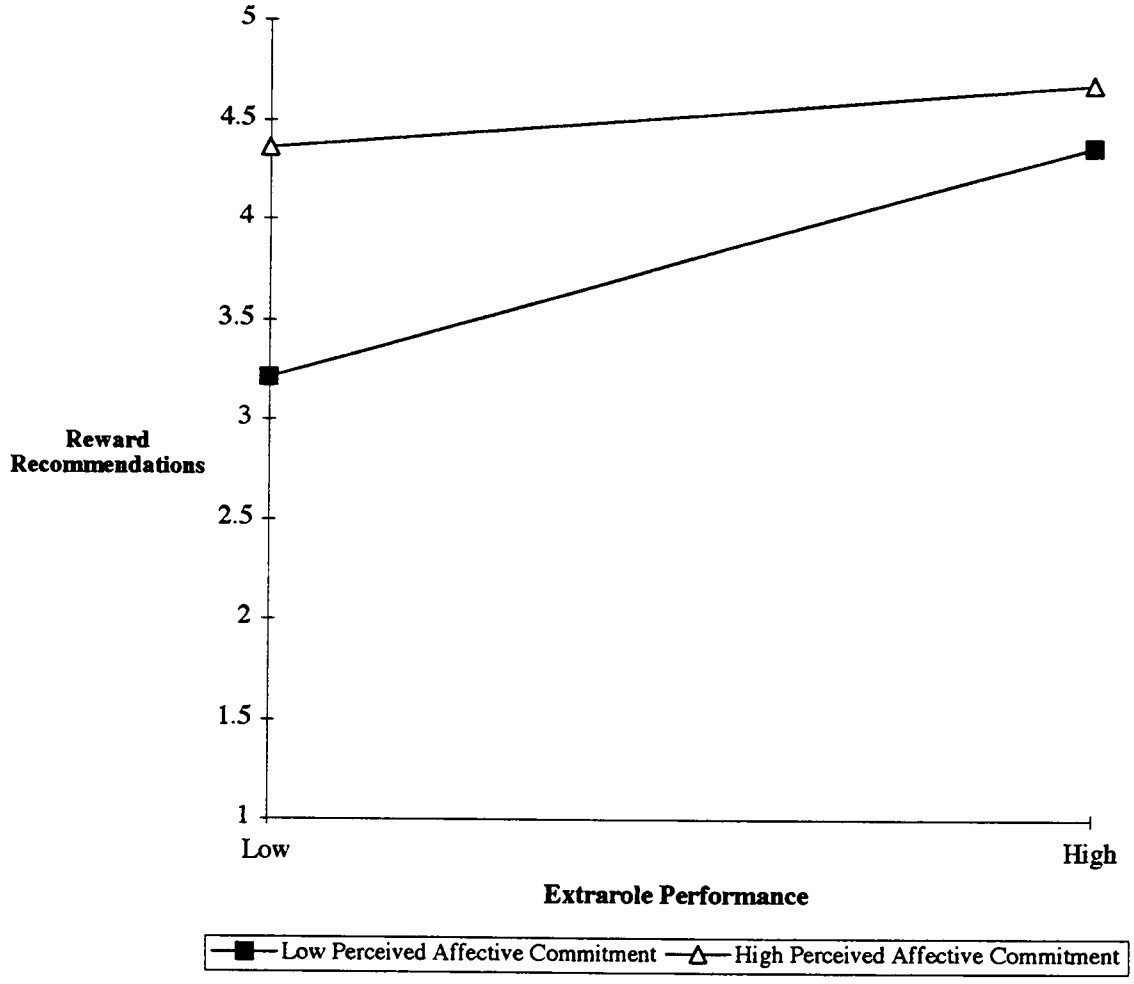

Figure 4.5. Extrarole Performance by Perceived Affective Commitment Interaction for Reward Recommendations - Field Study.

for in-role performance. Separate regression analyses were conducted for each of the two causal dimensions for both overall evaluation and reward recommendations.

Table 4.48 presents the results utilizing overall evaluation as the dependent variable and altruistic motives as the moderator while Table 4.49 provides the results with overall evaluation as the dependent variable and instrumental motives as the motive. With regard to altruistic motives, the addition of the interaction term did not add additional explained variance ($R^2\Delta = .00$, n.s.). With regard to instrumental motives, the addition of the interaction again failed to provide additional explained variance ($R^2\Delta = .00$, n.s.).

The same procedures were followed utilizing reward recommendations as the dependent variable. Table 4.50 presents the results with altruistic motives as the moderator, while Table 4.51 presents the results with instrumental motives as the moderator. As shown, with regard to altruistic motives, the addition of the interaction term added unique variance beyond that of the other effects ($R^2\Delta = .01$, $p < .01$). With regard to instrumental motives, the results show that the addition of the interaction term did not add additional explained variance ($R^2\Delta = .00$, n.s.). In summary, the results found that instrumental motives did not moderate the relationship between extrarole performance and overall evaluation or the relationship between extrarole performance and reward recommendations after controlling for in-role performance. Additionally, while altruistic motives were not found to moderate the relationship between extrarole performance and overall evaluation, the results did indicate that altruistic motives moderated the relationship between extrarole performance and reward recommendations after controlling for in-role performance.

Table 4.48

Altruistic Motive as a Moderator with Overall Evaluation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.65***	.41***	.36***	.37***
Add Extrarole Performance		.36***	.12	.26
Add Altruistic Motive			.38***	.55†
Add Motive x Extrarole				-.29
R^2 at each step	.42	.49	.56	.56
$R^2\Delta$		.07***	.07***	.00
				43.37***

N = 140
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.49

Instrumental Motive as a Moderator with Overall Evaluation as the Dependent Variable - Field Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.65***	.41***	.41***	.41***
Add Extrarole Performance		.36***	.38***	.26
Add Instrumental Motive			.01	-.21
Add Motive x Extrarole				.18
R^2 at each step	.42	.49	.49	.49
$R^2\Delta$		.07***	.00	.00
Overall F				33.07***

N = 140
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.50

Altruistic Motive as a Moderator with Reward Recommendations as the Dependent Variable - Field Study.

	Standardized Regression Weights			
Independent Variable	Step 1	Step 2	Step 3	Step 4
In-role Performance	.77***	.51***	.48***	.49
Add Extrarole Performance		.39***	.26**	.76
Add Altruistic Motive			.21**	.84
Add Motive x Extrarole				-1.06
R^2 at each step	.59	.68	.70	.71
$R^2\Delta$		.09***	.02**	.01*
Overall F				82.65***

N = 138
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.51

Instrumental Motive as a Moderator with Reward Recommendations as the Dependent Variable - Field Study.

	Standardized Regression Weights			
Independent Variable	Step 1	Step 2	Step 3	Step 4
In-role Performance	.76***	.51***	.50***	.50***
Add Extrarole Performance		.39***	.41***	.37*
Add Instrumental Motive			.02	-.05
Add Motive x Extrarole				.06
R^2 at each step	.59	.68	.68	.68
$R^2\Delta$		.09***	.00	.00
Overall F				70.50***

N = 138
† p < .10 * p < .05 ** p < .01 *** p < .001

Median splits were again created to help interpret the nature of the extrarole performance by altruistic motives interaction. Individuals with scores less than or equal to the median were classified into respective low extrarole performance and low altruistic motive attribution sub-groups. Individuals scoring above the median were classified into respective high extrarole performance and high altruistic motive attribution sub-groups. The median score for both extrarole performance and altruistic motive attribution was 4.00. Figure 4.6 provides an illustration of the observed relationships while controlling for in-role performance. Individuals whose extrarole behavior was considered highly likely to be due to altruistic causes received somewhat higher reward recommendations when they were also classified as high extrarole performers ($\underline{M} = 4.62$) than when they were classified as low extrarole performers ($\underline{M} = 3.92$). Individuals whose extrarole performance was considered less likely to be due to altruistic causes and who were also classified as high extrarole performers were rated considerably higher than individuals who were classified as low extrarole performers (low extrarole $\underline{M} = 3.46$; high extrarole $\underline{M} = 4.50$).

To further aid in the interpretation of this interaction, semipartial correlations between extrarole performance and reward recommendations were also calculated after partialling out the effects of in-role performance. The relationship between extrarole performance and reward recommendations for individuals who scored at or below the median in altruistic motives was ($\underline{r} = .47$, $\underline{p} < .001$). For individuals scoring above the median in altruistic motives, the relationship was ($\underline{r} = .29$, $\underline{p} < .05$). Hence, it appears that after controlling for in-role performance, extrarole performance has a stronger effect on reward recommendations at lower levels of altruistic motives than at higher levels of altruistic motives.

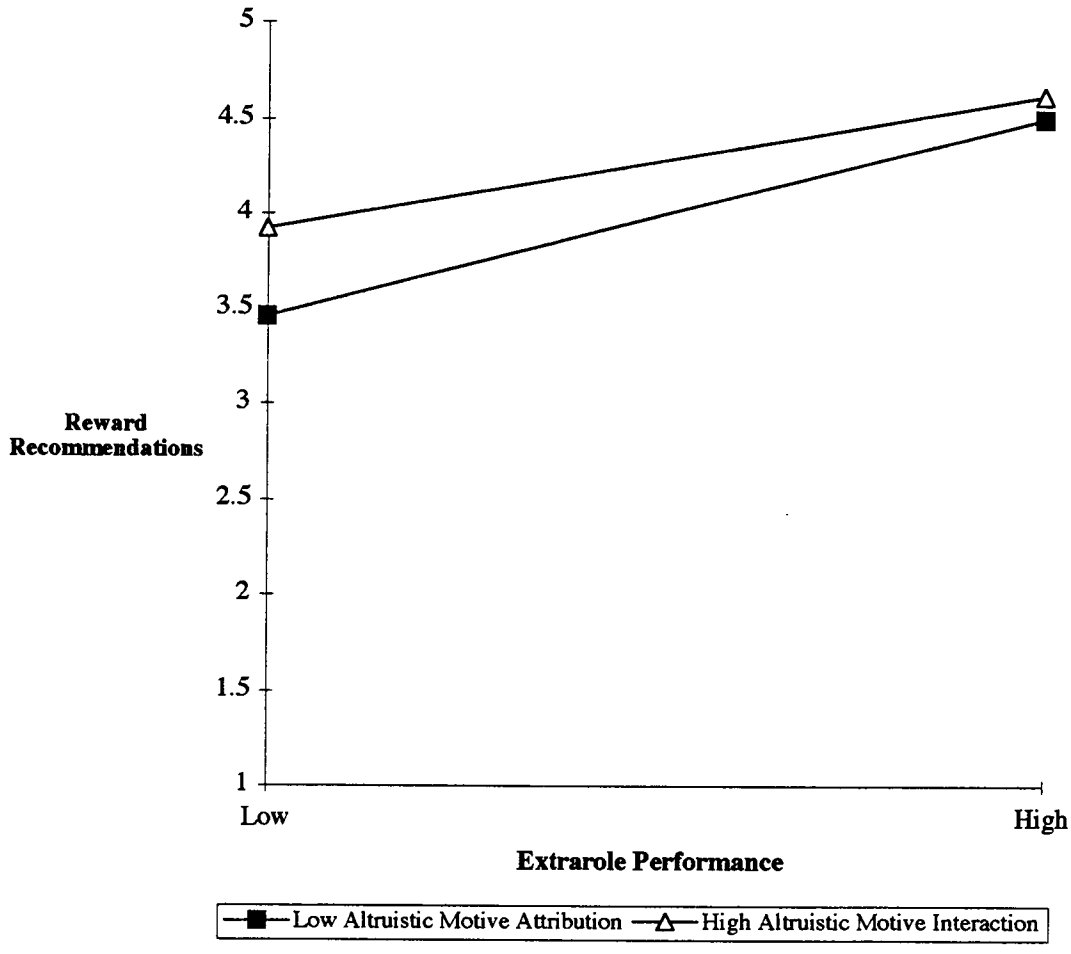

Figure 4.6. Extrarole Performance by Altruistic Motive Attribution Interaction for Reward Recommendations - Field Study.

Dominance Analysis. Dominance analysis (Budescu, 1993) was used to determine the relative importance of the following predictors: in-role performance, extrarole performance, liking, perceived affective commitment, and causal motives. Dominance is defined as "a pairwise relationship that can be tested for all $p(p - 1)/2$ pairs of variables included in the model." (Budescu, 1993, page 544). Budescu outlined three conditions that must be met in order to identify a variable's relative importance: (1) Importance should be defined in terms of a variable's "reduction of error" in predicting the criterion, (2) the method should allow for direct comparison of relative importance instead of relying on inferred measures, and (3) importance should reflect a variable's direct effect (i.e., when considered by itself), total effect (i.e., conditional on all other predictors), and partial effect (i.e., conditional on subsets of predictors).

