

Manager-Subordinate Exchange Relationships:

Investigation of a Manager Behavior Model

by

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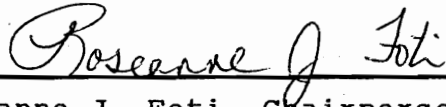
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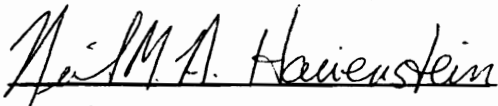
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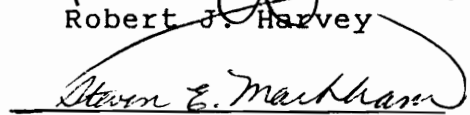
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(ABSTRACT)

This field study investigated the relationship among behavioral and perceptual measures of the Leader-Member Exchange (LMX) relationship and organizational outcome variables. The major purposes of this study were to determine: (1) the extent to which the dyad is the appropriate level of analysis for the examination of manager-subordinate relationships, (2) which objectively observed manager behaviors are important in defining negotiating latitude, the most commonly used measure of LMX, and (3) whether these behaviors or traditional self-reports of negotiating latitude better predict organizational outcome variables.

Two hundred ninety-two manager-subordinate dyads from 18 work groups in a manufacturing plant were observed by trained research assistants and completed questionnaires. Measures included observed manager behaviors defined by the Operant Supervisory Taxonomy and Index (OSTI), subordinates' absence rates, and managers' and subordinates' perceptions

of subordinates' satisfaction (general satisfaction, satisfaction with supervisor, growth satisfaction, work satisfaction, coworker satisfaction), subordinate's intent to withdraw, and negotiating latitude (NL).

Within and between analysis I (WABA I) indicated the manager-subordinate dyad as the appropriate level of analysis for NL, general satisfaction, satisfaction with supervisor, growth satisfaction, work satisfaction, coworker satisfaction, and turnover intent. WABA II revealed significant dyadic relationships between NL and all measures of satisfaction as well as turnover intent.

Bivariate regression analysis revealed a significant relationship between negotiating latitude and absenteeism. Multiple regression analysis showed manager behaviors (i.e., antecedents) predicted negotiating latitude. However, multiple regression failed to reveal that manager behaviors predicted measures of satisfaction, turnover intent, or absenteeism.

Finally, hierarchical regression revealed that manager behaviors (i.e., consequences) added to the predictive ability of negotiating latitude for general satisfaction. However, the addition of manager behaviors to negotiating latitude using hierarchical regression failed to produce a significant change in R-square for any other outcome variables.

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INTRODUCTION

Leadership experts conducted many studies during the past two decades. Their investigations consistently suggest that instead of adhering to an average leadership style, managers behave differently towards their individual subordinates as a function of exchanges that occur during the role formation process (Dansereau, Graen, & Haga, 1975; Graen & Cashman, 1975; Greene, 1975; Liden & Graen, 1980; Lowin & Craig, 1968; Wayne & Ferris, 1990). Recent studies investigated how this differential role formation within manager-subordinate pairs (i.e., vertical dyads or leader-member exchanges) affects organizational outcome variables (e.g., Brownlee, 1991; Ferris, 1985; Liden & Graen, 1980; Rosse & Kraut, 1986).

Various theories offer frameworks to explain the nature of dyadic relationships including leadership exchanges (Jacobs, 1971), role-making (Graen, 1976; Graen & Cashman, 1975), noncontractual social exchange (Kim & Organ, 1982), vertical dyad linkage (VDL: Dansereau et al., 1975), and leader-member exchange (LMX: Dienesch & Liden, 1986). The quality of these dyadic relationships underlies many organizational outcome variables such as work performance (Liden & Graen, 1980), turnover (Graen & Ginsburgh, 1977; Graen, Liden, & Hoel, 1982), job satisfaction (Rosse & Kraut, 1983), felt equity (Vecchio, Griffeth, & Hom, 1986;

Wilhelm, 1989), support for the subordinate (Graen & Cashman, 1975), reported job problems (Dansereau et al., 1975; Rosse & Kraut, 1983), favorability of performance evaluations (Graen, 1976; Vecchio & Gobdel, 1986), individuals' reactions to performance feedback (Snyder, Williams, & Cashman, 1984), organizational commitment (Graen & Ginsburgh, 1977), "leader-member" agreement on certain mutually experienced work events (Graen & Schiemann, 1978), and most recently, on the attributions formed by managers about their subordinates (Heneman, Greenberger, & Anonyuo, 1989; Wilhelm, Herd, & Steiner, 1990). Further investigation of the relationship between each of these outcome variables and the quality of the manager-subordinate relationship is warranted in order to develop further the construct of leader-member exchange.

Models of Leader-Member Exchange (LMX) (previously Vertical Dyad Linkage [VDL]) have been theoretically and empirically derived to explain the leadership phenomenon. However, the basic LMX construct lacks construct validity (Dienesch & Liden, 1986; Wayne & Ferris, 1990; Wilhelm, 1989). Except for Dienesch and Liden's (1986) proposed multidimensional formulation of the LMX construct, most researchers maintain a unidimensional conceptualization of the LMX construct (i.e., as an in-/out-group dichotomy). Furthermore, the in-group/out-group dichotomy is measured

indirectly using self-report measures of the amount of negotiating latitude (NL) given to subordinates. Thus LMX lacks the breadth of measures normally associated with a fully developed construct, specifically direct objective measures of the nature of exchange between managers and subordinate (Dansereau et al., 1975; Dienesch & Liden, 1986).

The nature of the LMX relationship suggests that the manager plays two roles simultaneously -- a supervisory role with out-group members and a leadership role with in-group members. Thus, different relationships develop between a manager and his/her individual subordinates. As a function of this differential development, subordinates can be categorized as members of an in-group or as members of an out-group. In-/out-group membership is generally assessed using a measure of NL (Dienesch & Liden, 1986) which taps the extent to which a subordinate provides input and to which a manager considers this input in relation to role development (Dansereau et al., 1975). Using the absolute amount of NL to define the leader-member exchange, researchers have defined in-group members as those given generous amounts of latitude to negotiate job-related matters and out-group members as those given meager amounts of latitude. While the amount of negotiating latitude a manager gives to a subordinate indicates in- versus out-

group status, the specific manager behaviors associated with giving small versus large amounts of NL remain to be investigated.

Although measures of NL in LMX research ask subordinates about their standing and working relationship with their manager, their manager's understanding of their problems and potentials, and the support received from their manager (cf. Graen & Cashman, 1975; Liden & Graen, 1980; Scandura & Graen, 1984), these measures fail to capture specific manager behaviors associated with different amounts of NL. Therefore, behavioral observation by objective observers in LMX research could extend understanding of the nature of negotiating latitude.

Most studies to date have used self-report measures (Brownlee, 1991; Duchon, Green, & Tabor, 1986; Graen et al., 1982; Scandura, Graen, & Novak, 1986; Wayne & Ferris, 1990) to obtain the manager's and/or subordinate's evaluation of a subordinate's group status. These measures potentially lack objectivity by not focusing on directly observable behaviors. A coding scheme that adequately categorizes the variety and complexity of manager behaviors involved in manager-subordinate relationships through direct empirical observation could add significant information to that gained from traditional measures. Although LMX models have made a significant contribution to the study of

leadership, the LMX literature lacks documentation of the actual manager behaviors associated with in-/out-group status as well as an analysis of whether these behaviors as they relate to individual subordinates can predict organizational outcome variables.

Dienesch and Liden (1986) proposed three dimensions which define the leader-member exchange: 1) competence - the perceived amount, direction, and quality of work-oriented activity each member puts forth toward the mutual goals of the dyad, 2) loyalty - the expression of public support for the goals and the personal character of the other member of the dyad, and 3) liking - the mutual affection between dyad members, based primarily on interpersonal attraction rather than work or professional values. Each of these dimensions is grounded in the concept of mutuality which implies that an exchange must develop along dimensions to which both parties can contribute and that are valued by both parties (Dienesch & Liden, 1986).

Previous research and theory development indicate that, in general, supervisors initiate higher-quality exchanges with subordinates who are more competent, loyal, and well-liked (Kim & Organ, 1982; Jennings, 1967; Wayne & Ferris, 1990). Given this assumption, the purpose of this study was to investigate the supervisor behaviors associated with initiation of higher quality exchanges. The leader

behaviors of interest are performance antecedents (providing instructions for subordinate performance), performance monitors (collecting subordinate performance information), and performance consequences (providing feedback to subordinates about their performance) (Komaki, 1986). The nature of these behaviors closely reflect the competence dimension of LMX due to their focus on performance-oriented activities of the subordinate.

Thus, this study allowed investigation of leader behaviors important in the role episode process (Katz & Kahn, 1978) which is related directly to the nature of the LMX relationship that develops between manager and subordinate. The role episode process involves role expectations (evaluative standards applied to the behavior or a focal person) and sent-roles (communications sent to the focal person in order to influence him or her). Thus, the use of manager-emitted antecedents, consequences, and monitors appears to be an appropriate method for coming to understand the specific manager behaviors involved in communicating expectations and knowledge of performance to in- versus out-group members.

This study evaluated the link between manager behaviors and (1) the LMX construct, from the manager's and subordinate's points of view, and (2) three organizational outcome variables. This investigation used the Operant

Supervisory Taxonomy and Index (OSTI: an observational taxonomy designed specifically to code manager behaviors [Komaki, 1986]) to offer an alternative conceptualization of group status that describes whether managers' observed behaviors vary significantly between in- and out-groups. Furthermore, the ability of these manager behaviors to predict absence, attitude, and turnover measures was compared to the traditional NL measure.

In addition to observing dyad-specific manager behaviors is the need to identify the appropriate level of analysis in which to interpret empirical findings. Dansereau, Alutto, & Yammarino (1984) and Markham, Dansereau, Alutto, and Dumas (1983) have proposed a statistical technique to determine appropriate levels of analysis and suggest that too many studies look at and discuss findings at the incorrect level of analysis. Therefore, their technique known as within and between analysis (WABA) was used to determine the appropriate level of analysis for variables measured from two perspectives and whether proposed relationships between these variables exist at the dyad level (the predicted level), the group level, both the dyad level and the group level, or at neither level.

Based on a review of LMX research, the current study had three specific purposes: (1) to investigate LMX (using

a measure of negotiating latitude) at the dyadic level of supervisors and each of their subordinates, (2) to examine the relationship between negotiating latitude and manager behaviors (using a behavioral taxonomy for coding leader behaviors), and (3) to determine how both manager behaviors and negotiating latitude relate to subordinate satisfaction, absenteeism, and turnover intention.

Overview of the Study

This study was an empirical investigation of the relation among manager behaviors, negotiating latitude (NL), and organizational outcome variables. This investigation took place in a field setting and involved observation of manager behaviors, administration of questionnaires measuring NL, subordinate satisfaction, and intention to withdraw, and collection of subordinate absenteeism data from company archives. Data analysis revealed (1) the appropriate level of analysis for NL, measures of satisfaction, and turnover intent, (2) the relation of manager behaviors to NL, and (3) the relation of manager behaviors and NL membership to measures of satisfaction, and turnover intent, and absenteeism.

First, a general overview of LMX theory and research is presented. Second, some of the methodological problems and inconsistencies that exist in LMX research are explained. Third, manager behaviors are discussed. Fourth, the

development and use of the Operant Supervisory Taxonomy and Index (OSTI) is reviewed. Fifth, a manager behavior model of LMX is proposed. Sixth, the specific hypotheses of this research are stated. Then, the methodology of the proposed study is outlined followed by results. Finally, a discussion of resulted and implications is presented.