Three tables are used to present the results of the dominance analysis with overall evaluation as the dependent variable. Table 4.52 presents the results of the regression analysis where each of the study variables were individually entered into the regression equation in a hierarchical fashion (instrumental and altruistic motives were entered as a set). Table 4.53 presents the calculations for the dominance analysis. Dominance can be qualitatively determined by comparing the semipartials across each of the sets. While no clearly dominant variables emerges between in-role performance, liking, and causal motives, extrarole performance is clearly least dominant. Table 4.54 presents a quantitative measure of importance. C_{xi} represents a measure of the variable's average usefulness. It is the mean squared semipartial correlation across each of the three models. Each of the values representing the mean of C_{xi} add up to the full model's squared multiple correlation of (.62). Consistent with the qualitative analysis, extrarole performance contributes the least amount of unique variance. In-role performance

Table 4.52

Multiple Regression Analysis Predicting Overall Evaluation - Field Study.

	Cumulative Multiple R	Cumulative R^2	$R^2\Delta$	ß[a]
Step 1				
In-role Performance	.64	.40	.40***	.64***
Step 2				
Extrarole Performance	.68	.46	.06***	.31***
Step 3				
Like	.73	.53	.07***	.40***
Step 4				
Perceived Commitment	.77	.60	.06***	.34***
Step 5				
Causal Motives	.79	.62	.02*	.12[b]
				.23[c] *

N = 129

[a]Betas presented are at point of entry.

[b]Beta for instrumental motives.

[c]Beta for altruistic motives.

Table 4.53

Dominance Analysis with Overall Evaluation as the Dependent Variable - Field Study.

Variable	R^2	IRB	ERB	Like	PAC	Motive
---	0	.4035	.3556	.4004	.4190	.4163
IRB	.4035	---	.0562	.1287	.1493	.1313
ERB	.3556	.1041	---	.0812	.1219	.1240
Like	.4004	.1318	.0364	---	.1110	.1400
PAC	.4190	.1338	.0585	.0924	---	.0645
Motive	.4163	.1185	.0633	.1241	.0672	---
IRB, ERB	.4597	---	---	.0728	.0969	.0801
IRB, Like	.5322	---	.0003	---	.0607	.0651
IRB, PAC	.5528	---	.0038	.0401	---	.0227
IRB, Motive	.5348	---	.0050	.0625	.0407	---
ERB, Like	.4368	.0957	---	---	.0810	.1112
ERB, PAC	.4775	.0079	---	.0403	---	.0445
ERB, Motive	.4796	.0602	---	.0684	.0424	---
Like, PAC	.5114	.0815	.0064	---	---	.0554
Like, Motive	.5404	.0569	.0076	---	.0264	---
PAC, Motive	.4835	.0920	.0385	.0833	---	---
IRB, ERB, Like	.5325	---	---	---	.0628	.0657
IRB, ERB, PAC	.5566	---	---	.0387	---	.0203
IRB, ERB, Motive	.5398	---	---	.0584	.0371	---
IRB, Like, PAC,	.5929	---	.0024	---	---	.0248
IRB, Like, Motive	.5973	---	.0009	---	.0204	---

Table 4.53 - continued

Dominance Analysis with Overall Evaluation as the Dependent Variables - Field Study.

Variable	R^2	IRB	ERB	Like	PAC	Motive
IRB, PAC, Motive	.5755	---	.0014	.0422	---	---
ERB, Like, PAC	.5178	.0775	---	---	---	.0539
ERB, Like, Motive	.5480	.0502	---	---	.0237	---
ERB PAC, Motive	.5220	.0549	---	.0497	---	---
Like, PAC, Motive	.5668	.0509	.0049	---	---	---
IRB, ERB, Like, PAC	.5953	---	---	---	---	.0241
IRB, ERB, Like, Motive	.5982	---	---	---	.0212	---
IRB, ERB, PAC, Motive	.5769	---	---	.0425	---	---
IRB, Like, PAC, Motive	.6177	---	.0017	---	---	---
ERB, Like, PAC, Motive	.5717	.0477	---	---	---	---

Table 4.54

Quantitative Measures of Importance for Variables Predicting Overall Evaluation - Field Study.

k	IRB	ERB	Like	PAC	Motive
0	.4035	.3556	.4004	.4190	.4163
1	.1221	.0536	.1066	.1124	.1150
2	.0657	.0103	.0612	.0580	.0632
3	.0584	.0024	.0473	.0360	.0412
4	.0477	.0017	.0425	.0212	.0241
M (Cxi)	.1395	.0847	.1316	.1293	.1320
%[a]	22.5	13.7	21.2	20.9	21.3

[a] Represents percent of total variance accounted for by each variable (e.g., in-role performance captures 22.5% of the total variance captured by the entire set of variables).

contributed the most, closely followed by liking and causal motives. Aside from the order of importance of the variables, this analysis also indicates that each of the study variables do contribute uniquely to the variance associated with overall evaluations.

The same procedure was conducted utilizing reward recommendations as the dependent variable. Table 4.55 presents the results of the regression analysis where each of the study variables were individually entered into the regression equation in a hierarchical fashion. Table 4.56 presents the semipartial calculations for the dominance analysis, and table 4.57 presents the results of the quantitative analysis.

The results were somewhat different from those observed with overall evaluation as the dependent variable. Specifically, in-role performance was clearly the most important variable in terms of it's contribution to the variance associated with reward recommendations. Liking and in-role performance were next in importance, while causal motive and perceived affective commitment were least important in terms of explaining the variance associated with reward recommendations.

Summary of Post Hoc Analyses - Field Study

In summary, the results of the supplementary analyses with the field data indicated that perceived affective commitment and altruistic motives moderated the relationship between extrarole performance and reward recommendations after controlling for in-role performance. This moderating effect was not found when considering overall evaluation as the dependent variable. Moreover, no moderating effects were found for liking. The results of the dominance analyses indicated that, for both dependent measures, in-role performance was the dominant predictor. However, in-role performance was especially important in terms of predicting reward recommendations. Extrarole performance was the least important predictor of overall evaluation, however it was more important in terms of predicting reward

Table 4.55

Multiple Regression Analysis Predicting Reward Recommendations - Field Study.

	Cumulative Multiple R	Cumulative R^2	$R^2\Delta$	ß[a]
Step 1				
In-role Performance	.76	.58	.58***	.76***
Step 2				
Extrarole Performance	.82	.67	.09***	.39***
Step 3				
Like	.85	.72	.05***	.34***
Step 4				
Perceived Commitment	.86	.75	.02**	.20**
Step 5				
Causal Motives	.87	.75	.01	.11[b]†
				.23[c]*

N = 127

[a] Betas presented are at point of entry.

[b] Beta for intrinsic motives.

[c] Beta for altruistic motives.

Table 4.56

Dominance Analysis with Reward Recommendations as the Dependent Variable - Field Study.

Variable	R^2	IRB	ERB	Like	PAC	Motive
---	0	.5837	.5205	.4903	.4219	.4227
IRB	.5837	---	.0851	.1319	.1026	.0837
ERB	.5205	.1483	---	.0629	.0637	.0709
Like	.4903	.2253	.0931	---	.0826	.1067
PAC	.4219	.2644	.1623	.1510	---	.0631
Motive	.4227	.2447	.1687	.1743	.0623	---
IRB, ERB	.6688	---	---	.0542	.0430	.0258
IRB, Like	.7156	---	.0074	---	.0289	.0238
IRB, PAC	.6863	---	.0255	.0582	---	.0108
IRB, Motive	.6674	---	.0272	.0720	.0297	---
ERB, Like	.5834	.1396	---	---	.0376	.0691
ERB, PAC	.5842	.1276	---	.0368	---	.0338
ERB, Motive	.5914	.1032	---	.0611	.0266	---
Like, PAC	.5729	.1716	.0481	---	---	.0427
Like, Motive	.5970	.1424	.0555	---	.0186	---
PAC, Motive	.4850	.2121	.1330	.1306	---	---
IRB, ERB, Like	.7230	---	---	---	.0233	.0206
IRB, ERB, PAC	.7118	---	---	.0345	---	.0318
IRB, ERB, Motive	.6946	---	---	.0490	.0218	---
IRB, Like, PAC,	.7445	---	.0018	---	---	.0068
IRB, Like, Motive	.7394	---	.0042	---	.0119	---

Table 4.56 - continued

Dominance Analysis with Reward Recommendations as the Dependent Variable - Field Study.

Variable	R^2	IRB	ERB	Like	PAC	Motive
IRB, PAC, Motive	.6971	---	.0193	.0542	---	---
ERB, Like, PAC	.6210	.1253	---	---	---	.0445
ERB, Like, Motive	.6525	.0911	---	---	.0130	---
ERB, PAC, Motive	.6180	.0984	---	.0475	---	---
Like, PAC, Motive	.6156	.1357	.0499	---	---	---
IRB, ERB, Like, PAC	.7463	---	---	---	---	.0083
IRB, ERB, Like, Motive	.7436	---	---	---	.0110	---
IRB, ERB, PAC, Motive	.7164	---	---	.0382	---	---
IRB, Like, PAC, Motive	.7513	---	.0033	---	---	---
ERB, Like, PAC, Motive	.6655	.0891	---	---	---	---

Table 4.57

Quantitative Measures of Importance for Variables Predicting Reward Recommendations - Field Study.

k	IRB	ERB	Like	PAC	Motive
0	.5837	.5205	.4903	.4219	.4227
1	.2207	.1273	.1300	.0778	.0811
2	.1494	.0495	.0688	.0307	.0343
3	.1126	.0188	.0469	.0261	.0259
4	.0891	.0033	.0382	.0110	.0083
M (Cxi)	.2311	.1439	.1548	.1135	.1144
%[a]	30.6	19.1	20.5	15.0	15.2

[a] Represents percent of total variance accounted for by each variable (e.g., in-role performance captures 30.6% of the total variance captured by the entire set of variables).

recommendations than either perceived affective commitment or causal motives.

Post Hoc Analyses - Lab Study

Liking as a Moderator. Hierarchical multiple regression was used to assess if liking moderated the relationship between extrarole performance and the dependent measures after controlling for in-role performance. The dependent variable, overall evaluation was examined first. The procedure was as follows. In-role performance was entered into the equation first. Next, the predictor variable, extrarole performance was entered. This was followed by liking and the addition of the interaction term (extrarole performance multiplied by liking). To find support for the moderator relationship, the addition of the interaction term should result in a significant increment in the variance accounted for in the dependent variable beyond the variance accounted for by the main

effects in the prior steps. The results of this analysis are presented in Table 4.58. As can be seen, the addition of the interaction term accounted for significant variance beyond that of the other effects ($R^2\Delta = .02$, $p < .01$). To help interpret the nature of the interaction, the slope of the relationship between liking and overall evaluation was examined at each of the two levels of extrarole performance after partialling out the variance contributed by in-role performance. Under the low extrarole performance condition, the semipartial correlation between liking and overall evaluation was ($r = .54$, $p < .000$). Under the high extrarole performance condition, the semipartial correlation between liking and overall evaluation was ($r = .79$, $p < .000$). Hence, the results suggest that, when controlling for in-role performance, liking is more strongly related to overall evaluation at high levels of extrarole performance than at low levels of extrarole performance.

The same procedures as described above were conducted while utilizing reward recommendations as the dependent variable. This results are shown in Table 4.59. As can be seen, liking again moderated the relationship between extrarole performance and reward recommendations when controlling for in-role performance ($R^2\Delta = .023$, $p < .001$). Under the low extrarole performance condition, the semipartial correlation between liking and reward recommendations was ($r = .63$, $p < .000$). Under the high extrarole performance condition, the semipartial correlation between liking and reward recommendations was ($r = .70$, $p < .000$). Hence, the results suggest that when controlling for in-role performance, liking is more strongly related to reward recommendations at high levels of extrarole performance than at low levels of extrarole performance.

Table 4.58

Liking as a Moderator with Overall Evaluation as the Dependent Variable - Lab Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.56***	.58***	.17**	.16*
Add Extrarole Performance		.30***	-.10	-.52**
Add Liking			.76***	.28
Add Liking x Extrarole				.80**
R^2 at each step	.31	.40	.67	.69
$R^2\Delta$		.09***	.27***	.02**
Total Multiple R	.56	.63	.82	.83
Overall F				73.11***

N = 135
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.59

Liking as a Moderator with Reward Recommendations as the Dependent Variable - Lab Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.59	.62	.25***	.24***
Add Extrarole Performance		.42	.05	-.44**
Add Liking			.68***	.13
Add Liking x Extrarole				.91***
R^2 at each step	.34	.51	.73	.76
$R^2\Delta$		.17***	.22***	.023***
Total Multiple R	.59	.72	.86	.87
Overall F				101.14***

N = 135
† p < .10 * p < .05 ** p < .01 *** p < .001

Perceived Affective Commitment as a Moderator. The same procedures described above were used to determine if perceived affective commitment moderates the relationship between extrarole performance and the dependent measures while controlling for in-role performance. The results with overall evaluation as the dependent measure are shown in Table 4.60. The interaction term did not add a significant amount of variance to the prediction of overall evaluation after accounting for the other effects ($R^2\Delta = .00$, n.s.).

This procedure was replicated using reward recommendations as the dependent variable. These results are shown in Table 4.61. Again, the interaction term did not add a significant amount of unique variance to the prediction of reward recommendations after accounting for the other effects ($R^2\Delta = .00$, n.s.). In summary, perceived affective commitment does not appear to moderate the relationship between extrarole performance and the dependent measures after controlling for in-role performance.

Dominance Analysis. The dominance analysis (Budescu, 1993) procedures described above were again used to determine the relative importance of each of the following lab study predictors: in-role performance, extrarole performance, liking, and perceived affective commitment.

Three tables are used to present the results of the dominance analysis with overall evaluation as the dependent variable. Table 4.62 presents the results of the regression analysis where each of the study variables were individually entered into the regression equation in a hierarchical fashion. Table 4.63 presents the calculations for the dominance analysis. Table 4.64 presents a quantitative measure of importance. C_{xi} represents a measure of the variable's average usefulness. The results indicate that liking contributed most unique variance to the prediction of overall evaluations. Consistent with the field

Table 4.60

Perceived Affective Commitment as a Moderator with Overall Evaluation as the Dependent Variable- Lab Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.56***	.58***	.33***	.33***
Add Extrarole Performance		.30***	-.16	-.07
Add Perceived Commitment			.66***	.79**
Add Perc. Com. x Extrarole				-.20
R^2 at each step	.31	.41	.57	.57
$R^2\Delta$		.09***	.17***	.00
Total Multiple R	.56	.63	.76	.76
Overall F				43.95***

N = 134
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.61

Perceived Affective Commitment as a Moderator with Reward Recommendations as the Dependent Variables - Lab Study.

Independent Variable	Standardized Regression Weights			
	Step 1	Step 2	Step 3	Step 4
In-role Performance	.58***	.61***	.40***	.40***
Add Extrarole Performance		.42***	.02	-.14
Add Perceived Commitment			.09	.33***
Add Perc. Com. x Extrarole				.37
R^2 at each step	.34	.51	.64	.65
$R^2\Delta$		.17***	.13***	.002
Total Multiple R	.58	.72	.80	.80
Overall F				59.31***

N = 134
† p < .10 * p < .05 ** p < .01 *** p < .001

Table 4.62

Multiple Regression Analysis Predicting Overall Evaluation - Lab Study.

	Cumulative Multiple R	Cumulative R^2	$R^2\Delta$	β[a]
Step 1				
In-role Performance	.56	.31		.56***
Step 2				
Extrarole Performance	.63	.40	.09***	.30***
Step 3				
Like	.82	.67	.27***	.76***
Step 4				
Perceived Commitment	.83	.68	.01*	.21*

N = 134

[a] Betas presented are at point of entry.
In-role performance coded: 0 = low, 1 = high
Extrarole performance coded: 0 = low, 1 = high

Table 4.63

Dominance Analysis With Overall Evaluation as the Dependent Variable - Lab Study.

Variable	R^2	IRB	ERB	Like	PAC
---	0	.3110	.0668	.6328	.4317
IRB	.3110	---	.0909	.3548	.2519
ERB	.0668	.3351	---	.5874	.4257
Like	.6328	.0330	.0214	---	.0002
PAC	.4317	.1312	.0608	.2013	---
IRB, ERB	.4019	---	---	.2700	.1722
Like, IRB	.6658	---	.0061	---	.0222
PAC, IRB	.5629	---	.0112	.1051	---
Like, ERB	.6542	.0177	---	---	.0131
PAC, ERB	.4925	.0816	---	.1748	---
PAC, Like	.6330	.0350	.0343	---	---
PAC, IRB, ERB	.5741	---	---	.1085	---
Like, ERB, IRB	.6719	---	---	---	.0107
PAC, IRB, Like	.6680	---	.0146	---	---
PAC, ERB, Like	.6673	.0153	---	---	---

Table 4.64

Quantitative Measures of Importance for Variables Predicting Overall Evaluation - Lab Study.

k	IRB	ERB	Like	PAC
0	.3110	.0668	.6328	.4317
1	.1664	.0577	.3812	.2259
2	.0448	.0172	.1833	.0692
3	.0153	.0146	.1085	.0107
M (Cxi)	.1344	.0391	.3265	.1844
%[a]	19.7%	5.7%	47.8%	27.0%

[a]Represents percent of total variance accounted for by each variable (e.g., in-role performance captures 19.7% of the total variance captured by the entire set of variables).

data, extrarole performance again contributed the least toward prediction. These analyses again indicate that each of the study variables contributed uniquely to the variance associated with overall evaluations.

The same procedure was conducted utilizing reward recommendations as the dependent variable. Table 4.65 presents the results of the regression analysis where each of the study variables were individually entered into the regression equation in a hierarchical fashion. Table 4.66 presents the calculations for the dominance analysis, and table 4.67 presents the results of the quantitative analysis.

The results were similar to those with overall evaluation as the dependent variable. Specifically, liking appeared to be the dominant variable in terms of predicting reward recommendations while extrarole performance contributed the smallest amount of unique variance toward explaining reward recommendations.

Table 4.65

Multiple Regression Analysis Predicting Reward Recommendations - Lab Study.

	Cumulative Multiple R	Cumulative R^2	$R^2\Delta$	β^a
Step 1				
In-role Performance	.58	.34	.34	.58***
Step 2				
Extrarole Performance	.72	.51	.17***	.42***
Step 3				
Like	.86	.73	.22***	.68***
Step 4				
Perceived Commitment	.86	.74	.01	.15

N = 134
In-role performance coded: 0 = low, 1 = high.
Extrarole performance coded: 0 = low, 1 = high.
[a]Betas are presented at point of entry.

Table 4.66

Dominance Analysis With Reward Recommendations as the Dependent Variable - Lab Study.

Variable	R^2	IRB	ERB	Like	PAC
---	0	.3406	.1422	.6959	.5056
IRB	.3406	---	.1735	.3912	.3027
ERB	.1422	.3719	---	.5552	.3838
Like	.6959	.0359	.0015	---	.0030
PAC	.5056	.1377	.0204	.1933	---
IRB, ERB	.5141	---	---	.2197	.1293
Like, IRB	.7318	---	.0020	---	.0075
PAC, IRB	.6433	---	.0001	.0096	---
Like, ERB	.6974	.0364	---	---	.0081
PAC, ERB	.5260	.1174	---	.1795	---
PAC, Like	.6989	.0404	.0066	---	---
PAC, IRB, ERB	.6434	---	---	.0959	---
Like, ERB, IRB	.7338	---	---	---	.0053
PAC, IRB, Like	.7393	---	.0000	---	---
PAC, ERB, Like	.7055	.0338	---	---	---

Table 4.67

Quantitative Measures of Importance for Variables Predicting Reward Recommendations - Lab Study.

k	IRB	ERB	Like	PAC
0	.3406	.1422	.6959	.5056
1	.1818	.0651	.3799	.2298
2	.0647	.0029	.1363	.0483
3	.0338	.0000	.0959	.0053
M (Cxi)	.1552	.0526	.3270	.1973
%[a]	21%	7.1%	44.2%	26.7%

[a] Represents percent of total variance accounted for by each variable (e.g., in-role performance captures 21% of the total variance captured by the entire set of variables).

Summary of Post Hoc Lab Results

In summary, the results of the supplementary analyses provided some evidence indicating liking acts as a moderator of the relationship between extrarole performance and the dependent measures when controlling for in-role performance. No evidence was found to indicate that perceived affective commitment serves as a moderator. Additionally, the results of the dominance analyses showed that (1) liking emerged as the dominant predictor of the variance associated with the dependent measures, (2) extrarole performance contributed the least amount of variance, and (3) each of the independent variables contributed uniquely to the variance associated with overall evaluation and reward recommendations.

Summary of Post Hoc Results for Lab and Field Study

In summary, both sets of supplementary analyses indicate that the intervening variables may serve as either moderators or mediators contingent on the dependent variable under study. Reasons for these effects are considered in the following discussion chapter. Additionally, the results of the dominance analysis across the two studies was somewhat different in that the lab study showed liking emerging as the dominant factor, while the field study indicated in-role performance was the strongest variable in terms of predicting the variance associated with the dependent measures. One reason for the difference may be that in-role performance was a dichotomous variable in the lab study, hence there was less variance associated with it's scale. Nevertheless, both studies converged in that extrarole performance was generally less strong of a predictor relative to the other variables studied. These findings are consistent with those found under the tests of the hypotheses in that the majority of extrarole performance's effect on the outcome variables appears to be indirect. These findings are discussed more fully in the following chapter.

CHAPTER 5

DISCUSSION

A number of studies have demonstrated that extrarole performance influences overall performance evaluations (e.g., Motowidlo & Van Scotter, 1994; Werner, 1994). However, little attention has been given to understanding the processes that underlie this relationship. The primary purpose of the present research was to extend current knowledge and theory regarding how extrarole performance influences outcome measures such as perceived overall evaluation and reward recommendations.

This research was designed to provide a rigorous and thorough test of the hypotheses of interest through the use of two different methodologies. The field study provided the opportunity to initially test the hypotheses within an applied environment. The laboratory study afforded the opportunity to conceptually replicate the field study while controlling and manipulating in-role and extrarole performance, thus providing an objective base from which to compare the inferences drawn from in the field study. Moreover, the lab study provided an internally valid milieu within which an adequate test of how different levels of these variables operate to influence the dependent variables could be conducted.

This chapter presents a discussion of the results of the tests of the hypotheses as well as the results of the post-hoc analyses. Following these sections, a brief general discussion is provided, integrating the results of the two studies. Lastly, limitations, theoretical and practical implications, and directions for future research are presented.

Discussion of Results

Extrarole Performance Adds Variance Beyond In-Role Performance

A number of recent studies have found that extrarole performance adds to the prediction of overall performance above and beyond that of task performance. The present study replicates and extends previous research by considering different criterion

measures and by examining the results in both a laboratory and field setting. As expected, the results of both studies indicate that extrarole performance adds significantly to the prediction of overall evaluation and reward recommendations beyond that of in-role performance. This finding is consistent with previous research (e.g., Motowidlo & Van Scotter, 1994).

The present investigation also extends extant research by demonstrating that extrarole performance also influences recommendations for organizational rewards such as salary increases and promotions. These findings help affirm that raters consider more than in-role or task-related performance when considering the overall value that an individual brings to an organization and when considering who to recommend for organizational rewards.

Extrarole Performance by In-Role Performance Interaction

As also expected, there was evidence indicating that in-role and extrarole performance interact in their effect on outcome variables. This prediction was strongly supported in the laboratory study. However, the significance of the interaction was marginal in the field study and opposite of the predicted direction. The results of the laboratory study were similar to the results found in other laboratory studies examining different performance levels (Park & Sims, 1989; Werner, 1993). Specifically, the lab results indicate that high extrarole performance has a greater positive effect on the dependent measures when in-role performance is at a high level than when in-role performance is at a low level.

The present research was the first to test for interactive effects within a field setting. While the results indicated that there was a marginal interaction between in-role and extrarole performance on both of the dependent variables, the nature of the interaction was different from what was expected. Specifically, extrarole performance

had a greater positive effect on the dependent measures when in-role performance was *low* than when in-role performance was high.

From a phenomenological viewpoint, the differences in the interactions suggest competing models regarding the influence of extrarole performance. That is, the lab study results indicate that extrarole performance augments the relationship between in-role performance and the outcome measures. The impact of extrarole performance on the dependent measures increased as the level of in-role performance increased. On the other hand, the field study results suggest that extrarole behavior provides a compensatory effect whereby the demonstration of extrarole performance can help "make up" for low levels of in-role performance.

Several explanations can be offered for (1) why the nature of the interaction was different between the two studies and (2) why the moderation effect was less strong in the field study than in the lab study. One explanation is centered around the level of performance viewed in the two studies. First, within the field study, the range of observed performance contained a negatively skewed leptokurtic distribution. That is, ratings were relatively restricted and clustered at the high end of the rating scale. Managers reported that the majority of employees performed within the average to very high range. This would seem to be a realistic scenario for most organizations as low performers are likely to have been previously weeded out of the organization. Moreover, many of the ratees in the present study were managers or professionals. In essence, there were very few individuals who could be considered as "low" level performers within the field setting sample. Thus, the individuals who were classified at the low level for interpretive purposes within the field study were actually rated as performing at an average or slightly above average level.

On the other hand, in the laboratory study, there were two clearly distinct levels of in-role and extrarole performance: high and low. However, the overall ratings under the

high performance conditions appeared to be viewed closer to "average" than to "high" as indicated by the manipulation checks completed by the student raters. These "average" ratings may be due to the crossing of the performance conditions. That is, three out of every four raters saw a low level of performance on at least one of the two performance dimensions. In concert, the results of the studies combined seem to suggest that extrarole performance has the greatest effect at an *average* level of in-role performance. That is, extrarole behaviors do not compensate for very low levels of in-role performance as witnessed in the lab study. Moreover, at very high levels of in-role performance, there is limited room for extrarole performance to provide a substantial additional positive influence on evaluations and recommendations. Hence, it is at an average level of in-role performance where extrarole performance has the greatest opportunity to substantially influence performance judgments. Figure 5.1 provides an hypothetical illustration of this effect by mapping together the results of the field and lab study.

Another explanation for the discrepant findings between the field and lab may be that the manager ratings obtained from the field study contain a greater degree of halo. Halo is suggested by the high degree of covariance observed between manager ratings of in-role and extrarole performance. That is, in general, managers who rated individuals high in in-role performance also tended to rate individuals high on extrarole performance and vice-versa.