LITERATURE REVIEW

Overview of Leader-Member Exchange Theory

Theoretical Basis for the LMX Model

As an approach to the study of leadership in organizations, LMX (formerly Vertical Dyad Linkage [VDL]) theory is relatively new (Graen, Dansereau, & Minami, 1972). The basic unit of analysis for quantifying the concept of a "developed" or "negotiated" role between manager and subordinate is the leader-member relationship (Dansereau, Cashman, & Graen, 1973; Dienesch & Liden, 1986; Graen, 1976). This focus on manager-member interactions grew out of Social Exchange theory (Katz & Kahn, 1978) which says the "negotiated" role is shaped by relevant organizational actors (one of these being the immediate manager) (Graen, 1976). Graen's (1976) "Role Making Model" explains the role system and its fit with the development of the manager and member roles in an exchange relationship stressing that interpersonal exchange relationships between the new role incumbent (member) and his or her manager (leader) are very

important. Essentially, the exchange relationship evolves around a role episode process occurring within the role set of individuals interdependent with one another. Within the role-making system the process develops in the organization whereby participants acquire knowledge, receive and send communications, accept particular patterns of behavior, and modify those patterns according to appropriate role behavior. These roles are sets of behaviors expected from occupants of either the manager or the member positions.

Roles are defined as sets of behaviors required of a person by virtue of his/her position in an organization (Graen, 1976; Katz & Kahn, 1978). These behaviors interact with the role behaviors of others to produce predictable outcomes in the organization. Roles define tasks and the ways in which different employees must work together to achieve organizational objectives. Roles are acquired through social interaction with other people, in a process called the role episode. Basically, people with whom a worker interacts, the role senders, have certain expectations about that worker's role in the organization, and through direct and indirect communication they send those expectations to the worker. The worker, in turn, receives these role expectations, which determine, to a greater or lesser extent, his role behaviors.

Graen (1976) outlined four discrepancy factors as part of the role-making model: 1) expectation discrepancy - "the difference between the role expectation held by the manager and that received by the member;" 2) role discrepancy - "the difference between what the member perceives to be his manager's role expectations and the member's current role behavior;" 3) feedback discrepancy - "the difference between the member's role behavior and the manager's perception of that behavior;" and 4) performance discrepancy - "the difference between the manager's role expectations and his perceptions of the member's current role behavior." Graen (1976) described how the manager and the member enter into a negotiated role, whereby the member can negotiate with the leader to change his expected role. It is along these lines that LMX has developed over the years.

The LMX model can be viewed as one operationalization of the role-making approach based on the idea that role development inherently will result in differentiated role definitions, and, thus, in varied manager-member exchanges (Katz & Kahn, 1978). As part of the role-making process, roles must often be defined by organizational members due to the existence of role ambiguity and incomplete role specification by the organization (Dienesch & Liden, 1986). As part of this defining process, a manager with a vested interest in the role performance of a subordinate exerts

pressure upon the subordinate in the form of a role expectation episode. Definition of the subordinate's role behavior occurs through a series of role episodes (Dienesch & Liden, 1986). To support the role-episode model, Graen, Orris, & Johnson (1973) studied role assimilation in new nonacademic university employees.

In many cases, organizations are structured so that the subordinate's immediate manager will be an extremely influential role-sender, partially due to the fact that only the manager legitimately can use formal sanctions to enforce role-expectations (Dienesch & Liden, 1986). Therefore, the interpersonal exchange relationship between the new subordinate and his or her immediate manager apparently modifies the role during the subordinate's assimilation into the organization (Dienesch & Liden, 1986). For the sake of time, the manager develops a close relationship with only a few key subordinates. With the rest of the work group, the manager relies mainly on formal authority, rules, and policies to ensure adequate performance (Graen, 1976).

Thus, proponents of LMX contend that subordinate roles defined by the quality of manager-member exchanges can be categorized as in-group (characterized by mutual trust, interaction, support, formal/informal rewards, reciprocal influence, extracontractual behavior exchange, respect, liking, and a sense of common fate) or out-group

(characterized by low trust, low interaction, low support, low rewards, unidirectional downward influence, role-defined relations, and a sense of loosely coupled fates) (Dienesch & Liden, 1986; Duchon, Green, & Tabor, 1986).

Leadership as a Style

The focus of LMX theory is on a vertical dyadic relationship, in which nearly all managers differentiate between subordinates (Dienesch & Liden, 1986). This does not corroborate the idea of average leadership style (ALS) which predicts that managers develop and use a single or "average" managerial style in dealing with subordinates (Katerberg & Hom, 1981). ALS research deals with the subordinates' perceptions of their manager aggregated to give an overall description of the manager's style or behavior.

Therefore, the manager is perceived to treat all subordinates in the same manner and those perceptions are averaged across the entire supervisory group, supposedly minimizing measurement error. The ALS perspective holds that the manager's style is a stable behavior and the contributions of individual member relationships merely produce error (Dansereau et al., 1973; Dienesch & Liden, 1986; Graen et al., 1972). In contrast to the ALS approach, LMX focuses on each individual manager-member relationship and the variation this dyadic relationship continues to

predict after the average leader style has been factored out. In comparison to ALS, LMX appears to be a better way of tapping actual perceptions of managerial style or behavior, producing information from both the subordinate and manager regarding leader behavior.

LMX_versus_ALS. Leadership studies rarely test both ALS and LMX models. Investigations that have proposed to test both models employ different methodologies. For example, measures of ALS are inconsistent. Some researchers average Leader Behavior Description Questionnaire (LBDQ-XII) or LMX scores in each work unit and assigned each member in the unit the same (average) score (Ferris, 1985; Graen et al., 1982; Katerberg & Hom, 1981). Other researchers ask subordinates to answer the LBDQ-XII with regard to how their manager behaves towards their group and towards them as individuals (Schriesheim, 1979).

Statistical analysis of the differences within and between manager-subordinate dyads and groups is a second problem. A promising approach to compare ALS and LMX models is a variance-partitioning procedure that permits the examination of within and between managerial style components (Dansereau & Dumas, 1977; Markham, Dansereau, & Alutto, 1979).

Several studies indicate that although between-group differences in leadership emerge supporting ALS

(Schriesheim, 1979), within-group differences supporting LMX appear to account for more variance in several outcome variables such as work-unit and leader satisfaction (Katerberg & Hom, 1981; Vecchio, 1982) and turnover (Ferris, 1985; Graen et al., 1982). However, Katerberg and Hom (1981), Schriesheim (1980), and Vecchio (1982) proposed that both approaches explain variance and should not be viewed as incompatible. Possibly, a manager uses different behaviors (e.g., consideration and initiating structure) with different subordinates as well as using average degrees of these dimensions that differ from the average degrees used by other managers. Schriesheim (1980) suggests the investigation of individual- and group-directed manager behaviors within their social context, rather than treating dyadic- and average-based approaches as mutually exclusive. In summary, the question is no longer whether different relationships exist at the dyad level; rather accurate measurement of these differences has become the critical issue.

Early Research on LMX

Leader-member exchange theory emerged in reaction to problems in leadership research of describing manager behavior. For example, an early publication that discussed manager-member exchanges focused on dysfunctional managerial styles (Graen et al., 1972) and looked at the relationship

between manager and subordinate as opposed to an average managerial style. In this study, Graen and his colleagues (1972) examined the consequences of managerial style on the exchange relationship and discovered that LBDQ initiating structure responses moderated the relationship between the manager and his subordinates' performance. In 1973, Dansereau et al. and Graen et al. elaborated on the LMX theme. Their works established the exchange relationship as essential for setting up proper conditions for predicting organizational outcomes as a function of the manager-subordinate interactions.

The idea of LMX reached full development when Dansereau et al. (1975) conceptualized specific manager-subordinate exchange measures in which both parties contribute to the exchange relationship. The study which accompanied the conceptualization of these measures incorporated manager attention (the amount of work- and nonwork-related attention paid to the subordinate) and the manager's level of negotiating latitude (the amount of flexibility afforded the subordinate in making decisions about his work) into the member measures and drew heavily on role theory to examine the components of the dyadic relationship. In 1986, the first review article on LMX (Dienesch & Liden) appeared and described many of the fundamentals and potential limitations of LMX theory. Individual researchers, such as Brownlee

(1991) have begun to address many of the weaknesses pointed out in this review such as the need for refinement of the LMX construct and for analysis of LMX relationships at the appropriate level of analysis.

Dansereau et al. (1975) developed the first set of specific measures to focus on the dyadic relationship between the manager and each of his individual members as the basic unit of analysis. These two dimensions deal directly with the exchange relationship and examine both the manager's and the subordinate's perceptions. The dimensions are leadership attention and negotiating latitude.

Leadership attention focuses on the amount and quality of attention received by the subordinate, the subordinate's ability to participate in decision making relative to his work, and the supervisor's sharing complete and accurate information for the member to do the job. The supervisor reports how much attention he or she thinks the subordinate needs to perform his or her role "adequately and without undue dissatisfaction". In addition, both the manager and subordinate are measured on the same work activities with the question orientation changed to reflect which side of the dyad is being examined.

Negotiating latitude, the second measure, is structured in a similar response format with the questions defined as "the extent to which a superior is willing to consider

requests from a member concerning role development." Low negotiating latitude means minimal influence by the subordinate on his role, while high negotiating latitude means the manager is not only willing to negotiate the subordinate's role but also to give assistance to the subordinate to influence his/her role. The negotiating latitude, though appearing to be on a continuum, is dichotomized at these two extremes (later studies trichotomized the construct). Each extreme represents the manager's perception of the member or the member's perception of him/herself in the dyad as being a part of a manager's "in" group (high negotiating latitude) or part of a manager's "out" group (low negotiating latitude). Congruency between members of the dyad on both of the measures is critical to the evaluation. Whether the manager and the member are congruent on a specific dimension, high or low quality and high or low negotiating latitude, has implications for various outcomes which LMX has been purported to predict.

Jacobs (1971) proposed that managers may engage in role behaviors involving leadership (influence without authority), and supervision (influence based upon only authority) depending primarily on the situation. Reconceptualizing Jacob's (1971) distinction in terms of role theory and manager-member dyads, Dansereau et al.

(1975) performed one of the first longitudinal studies of the exchange relationship between managers and subordinates that challenged the then traditional view of an average leadership style. Their results strongly supported a leadership model in which the same superior can establish "leadership" relations (in-group exchange) with some subordinates and "supervision" relations (out-group exchange) with other subordinates.

Not only did Dansereau et al. (1975) find that managers developed different quality exchanges with different subordinates, they also found different consequences of these exchange qualities. As compared to the out-group, in-group members received more inside information, greater latitude in developing their roles, greater influence in decision making, stronger supervisor support for their actions, and more consideration for their feelings. Furthermore, in-group members had more positive attitudes toward the job and had fewer job problems in comparison to the out-group members.

More recently, Duchon et al. (1986) provided direct support for the LMX model, as opposed to an ALS model. They found evidence that the exchange process is not only apparent to members of the dyadic exchange (i.e., the leader and member), but also to group members not directly involved in the exchange (i.e., other members who have the same

leader). Researchers continue to examine the LMX model, particularly the effects of LMX relationships on important supervisor and subordinate work attitudes and behaviors.

Relation of LMX with Outcome Variables

Mixed support exists for relationships between LMX and organizational outcome variables. The following sections review research on three outcome variables: (1) performance, both objective and subjective, (2) attitudinal outcomes, such as satisfaction, and (3) withdrawal behavior, such as absenteeism and turnover.

Performance. Because in-group members (a) receive more support from their managers (e.g., guidance, feedback, resources, time), (b) should be more motivated to maintain their in-group standing, and (c) receive higher levels of support and rewards for which higher performance is expected, according to LMX theory (Dansereau et al., Graen, 1976; Graen & Cashman, 1975) they should be more productive than out-group members. Graen (1976) specifically stated that managers engage in role negotiation and in-/out-group differentiation to gain extra commitment and effort from a sub-set of subordinates. Managers do this in order to meet organizational productivity demands.

One general finding has been that in-group members receive higher performance ratings than do out-group members (Liden & Graen, 1980). However, these results have not been

shown for measures of actual productivity (Vecchio & Gobdel, 1984). Most investigations have used supervisor evaluations of performance as dependent variables, and thus likely confounded performance measures with measures of LMX. Because of this confounding, Vecchio (1982) suggested that common method variance is responsible for some of LMX theory's success in predicting attitudinal outcomes and subjective performance measures.

Four studies that have used objective measures of performance in their tests of the relation between LMX and performance reported mixed results. In their investigation of clerical/office workers, Graen et al. (1982) found a significant main effect for the LMX manipulation on quantity of work produced (the number of cases processed) but no significant effect for quality of work produced (total number of errors). Vecchio and Gobdel (1984) studied bank tellers and found no significant relationship between three levels of LMX quality and objective subordinate performance (number of errors and dollar value of errors), although they were in the predicted direction. However, these researchers did find that in-group members had higher performance ratings, reduced propensity to quit, and greater satisfaction with supervision than out-group members. Scandura and Graen (1984) reanalyzed the Graen et al. (1982) data set and found training managers to improve LMX

relationships with subordinates increased quantity but not quality of performance for initially low LMXs, as opposed to initially high LMX dyads. Dienesch (1987) found no relationship between LMX and objective task performance in his two-hour laboratory simulation using undergraduate students as followers and graduate students as leaders.

Attitudinal measures. Vecchio et al. (1986) found in-group standing related to greater employee satisfaction and lower levels of perceived inequity. However, Liden and Graen (1980) found high satisfaction scores that did not differ among LMX groups. Rosse and Kraut (1986) found subordinate negotiating latitude positively related to subordinate job satisfaction and negatively related to subordinate job problems. However, negotiating latitude was not related to number of hours worked and rated effectiveness of subordinates.

Withdrawal behavior. Turnover intention was found to be related to low LMX quality by Graen et al. (1982). Furthermore, Ferris (1985) replicated the LMX and turnover relationship; LMX was a stronger predictor of turnover than was ALS or employee attitudes. In their research with second-level employees, Liden and Graen (1980) found exchange quality was negatively related to subordinate turnover. In contrast to these findings, Vecchio et al. (1986) did not find LMX to predict turnover when

satisfaction and perceived inequity were each partialled out.

In addition to performance, satisfaction, and turnover, recent studies have suggested that LMX quality is related to other valued attitudes and behaviors: decision influence (Scandura et al., 1986), company commitment (Duchon et al., 1986), and subordinate career progress (Graen & Scandura, 1987; Wakabayashi & Graen, 1984). On the other hand, research suggests that while an in-group/out-group distinction exists, it is not necessarily the most important predictor of outcome variables. Duchon et al. (1986) found that differences in manager behavior, specifically towards the out-group members, did not necessarily lead to a lessened sense of influence, job enrichment, or satisfaction with the manager. Rosse and Kraut (1983) found that manager's negotiating latitude was not significantly associated with manager's rated effectiveness of subordinates. These ambiguous results may have been due to methodological weaknesses, such as level of analyses problems, and inconsistencies in these studies, such as using different measures of LMX.

Methodological Problems with LMX Research

Research has supported the vertical dyad nature of LMX and provided mixed support for the relationship between LMX quality and various outcome variables. Nonetheless, LMX

research is plagued by the following methodological problems: (1) the operational definition of LMX, (2) the perspective from which LMX is measured, (3) how LMX quality is conceptualized, and (4) what the appropriate conceptual and empirical level of analysis is for LMX. These issues are discussed below.

Operational Definition of LMX

LMX has many operational definitions. LMX is usually defined by measures from negotiating latitude scales. However, these scales have contained 2, 4, 5, 7, 10, and 12 items (e.g., Dansereau et al., 1975; Graen et al., 1982; Graen & Schieman, 1978; Kozlowski & Doherty, 1989; Liden & Graen, 1980; Ridolphi & Seers, 1984; Rosse & Kraut, 1983; Scandura et al., 1986; Scandura & Graen, 1984; Wakabayashi & Graen, 1984). Some researchers have measured LMX with the LBDQ (cf. Katerberg & Hom, 1981; Schriesheim, 1979). Others have constructed their own measures. For example, Kim and Organ (1982) used a 15-item measure of Noncontractual Social Exchange (NSE); Kozlowski and Doherty (1989) used an 8-item Information Exchange scale; and Cashman (1975) used a 4-item scale of trust in supervisor.

Negotiating latitude typically describes the nature and quality of the manager-member dyadic relationship in most LMX research (Dansereau et al., 1975; Duchon et al., 1986; Graen & Cashman, 1975; Graen & Scandura, 1987). However,

the connection between negotiating latitude and the LMX construct has never been demonstrated in a systematic, empirical way, and such a unidimensional conception of LMX is overly narrow (Dienesch & Liden, 1986). Although the amount of negotiating latitude may differ between the in-group members and the out-group members, how and why the member possesses that degree of latitude has not been addressed. Therefore, though negotiating latitude measures seem to obtain acceptable levels of reliability in most studies, the construct validity of the LMX is weak. In fact, Nachman, Dansereau, and Naughton (1983) reanalyzed the original Dansereau et al. (1975) data using within- and between-groups analyses of negotiating latitude. Their results were consistent with an inference of "ambiguous data" rather than with either an average leadership style or a vertical dyad-linkage approach to leadership because negotiating latitude exhibited systematic correlations both between and within work groups. They concluded that their finding raises questions about negotiating latitude as representing the LMX relationship. The researchers state that future empirical research with within- and between-groups analyses is needed to develop measures which better represent LMX (Nachman et al., 1983).

Another problem stems from dependent measures which may be alternative measures of LMX rather than of independent

outcome variables (e.g., Dansereau et al, 1975; Liden & Graen, 1980). In particular, it is not clear whether subordinate performance is a determinant of exchange quality (e.g., Dansereau et al., 1975; Greene, 1975) or a consequence of exchange quality (e.g., Scandura & Graen, 1984; Vecchio, 1982; Vecchio & Gobdel, 1984). For example, Vecchio and Gobdel (1984) found that in-group status was associated with supervisor performance ratings. However, no differences were found between in- and out-group members on objective performance. Graen, Novak, and Sommerkamp (1982) found that productivity increased as exchange quality improved following an LMX training program. Because of the cross-sectional nature of most studies it is not possible to determine the extent to which subordinate performance is a determinant or a consequence of LMX quality.

Subjectivity of Rating Perspectives. Whether ingroup and out-group have been operationalized as a continuum, as a dichotomy, or as the upper and lower thirds of a trichotomous division of a scale (Duchon et al., 1986), the measure is usually based on a self-report measure except for a study performed by Duchon et al. (1986) where group leaders were asked to name group members with whom they had the best working relationship and with whom they had the worst working relationship. In addition, all members of the task groups were asked the same two questions. These

measures converged with conventional measures of the exchange process (self-report). Often in LMX research, the sample completes a self-report questionnaire that includes all of the measures used in the study. Markham et al. (1983) suggested that statistically significant correlations from self-report data might not be valid if they suffer from response bias and have no correspondence to external referents.

Although Bachman, Bowers, and Marcus (1968), French and Raven (1959), Oldam (1975), Price and Garland (1981), Snyder and Bruning (1985), and Turban and Jones (1988) have shown that better predictions of dyad dynamics can be obtained when characteristics of managers and subordinates are considered, in typical LMX research the exchange is assessed from either the manager's point of view (e.g., Heneman et al., 1989) or the subordinate's point of view (e.g., Graen & Schiemann, 1978; Kozlowski & Doherty, 1989). A few studies have investigated the convergent validity of LMX among leaders and members (e.g., Scandura et al., 1986) and peers (Duchon et al., 1986; Graen & Cashman, 1975) but have used various forms of negotiating latitude measures.

Continuous vs. Categorical Measurement. LMX quality has been conceptualized either as a single dimension, high to low, with in- and out-groups as anchors, as two partly overlapping dimensions, or as two independent dimensions,

such as an in-exchange and an out-exchange (Vecchio & Gobdel, 1984). Researchers have typically employed an in/out-group dichotomy (e.g., Dansereau et al, 1975) or an in/middle/out-group trichotomy (e.g., Graen & Schiemann, 1978; Liden & Graen, 1980). However, other researchers favor conceptualizing the LMX construct as a continuous variable (Seers & Graen, 1984; Vecchio & Gobdel, 1984).

Level of Analysis

LMX research continues to develop the existence of the dyadic relationship on the basic dimensions of leadership attention and negotiating latitude. Because of the nature of a dyadic relationship as opposed to average leadership style, a problem of analysis began to appear around 1981. Researchers needed an analytical technique to analyze the results of LMX research. Definition of the specific level of analysis and of the specific methodology became necessary in order to examine the relationship between dyadic structures.

Wholes_model. Often for a unit to succeed, a manager will have to create a functional coalition or an effective team, especially if the organization's technology requires high interdependence. If the team is successful and is rewarded correspondingly, the manager may not wish to threaten this coherence by differentiating among members of the team (Friedlander, 1987). Although such a scenario does

not apply to all groups, the implication of this theoretical model is that the supervisory unit should be used as the distinct level of analysis because the performance-reward linkage may not be evident at the individual level of analysis (Markham, 1988).

Parts_Model. If there is a natural tendency to form and maintain a coherent work team, there is also a countervailing pressure from the organization on supervisors to differentiate between individuals. Because most performance appraisal systems are predicated on the individual level of analysis, thus virtually mandating that a separate performance appraisal form be filled out for each employee, the manager is expected to consider each subordinate individually and treat him or her appropriately. Such treatment may mean that different subordinates within the same group would expect very different rewards, and that the appraisal system would require such distinctions. This alternative to the wholes or team model is called the parts or individualized dyadic model (cf. Dansereau et al., 1975).

Parts_vs._wholes_model. Conceptually, it became critical to the understanding of the dyadic relationship to describe the dyad as either an average "wholes" or within "parts" structure. The theory specifically proclaims a within "parts" perspective. Katerberg and Hom (1981) first investigated the specifics of this analytical approach,

using hierarchical regression analysis in conjunction with routine correlational analysis. By partitioning the variance within from between dyads, a richer understanding of the error variance associated with the dyad was obtained and they concluded effects which occurred primarily at the within unit of analysis. Most research from that point on differentiated between "wholes" and "parts" by partitioning the variance in the same manner.

Dansereau, Alutto, Markham, and Dumas (1982) present a much more sophisticated technique for partitioning the variance through the use of a multiplexed analysis of leader-member relationships within their application of a "within and between analysis" (WABA). This technique examines the within variance and the between variance simultaneously, juxtaposing the two such that an investigator can make relevant comparisons and inferences about the level at which effects on the leader-member relationships occur.

In summary, hidden effects of groups may mask important relations among various variables. Correlations based on the raw scores of individuals are inherently unable to show whether the wholes or parts model better explains the data (Dansereau et al., 1984).

Manager Behaviors

Previous research indicates that manager behaviors can predict effective and ineffective management (Komaki, 1986 & 1991). Specifically, effective managers make appropriate work behaviors clear, they accurately and regularly sample or appraise workers' performance, and they regularly provide useful feedback about performance. On the other hand, ineffective managers are often guilty of leaving tasks ambiguously defined, appraising performance sporadically if at all, and providing infrequent or irrelevant feedback. These descriptions of effective and ineffective behaviors are based on the assumption that managers use a similar or average leadership style with all of their subordinates as opposed to forming different individual relationships within their work groups.