Podsakoff et al. (1993) suggested that one reason why managers may include extrarole performance in their evaluations of employees may be due to implicit theories. Implicit theories stem from beliefs regarding the co-occurence of events. If a manager believes that engaging in citizenship behavior and task performance are related, and the manager observes extrarole performance, then the manager may infer that the employee is a high performer in both domains. This type of implicit theory may inhibit the

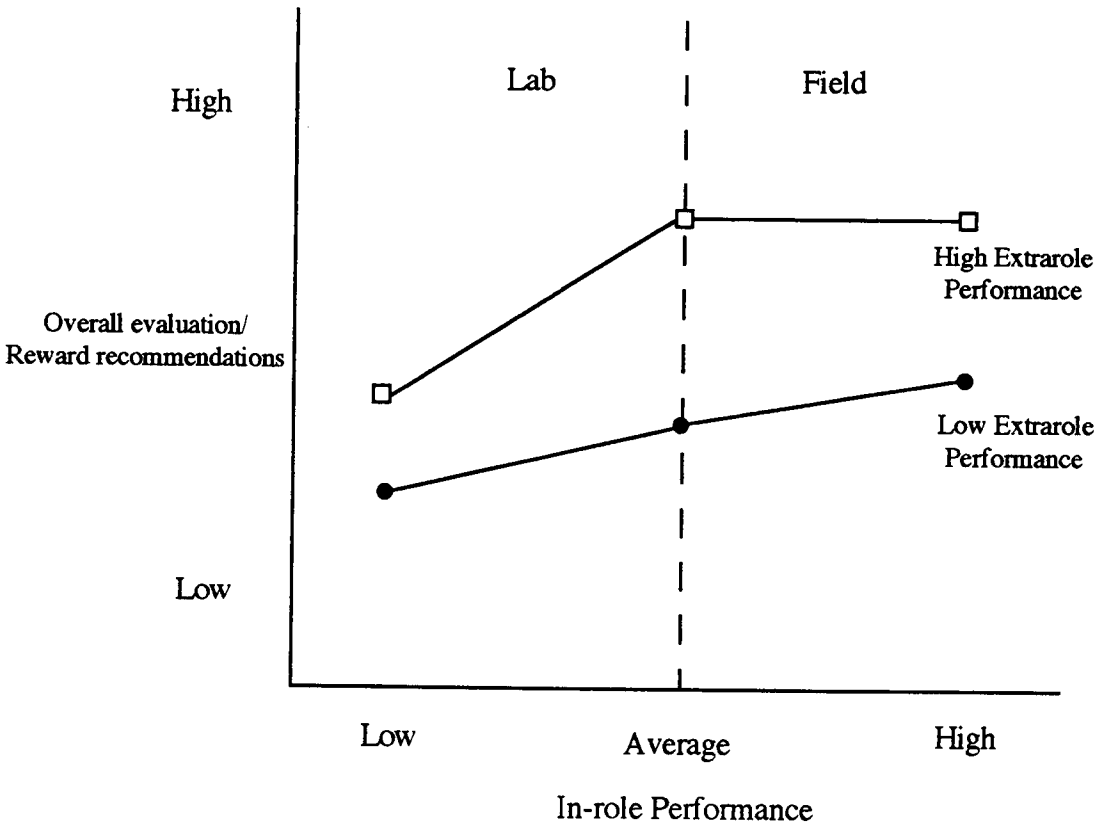

Figure 5.1 Illustration of hypothetical interaction between in-role and extrarole performance.

categorization of an employee as a high performer in one domain and as a low performer in the other performance domain. This high degree of covariation between the two independent variables as well as their high degree of correlation with the dependent variables render strong interactive effects less likely to statistically emerge. On the other hand, in the lab study, in-role and extrarole performance conditions were fully crossed. That is, the conditions included individuals performing at a high level on one performance dimension and a low level on the other performance dimension.

Another explanation for the divergent results may simply be that student raters are particularly critical of low task performance. The extremely salient low levels of task performance as that depicted in the lab study may be especially intolerable to students and hence completely noncompensable by high extrarole performance.

In concert, the results suggest that the nature of the effect of extrarole behavior is contingent on the level of in-role performance. Extrarole performance does not compensate for very low or poor levels of in-role performance. On the other hand, it appears that at average levels of task performance, extrarole performance can have a substantial positive influence on performance judgments. That is, once performers have demonstrated adequate in-role performance, extrarole performance augments the effect of in-role performance on overall evaluations and reward recommendations. At high levels of in-role performance, individuals are already rated highly in terms of performance judgments, hence, extrarole performance has less of an augmenting effect on the outcomes.

Liking

The present research was the first to examine the influence of liking in the relationship between extrarole performance and performance judgments. The results were fairly consistent across the two studies, indicating that the relationship between extrarole performance and the dependent measures of overall evaluation and reward

recommendations are mediated by liking for the ratee after controlling for in-role performance. Thus, the effect of extrarole performance appears to be transmitted through it's influence on liking for the ratee.

The results suggest that engaging in extrarole performance triggers positive affect for the ratee, and that this positive affect in turn influences overall evaluations and reward recommendations. The results are consistent with Cardy and Dobbins' (1994a) supposition that one way whereby liking may effect performance judgments is through schemas. According to the authors, the early and intense nature of liking make it a probable candidate for forming the basis of schematic processing. The results of the lab study are especially supportive of this contention. After viewing one segment of teaching performance, raters had clear positive or negative affective reactions to the instructor. Schematic processes also help explain the high degree of correlation between liking and both in-role and extrarole performance as well as with the dependent variables.

The results of the supplementary analyses concerning liking also warrant discussion. While no moderating effects were found for liking in the field study, the results of the lab study indicated that liking also moderated the relationship between extrarole performance and the dependent measures after controlling for in-role performance. Hence, in the lab study, liking was found to have both mediating and moderating effects.

Two possible explanations are offered for this finding. The first explanation is that there may be a fourth unmeasured variable causing the moderator effect. Circumstances where one variable acts a both a mediator and a moderator have been discussed by James and Brett (1984). The authors refer to this event as a case of moderated mediation. According to the authors this phenomenon typically occurs when one variable (the mediator) transmits the effect of the antecedent variable onto the

dependent variable, however the transmission is contingent on the level of a fourth variable.

A second explanation may be that there is a threshold effect. Specifically, in order to receive high ratings of overall evaluation and strong reward recommendations, the ratee has to reach some minimal level of liking. The threshold effect explanation makes particular sense within the context of the lab setting where limited information is available to raters from which they may base their ratings. Given the present data, it is impossible to discern which, if either, of these explanations reflect the true state of affairs. Moreover, given that the mediation/moderation effect was not replicated in the field study, additional research is necessary before any clear inference may be drawn regarding the potential moderating effect of liking.

Perceived Affective Commitment

Very little study has been done examining perceived affective commitment. The present study extends previous research by considering how perceived affective commitment may help explain the processes whereby extrarole performance influences managerial judgments. The results of the laboratory study indicated that the effect of extrarole performance to overall evaluation and to reward recommendations was mediated by perceived affective commitment after controlling for in-role performance. The results from the field study were somewhat different. While perceived affective commitment mediated the relationship between extrarole performance and overall evaluation, there was no indication of mediation with regard to extrarole performance and reward recommendations. Moreover, the results of the supplementary analyses indicated that, in the field study, perceived affective commitment moderated the relationship between extrarole performance and reward recommendations. The nature of the interaction was such that extrarole performance had a stronger effect on reward

recommendations under lower ratings of perceived affective commitment than under higher ratings of perceived affective commitment.

One factor that may help explain these findings is the concept of automatic versus controlled cognitive information processing. Controlled cognitive processes have been defined as those occurring under the conscious awareness of the person (Ilgen & Feldman, 1983). In contrast, automatic processing is thought to be in operation when the individual processes information and renders judgments without conscious monitoring or critical deliberation (Ilgen & Feldman, 1983).

It seems likely that in the field setting, providing reward recommendations required more controlled cognitive processing than that which was required to provide reward recommendations in the lab setting. Specifically, the field and the lab setting are different in that for students making recommendations regarding instructors, there are no subsequent consequences. For example, recommending an instructor for a teaching award does not have a direct personal impact on the student rater. On the other hand, for managers, reward recommendations have more direct personal consequences to be considered. For example, contemplating whether or not someone should be recommended for a salary increase entails making budget considerations. Additionally, rendering reward decisions in a field setting requires more deliberate thought processes than does providing a global assessment of an individual's overall value to the organization. Even though the recommendations made in the field study were for research purposes only, it seems likely that controlled processes would be activated when managers made their ratings. Thus, it seems likely that the student raters relied more on schematic automatic information processing to make their reward recommendations while managers engaged in more controlled processes.

Within this controlled mode of processing, managers may search for and integrate information from a variety of sources to determine reward recommendations. Since

committed employees are those who more likely to remain with the organization and who identify with the goals of the organization, this information may be highly salient to managers when making reward decisions. The results suggest that while individuals at lower levels of both perceived affective commitment and extrarole performance are clearly less likely to receive reward recommendations, high levels of *either* perceived affective commitment or extrarole behavior result in comparably higher reward recommendations than when both factors are rated lower. Hence, it appears that managers allow a type of "trade-off" model. That is, there appear to be two ways in which an individual may be recommended for rewards by his or her manager. One is by frequently engaging in extrarole performance and the other is by being perceived by the manager as highly committed to the organization. Within this scenario, exhibiting high levels of extrarole behavior is probably only one of several types of behaviors an employee may exhibit to indicate high commitment to the organization.

Another possible reason for the observed interaction should be noted. As discussed previously, the mean levels of performance reported in the field study were generally high. The same was true for ratings of perceived affective commitment. Given that ratings were clustered at the high end of the designated five-point scale, a "ceiling" effect may have prevented the observed slopes from rising at a more parallel rate. Stated in another manner, the relationship between extrarole performance and reward recommendations may have be been stronger under higher levels of perceived affective commitment than what was observed in the field study if the scales used to measure the constructs of interest contained an extended number of scale points. Since the ratings were at the top end of the scale, there was less room for high perceived affective commitment to have a strong effect.

In summary, the results regarding perceived affective commitment suggest that the criteria under study (i.e. overall evaluation or reward recommendations) may trigger

different cognitive processes. Subsequently, the influence of perceived affective commitment may be additive or multiplicative in it's relationship with extrarole performance.

Job Expectations

Research has only recently recognized that there are differences in the extent to which individuals agree regarding which behaviors are considered above and beyond the call of duty and which are an expected part of the job (Morrison, 1994). This research was the first to examine a potential consequence of differences in job expectations on evaluation judgments. Contrary to the proposed hypothesis, job expectations did not moderate the relationship between extrarole performance and liking or between extrarole performance and perceived affective commitment. This finding was consistent across the field and laboratory study. Hence, the relationship between extrarole performance and liking and perceived affective commitment was similar regardless of the job expectations of the student raters or the job expectations of the manager raters.

An additional fact is that there were no significant relationships between job expectations and any of the study variables. This finding held despite the fact that there were differences among raters regarding what behaviors were expected and what behaviors were considered above and beyond the call of duty.

The results indicate that while there were differences across individuals in terms of the degree to which they classified behaviors as extrarole, this classification did not influence the effect that extrarole behavior had on liking and perceived affective commitment. It may be that regardless of whether or not the rater views the behavior as an expected part of the job, the behavior is recognized as positive and hence the extent to which it is expected bears no influence in terms of the effect the behavior has on related judgments. As long as the ratee is engaging in the behavior, it appears that whether it is believed to be in-role or extrarole to the rater is not relevant.

Attributed Motive

The hypotheses regarding the motive attributed to engaging in extrarole performance were tested in the field study alone. Of interest in the present investigation was how the motive attributed to the performance of extrarole behaviors influenced managerial judgments regarding overall evaluation and reward recommendations. This represented an extension to existing literature as previous research has not examined how (1) the attributions made for extrarole performance may vary along two dimensions (altruistic causes and instrumental causes), and (2) how the causal motive ascribed to the extrarole performance may influence managerial judgments.

The results indicated that the attributions made regarding the motive of the employee for engaging in extrarole performance mediated the relationship between extrarole performance and overall evaluation. On the other hand, the results indicated that the causal attributions did not mediate the relationship between extrarole performance and reward recommendations. Moreover, the results of the supplementary analyses indicated that extrarole behavior attributed to altruistic motives moderated the relationship between extrarole performance and reward recommendations when controlling for in-role performance. The nature of the interaction was such that extrarole performance had a stronger effect on reward recommendations when the attribution for the extrarole behavior was rated as less likely to be due to altruistic causes than when the attribution for the extrarole behavior was rated as more likely to be due to altruistic causes.

These findings are analogous to those found for perceived affective commitment. Consequently, the explanation for these results is similar. Specifically, judgments regarding overall evaluation may be more reliant on automatic processing, while judgments regarding reward recommendations require more controlled processing. Hence, when making reward decisions, raters search for additional information such as

the extent to which an individual engages in extrarole behavior due to altruistic causes such as loyalty toward the company. Moreover, as described earlier, the results could also be due to a ceiling effect operating in the measurement system.