Antecedents

A manager provides performance antecedents when he or she provides instructions for a subordinate's performance. Making appropriate work behaviors clear versus leaving them ambiguously defined are examples of effective and ineffective performance antecedents. Furthermore, in relation to group status, managers most likely provide more regular feedback to in-group members than to out-group members. Thus, antecedent behaviors are expected to be associated with group status (i.e., in-group/out-group membership). Moreover, group status predicts outcome

variables such as job performance, satisfaction, and intent to withdraw. Therefore, the frequency of antecedent behaviors associated with group status are expected to predict these outcome variables.

Monitors

Monitoring performance involves collecting or sampling information about the subordinate's work performance. Sampling work behavior regularly versus sporadically are examples of effective and ineffective performance monitors, respectively. Moreover, managers might be inclined to sample or appraise work performance of in-group members more regularly than that of out-group members. In any case, type and/or frequency of monitoring behaviors are expected to relate to group status. As with antecedents, because group status predicts job performance, satisfaction, and intent to withdraw, monitoring behaviors associated with group status are expected to predict these outcome variables.

Consequences

Providing performance consequences involves indicating knowledge of or giving feedback about performance. Providing regular and useful feedback versus infrequent and irrelevant feedback are examples of effective and ineffective performance consequences. LMX theory might predict that managers will provide more direct and specific expectations of performance to in-group members than to out-

group members. If this is not the case, consequence behaviors are predicted to be associated in some way with group status. As with antecedents and monitors, consequence behaviors associated with group status are expected to predict organizational outcome variables.

Operant Supervisory Taxonomy and Index (OSTI)

At a general level the Operant Supervisory Taxonomy and Index (OSTI) is based on the theory of operant conditioning which holds that two temporally defined events have major impact on our voluntary behavior--antecedents that occur before behavior and consequences that occur after behavior. Antecedents are thought to function in an educational or cuing role; instructions, rules, and goals, for example, are viewed as clarifying expectations for performance, specifying the relation between behavior and its consequences and/or signalling occasions in which consequences are likely to be provided contingent on behavior. Consequences, the hallmark of the operant approach, are viewed as strengthening behavior after it has occurred (Komaki, Zlotnic, & Jensen, 1986).

More specifically, the OSTI is a taxonomy of seven categories of supervisory behavior. The seven categories include: (a) performance consequences: indicating knowledge of performance, (b) performance monitors: collecting information about performance, (c) performance

antecedents: providing instructions for performance, (d) own performance: referring to the manager's own performance, (e) work related: referring to work, but not performance, (f) nonwork related: not pertaining to work, and (g) solitary: not interacting with others. The first 3 categories are derived from operant conditioning theory and are considered to be related to effective management. Therefore, only data in these 3 categories will be used in this study. The fact that the OSTI has been used successfully with a wide-ranging number of managers interacting with a variety of persons in different roles suggests that the OSTI could be profitably used to collect information on virtually any individual in a work setting (Komaki et al., 1986) (see Appendix F).

Research using the OSTI has been primarily concerned with managers' interpersonal attempts to influence their followers in accomplishing work-related goals. In keeping with the aim of determining effective managerial behavior, three operant-based categories form the basis of the Taxonomy: performance antecedents (providing instructions for performance), performance monitors (collecting performance information), and performance consequences (providing feedback about performance). It has been inferred (Komaki, 1986) that an effective manager would make appropriate behaviors clear, accurately and fairly

appraise performance, and regularly provide consequences contingent on performance. On the other hand, an ineffective manager would probably leave tasks ambiguously defined, appraise performance sporadically, if at all, and provide infrequent or noncontingent consequences for performance.

Performance monitoring should prove to be especially enlightening based on the results of a study by Komaki (1986) that found that effective managers spend more time monitoring their subordinates' performance (work sampling in particular) than ineffective managers. This particular study was a between-groups design that focused on differences between effective and ineffective managers. Thus, subordinates were assumed to be homogeneous, each responding to the leader in similar ways, and leaders were also assumed to respond similarly to all subordinates. In effect, Komaki (1986) took an average leadership style approach. However, Dansereau et al. (1973) would argue that each supervisor/subordinate dyad should have been examined separately. Fortunately, the OSTI can be used to look at differences within supervisory groups focusing on differential treatment of ingroup and outgroup members.

The present investigation used the same measures of in/outgroup membership as Duchon et al. (1986). However, specific leader behaviors instead of demographic variables

were used as predictors of in/outgroup status. Behaviors were represented by scores from three categories of the Operant Supervisory Taxonomy and Index (OSTI) (Komaki et al., 1986). The fact that manager behaviors were found to predict negotiating latitude supports the LMX model as opposed to the ALS approach.

Proposed Manager Behavior Model

The proposed model is based on the assumption that managers do develop different exchange relationships with members of their work groups (Figure 1). As the diagram in Figure 1 illustrates, this model is comprised of three categories of variables: manager behaviors (antecedents, monitors, and consequences), subordinate group status (negotiating latitude), and outcome variables (subordinate absenteeism, attitudes, and turnover intention). The inclusion of manager behaviors in this model allowed investigation of the relationship between manager behaviors and 1) subordinate group status, and 2) organizational outcome variables. The model will also allow replication of the unique LMX relationship that develops between managers and their subordinates as well as the relationship between subordinate group status and organizational outcome variables.

Experimental Rationale

The above review suggests that LMX relationships warrant further study. Prior results suggest that LMX effects might predict various organizational outcomes. However, to determine how a high quality LMX develops between a manager and subordinate, research should first determine the underlying dimensions of LMX quality. Although the current measure of LMX, negotiating latitude, may predict LMX quality, there has been no systematic investigation of the predictors of the amount of negotiating latitude. A manager behavioral model of LMX was proposed based on antecedent, monitor, and consequence behaviors exhibited by the leader. The present study had several purposes: (a) to test the assumption of the LMX model that a unique relationship develops between manager and subordinate, (b) to investigate the relationships of antecedents, monitors, and consequences to LMX quality, and (c) to investigate the relationships of these three constructs, antecedents, monitors, and consequences with various outcome variables.

Hypotheses

- Hypothesis 1 Negotiating latitude will differ between manager-subordinate dyads.
- Hypothesis 2 Negotiating latitude and outcome variables will be related at the dyad level: Dyads characterized by high negotiating latitude

will exhibit higher levels of general satisfaction, supervisor satisfaction, growth satisfaction, coworker satisfaction, work satisfaction and lower intent to withdraw than subordinates characterized by low negotiating latitude.

Hypothesis 3 Negotiating latitude will predict subordinate absence frequency: Dyads characterized by high negotiating latitude will have lower absence frequency than subordinates characterized by low negotiating latitude.

Hypothesis 4 Manager behaviors will predict negotiating latitude: Managers will exhibit varying levels of antecedents, monitors, and consequences towards subordinates characterized by high versus low negotiating latitude.

Hypothesis 5 Manager behaviors will predict outcome variables: Managers will exhibit varying levels of antecedents, monitors, and consequences towards subordinates characterized by high versus low general satisfaction, supervisor satisfaction, growth satisfaction, coworker satisfaction, work

satisfaction, intent to withdraw, and absence rate.

In addition to the above hypotheses, the following exploratory research question will be investigated.

Question 1 Do manager behaviors add significantly to the ability of negotiating latitude to predict subordinate general satisfaction, subordinate satisfaction with supervisor, subordinate growth satisfaction, subordinate coworker satisfaction, subordinate work satisfaction, subordinate turnover intent, and subordinate absence rate?

METHOD

Participants

This research took place in a large bearing manufacturing plant. Eighteen first-level managers and their 292 subordinates (5 to 55 subordinates per supervisor) participated in the study. Seventeen of the 18 managers were male. Eight of the managers worked first shift (7 a.m. to 3:30 p.m.), seven worked second shift (3 p.m. to 11:30 p.m.), and three worked third shift (11 p.m. to 7:30 a.m.). The 18 work groups operated and maintained the following areas of the plant: autolines, flange, special processing, plating tool room, packaging, shipping and receiving, tool

crib, maintenance, samples, tool room, quality assurance, and materials preparation.

Predictor Variables

Manager Behaviors

Manager behaviors were measured using the Operant Supervisory Taxonomy and Index (OSTI). The OSTI is a taxonomy of seven categories of managerial behaviors. Three categories--antecedents, monitors, and consequences--are related to effective supervision. The other four categories measure the manager's own work performance. The OSTI has been successfully used in a wide variety of settings suggesting that the OSTI can be profitably used to collect information on virtually any manager. The managers were observed at their work stations, interacting with subordinates, and in transit from place to place. The research assistants observed each manager at different times during the work day and spaced their observations throughout the eight-week period.

Observers and training. Six undergraduate research assistants and one graduate student served as observers. The observers participated in data collection in exchange for course credit. The observers were each trained extensively for approximately 40 hours, including reading, classroom instruction, discussion, practice coding of handouts, coding of skits performed by the researcher and a

research assistant, film coding ("Nine to Five", "The Dirty Dozen", and "The Hunt for Red October"), practice coding secretaries and graduate students in a university setting, and practice in the field. The observers mastered the use of the OSTI when they obtained three consecutive interobserver reliability scores of 90% or better.

Interobserver reliability. To provide a check on interobserver reliability, reliability tests were conducted during the data collection period. Each observer was subject to at least one reliability check conducted by the primary researcher. In conducting a reliability test, the primary researcher and a research assistant observed a manager at the same time and independently categorized the manager's behaviors. The two observers compared their recordings interaction-by-interaction to determine agreement on the categorization. Interobserver reliability was calculated as an interaction-by-interaction percentage agreement score. Reliability scores were 90% or higher in each instance.

Behavioral data summary. Antecedent, monitor, and consequence scores were calculated for each subordinate who responded to a questionnaire. These scores were derived from the OSTI coding sheets (see Appendix F). Antecedent, monitor, and consequence frequencies were tallied for each subordinate. Frequency scores were then multiplied the

total number of members in a given subordinate's work group. These weighted subordinate scores allowed for comparisons between work groups. Finally, a log transformation was performed on weighted scores to normalize distributions which were positively skewed due to a small number of extreme scores.

Leader-Member Exchange Quality

LMX quality was assessed using Graen's seven-item negotiating latitude scale. Managers and subordinates rated items on a 5-point scale with anchors for each point on the scale (Graen and Cashman, 1975; Liden & Graen, 1980; Scandura & Graen, 1984). Responses were averaged across items to form an overall measure of LMX quality. Managers completed this measure for each of their subordinates. In turn, each subordinate responded regarding his/her manager. This measure assessed manager approachability and flexibility toward the subordinate, the manager's willingness to use his or her authority to assist the subordinate, the amount of feedback the manager gives the subordinate, and the manager's confidence in the subordinate. This scale is representative of measures used to capture "quality of LMX" and has the following reported reliability levels: Cronbach's alpha for subordinates ranges from .84 to .90 and for supervisors from

.96 to .92 (Graen et al., 1982; Novak, 1984; Scandura & Graen, 1984; Scandura et al., 1986; Wilhelm, 1989).

Outcome Variables

Subordinate Satisfaction

All subordinates (see Appendix B) and managers (see Appendix C) completed the general satisfaction scale (see Section 2 of Appendices B and C, items 1 through 3), the supervisor satisfaction scale (see Section 2 of Appendices B and C, items 5, 7, & 10), the growth satisfaction scale (see Section 2 of Appendices B and C, items 4, 6, 8, & 9), and the social (coworker) satisfaction scale (see Section 2 of Appendices B and C, items 17 through 19) from the Job Diagnostic Survey (JDS) (Hackman & Oldham, 1975). The JDS is a widely used measure of satisfaction in organizational research and exhibits strong convergent and discriminant validity as well as high reliability (Hackman & Oldham, 1974, 1975; Hackman, Pearce, & Wolfe, 1978; Oldham, 1976; Oldham, Hackman, & Pearce, 1976). In LMX research, Cronbach's alpha for these satisfaction subscales have ranged between .78 and .94 (Graen et al., 1982; Scandura & Graen, 1984).

Subordinate Work Satisfaction

All subordinates (see Appendix B) and managers (see Appendix C) completed a six-item measure from the Index of Organizational Reactions (Smith, 1962; 1976) assessing

subordinates' satisfaction with the kind of work they do (see Section 2 of Appendices B and C, items 11 through 16) . Dunham, Smith, and Blackburn (1977) report an internal reliability of .89 and a test-retest reliability of .74 for this scale.

Subordinate Turnover Intention

Managers (see Appendix C) and subordinates (see Appendix B) completed a three-item measure from the Michigan Organizational Assessment Questionnaire (Cammann, Fichman, Jenkins, & Klesh, 1983; Seashore, Lawler, Mirvis, & Cammann, 1983) to measure subordinates' propensity to leave their jobs (see Section 2 of Appendices B and C, items 20 through 22). Respondents responded to two items on a five-point Likert-type scale ranging from "strongly disagree" to "strongly agree," and one item on a five-point scale with anchors of "not at all likely" and "extremely likely." Response values were averaged across items to form a score. Seashore et al. (1983) report a coefficient alpha of .83 and Wilhelm (1989) reports a reliability of .88 for this intention to leave measure.

Subordinate Absence Rate and Frequency of Absence

Subordinates' frequency of absence which consisted of the number of inexcused absences for the one-year period prior to the study were collected from company archives by a company employee. According to company policy, employees

were issued warnings after the occurrence of three absences. Discussions with the personnel staff revealed that frequency of absence was the company's primary indicator of individual performance. Therefore, the decision was made to use absence frequency as the performance criterion.

In addition, subordinate absence rate was calculated by dividing each subordinate's frequency of absence for the one-year period by the total number of days he or she was scheduled to work during that period.

Furthermore, during collection of archival data the discovery was made that no performance evaluations had been conducted in the company for several years. Collection of this performance evaluation data revealed that ratings were available for only a small percentage of the responding employees as a result of turnover, promotions, and new hires. Therefore, the decision was made to exclude subjective ratings from the analyses.

Procedure

Initially, meetings were held with supervisors to familiarize them with the study and to obtain informed consent from all who chose to participate. Managers were told that participation was voluntary and all information would be kept confidential, but that the purpose of the study was to investigate the development of relationships between subordinates and managers, thus requiring that

supervisors be observed by the researcher. In addition, signs were posted throughout the plant informing workers that a university study involving observation of supervisors would be conducted for the scheduled eight-week period.

Behavior Observation

Each of the 18 managers was observed 14 times (Komaki, 1986), with each observation period lasting 30 minutes. Each observer was assigned to two or three managers. Observations took place over an eight-week period.

Questionnaire Administration

After behavior observation data were collected, sessions were scheduled for instructing managers on distributing employee questionnaires. In these sessions, each manager received a stack of envelopes containing coded questionnaires for each of his/her employees. Managers were asked to distribute envelopes to members of their workgroups at the beginning of the following shift.

After subordinate questionnaires (see Appendix B) were returned, sessions were scheduled for instructing supervisors on completing supervisor questionnaires (see Appendix C). In these sessions, each manager was given an envelope with a cover letter, a supervisor demographic questionnaire, and a stack of number coded questionnaires for each of his/her employees who responded to the employee questionnaire. Managers were asked to complete their

questionnaires within one week returning them to a slotted box marked "Supervisor Questionnaires" in the personnel office.

Both the manager (see Appendix E) and subordinate (see Appendix D) cover letters explained the purpose of the information being gathered, that the information would be used for research purposes only, that none of the information obtained would be returned to the company except in a report of overall results, that company management supported the project, where to contact the researcher should participants have any questions, and to return the questionnaire within one week to the slotted box in the Personnel Office marked "Supervisor Questionnaires" or "Employee Questionnaires" respectively. All matching was done with code numbers and after the questionnaires were coded for computer analyses, they were destroyed.

Analytical Methods

Overview of Within and Between Analysis

To examine the relation of in/out group status with group membership, an inferential, statistical technique proposed by Dansereau et al., (1984) and Markham, Dansereau, Alutto, and Dumas (1983) that is referred to as Within and Between Analysis (WABA) was used. The WABA technique is based on the work of Robinson (1950) and Duncan, Cuzzort, and Duncan (1961) and, in its original form, was known as

the Covariance Theorem (Robinson, 1950; Przeworski & Teune, 1970). This technique is used to examine between-unit and within-unit relationships among variables. Variations of WABA have been used by Graen, Linden, and Hoel (1982) to examine the effect of supervisory groups on leader-member exchange and turnover, and by Ferris (1985) to replicate Graen's study (Markham, 1988).

The WABA technique will be described from both an inferential and a statistical perspective. Basically, the four ways in which group membership can affect the relation of supervisory behavior and in/out group membership include the team model, the dyadic model, the equivocal condition, and the null condition (Markham, 1988).

The covariance theorem. The total correlation is separated into between-eta correlations, within-eta correlations, a between-unit correlation, and a within-unit correlation. This is termed the "WABA equation" (Dansereau et al., 1984) and is written as the following equation:

$$n_{bx} n_{by} r_{bxy} + n_{wx} n_{wy} r_{wxy} = r_{txy}$$

where

n_{bx} =between-eta correlation for variable X

n_{by} =between-eta correlation for variable Y

r_{bxy} =between-cell correlation for variables X & Y

n_{wx} =within-eta correlation for variable X

n_{wy} =within-eta correlation for variable Y

r_{wxy} =within-cell correlation for variables X & Y

r_{txy} =total correlation for X & Y based on total
deviations

Application of the Covariance Theorem aligns cells with entities defining a particular level of analysis, and allowing examination of a total correlation in terms of the between-cell and within-cell scores.

Between-unit and within-unit correlations. To determine which of four conditions best describes the supervisor behavior-group membership data, a between-unit and a within-unit correlation must be computed, aside from the traditional individual-level correlation. A between-unit (or interunit) correlation is based on the average score of x and y for each supervisory unit, adjusted for the number of members in the unit. It highlights differences between units and ignores differences within units. (In this instance, supervisory groups are aligned with statistical units of analysis. The terms unit and group are used interchangeably.) It is possible to calculate a regression equation for these grouped data as noted by Langbein and Lichtman (1978) and Blalock (1979), who label this a macro model (Markham, 1988).

In contrast, a within-unit (or intra-unit) correlation is based on the relative position of a person above or below the group's average score. For example, if a group

receives, on average, a score of 7 on the LMX measure, and a member receives a score of 4, then that person's relative score would be -3, indicating his or her relative position is below the group average. In this way, differences between groups are held constant so as to highlight within-group processes. For significance tests, the appropriate degrees of freedom are based on the number of groups subtracted from the number of individuals. It is also possible to calculate a regression equation for these partialled scores on x and y. Knapp (1977), McNemar (1955), and Robinson (1950) referred to this as the within-area individual correlation (Markham, 1988).

Models and conditions. The four conditions previously mentioned above are all possible combinations of the between-unit and within-unit correlations. The first condition, the team model, requires that the between-unit correlation be significant and, at the same time, that the within-unit correlation be null. In the second condition, the dyadic model, the between-unit correlation must be null and the within-unit correlation must be significant.

In the third condition, it is difficult to determine whether a team and/or a dyadic phenomenon is occurring because both the between- and within-unit correlations are significant. This is called the equivocal condition because the statistical control of supervisory units contributes

nothing to understanding the data. If one assumes that only one level of analysis can be considered, then it appears that both models would describe the data in this condition.

However, because there are always higher and lower levels of analysis the condition must be considered equivocal because a clear inference might be induced at the higher level. Thus, rather than conclude that both the team model and the dyadic model are being described by the data, it is more parsimonious to infer that neither model is occurring if there is a possibility of multiple levels of analysis. In this condition, the individual-level correlation should be used, rather than the between- and within-unit components (See Dansereau et al., 1984, p. 151, for an extended discussion.) Finally, the fourth condition, the traditional null condition, is easily identified by the lack of systematic results at either level (Markham, 1988).

Total_correlation_vs_WABA. The LMX model of manager-subordinate relations suggests LMX is a dyad level phenomenon rather than a group level phenomenon. That is, each manager and subordinate of each dyad would converge on their reported perception of the variables measured, but that different dyads would show different levels of those variables measured. Traditionally, to determine whether managers and subordinates of dyads show convergence on a variable, a correlation based on the total deviation scores

would be computed between the manager's report and the subordinate's report of that variable. However, within and between analyses (WABA) extend this convergence information and allow for the investigation of between- and within-unit effects for single variables and pairs of variables at defined levels of analyses (Dansereau et al., 1984).

When examining variables at the dyad level of analysis using WABA, one may determine two properties: (1) from the within-eta estimate, whether managers and subordinates of the same dyads show convergence on their reports of the variables, and (2) from the between-eta estimate, whether the dyads differ on the variables reported. For example, a small within-eta correlation on negotiating latitude would be the same as having a large total correlation between manager and subordinate reports on negotiating latitude. Therefore, this would indicate that the manager and subordinate members of the dyad converge on their reports of amount of negotiating latitude. In addition, a large between-eta correlation on negotiating latitude at the dyad level shows that different dyads report different amounts of negotiating latitude. Therefore, the information gained from examining the between-eta correlations and the within-eta correlations, provides additional knowledge beyond that provided by the total correlation alone.

When examining the relationship between two variables, such as negotiating latitude and work satisfaction, we use four reports: the subordinate's report of negotiating latitude and work satisfaction and the manager's report of negotiating latitude and work satisfaction. However, we cannot get the full WABA equation with individual reports since there is only one report per variable. Instead, we define the level of analysis for WABA to be the dyad. Thus, WABA creates cells with two reports, the manager's and the subordinate's, for each variable. An examination is then made of the between- and within-dyad correlations to determine the relationship between the two variables at the dyad level of analysis. The WABA analyses of the data were accomplished using the Data Enquiry That Tests Entity and Correlational/Causal Theories (DETECT) (Dansereau, Chandrasekaran, Dumas, Coleman, Ehrlich, & Bagchi, 1986) statistical package.

WABA_I_tests. The WABA analyses of the data were accomplished using the Data Enquiry That Tests Entity and Correlational/Causal Theories (DETECT) (Dansereau, Chandrasekaran, Dumas, Coleman, Ehrlich, & Bagchi, 1986) statistical package. Because WABA I focuses on the between-unit and within-unit variation in one variable, this analysis was first used to determine the appropriate level of aggregation. Differences between manager-subordinate

dyads would indicate data should be aggregated at the dyad level. Differences between managerial groups would indicate data should be aggregated at the group level.

Discrimination between dyads is also indicated if there is similarity in the perceptions of the dyad members, since significant dyad differences would not be found without convergence within the dyads.

This study first employed WABA I to determine whether between-dyad correlations were greater than within-dyad correlations. DETECT computed the E ratio (n_{bx} / n_{wx}) to determine whether the between-eta correlation or the within-eta correlation best represented the type of variation occurring. The practical significance criteria is set such that if the ratio is greater than or equal to 1.30 the between-unit variation is more highly correlated with the total variation and thus unit (dyad) membership affects the value of the variable (Dansereau et al., 1984). However, an E ratio of less than or equal to 0.77 indicates that the variance is not related to the unit membership; rather, individual (or within) differences are more highly correlated with the total variation. If the E ratio is equal to 1, this would mean that both the between-unit and the within-unit variation are equally related to the total variation.