Of additional interest is that the findings also reflect the fact that managers do attribute different causal motives to the extrarole behavior of their employees. The motive ascribed appears to covary with the frequency of the extrarole behavior reported. That is, individuals who were reported as more likely to engage in extrarole behavior were also more likely to have the cause of the extrarole behavior attributed to altruistic motives. On the other hand, individuals who were reported as less likely to engage in extrarole behavior were also more likely to have the cause of the extrarole behavior attributed to instrumental causes.

This finding is interpretable in light of extant research in attribution theory. Kelly (1973) has suggested that when evaluating an employee, a supervisor considers three types of information: consensus, distinctiveness, and consistency. In the present study there is no basis for determining consensus or distinctiveness, however it appears that managers are using consistency information in determining the employee's motive for engaging in extrarole behavior. High extrarole behavior ratings would seem to suggest that the individual consistently engages in the behavior over time. Hence, the motive for engaging in the behavior is more likely to be attributed to the altruistic nature of the person. On the other hand, individuals who engage in extrarole performance less frequently may be presumed to engage in the behavior for personal gain or instrumental reasons.

The results also clearly indicate that the attribution made produces considerable consequences for the ratee. Individuals who were more likely to have their performance attributed to altruistic causes were also more likely to receive higher overall evaluation

ratings and reward recommendations than individuals who were more likely to have their behavior attributed to instrumental causes.

Ratee Gender

Past research on the effects of gender on performance ratings has yielded inconsistent results. It was thought that taking extrarole behaviors under consideration might illuminate some of the reasons for these discrepant findings. Contrary to expectations, gender did not moderate the relationship between extrarole performance and the dependent measures after controlling for in-role performance. Hence, extrarole performance appeared to have the same effect on the outcome variables regardless of the ratee's gender. This null finding was consistent in both the laboratory and field study.

One explanation for why there were no differences in the laboratory study may be related to the nature of the information provided to raters. The raters were provided with relatively limited information that was unambiguous with which to make their ratings. Even though extrarole performance is more ambiguous in nature, within the context of the lab study, clear examples illustrating either high or low extrarole behaviors were presented. Previous research has shown that rating bias is less likely to occur in situations where unambiguous performance information is presented (e.g., Heilman et al., 1988; Pheterson et al., 1971).

Another explanation for these findings may be that it is not gender per se that affects performance evaluations, but other related processes. For example, Dobbins et al. (1988) found that individual differences in raters' stereotypes of women affect the performance evaluation of female ratees. Specifically, raters that held traditional stereotypes of women evaluated the performance of female professors less favorably than did raters with nontraditional stereotypes of women. It may be that pre-held notions regarding the extrarole behavior of men and women would also affect rater's ratings in the present situation.

Regardless of these null findings, the pattern of correlations observed in the field study warrant comment. Inspection of the correlation matrix indicated that females were rated significantly lower than were men in perceived affective commitment and reward recommendations. Additionally, women were rated as significantly more likely to engage in extrarole performance for instrumental reasons than were men. Moreover, while not significant, the same unfavorable trend for women held in terms of ratings of overall evaluation, extrarole performance, liking, and altruistic motives. Interestingly, with regard to ratings of in-role performance, men and women received virtually equal ratings. In concert, the correlational results indicate that while women and men are reported to be equally effective in terms of in-role performance, men are perceived to be more committed to the organization, less likely to engage in extrarole behavior for instrumental reasons, and more likely to be recommended for organizational rewards.

The field findings should also be viewed in concert with the results of the lab study. In the lab study the "true" in-role and extrarole performance level of males and females was kept constant. Consequently, in the lab setting, there were no differences in the ratings males and females received for liking, perceived affective commitment, reward recommendations, and overall evaluation. On the other hand, in the field setting, where managers provided ratings of in-role and extrarole performance, differences were observed in other subsequent ratings. The lab study results would suggest that given comparable levels of both in-role and extrarole performance, males and females are viewed equally on other performance judgments.

The findings suggest several possible scenarios. One, it may be that in actual organizational settings, females do engage in fewer extrarole behaviors than men. This in turn effects other managerial ratings such as perceived affective commitment and reward recommendations. Alternatively, it may be that there are no differences in the extent to which males and females engage in extrarole behavior or are committed to the

organization, however, due to sex biases that are more likely to emerge in organizational settings, females are rated less favorably than males. Allen and Rush (1996) found that females were perceived to perform citizenship behaviors more frequently than were males when portrayed in neutral and male-typed jobs. The majority of ratees in the field study were in managerial and professional occupations, domains typically considered as male-typed. The authors speculated that if there were differences in the degree to which males and females were believed to engage in extrarole behaviors, then extrarole behaviors may be less likely to be attended to when performed by females than by males. Hence, there is some rationale for musing that managers in the field study may have been less likely to notice and recall the extrarole performance of females than males in the field setting. Admittedly, these suggestions are speculation at best. However, despite the null results of the hypotheses proposed in the present investigation, the pattern of relationships observed warrant future consideration and an in-depth investigation of the relationship between gender, extrarole performance, and related outcomes.

General Discussion

In summary, both studies failed to reveal any hypothesized effects for ratee gender and job expectations. On the other hand, a variety of moderation and mediation effects were found for the other variables under study. The results of both studies indicated that the effects of extrarole performance to overall evaluation are largely mediated by other factors such as liking, perceived affective commitment and altruistic causal attributions. The results also suggested the effect of extrarole performance to reward recommendations may be moderated by other variables such as perceived affective commitment and altruistic motives. This overall pattern suggest that the criterion under study may trigger different cognitive processing strategies. For example, when providing a global assessment such as the overall evaluation or value that an employee brings to the organization, raters seem to rely more on schematic or automatic

information processing. In contrast, in situations that require more deliberate judgments such a rendering reward recommendations, raters may be required to engage in more controlled or conscious processing of information.

Limitations

The intent of conducting both a laboratory and a field study was to help address the weaknesses inherent in the use of any one single research design. When the two designs are combined in a single investigation to explore the same issue, the strengths of one design can help compensate for the weaknesses of the other and vice versa (Wayne & Ferris, 1990). Further, when the results of the two methodologies converge, as was the case in the present investigation for the most part, the findings can be viewed with greater confidence. Nevertheless, limitations in the present research should be considered. The field study addresses some of the generalizability concerns associated with laboratory research. However, the primary limitation of the field study concerns issues of internal validity. For example, the true level of performance of the ratees is unknown. Hence, the extent to which true performance levels affected factors such as supervisor liking for the ratee and overall evaluation is uncertain. On the other hand, the lab study answers this concern in that it shows the effect of the performance behaviors on performance judgments.

Additionally, the field data were collected via the use of self-report data at a single point in time. Hence, the extent to which the results may be affected by common method variance can not be fully determined. In the current study, managerial perceptions were the focus of theoretical interest, hence it was necessary to obtain data through self-report. As a number of authors have noted, when the constructs of interest deal with individual self-perceptions (i.e., perceptions of affective commitment), then self-report data can be not only useful, but also essential (e.g., Maurer & Tarulli, 1994; McEnrue, 1989). Further, recent meta-analytic research examining percept-percept

correlations in micro-organizational research has indicated that inflation due to common method variance differs according to the specific domain of research and hence should not be assumed as a globally significant problem. Additionally, the study examined moderator hypotheses which are less susceptible to the method variance problem (Kozlowski & Doherty, 1989). Given the convergence of the results across the field and the lab studies, it appears unlikely that common method variance can be used to explain the nature of the observed relationships; however, some degree of such bias can not be completely ruled out. Future research can further address this issue by collecting reward outcomes through other sources. For example, personnel records may be examined in order to obtain information regarding number of promotions and salary increases.

While the results of the present study are clear with regard to the sign and the magnitude of the relationships investigated, the fact that the field data were cross-sectional hinders our ability to make causal inferences (e.g., is liking a cause or a result of performance ratings) regarding the relationships observed. While the hypotheses were guided by both the theoretical and empirical literature, the field study alone does not provide an adequate test of causality and hence rival causal flows cannot be ruled out (e.g., ratees perceived as highly committed to the organization may influence performance ratings of extrarole behavior versus extrarole behavior influences perceptions of affective commitment). Moreover, it may be argued that some of these relationships are reciprocal over time. Affirmation of causality can be more adequately addressed through the use of longitudinally designed field research. The initial results obtained in the present study seem to warrant the challenging task of conducting additional research with such designs.

Since the laboratory study was designed to maximize internal validity, the limitations are primarily centered on generalizability issues. College students, not actual supervisors and managers, served as raters. The student raters evaluated only one ratee,

for whom there were no consequences, for either the rater or the ratee. Despite the limits of the lab, several procedures were implemented to help increase the external validity of the lab findings. First, subjects were put in a rating situation with which they were very familiar, namely assessing teacher performance. Second, the purpose of their participation was very realistic. The participants were told that they were rating instructors for the purpose of providing information that was going to be used to help develop future training programs for graduate student teaching assistants. Nevertheless, raters were still making evaluations based on a limited amount of information. As noted by Ilgen and Favero (1985), generalization to actual performance situations from settings where limited performance information is presented is problematic.

However, it should be noted that one purpose of the laboratory study was to examine if the findings observed in the field study could be replicated under objectively defined conditions of in-role and extrarole performance. With this in mind, concerns about the internal validity of the study took precedence over concerns about the generalizability of the results to real organizational settings (Mook, 1983; Sackett & Larsen, 1990). As noted by several researchers, valuable research may be conducted to assess *if* an effect can occur, rather than does it typically occur (Cardy & Dobbins, 1994b; Ilgen, 1986; Mook, 1983).

Additionally, it can also be argued that the psychological processes which were the focal point of interest in the present study are common to all individuals, and hence generalizability concerns are less applicable. Indeed, a laboratory study is a particularly attractive setting for studying specific linkages in a theoretical model as was the purpose of the present study (Cardy & Dobbins, 1994b; Dobbins, Lane, & Steiner, 1988; Mook, 1983).

Another limitation in the lab study is that the study was conducted using upward appraisal in an educational setting. Although upward appraisal may differ to some extent

from downward appraisal, as stated by Dobbins et al. (1988), it seems likely that upward and downward appraisal are much more similar than they are different in terms of the fundamentals of information processing.

Both studies demonstrated a high degree of intercorrelation among the independent variables, a condition that is commonly referred to as multicollinearity. There are a number of adverse affects associated with multicollinearity (Pedhazur & Schmelkin, 1991). Generally, high collinearity leads to a reduction in the magnitudes of the standardized regression coefficients. High multicollinearity may also adversely affect the stability of the regression coefficients via it's effect on the standard error. However, the nature of the specific effects of multicollinearity are complex.

While there was a high degrees of multicollinearity in the results of the present study, none of the adverse effects mentioned above appear to have taken place. That is, the magnitude of the beta weights was generally quite high and similar across the two studies. While, an argument could have been made for collapsing the liking and perceived affective scales, it was deemed inappropriate for several reasons. First, as noted by Pedhazur and Schmelkin (1991), one remedy frequently used in a situation of high multicollinearity is the deletion of variables that appear to be causing the problem. However, the deletion of such variables constitutes the introduction of specification errors in that one presumably began with a correctly specified model. The most important question is one of model specification. The high degree of correlation between the two variables may represent an legitimate relationship. Further, the results of the confirmatory factor analyses as well as the dominance analyses supported the discriminability of each of the constructs. Moreover, the high correlations among the variables should not be too surprising or alarming since, with the exception of job expectations, the variables investigated were all a function of the same stimulus, namely, the ratee.

Another limitation concerns the sample sizes in both studies. The null results for the proposed moderator relationships concerning job expectations and ratee gender may have been a function of sample size. The power analyses indicated that a sample size of greater than 300 was needed to identify a two-way interaction of moderate effect size. The present samples fell short of the desired number. However, the results appeared very clear in that the effects observed were virtually nil. That is, the probability levels observed were very high, hence it does not appear as though higher sample sizes would have brought them to levels of statistical significance.

One final limitation to the present study concerns the identification of the locus of the effects observed. That is, while the present results are suggestive of the cognitive processes that raters undergo in reaction to extrarole performance, the present investigation did not include an actual test of the cognitive mechanisms involved. As noted by Cardy and Dobbins (1994a), examining the effects of manipulations on ratings can only lead to an inference regarding the resultant cognitive operations. A more rigorous test of the cognitive processes underlying the effects observed in the present research should be conducted with additional research that includes measures such as reaction time and observational accuracy.

Theoretical Implications

One purpose of this investigation was to propose several overarching theories that could be used as a framework for explaining how extrarole performance influences managerial judgments. In concert, the results suggest that social information processing theory may be a useful vehicle for understanding how extrarole performance influences performance evaluations. It appears that employees who exhibit extrarole behavior match the prototype of the "good employee." As noted by Podsakoff et al. (1993), managers may attempt to evaluate subordinates by focusing on whether the subordinate matches the category of "good employee" or bad employee." The more extrarole

behavior exhibited by an individual, the more likely the individual will be categorized into the "good employee" category. As such, positive affect and the assignment of other characteristics (e.g., commitment to the organization) of a "good employee" are attached to the cognitive representation of the ratee. These additional attributes serve as mediators in transmitting the effect of extrarole performance on overall performance judgments. In essence, extrarole performance appears to have minimal direct effect on the outcome variables studied. This contention is also supported by the results of the dominance analyses which found that in terms of the ordering of the importance of the variables studied, extrarole performance was low on the list relative to other factors such as in-role performance and liking. This isn't to say that extrarole performance is not an important influence on managerial judgments. On the contrary, it appears to have a great deal of effect, however, it's influence is primarily through the effect that it engenders on other variables.