Finally, in order to determine the statistical significance of the two correlations that make up the E ratio, an F ratio was computed by multiplying E^2 by the ratio of the degrees of freedom for the between- and within-eta correlations. The degrees of freedom for the between-eta correlation is $N-J$ and for the within-eta correlation is $J-1$, where N equals the number of scores and J equals the number of cells. The practical and statistical significance findings for WABA I tests are presented for the dyad and group levels in Tables 5 and 6.

WABA II tests. Upon completion of the WABA I analyses, WABA II analyses were employed to examine the nature of the relationships among the variables taken two at a time. Three different correlations were computed for each pair of variables: total correlations, between-unit correlations, and within-unit correlations. At the dyad level, if the between-dyad correlations are larger than the within-dyad correlations, then knowledge of dyad membership is important in predicting the size of the correlation. If the within-dyad correlations are larger, then dyad membership does not directly influence the correlation between the two variables.

Using the DETECT statistical package for WABA II analysis, the correlations were calculated using the between-unit and within-unit deviation scores computed

previously in the WABA I analysis. The two correlations express the relationship between the two variables based on between-unit and within-unit scores. These two correlations were then tested for statistical differences using a Z test. DETECT converts the correlations to Fishers Z' scores which are used in a Z formula (introduced in the following section).

In summary, the preliminary determination from WABA I of between-dyad or within-dyad effects can be modified with the results of the WABA II analyses. For example, WABA I and WABA II results indicating significant between-dyad effects support a very strong inference that dyad membership is important. However, if WABA I results indicate a between-dyad effect and WABA II results indicate a within-dyad effect an ambiguous situation is inferred. Should a strong inference for dyad effects be made, then research using managerial groups as the level of aggregation (e.g., ALS research) would be challenged by the data. The steps for drawing inferences based on WABA I and WABA II results are described by Dansereau et al. (1984, p. 183-185). In addition to the WABA I and WABA II results, consideration was also given to the between ($n_{Bx}n_{By}r_{Bxy}$) and within ($n_{wx}n_{wy}r_{wxy}$) components of the WABA equation as to whether a total relationship is based mainly on between- or within-cell deviations. The practical and statistical significance

findings for WABA II tests are presented for the dyad and group levels in Table 8.

An Application of the Z Test. Because the WABA technique forces the simultaneous consideration of two scores, a procedure is needed to test the significance of the difference between these two component correlations. Dansereau et al. (1982) have recommended the use of a standard Z test. Since the between- and within-unit correlations are statistically independent, it is possible to test the difference between them using the standard r to Z formula for testing the difference between independent correlations (Guilford, 1965). When neither component correlation can be considered error, the equation can be written as:

$$Z = \frac{Z'_b - Z'_w}{\sqrt{\frac{1}{J-3} + \frac{1}{N-J-3}}} \quad (a)$$

where Z'_b is the transformed between-unit correlation and Z'_w is the transformed within-unit correlation (Markham et al., 1983).

In summary, the Z Test is a two-step procedure used to discriminate between the between-unit and within-unit

correlations. First, component correlations must be tested for their level of statistical significance. Second, the difference between the component correlations must also be tested. When both steps have been accomplished, an inference is drawn by ruling out the various alternatives. These alternatives can be listed as follows:

1. A between-unit condition exists when r_b is significant, r_w is null, and the difference between them is significant;
2. A within-unit condition exists when r_w is significant, r_b is null, and the difference between them is significant;
3. An ambiguous condition exists when both r_b and r_w are significant regardless of the difference between them; and
4. The traditional null condition exists when neither r_b nor r_w is significant regardless of the difference between them (see Dansereau et al., 1981, for a more detailed description)(Markham, Dansereau, Allutto, & MacDonald, 1983).

WABA_versus_regression. The WABA technique has some advantages over an ANCOVA/regression approach. Both are forms of the General Linear Model and therefore result in identical values for within-unit correlation. Between-unit correlations are similar except that WABA makes an

adjustment for the size of the unit. For example, in the calculation of the between-unit correlations, WABA makes an adjustment to the unit means by weighting each by the size of the unit. (If unweighted unit averages are entered into a standard least squares regression model, no adjustment is made for the size of each unit.) This is not a problem if all units are the same size. When cell sizes are very different, this problem becomes more pronounced. In this data set, some units were larger than others, therefore, ordinary least squares was not the most efficient technique (Hanan & Burnstein, 1974, p. 378). An additional comparative advantage of WABA is that all results can be displayed in a single table. More important, in WABA an attempt is made to clarify research assumptions about the inference-drawing process through the use of a modified Z test (Markham et al., 1983).

Summary. In order to use the WABA analyses described, matching reports (e.g., manager and subordinate) are required on the variables of interest. Because the outcome variable absenteeism was collected from personnel records, only single reports were available. Likewise, only single reports were available for manager behavior measures. Therefore, relationships including manager behaviors and subordinate absenteeisms were tested using multiple regression analyses discussed below.

The WABA procedure itself has direct implications for measurement in organizational research. If a measure is believed to be a "group" construct, then empirical analyses must be viewed with concern when they do not indicate both between-unit covariance for two variables is significant and within-unit covariance is random. Likewise, if a measure is believed to be a "dyadic" construct, then the within work-unit covariation should be significant and the between-unit covariation should be essentially random. Theoretically, any issue involving variables such as satisfaction, participation, commitment, and absenteeism is subject to these concerns if the data base has multiple units of analysis that are clearly identified (Markham et al., 1983).

In general, WABA falls into a broad category of recently described techniques which are concerned with separating individual from "contextual" or group effects (Firebaugh, 1978; Hannan & Burstein, 1974; James, Demaree, & Hater, 1980; Kraemer, 1978; Lincoln & Zeitz, 1980). The WABA technique is similar to the ANCOVA model proposed by Lincoln and Zeitz (1980) with the exception that the WABA Technique places equal emphasis on interpreting the within-unit effects aside from the between-unit effects. Because the Lincoln and Zeitz (1980, p. 396) technique is primarily concerned with the between-unit regression line and its decomposition into a predicted component and a residual

component for the purpose of testing the between-unit effect, it can be categorized in the macro end of the aggregation spectrum. On the other end of the spectrum, the James et al. (1980, p. 354) technique is oriented more toward the interpretation of individual effects by examining "the total possible variation in the person variable that is associated with between-group differences (Markham et al., 1983).

The WABA technique attempts to establish a middle ground in this micro-macro aggregation issue without a priori assumptions about the appropriate unit of analysis. The ability to empirically test the assumptions concerning the appropriate unit of analysis of a construct or a relationship is a key feature of the WABA procedure. Thus, the WABA technique can be viewed as an alternative to the theoretical decision-making rule proposed by Firebaugh (1978) for situations when aggregated data are used to provide estimates of individual level relationships without committing the ecological fallacy described by Robinson (1950). Essentially, with WABA there is no need for a cross-level inference from aggregate data to individual level theory or vice versa because all units of analysis are present in the multiple data base, and are matched and tested for the appropriate statistical unit (Markham, Dansereau, Allutto, & Dumas, 1983).

RESULTS

The results are presented in the following sections:

- (1) descriptive statistics of the measurement instruments,
- (2) checks for differences among subgroups of respondents
- (3) results of the WABA I analysis to determine if grouping at the dyad level is reasonable (Hypothesis 1), (4) results of WABA II analyses and inferences drawn for Hypothesis 2 about the relationships between negotiating latitude and the outcome variables, (5) the results and inferences drawn from multiple regression analyses about the relationships between negotiating latitude and supervisor behaviors (Hypothesis 3), (6) the results and inferences drawn from multiple regression analyses about the relationships between manager behaviors and outcome variables (Hypothesis 4), and (7) the results and inferences drawn from hierarchical multiple regression analyses about the increased predictive power of manager behaviors over negotiating latitude for the outcome variables (Research Question 1).

In addition, sample characteristics are located in Appendix A which contains frequency and percent scores for demographic and work-related variables characterizing the sample. Scores are reported for manager and subordinate participants. Variables include gender, race, age, marital status, education, tenure with current supervisor, job

tenure, organizational tenure, amount of interaction with/from supervisor, and group size.

Descriptive Statistics

Table 1 shows the number of respondents, the mean response for each scale, the standard deviation for each scale, the minimum and maximum value reported on each scale, and the coefficient alpha for each scale for subordinate reports and manager reports. All scores were computed so that a higher number indicates a higher level of the characteristic being measured with exception to turnover intent for which a high score indicates intent to stay.

Manager and subordinate internal reliability scores for the self-report scales were computed using Cronbach's alpha. Alpha is the average inter-item correlation weighted by the number of items in the scale (Nunnally, 1967). An alpha of .80 or above is desirable (Nunnally, 1967) with .60 or greater being acceptable for exploratory research. Alpha coefficients contained in Table 1 range from .70 to .90 with three scores below .80. The scales exhibit acceptable reliability for further analysis.

Table 2-A contains the total correlations between manager and subordinate reports for all variables. Table 2-B contains the total correlation matrix for all variables used in the study including self-report dyad means,

behavioral measures, and subordinate absence scores. Table 2-C contains descriptive statistics for all dyad reports.

Subgroup Analyses

Several between work group analyses were performed to support the use of a collapsed data set. The data set contained 18 work groups. One-way ANOVAs were conducted on the following variables: subordinate's race, subordinate's marital status, whether or not the subordinate was hired by his or her current supervisor, subordinate's gender, subordinate's age, subordinate's education level, subordinate's tenure with supervisor, subordinate's job tenure, subordinate's organizational tenure, and subordinate's reported amount of interaction with supervisor. Significant F s were followed by Tukey's Studentized Range tests to test for individual mean differences and to control for type I error (Tables 3-A to 3-G).

No significant group effects were found for ANOVAs conducted on the following variables: subordinate's race, subordinate's marital status, and whether or not the subordinate was hired by his or her current supervisor. Several demographic variables had significant effects including subordinate's gender, subordinate's age, subordinate's education level, subordinate's tenure with supervisor, subordinate's job tenure, subordinate's

organizational tenure, and subordinate's reported amount of interaction with supervisor.

Table 3-A shows the effects of group membership on subordinate's gender ($F=3.13$, $p,.0001$). Males received a gender code of 1 and females a 2. Results of Tukey's tests (see bottom of Table 3A) indicate group 4 which was comprised of all females ($x=2.00$) contained more females than groups 1, 4, 11, 14, 16, and 17. Group 12 ($x=1.52$) contained more females than group 16 which was comprised of all males.

Table 3-B contains significant effects of group membership on subordinate's age ($F=5.63$, $p<.0001$). Results of Tukey's tests (see of Table 3B) indicate groups 18 ($x=33.31$), 14 ($x=31.50$), and 13 ($x=30.40$) contained younger employees on average than groups 1 ($x=46.73$), 6 ($x=47.44$), 8 ($x=47.00$), 10 ($x=41.93$), 15 ($x=48.80$), and 16 ($x=43.41$). Likewise, group 2 ($x=34.67$) contained younger employees than groups 1 ($x=46.73$), 6 ($x=47.44$), and 15 ($x=48.80$). Finally, group 11 ($x=34.58$) contained younger members than group 15 ($x=48.80$).