While the results suggest that a great deal of the effect of extrarole behavior on managerial judgments is transmitted by liking, perceived affective commitment, and causal motive, other processes also appear be operating. Specifically, the mediating effects were less omnipresent with regard to reward recommendations where moderating effects emerged for perceived affective commitment and altruistic motives. As noted earlier, it appears that the criterion being considered stimulates different response strategies. Hence, in essence, under reward recommendation situations, the Naylor et al. (1980) theory of behavior in organizations may also be used as a framework for understanding the influence of extrarole performance on performance judgments. That is, managers may consider other variables such as perceived affective commitment which in turn may serve as contingencies in terms of the degree to which changes in extrarole behavior are followed by changes in reward recommendations.

The results also imply that extrarole behavior may be a missing variable in much of the research examining the relationship between social, environmental, and affective factors with performance ratings. For example, studies that have compared objective indicators and subjective measures of performance (cf., Alexander & Wilkins, 1982) have ignored the important influence of other forms of performance such as extrarole behaviors. The present results suggest a complex model that includes both additive and nonlinear effects. The results underscore the need for more complex models in determining the factors that influence managerial judgments. The results are particularly provocative with regard to impact of liking in the performance evaluation process. These findings underscore the importance of examining both the affective and cognitive processes involved in managerial judgments. It should be noted that the present study tested the cognitive and affective factors individually, outside of a full-information model, hence this research does not provide an adequate test of the specific sequencing of causal events. Future research should examine these processes under more rigorous causal tests.

Relatedly, the present findings do have theoretical implications regarding how the causal ordering of the liking-performance rating relationship should be viewed. Most research has taken the perspective that supervisors give high performance ratings to subordinates that they like rather than supervisors like high performers (Judge & Ferris, 1993). Further, research that has manipulated liking has found that likable ratees receive higher performance ratings (Cardy, 1987). Much of this research has assumed that liking effects reflect rater biases and hence are undesirable.

On the other hand, Cardy and Dobbins (1994a) speculated that supervisor liking may be a function of ratee performance. The results of the laboratory study provide support for Cardy and Dobbins' conjecture. Under the controlled conditions of the lab experiment, raters liked individuals who demonstrated high levels of in-role and extrarole

performance more so than individuals who demonstrated lower levels of performance. These results clearly indicate that given objective levels of performance, the more effective performers were more liked than the less effective performers.

While the present results provide some evidence to indicate that supervisor affect toward a subordinate may be a result rather than a cause of performance ratings, determining the exact causal order of the liking-performance rating relationship is an especially challenging task. Previous research has found that liking influences the encoding of behavior and hence affect performance ratings (DeNisi & Williams, 1988; Isen & Baron, 1991). On the other hand, research that has manipulated liking and then provided a performance situation to be rated would appear to be less analogous to real working relationships in terms of the causal order of the stimulus. That is, manipulating liking neglects the fact that affective reactions are typically triggered by stimuli and hence would be more likely to follow the observance of performance. Nevertheless, the results of the present study suggest that the causal order of liking should not be globally assumed to be a source of bias and that liking may represent a function of ratee performance.

This research also has implications regarding concerns that have been raised regarding the construct validity of extrarole performance and organizational citizenship behavior in particular (e.g., Graham, 1991; Van Dyne et al., 1995). The findings regarding job expectations may alleviate concerns raised by Morrison (1994) regarding implications for different definitions of what constitutes extrarole performance. While it remains to be tested if different beliefs regarding what is expected performance influences variables other than those studied here, the present results suggest that an individual's personal classification of a behavior as in-role or extrarole does not effect the influence that the extrarole behavior has on liking and perceived affective commitment.

It seems as though managers have followed the advice of Podsakoff et al. (1993) who argued that the nature of the behavior itself should be the focus.

Practical Implications

The results of the present study have several practical implications. First, ratings that are based, in part, on nonprescribed performance factors may bring about employee concerns regarding organizational justice and perceived equity. Two types of organizational justice have been distinguished. Distributive justice describes the fairness of the outcomes received by an employee, while procedural justice is concerned with the fairness of the procedures used to determine the outcomes (e.g., Folger & Greenberg, 1985). Hence, if employees who engage in extrarole performance are more likely to be rewarded, employees may be confused regarding the distribution of rewards. That is, if employees are rewarded for behaviors outside of those prescribed by the organization, the equity perceptions of individuals who do not engage in citizenship behavior may be violated. This is particularly true if the manager is operating under a compensatory model whereas high levels of extrarole performance may compensate for lower levels of task performance. Unless employees understand the importance of engaging in extrarole performance in terms of their overall evaluations or performance reward opportunities, employers run the risk of undermining employee perceptions of the fairness of the evaluation process (Podsakoff et al., 1993).

Interestingly, perceptions of fairness have been found to be instrumental in predicting the occurrence of organizational citizenship behavior (e.g., Moorman, 1991). Specifically, Moorman (1991) found that employees who believed that their supervisor personally treated them fairly appeared to be more likely to exhibit citizenship behavior. This may lead to a self-perpetuating cycle, where individuals who engage in citizenship behaviors are treated more favorably by supervisors and hence continue to engage in the behavior. On the other hand, individuals who have been rated less favorably due to their

lack of citizenship behavior, may continue to respond negatively due to feelings of inequity. Equity theory suggests that employees who perceive unfairness may reduce the frequency or magnitude of their citizenship whereas employees who believe they are fairly treated will see continued citizenship as a reasonable contribution to the system (Adams, 1965; Moorman, 1991).

Acknowledging that individuals who engage in extrarole behaviors are better rewarded and viewed as more valuable to the organization presents an interesting managerial dilemma. On one hand it can be argued that it is a valid practice to reward employees for engaging in nonprescribed performance behaviors that contribute to the effective functioning of the organization. On the other hand, by making this a visible system, the behaviors are really no longer non-mandated. Telling employees that extrarole performance contributes to positive reward outcomes in essence makes extrarole performance no longer nonprescribed. Organizations may offset this dilemma somewhat by establishing formal systems where acts of organizational spontaneity (George & Brief, 1992), such as providing a cost-saving suggestion, may result in financial remuneration. Hence, while providing cost-saving suggestions may not be mandated by the organization, engaging in that type of effective extrarole behavior does result in organizational rewards.

From a career development perspective, employees need to be aware of what behaviors are essential for obtaining valued organizational rewards. The results suggest that under certain levels of in-role performance (i.e., average), engaging in extrarole performance may have a substantial positive influence on career outcomes. At the very least, careerists may want to be aware of how extrarole performance influences perceptions such as liking and perceived affective commitment.

Results of the lab study suggest that distinct affective reactions to individuals can occur quickly. Hence, it seems that the nature of the employee-subordinate relationship

may be affected very early in the employment process. Employees may need to be aware of how their early impressions on their manager may affect subsequent interactions.

Future Research

In addition to the suggestions for previous research mentioned earlier, the results of the present study are suggestive of several additional lines of inquiry. The present results suggest that the mechanism whereby managers take extrarole performance into account when making judgments is more or less an automatic process. Other explanations remain to be tested. For example, Podsakoff et al. (1993) speculated that managers may deliberately and consciously recall acts of organization citizenship behavior and intentionally reward the employee out of a desire to reciprocate. It seems likely that this reciprocation may in turn lead to additional extrarole behavior on the part of the employee. Additional research is needed to examine the reciprocal feedback loops that may be occurring. Social exchange theory (e.g., Blau, 1964; Thibaut & Kelly, 1959) may be useful as a guiding theoretical framework for this endeavor.

The research thus far appears to be fairly robust in that extrarole performance consistently contributes to overall evaluation above and beyond task performance. However, it may be that the degree to which it contributes varies. For example, extrarole performance may be more important for some jobs than others. Future research may want to examine the extent to which the degree that extrarole performance contributes to overall evaluations and reward recommendations varies as a function of the nature of the job.

Another area that future research should address is the identification of the point where engaging in extrarole behavior may become detrimental to effective in-role performance. It seems likely that there may be a time where the effectiveness of engaging in citizenship behavior asymptotes. For example, the individual who is frequently taking time away from his or her own work to assist co-workers may become

less effective in her or his own job. How is this type of behavior recognized by the supervisor? This seems especially important given the present findings indicating that extrarole performance does not compensate for low levels of in-role performance.

Additional research is also needed to look at extrarole performance within team settings. How are strong individual contributors viewed relative to others who may spend substantial time contributing extrarole behaviors? Both members are adding to the effectiveness of the team as whole, however, their contributions may be viewed differently by various team members. On a similar note, a number of studies have found that employees carefully try to influence managerial impressions (e.g., Wayne & Ferris, 1990). Hence employees may consciously try and engage in extrarole performance in front of a manager. Consequently, it may be interesting to investigate if extrarole performance occurs less frequently in group settings than in individual work settings.

Relatedly, future research should also examine how extrarole performance contributes to the dynamics of the work unit. For example, how do co-workers view individuals who engage in high levels of extrarole performance? Do co-workers value extrarole performance to the same extent as managers? The target of the behavior may be particularly relevant here. For example, if all of an employee's extrarole behaviors are geared toward helping the supervisor, then co-workers may regard the employee as a "politcker" or "brown-noser." This could lead to dysfunctional group dynamics within the work unit. Research should examine if extrarole performance ratings provided by peers or others within the organization are positively related to outcome variables such as overall evaluation or rewards.

Additionally, research is needed to ascertain the extent to which levels of in-role and extrarole performance naturally covary with each-other. The ratings provided in the field study indicated a strong relationship between the two performance dimensions. It is uncertain whether this represents authentic covariance or is primarily indicative of

schematic information-processing on the part of the manager. It may be that underlying personality factors such as conscientiousness are exogenous causes of both in-role and extrarole performance and hence in real organizational settings, the two dimensions of performance do naturally covary.

Based on the results of this investigation, future laboratory research should be designed which includes low, average, and high levels of in-role and extrarole performance. This may help more fully determine the circumstances where extrarole performance may or may not have compensatory effects. A methodology designed around the use of "true" scores (Borman, 1977) may be a particularly useful medium for this venture.

Finally, additional research is also necessary to help ascertain what information managers use to determine the causal motive of extrarole performance. Research is needed to identify the specific sources and the locus of the attributions made. For example, in terms of the leader-member exchange (Graen & Scandura, 1987) individuals who are members of the "out-group" may be more likely to have their extrarole performance attributed to instrumental causes than individuals who are part of the leader's "in-group." Given that the results of the present research indicated that individuals who were more likely to have their performance attributed to altruistic causes were also more likely to receive higher overall evaluation ratings and reward recommendations than individuals who were more likely to have their behavior attributed to instrumental causes, this area of inquiry seems particularly important.

Summary

In summary, the present study attempted to advance theory and empirical knowledge regarding the processes whereby extrarole performance influences overall evaluation outcomes. Previous research consisted of primarily documenting the direct and additive effect of extrarole performance on overall performance judgments. The

present study expands the nomological net surrounding the effect of extrarole behavior on outcome variables. The results indicate the involvement of a complex system of affective and cognitive interrelated variables. Further, a majority of the present findings were supported and in two widely different contexts (i.e., lab and field). This convergence should allow more confidence in the validity of the results obtained.

Future research should continue to examine the influence of social, cognitive, and affective factors on performance evaluation and reward outcome variables. Given the effect of extrarole behavior on the outcomes investigated in the present research and the significant influence of the intervening variables, additional research in this area seems not only warranted, but critical to advancing theory and practice regarding performance judgments.

REFERENCES

Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), Advances in experimental psychology (Vol., pp. 267-299). San Diego, CA: Academic Press.

Alexander, E. R., & Wilkins, R. D. (1982). Performance rating validity: The relationship of objective and subjective measures of performance. Group & Organization Studies, 7, 485-496.

Allen, T. D., & Dobbins, G. H. (1993). Effects of performance level and appraisal purpose on evaluation accuracy. Paper presented at the Eighth Annual Conference of the Society for Industrial and Organizational Psychology, San Francisco, CA.

Allen, T. D., & Rush, M. C. (1996). Stereotypes and the 'good soldier': Perceptions of organizational citizenship across gender. Paper presented at the Tenth Annual Conference of the Society for Industrial and Organizational Psychology, San Diego, CA.

Allen, T. D., & Russell, J. E. A. (1995). When parental time off matters: How career outcomes are affected by gender, leave of absence, and level of performance. Paper presented at the annual meeting of the Academy of Management, Vancouver, BC.

Allen, T. D., Russell, J. E. A., & Rush, M. C. (1994). The effects of gender and leave of absence on attributions for high performance, perceived organizational commitment, and allocation of organizational rewards. Sex Roles, 31, 443-464.

Ashmore, R. D., & Del Boca, F. K. (1979). Sex stereotypes and implicit personality theory: Toward a cognitive-social psychological conceptualization. Sex Roles, 5, 219-248.