Significant group effects on subordinate education ($F=2.06$, $p<.01$) are reported in Table 3-C. Levels of education were scored in the following manner: 1=8th grade or less, 2=some highschool, 3=highschool graduate, 4=vocational/technical degree, 5=some college, 6=college

graduate. As reported in the bottom of Table 3-C Tukey's tests showed that the means for groups 10 ($x=2.89$) and 13 ($x=3.93$) were significantly different.

Table 3-D reveals significant group differences for subordinate's tenure with current manager ($F=15.30$, $p<.0001$). All tenure variables are reported in number of months. As reported in the bottom of Table 3-D, Tukey's tests revealed that on average members of group 9 ($x=96.50$) had significantly more tenure with their supervisor than members of all other groups. Group 16 ($x=54.24$) had a higher mean for subordinate's tenure with supervisor than all groups excluding 4, 7, 8, and 15. Group 15 ($x=49.33$) exhibited a higher mean than groups 2, 5, 11, 12, 13, 14, 17, and 18. Finally, group 13 ($x=2.00$) showed less tenure with supervisor than groups 8 and 10.

Significant group differences were detected as shown in Table 3-E for subordinate's job tenure ($F=5.35$, $p<.0001$). Tukey's tests revealed (as shown in the bottom of Table 3-E) that group 15 ($x=138.10$) had a greater average job tenure mean than groups 2, 11, 13, 14, 17, and 18. Groups 9 ($x=114.31$) and 16 ($x=115.18$) had greater mean job tenure than groups 2, 13, 14, and 18. Finally, groups 6 ($x=118.00$) and 10 ($x=95.70$) had means greater than groups 2, 13, and 18.

Table 3-F contains significant group effects for subordinate's organizational tenure ($F=11.18$, $p<.0001$). Tukey's tests (see bottom of Table 3-F) revealed that on average group 15 ($x=247.50$) had higher organizational tenure than groups 1, 2, 4, 5, 11, 12, 13, 14, 16, and 18. Mean organizational tenure for groups 6 ($x=198.80$), 8 ($x=222.43$), and 10 ($x=177.59$) was greater than for groups 2, 12, 13, 14, and 18. Groups 3 ($x=194.8$) and 9 ($x=156.62$) had higher means than groups 2, 13, 14, and 18. Finally, the organizational tenure mean for group 5 ($x=136.06$) was greater than the mean for group 2 ($x=57.63$).

Table 3-G shows significant differences for subordinate's rating of the frequency with which the supervisor interacts with him/her ($F=3.53$, $p<.0001$). Data was scored so that 1=hourly, 2=several times a day, 3=once a day, 4=2 or 3 times a week, 5=once a week, and 6=other. The bottom of Table 3-G shows that the mean of group 6 ($x=4.11$) was significantly higher than the means of groups 5, 10, 13, and 14. Group 18 ($x=3.54$) reported a higher mean than groups 10, 13, 14. Finally, group 2 ($x=3.13$) had a higher mean than group 13 ($x=2.00$).

Conclusion. The ANOVA results provided direction for further exploration of the data in the event of group level effects for any of the following variables: negotiating latitude, general satisfaction, supervisor satisfaction,

growth satisfaction, coworker satisfaction, work satisfaction, or turnover intention. The following sections describing results for the tests of Hypotheses 1 ("Level of Analysis") and 2 ("Negotiating Latitude and Outcome Variables") show that dyad effects were found as opposed to group effects.

Therefore, the conclusion was drawn that the significant group differences found on the demographic variables provided a more stringent test of dyad effects than an ideal case in which all groups would have been homogeneous. It appears that the dyad effects reported in the following sections were strong enough to overcome any effects of tenure, age, education, gender, or perception of frequency of interaction.

Level of Analysis (Hypothesis 1: WABA I)

Hypothesis 1 predicted that negotiating latitude would differ between manager-subordinate dyads. WABA I was used to detect the level (dyad or group) at which negotiating latitude, general satisfaction, satisfaction with supervisor, growth satisfaction, coworker satisfaction, work satisfaction, and turnover intention exist in the research sample. Table 4 contains inference rules for evaluating DETECT output.

Dyad level. Located in the top of Table 5 are WABA I tests for practical significance at the dyad level. The E

ratio inductions indicated between dyad effects for all variables: negotiating latitude, general satisfaction, satisfaction with supervisor, growth satisfaction, coworker satisfaction, work satisfaction, and turnover.

The top portion of Table 6 contains WABA I tests for statistical significance at the dyad level. The F tests revealed greater between-eta correlations than within-eta correlations for the same seven variables: negotiating latitude, general satisfaction, satisfaction with supervisor, growth satisfaction, coworker satisfaction, work satisfaction, and turnover. These findings support the use of dyad means as accurate representations of dyad scores.

Group_level. At the group level of analysis, equivocal or within-group findings would further support aggregation of data at the dyad level. The lower parts of Tables 5 and 6 show within-group interferences for all variables.

Overall, as predicted in Hypothesis 1 WABA I analyses support the dyad level of aggregation as an accurate representation of the LMX relationship.

Negotiating Latitude and Outcome Variables (Hypothesis 2: WABA II)

Hypothesis 2 predicted negotiating latitude and outcome variables would be related at the dyad level. Table 7 contains WABA equation summaries of negotiating latitude and the outcome variables at the dyad and group levels. WABA II

difference tests were conducted to detect whether negotiating latitude and outcome variables were related at the dyad or group level. Z scores were examined for statistical significance.

Dyad_level. The upper portion of Table 8 contains WABA II dyad results for Hypotheses 2. Between-dyad covariation is significantly larger than within-dyad covariation for negotiating latitude with supervisor satisfaction, growth satisfaction, coworker satisfaction, and work satisfaction. Equivocal inferences were made for negotiating latitude with general satisfaction and turnover intention.

Group_level. The lower portion of Table 8 contains WABA II group tests for Hypotheses 2. Within-group covariation is significantly larger than between-group covariation for negotiating latitude with turnover. Tests of negotiating latitude with general satisfaction, supervisor satisfaction, and coworker satisfaction resulted in equivocal inferences indicating no difference between between-group and within-group variation. Between-group covariation is significant for negotiating latitude with growth satisfaction and work satisfaction.

WABA_summary. Table 9 contains WABA I and WABA II inference summaries for Hypotheses 2. Inferences were made according to guidelines posed by Dansereau et al. (1984). Dyad-level analyses of negotiating latitude with supervisor

satisfaction, growth satisfaction, coworker satisfaction, and work satisfaction resulted in strong between-dyad inferences. Weak between-dyad inferences were made for negotiating with general satisfaction and turnover. These inferences support the dyadic predictions made in Hypothesis 2.

Group-level tests of negotiating latitude with general satisfaction, supervisor satisfaction, coworker satisfaction, and turnover led to weak within within-group inductions. No group inferences were made for negotiating latitude with growth satisfaction and work satisfaction. In summary, as predicted in Hypothesis 2 WABA analyses indicate that dyads with higher negotiating latitude are higher in general satisfaction, supervisor satisfaction, growth satisfaction, work satisfaction, and intent to stay.

Multicollinearity

In order to perform regression analyses used to test Hypotheses 3, 4, and 5 and the research question, potential problems of multicollinearity (substantial correlation among a set of predictors) among the variables were assessed. With multicollinearity, the predictors involved lay claim to largely the same portion of the criterion variance, reducing their unique contributions to the criterion. Multicollinearity of predictors clouds interpretation and

reduces sampling stability of partial coefficients from the results of regression analyses (Cohen & Cohen, 1983).

To detect multicollinearity, the variance inflation factors (VIF) technique was used. VIF measures the interrelationships among the independent variables in the model. The VIF will become large if one variable is highly related to another and affects the estimate of the relationship with the dependent variable. If all variables are orthogonal to one another, the VIF will be 1.0. VIFs which are greater than 10 are considered to have multicollinearity. VIFs less than 6 are considered free from multicollinearity. VIFs between 6 and 10 are considered suspect and should be examined with caution in multiple regression analyses (Montgomery & Peck, 1982). All VIFs in this study were less than 2 indicating no problems with multicollinearity.

Negotiating Latitude and Subordinate Absence Frequency (Hypothesis 3: Bivariate Regression)

Hypothesis 3 proposed negotiating latitude would predict subordinate absence frequency. Due to previous support for Hypothesis 1, negotiating latitude means were regressed on subordinate absence rate using the SAS statistical package. The the model's F value, significance of the F value, the total R-Square, and the adjusted R-square are reported.

Equation 1 in Table 12-6 contains bivariate regression results for negotiating latitude and absence frequency. As hypothesized, the model containing dyad negotiating latitude regressed on subordinate absence frequency was significant ($F=8.45$, $p<.005$). The R-square was .03 indicating 3% of the variance in subordinate absence frequency was accounted for by dyad negotiating latitude. The results provide support for Hypothesis 3.

Manager Behaviors and Negotiating Latitude (Hypothesis 4: Multiple Regression)

Hypothesis 4 proposed manager behaviors would predict negotiating latitude. Due to previous support for Hypothesis 1 manager behaviors were regressed on negotiating latitude dyad means in a multiple regression equation. Multiple regression analyses were performed using the SAS statistical package. For each multiple regression equation the model's F value, significance of the F value, the total R-Square, and the adjusted R-square are reported.

Table 10 contains multiple regression analysis results. As hypothesized, the model containing supervisor behaviors (monitors, consequences, and antecedents) regressed on negotiating latitude was significant, $F = 8.21$, $p < .0001$. The R^2 was .08 indicating 8% of the variance in dyad negotiating latitude was accounted for by monitors, consequences, and antecedents. The lower portion of Table

10 contains the estimate of each regressor's slope and the significance or non-significance of that slope. Antecedents appear to make statistically significant contributions to dyad negotiating latitude but monitors and consequences do not. These results partially support Hypotheses 4.

Manager Behaviors and Outcomes (Hypothesis 5: Multiple Regression)

Hypothesis 5 proposed manager behaviors would predict organizational outcome variables measured in this study. Due to previous support for Hypothesis 1, manager behaviors were regressed on outcome variable dyad means in. Multiple regression analyses were performed using the SAS statistical package. For each multiple regression equation the model's F value, significance of the F value, the total R-Square, and the adjusted R-square are reported.

Table 11 contains the results of multiple regression analyses testing the ability of supervisor behaviors to predict the outcome variables. The model containing manager behaviors (monitors, consequences, and antecedents) regressed on coworker satisfaction was significant, $F = 2.68$, $p < .0471$. The R^2 was .03 indicating 3% of the variance in dyad coworker satisfaction was accounted for by monitors, consequences, and antecedents. Examination of the estimate of each regressor's slope and the significance or non-significance of that slope indicates no behaviors appear

to make statistically significant contributions to dyad coworker satisfaction. Models containing manager behaviors regressed on general satisfaction, supervisor satisfaction, growth satisfaction, work satisfaction, turnover intent, and days absent were not significant. These results fail to support Hypothesis 5.

In addition, the median dyad negotiating latitude score was computed (median = 3.57). The above multiple regression equations were reanalyzed using the high negotiating latitude subset and the low negotiating latitude subset scores to look for evidence of a moderated relationship between manager behaviors and one or more of the outcome variables. Manager behaviors were not found to predict any outcome variables in either the high or the low negotiating latitude subsets. Thus, use of the median split on negotiating latitude provided no evidence of behavior-outcome relationships moderated by negotiating latitude.

Manager Behaviors, Negotiating Latitude, and Outcomes
(Research Question: Hierarchical Regression)

The research question proposed the exploration of whether manager behaviors predict beyond negotiating latitude for subordinate general satisfaction, subordinate satisfaction with supervisor, subordinate growth satisfaction, subordinate coworker satisfaction, subordinate work satisfaction, subordinate turnover intent, and

subordinate absence rate. Due to previous support from the WABA analyses for Hypothesis 1, dyad means were used for all self-report measures in the following analyses.