Avila, R. A., Fern, E. F., & Mann, O.K. (1988). Unraveling the criteria for assessing the performance of salespeople: A causal analysis. Journal of Personnel Selling and Sales Management, 8, 45-54.

Bakan, D. (1966). The duality of human existence. Chicago: Rand McNalley

Barnard, C. I. (1938). The functions of the executive. Cambridge, MA: Harvard University Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 6, 1173-1182.

Bateman, T. S., & Organ, D. W. (1983). Job satisfaction and the good soldier: The relationship between affect and employee 'citizenship behavior'. Academy of Management Journal, 26, 587-595.

Bentler, P. M. (1990). Comparative fit indexes in structural models. Psychological Bulletin, 107, 238-246.

Bentler, P.M., & Bonett, D. G. (1980). Significant tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin, 88, 588-606.

Bernardin, H. J., & Russell, J. E. A. (1993). Human resource management: An experiential approach. New York: McGraw-Hill.

Blau, F. D., & Ferber, M. A. (1987). The economics of women, men, and work. Englewood Cliffs, NJ: Prentice-Hall.

Blau, P. (1964). Exchange and power in social life. New York: Wiley.

Borman, W. C. (1977). Consistency of rating accuracy and rating error in the judgment of human performance. Organizational Behavior and Human Performance, 20, 238-252.

Borman, W. C., & Motowidlo, S. J. (1993). Expanding the criterion domain to include elements of extrarole performance. In N. Schmitt & W. C. Borman (Eds.), Personnel Selection in Organizations (pp. 71-98). San Francisco: Jossey-Bass.

Borman, W. C., White, L. A., & Dorsey, D. W. (1995). Effects of ratee task performance and interpersonal factors on supervisor and peer ratings. Journal of Applied Psychology, 80, 168-177.

Brief, A. P., & Motowidlo, S. J. (1986). Prosocial organizational behaviors. Academy of Management Review, 10, 710-725.

Broverman, I.K., Vogel, S. R., Broverman, D. M., Clarkson, F. E., & Rosenkrantz, P. S. (1972). Sex-role stereotypes: A current appraisal. Journal of Social Issues, 28, 59-78.

Budescu, D. V. (1993). Dominance analysis: A new approach to the problem of relative importance of predictors in multiple regression. Psychological Bulletin, 114, 542-551.

Cantor, N., & Mischel, W. (1977). Traits as prototypes: Effects on recognition memory. Journal of Personality and Social Psychology, 35, 38-48.

Cardy, R. L. (1987). Liking as a source of level bias in performance ratings. Paper presented at the annual conference of the Society of Industrial and Organizational Psychology, Atlanta, GA.

Cardy, R. L., & Dobbins, G. H. (1986). Affect and appraisal accuracy: Liking as an integral dimension in evaluating performance. Journal of Applied Psychology, 71, 672-678.

Cardy, R. L., & Dobbins, G. H. (1994a). Performance appraisal: The influence of liking on cognition. Managerial cognition and organizational information processing (Vol. 5, pp. 115-140). Greenwich, CT: JAI Press.

Cardy, R. L., & Dobbins, G. H. (1994b). Performance appraisal: Alternative perspectives. Cincinnati, OH: Southwestern Publishing.

Clayton, O., Jr., Baird, A. C., & Levinson, R. M. (1984). Subjective decision making in medical school admissions: Potential for discrimination. Sex Roles, 10, 527-532.

Cohen, C. E. (1977). Cognitive basis of stereotyping. Paper presented at the 85th annual convention of the American Psychological Association, San Francisco.

Cooper, W. H. (1981). Ubiquitous halo. Psychological Bulletin, 90, 218-244.

Crocker, J. (1981). Judgment of covariation by social perceivers. Psychological Bulletin, 90, 272-292.

DeNisi, A. S., Cafferty, T.P., & Meglino, B. M. (1984). A cognitive view of the performance appraisal process: A model and research propositions. Organizational Behavior and Human Performance, 33, 360-396.

DeNisi, A. S., & Williams, K. J. (1988). Cognitive approaches to performance appraisal. In G. R. Ferris & K. M. Rowland (Eds.), Research in personnel and human resources management, (Vol. 6, pp. 109-155). Greenwich, CT: JAI Press.

Dipboye, R. L. (1985). Some neglected variables in research on discrimination in appraisals. Academy of Management Review, 10, 116-127.

Dobbins, G. H., Cardy, R. L., & Truxillo, D. M. (1988). The effects of individual differences in stereotypes of women and purpose of appraisal on sex differences in performance ratings: A laboratory and field study. Journal of Applied Psychology, 73, 551-558.

Dobbins, G. H., Lane, I. M., & Steiner, D. D. (1988). A note on the use of laboratory methodologies in applied behavioral research: Don't throw the baby out with the bath water. Journal of Organizational Behavior, 9, 281-286.

Dobbins, G. H, & Russell, J. (1986). The biasing effects of subordinate likableness on leaders' attributions and corrective actions. Personnel Psychology, 39, 759-777.

Dobbins, G. H., Stuart, C., Pence, E. C., & Sgro, J. A. (1985). Cognitive mechanism mediating the biasing effects of leader sex on ratings of leader behavior. Sex Roles, 12, 549-560.

Eagly, A., Makhijani, M. G, & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. Psychological Bulletin, 111, 3-22.

Eastman, K. K. (1994). In the eyes of the beholder: An attributional approach to ingratiation and organizational citizenship behavior. Academy of Management Journal, 37, 1379-1391.

Fandt, P. M., Labig, C. E., & Urich, A. L. (1990). Evidence and the liking bias: Effects on managers' disciplinary action. Employee Responsibilities and Rights Journal, 3, 253-265.

Feldman, J. M. (1981). Beyond attribution theory: Cognitive processes in performance appraisal. Journal of Applied Psychology, 66, 127-148.

Ferris, G. R., Judge, T. A., Rowland, K. M., & Fitzgibbons, D. E. (1994). Subordinate influence and the performance evaluation process: Test of a model. Organizational Behavior and Human Decision Processes, 58, 101-135.

Fiske, S. T. (1981). Social cognition and affect. In J. Harvey (Ed.), Cognition, social behavior, and the environment (pp. 227-264). Hillsdale, NJ: Erlbaum.

Fiske, S.T. (1982). Schema-triggered affect: Applications to social perception. In M.S. Clark & S. T. Fiske (Eds.), Affect and cognition: The 17th Annual Carnegie Symposium on Cognition (pp. 55-78). Hillsdale, N.J.: Erlbaum.

Fiske, S. T., Bersoff, D. N., Borgida, E., Deaux, K., & Heilman, M. E. (1991). Social science research on trial: The use of sex stereotyping research in Price Waterhouse v. Hopkins. American Psychologist, 46, 1049-1060.

Fodor, E. M. (1974). Disparagement by a subordinate as an influence on the use of power. Journal of Applied Psychology, 84, 181-186.

Folger, R. (1993). Justice, motivation, and performance beyond role requirements. Employee Responsibilities and Rights Journal, 6, 293-248.

Folger, R., & Greenberg, J. (1985). Procedural justice: An interpretive analysis of personnel systems. In G. R. Ferris & K. M. Rowland (Eds.), Research in Personnel and Human Resource Management (vol. 3, pp. 141-183). Greenwich, CT: JAI Press.

George, J. M., & Brief, A. P. (1992). Feeling good-doing good: A conceptual analysis of the mood at work-organizational spontaneity relationship. Psychological Bulletin, 112, 310-329.

Gerdes, E. P., & Garber, D. M. (1983). Sex bias in hiring: Effects of job demands and applicant competence. Sex Roles, 7, 989-998.

Graen, G. B., & Scandura, T. A. (1987). Toward a psychology of dyadic organizaing. In B. Staw & L. L. Cummings (Eds.), Research in organizational behavior (Vol. 9). Greenwich, CT: JAI Press.

Graham. J. W. (1991). An essay on organizational citizenship behavior. Employee Responsibilities and Rights Journal, 4, 249-270.

Green, S., & Mitchell, T. (1979). Attributional process of leaders in leader-member interactions. Organizational Behavior and Human Performance, 23, 429-459.

Gurevitch, Z. D. (1985). Preacquaintance attitude similarity and attraction revisited: Ten days in a fall-out shelter. Sociometry, 37, 163-173.

Hamilton, D. L. (1981). Illusory correlation as a basis for stereotyping. In D. L. Hamilton (Ed.). Cognitive processes in stereotyping and intergroup behavior (pp. 115-144). Hillsdale, NJ: Lawrence Erlbaum.

Heider, F. (1958). The psychology of interpersonal relations. New York: Wiley.

Heilman, M. E., Block, C. J., Martell, R. F., & Simon, M. C. (1989). Has anything changed? Current characterizations of men, women, and managers. Journal of Applied Psychology, 74, 935-942.

Heilman, M. E., Martell, R. F., and Simon, M. C., (1988). The vagaries of sex bias: Conditions regulating the undervaluation, equivaluation, and overvaluation of female job applicants. Organizational Behavior and Human Decision Processes, 41, 98-110.

Hughes, M. A., Price, R. L., & Marrs, D. W. (1986). Linking theory construction and theory testing: Models with multiple indicators of latent variables. Academy of Management Review, 11, 128-144.

Ilgen, D. R. (1986). Laboratory research: A question of when, not if. In E. A. Locke (Ed.), Generalizing from laboratory to field settings (pp. 257-268). Lexington, MA: Lexington Books.

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

Ilgen, D. R., & Feldman, J. M. (1983). Performance appraisal: A process focus. In B. Staw & L. Cummings (Eds.). Research in organizational behavior (Vol. 5, pp. 141-197). Greenwich, CT: JAI Pres.

Isen, A. M., & Baron, R. A. (1991). Positive affect as a factor in organizational behavior. In L. L. Cummings & B. M. Staw (Eds.), Research in organizational behavior, (Vol. 13, pp. 1-53). Greenwich, CT: JAI Press.

Jackson, D. W., Keith, J. E., & Schlacter, J. L. (1983). Evaluation of selling performance: A study of current practices. Journal of Personal Selling and Sales Management, 3, 43-51.

James, L. R., & Brett, J. M. (1984). Mediaters, moderators, and tests for mediation. Journal of Applied Psychology, 69, 307-321.

James, L. R., Muliak, S. A., & Brett, J. M. (1982). Causal analysis: Assumptions, models, and data. Beverly Hills, CA: Sage.

Jones, E. E. (1964). Ingratiation. New York: Appleton Century Crofts.

Jones, E. E., & Davis, K. E. (1965). From acts to dispositions: The attribution process in person percepetion. In L. Berowitz (Ed.), Advances in experimental social psychology (Vol. 2, pp. 220-266). New York: Academic Press.

Jones, E. E., & Wortman, C. (1973). Ingratiation: An attributional approach. Morristown, NJ: General Learning Press.

Jones, R. A. (1982). Perceiving other people: Stereotyping as a process of social cognition. In A. G. Miller (Ed.), In the eye of the beholder. New York: Praeger.

Jöreskog, K. G., & Sörbom, D. (1983). LISREL: Analysis of linear structural relationships by the method of maximum likelihood (2nd ed.). Chicago, IL: National Educational Resources.

Jöreskog, K. G., & Sörbom, D. (1986). LISREL VI: Analysis of linear structural relationships by maximum likelihood and least square methods. Mooresville, IN: Scientific Software, Inc.

Jöreskog, K. G., & Sörbom, D. (1989). LISREL VII. Mooresville, IN: Scientific Software.

Judge, T. A., & Ferris, G. R. (1993). Social context of performance evaluation decisions. Academy of Management Journal, 36, 80-105.

Karambayya, R. (1990). Contexts for organizational citizenship behavior: Do high performing and satisfying units have better 'citizens.' Unpublished manuscript.

Katz, D., & Kahn, R. L. (1978). The social psychology of organizations (2nd ed.). New York: Wiley.

Kelly, H. H. (1973). The processes of causal attribution. American Psychologist, 28, 107-128.

Kenny, D. A., & Judd, C. M. (1984). Estimating nonlinear and interactive effects of latent variables. Psychological Bulletin, 96, 201-210.

Kingstrom, P. O., & Mainstone, L. E. (1985). An investigation of the rater-ratee acquaintance and rater bias. Academy of Management Journal, 28, 641-653.

Kipnis, D., & Vanderveer, R. (1971). Ingratiation and the use of power. Journal of Personality and Social Psychology, 17, 280-286.

Kozlowski, S. W. J., & Doherty, M. L. (1989). Integration of climate and leadership: Examination of a neglected issue. Journal of Applied Psychology, 74, 546-553.

Landy, F. J., & Farr, J. L. (1980). Performance ratings. Psychological Bulletin, 87, 72-107.

Lord, R. G. (1985). An information processing approach to social perceptions, leadership, and behavioral measurement in organizations. In B. M. Staw & L. L. Cummings (Eds.), Research in organizational behavior, (Vol. 7, pp. 87-128). Greenwich, CT: JAI Press.

Lord, R. G., & Maher, K. J. (1991). Leadership and information processing: Linking perceptions and performance. New York: HarperCollins.

MacKenzie, S. B., Podsakoff, P. M., & Fetter, R. (1991). Organizational citizenship behavior and objective productivity as determinants of managerial evaluations of salesperson performance. Organizational Behvaior and Human Decision Processes, 50, 123-150.

MacKenzie, S. B., Podsakoff, P. M., & Fetter, R. (1993). The impact of organizational citizenship behavior on evaluations of salesperson performance. Journal of Marketing, 57, 70-80.

Marlowe, C. M., Schneider, S. L., & Nelson, C. E. (1996). Gender and attractiveness biases in hiring decisions: Are more experienced managers less biased? Journal of Applied Psychology, 81, 11-21.

Martin, C. L. (1987). A ratio measure of sex stereotyping. Journal of Personality and Social Psychology, 52, 489-499.

Maurer, T. J., & Tarulli, B. A. (1994). Investigation of perceived environment, perceived outcomes, and person variables in relationship to voluntary development activities by employees. Journal of Applied Psychology, 79, 3-14.

McMahon, I. D. (1973). Relationship between causal attributions and expectancies of success. Journal of Personality and Social Psychology, 28, 108-114.

McEnrue, M. (1989). Self-development as a career management strategy. Journal of Vocational Behavior, 34, 57-68.

Meyer, J. P., & Allen, N. J. (1984). Testing the "side-bet theory" of organizational commitment: Some methodological considerations. Journal of Applied Psychology, 69, 372-378.

Mitchell, T., Green, S., & Wood, R. (1981). An attributional model of leadership and the poor performing subordinate: Development and validations. In B. M. Staw & L. L. Cummings (Eds.), Research in organizational behavior (Vol. 3). Greenwich, CT: JAI Press.

Mook, D. G. (1983). In defense of external invalidity. American Psychologist, 38, 379-387.

Moorman, R. H. (1991). Relationship between organizational justice and organizational citizenship behaviors: Do fairness perceptions influence employee citizenship? Journal of Applied Psychology, 71, 500-507

Morrison, A. M., White, R. P., Van Velsor, E., & the Center for Creative Leadership (1987). Breaking the glass ceiling: Can women reach the top of America's largest corporations? Reading, MA: Addison-Wesley.

Morrison, E. W. (1994). Role definitions and organizational citizenship behavior: The importance of the employee's perspective. Academy of Management Journal, 37, 1543-1567.

Motowidlo, S. J., & Van Scotter, J. R. (1994). Evidence that task performance should be distinguished from extrarole performance. Journal of Applied Psychology, 79, 475-480.

Naylor, J. C., Pritchard, R. D., & Ilgen, D. (1980). A theory of behavior in organizations. New York: Academic Press.

Neisser, U. (1967). Cognitive psychology. Englewood Cliffs, NJ: Prentice-Hall.

Nieva, V. F., & Gutek, B. A. (1980). Sex effects on evaluation. Academy of Management Review, 5, 267-276.

Organ, D. W. (1977). A reappraisal and reinterpretation of the satisfaction-causes-performance hypothesis. Academy of Management Review, 2, 46-53.

Organ, D. W. (1988). Organizational citizenship behavior: The good soldier syndrome. Lexington MA: Lexington Books.

Organ, D. W. (1990). The motivational basis of organizational citizenship behavior. In B. Staw & L. Cummings (Eds.). Research in organizational behavior (Vol. 12, pp. 43-72). Greenwich, CT: JAI Press.

Organ, D. W., & Knovosky, M. (1989). Cognitive versus affective determinants of organizational citizenship behavior. Journal of Applied Psychology, 74, 157-164.

Organ, D. W., & Ryan, K. (1995). A meta-analytic review of attitudinal and dispostional predictors of organizational citizenship behavior. Personnel Psychology, 48, 775-802.

Orr, J. M., Sackett, P. R., & Mercer, M. (1989). The role of prescribed and nonprescibed behaviors in estimating the dollar value of performance. Journal of Applied Psychology, 74, 34-40.

Pandy, J., & Bohra, K. A. (1984). Ingratiation as a function of organizational characteristics and supervisory styles. International Review of Applied Psychology, 33, 381-394.

Park, O. S., & Sims, H. P. (1989). How subordinate prosocial behavior influences performance ratings. Paper presented at annual meeting of the Academy of Management, Washington, DC.

Pence, E. C., Pendleton, W. C., Dobbins, G. H., & Sgro, J. A. (1982). Effects of causal explanations and sex variables on recommendations for corrective action following employee failure. Organizational Behavior and Human Performance, 29, 227-240.

Pheterson, G. I., Kiesler, S. B., & Goldberg, P. A. (1971). Evaluation of the performance of women as a function of their sex, achievement, and personal history. Journal of Personality and Social Psychology, 19, 114-118.

Podsakoff, P. M. (1982). Determinants of supervisor's use of rewards and punishments: A literature review and suggestions for further research. Organizational Behavior and Human Performance, 29, 58-83.

Podsakoff, P. M., & MacKenzie, S. B. (1993). Citizenship behavior and fairness in organizations: Issues and directions for future research. Employee Responsibilities and Rights Journal, 6, 257-269.

Podsakoff, P. M., & MacKenzie, S. B (1994). Organizational citizenship behaviors and sales unit effectiveness. Journal of Marketing Research, 31, 351-363.

Podsakoff, P. M., MacKenzie, S. B., & Hui, C. (1993). Organizational citizenship behaviors and managerial evaluations of employee performance: A review and suggestions for future research. In G. R. Ferris (Ed.) Research in personnel and human resources management, (Vol 11, pp. 1-40). Greenwich, CT: JAI Press.

Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Tranformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaivors. Leadership Quarterly, 1, 107-142.

Powell, G. N. (1993). Women and men in management (2nd ed.). Newbury Park, CA: Sage.

Pulakos, E. D., White, L. A., Oppler, S. H., & Borman, W. C. (1989). Examination of race and sex effects on performance ratings. Journal of Applied Psychology, 74, 770-780.

Sackett, P. R., & Larson, J. R. (1990). Research strategies and tactics in industrial and organizational psychology. In M. D. Dunnett & L. M. Hough (Eds.), Handbook of industrial and organizational psychology, (Vol. 1, pp. 419-489). Palo Alto, CA: Consulting Psychologists Press, Inc.

Sauser, W. I., Evans, K. L., & Champion, C. C. (1980). Two hundred fifty scaled incidents of college classroom teaching behavior. Resources in Education, 15, 30.

Schnake, M. (1991). Organizational citizenship: A review, proposed model, and research agenda. Human Relations, 44, 735-759.

Shore, L. F, Barksdale, K., & Shore, T. H. (1995). Managerial perceptions of employee commitment to the organization. Academy of Management Journal, 38, 1593-1615.

Smith, C. A., Organ, D. W., & Near, J. P. (1983). Organizational citizenship behavior: It's nature and antecedents. Journal of Applied Psychology, 68, 653-663.

Staw, B. M. (1984). Organizational behavior: A review and reformulation of the field's outcome variables. Annual Review of Psychology, 35, 627-666.

Stroh, L. K., Brett, J. M., & Reilly, A. H. (1992). All the right stuff: A comparison of female and male managers' career progression. Journal of Applied Psychology, 77, 251-260.

Swim, J. (1993). In search of gender bias in evaluations and trait inferences: The role of diagnosticity and gender stereotypicality of behavioral information. Sex Roles, 29, 213-237

Swim, J., Borgida, E., Maruyama, G., & Myers, D. G. (1989). Joan McKay versus John McKay: Do gender stereotypes bias evaluations? Psychological Bulletin, 105, 409-429.

Taylor, S. E., & Crocker, J. (1981). Schematic bases of social information processing. In E. T., Higgens, C. P. Herman, & M. P. Zanna (Eds.), Social cognition: The Ontario symposium (Vol. 1). Hillsdalle, NJ: Erlbaum.

Thibaut, J. W., & Kelley, H. H. (1959). The social pyschology of groups. New York: Wiley.

Tsui, A. S., & Barry, B. (1986). Interpersonal affect and rating errors. Academy of Management Journal, 29, 586-599.

Tucker, L. R., & Lewis, C. (1973) The reliability coefficient for maximum liklihood factor analyis. Psychometrika, 38, 1-10.

Valle, V. A. (1974). The effect of stability of attributions on future expectations. Personality and Social Psychology Bulletin, 1, 97-99.

Valle, V. A., & Frieze, I. H. (1976). Stability of causal attributions as a mediator in changing expectancies for success. Journal of Educational Psychology, 33, 579-587.

Van Dyne, L., Cummings, L. L., & McLean Parks, J. (1995). Extra-role behaviors: In pursuit of construct and definitional clarity (a bridge over muddied waters). In L. L. Cummings & Staw, B. M. (Eds.). Research in organizational behavior, 17, 215-285.

Wayne, S. J., & Ferris, G. R. (1990). Influence tactics, affect, and exchange quality in supervisor-subordinate interactions: A laboratory experiment and a field study. Journal of Applied Psychology, 73, 487-499.

Weiner, B., Frieze, I., Kukla, A., Reed, L., Rest, S., & Rosenbaum, R. M. (1972). Perceiving the causes of success and failure. In E. Jones, D. Knouse, H. Kelly, R. Nisbett, S. Valins, & B. Weiner (Eds.), Attribution: Perceiving the causes of behavior (pp. 95-120). Morristown, NJ: General Learning Press.

Werner, J. M. (1994). Dimensions that make a difference: Examining the impact of in-role and extrarole behaviors on supervisory ratings. Journal of Applied Psychology, 79, 98-107.

Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behavior. Journal of Management, 17, 601-617.

APPENDIX

APPENDIX

POWER ANALYSIS

Based on Cohen's (1988) Formula for Hierarchical Analysis (Chapter 10)*

Significance Level = .05 (by convention, p. 531)

Desired Power = .80 (by convention, p. 445)

Effect size (f2) = .15 (by convention for medium effect size, p. 478)

$k_Y = 1$ $k_X = 4$ $k_A = 1$

$u = k_Y k_X = 4$

s = 1 (from Table 10.2.1, p. 475)

At trial v = 120, L = 12.3 (from Table 9.4.2, p. 452).

At trial L value is entered into equation 10.4.1 (p. 515) to find the implied v.
$v = (L/f^2)\, u - 1$
$= 12.3/.15\,(4) - 1$
$= 327$ (implied v)

Interpolate L based on the implied v using equation 10.4.2 (p. 515).
$L = L_L - [((1/v_L) - (1/v))/((1/v_L) - (1/v_U))/(\lambda L - \lambda_U)]$
$= 12.3 - [((1/120) - (1/327) / (1/120) - (1/\infty))] / 12.3 - 11.9]$
$= 12.3 - .253$
$= 12.05$ (interpolated L)

The interpolated L is entered into equation 10.4.1 (p. 515) to find the iterated v.
$v = \lambda/f2)u - 1$
$= (12.05/.15)\,(4) - 1$
$= 320$ (iterated v)

Use the iterated v in equation 10.4.3 (p.515) to find the number of subjects required.
$N = 1/s(v + u/2 - 1) + ((ky + kx + 3) / 2) + \max(k_C, k_A + k_G)$
$= 1/1(320 + 1/2\text{-}1) + ((1 + 4 + 3)/2) + 1$
$= 321 + 4 + 1$

$= 326$

TOTAL NUMBER OF SUBJECTS REQUIRED = 326

From: Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates

VITA

Tammy D. Allen was born in St. Louis, Missouri on March 28, 1962. She attended St. Johns Lutheran Elementary School and graduated from Grover Cleveland High School in May of 1980. After high school Tammy went to work for Lincoln National Insurance as a health insurance claims examiner and completed college courses through evening school.

After several years at Lincoln National, Tammy was promoted into management. In 1987, when asked to take a position in Lincoln's Southern California office, she moved to Orange County, California. While enjoying the California sunshine and becoming a vegetarian, Tammy also found time to pursue her college education at California State University, Fullerton.

Following an organizational restructuring, Tammy left Lincoln National in 1989 and decided to escalate her educational efforts. While attending CSUF she became interested in I/O psychology and conducting research after taking Dr. Ron Riggio's I/O class and subsequently began working with him on several research projects. During this time, Tammy also gained applied experience by completing an internship with Dr. Warren Bobrow at the Professional Resource Group. She subsequently received her Bachelor of Arts degree in Psychology from CSUF in June of 1991.

She entered the Industrial and Organizational Psychology program at the University of Tennessee in the fall of 1991. In August of 1996, she received the Ph.D. in Industrial and Organizational Psychology. While attending UT, Tammy was awarded the Walter Melville Bonham Memorial Dissertation Fellowship and was honored by the College of Business Administration for outstanding teaching. She has presented and published a number of professional research papers. Her work has earned her national awards from the Academy of Management and the American Psychological Association.

While at UT, Tammy also gained applied experience through contract assistantships with organizations such as the State of Tennessee and consulting work with the Tennessee Assessment Center and Tennessee Valley Authority.

Tammy is affiliated with the Society of Industrial and Organizational Psychology, Academy of Management, Southern Management Association, and American Psychology Association. In the fall of 1996 she joined the Industrial and Organizational Psychology program at the University of South Florida as an Assistant Professor.

Outside of work Tammy is devoted to her adorable son, Ethan, and her fascinating husband, Dr. Mark. They enjoy family walks, reading, sports, and art.