Hierarchical regression analyses were performed using the SAS statistical package. For each multiple regression equation the model's F value, significance of the F value, the total R-Square, and the adjusted R-square are reported. To test for significance of adding predictors to each model, the change in R-Square is reported. The estimate of each regressor's slope and the significance or non-significance of that slope is reported for the full model. The parameter estimates show the unique contribution of each variable and the sign of the estimate indicates the direction in which the parameter and dependent variable are related.

Tables 12-A through 12-H contain results of multiple regression tests to determine whether manager behaviors add to the predictive power of negotiating latitude for all outcome variables. Hierarchical regression procedures included (a) regression of dyad negotiating latitude on the dependent variable, (b) addition of monitors, consequences, and antecedents to the model, and (c) computation of the change in R^2 and determination of its significance. Analyses were performed on 292 dyads.

Table 12-A shows the change in R^2 to be significant with the addition of monitors, consequences, and antecedents

to negotiating latitude for general satisfaction ($F=3.37$, $p < .01$). Consequences appear to make statistically significant contributions to dyad general satisfaction latitude but monitors and antecedents do not.

Results shown in Tables 12-B to 12-H indicate no significant changes in R^2 with the addition of manager behaviors to negotiating latitude for supervisor satisfaction, growth satisfaction, coworker satisfaction, work satisfaction, turnover satisfaction, days absent, or absence rate. Hierarchical multiple regression findings are summarized in Table 12.

In addition, to further support the use of dyad means in these analyses, all hierarchical regression procedures described above were repeated using both supervisor and subordinate means of all outcome variables. Findings were as follows: (1) "subordinate" general satisfaction, F change = 2.65 ($p < .05$), "supervisor" general satisfaction, F change = 2.58 ($p < .05$); (2) "subordinate" and "supervisor" satisfaction with supervisor, F change for both nonsignificant, (3) "subordinate" and "supervisor" growth satisfaction, F change for both nonsignificant, (4) "subordinate" and "supervisor" coworker satisfaction, F change for both nonsignificant, (5) "subordinate" and "supervisor" work satisfaction, F change for both nonsignificant, (6) "subordinate" and "supervisor" turnover

intent, F change for both nonsignificant, (7) "subordinate" and "supervisor" days absent, F change for both nonsignificant, and (8) "subordinate" and "supervisor" absence rate, F change for both nonsignificant. These findings mirrored those of the dyad analyses, supporting the use of dyad means.

Summary. The results section presents interpretations from ANOVA, WABA I, WABA II, and multiple regression analyses. WABA I and WABA II were used to infer the dyad as the proper level of aggregation for self-report variables in this study. In addition, WABA I and II analyses provided information on the dyadic nature of the relationships among self-report variables. Finally, multiple regression analyses supported the predictive power of manager behaviors for negotiating latitude and of negotiating latitude for all outcome variables. However, no support was found that supervisor behaviors predict beyond negotiating latitude for the outcome variables with the exception of general satisfaction.

DISCUSSION

Overview

Assessment of variation using WABA I revealed the dyad as the appropriate level of analysis for negotiating latitude and the outcome variables. In addition, assessment of covariation using WABA II among these measures within and

between groups revealed dyad-based correlations between negotiating latitude and supervisor satisfaction, growth satisfaction, coworker satisfaction, and work satisfaction (not for general satisfaction or turnover intent). Combination of WABA I and WABA II resulted in dyadic inferences for all relationships between negotiating latitude and the outcome variables, although two of these relationships were weak.

In addition, various regression analyses revealed a) negotiating latitude predicted subordinate absence rate, b) antecedents predicted negotiating latitude, c) no manager behaviors predicted satisfaction, turnover intention, or days absent, and d) consequences added to negotiating latitude's ability to predict general satisfaction. A discussion follows including implications of the results in order of the hypotheses, limitations of the study, and suggestions for future research.

Hypothesis_1

WABA I analyses at the dyad level (see the top of Table 6) indicated that negotiating latitude, general satisfaction, satisfaction with supervisor, growth satisfaction, coworker satisfaction, work satisfaction, and turnover intention differed between manager-subordinate dyads supporting the use of dyad means as accurate representations of dyad scores. These results replicate

previous investigations (e.g., Brownlee, 1991) of the LMX construct supporting the dyadic nature of work group phenomena posed by LMX theory.

One instance of dyad variation that did not converge with past findings was the between-dyad effect found for coworker satisfaction. Brownlee (1991) found between and within etas to be equivocal for coworker satisfaction. Inspection of the correlation matrix for dyad means (see Table 2-B) shows that correlations between dyad coworker satisfaction and other measures of satisfaction range from .38 to .57. Given the strength of these correlations and the fact that dyadic variation was found for each of these variables, the between-dyad variation finding for coworker satisfaction was not surprising. In other words, if manager subordinate opinions converge for other measures of satisfaction, convergence of opinions for coworker satisfaction is understandable. Table 2-A does show however that coworker satisfaction exhibited the lowest correlation between manager and subordinate reports of all self-report variables. Group level analyses (see the bottom of Table 6) revealed within-group variation for all variables supporting the between-dyad level findings.

Hypothesis_2

WABA II analyses (see Table 8) indicated that dyads with higher negotiating latitude were higher in general

satisfaction, supervisor satisfaction, growth satisfaction, work satisfaction, coworker satisfaction, and intent to stay than dyads with lower negotiating latitude. These results partially replicate previous research on the relationship of group status with selected organizational outcomes--in general, that in-group members are more satisfied and have less intention to withdraw than outgroup members (Brownlee, 1991).

In relation to Brownlee's (1991) findings, final inductions in this study at the dyad level revealed similar inferences between negotiating latitude and general satisfaction, satisfaction with supervisor, growth satisfaction, work satisfaction, and turnover intent (see the top of Table 9). However, Brownlee's between-dyad inference for general satisfaction was strong as opposed to the weak inference made in this study, and Brownlee's between-dyad inference for supervisor satisfaction was weak as opposed to the strong inference in this study. One notable difference between final dyadic inductions made by Brownlee and the researcher in this study was the final equivocal inference made by Brownlee for the relationship between negotiating latitude and coworker satisfaction. The top of Table 9 shows a strong between-dyad inference for the relation for relation between negotiating latitude and coworker satisfaction in this study. Inspection of the

total correlation matrix for dyad means (see Table 2-B) shows a correlation of .47 among dyad negotiating latitude and dyad coworker satisfaction. Of all correlations between negotiating latitude and the satisfaction measures, this correlation was lowest (with exception to general satisfaction). However, this correlation is relatively strong. Thus, the finding of between dyad covariation for negotiating latitude and coworker satisfaction was not surprising.

Hypothesis_3

Bivariate regression analysis (see Equation 1 in Table 12-G) revealed that negotiating latitude did significantly predict the performance criterion variable subordinate absenteeism. This finding corroborates Brownlee's (1991) finding that negotiating latitude was negatively related to actual days missed by subordinates. However, given the previous rationale for using absence rate as an objective measure of performance, this result is inconsistent with Graen et al.'s (1982) finding that LMX was positively related to quantity of work produced. The relationship found in this study between negotiating latitude and absence rate is also inconsistent with Vecchio and Gobdel's (1984) study which found no significant relationship between LMX and objective subordinate performance and Dienesch's (1987)

investigation which revealed no relationship between LMX and objective task performance.

The relation found in this study between negotiating latitude and days absent was consistent with Scandura and Graen's (1984) reanalysis of the Graen et al (1982) data set which found improving LMX relationships increased quantity but not quality of performance for initially low LMX dyads. In the current study, subordinate absenteeism can be considered a measure of quantity of performance given that the fewer absences means more time on the job. However, the argument could not be supported that days absent represented quality of work performed on the factory floor by participants in this study.

Hypothesis_4

Multiple regression analysis (see Table 10) revealed that antecedents appear to make statistically significant contributions to dyad negotiating latitude. This finding indicates that subordinates in dyads characterized by higher negotiating latitude receive more instructions from their managers than subordinates in lower negotiating latitude dyads. However, when antecedents are accounted for, monitors and consequences do not make unique contributions to predict dyad negotiating latitude.

The failure of monitors and consequences to predict negotiating latitude was surprising. However, reflection on

the nature of jobs in this factory setting suggests that instructions (e.g., to repair a broken machine, to make sure the manager's daily production goals were met) might have been provided toward members who were more highly trusted and liked (Brownlee, 1991) because the managers wanted to be confident that instructions would be carried out in order that group productivity standards be met. Finally, although antecedents account for some variance in negotiating latitude, other potential determinants of negotiating latitude were not measured in the current study (e.g., loyalty, liking, and competence).

Hypothesis_5

Multiple regression analyses (see Table 11) indicated that no manager behaviors significantly predicted general satisfaction, supervisor satisfaction, coworker, growth satisfaction, work satisfaction, turnover intent, or days absent. Although coworker satisfaction showed a significant effect, no individual regression coefficients were significant. Considered with findings from Hypothesis 3, these results indicate that negotiating latitude might mediate relationships between antecedents and these outcome variables.

The fact that manager behaviors did not predict satisfaction, turnover intention, or days absent was surprising in light of Komaki's (1986) findings that

monitors were positively related to effective supervision. As suggested in the following limitations section, the possibility that relationships were attenuated due to range restriction of the behavioral variables must be considered. In other words, a significant relationship between manager behaviors and negotiating latitude might have been discovered had more behavioral data been gathered in order to increase the variation of these variables within the data set.

Research Question

Hierarchical regression procedures (see Tables 12-A through 12-g and Table 13) indicated that manager consequences made statistically significant contributions to dyad general satisfaction above that of dyad negotiating latitude alone. Manager behaviors were not found to add to the predictive power of negotiating latitude for supervisor satisfaction, coworker, growth satisfaction, work satisfaction, turnover intent, or days absent. In light of findings from the tests of hypothesis 5, the one significant change found in R-square for general satisfaction is attributed to chance given the number of regressions that were computed in this study.

Conclusions

Two approaches have governed the way leadership is measured and subsequently related to outcomes (Ferris, 1985;

Scandura et al., 1986; Vecchio, 1982). One approach (e.g., ALS) suggests a between-groups focus in which the leader exhibits the same behavior toward all subordinates in a given group, and thus assigns an ALS score to each group member (e.g., Schriesheim, 1979). Another approach (e.g., LMX) contends that the appropriate level of analysis is the between-dyad focus, which assumes that leaders vary their behaviors among their subordinates (e.g., Graen, 1976).

This study supported the dyad as an appropriate level of analysis for leadership research. Leadership research should continue to be conceptualized and studied at the dyad level to explore supervisor-subordinate relationships. By examining the dyad level of analysis with the group level of analysis, it was possible to affirm the dyad level as appropriate for studying perceptions of the relationship between supervisors and subordinates, thus supporting the use of LMX theory in explaining certain organizational outcome variables.

This study also provided a framework to link manager behaviors to negotiating latitude by objectively asking how monitors, consequences, and antecedents exhibited by managers relate to the LMX construct. This followed suggestions by various researchers to strengthen the link between LMX and actual behaviors of dyad members (e.g., Brownlee, 1991; Liden & Mitchell, 1988). The results

revealed relationships between 1) dyad negotiating latitude and important outcome variables, 2) managerial antecedents and dyad negotiating latitude, and 3) managerial consequences and subordinate general satisfaction controlling for negotiating latitude.

Finally, this study responded to the call to conduct LMX research outside of educational institutions, specifically in blue-collar settings, and from both supervisor and subordinate perspectives. Vecchio (1982) suggested that an ALS approach would be more descriptive of low-level supervisors in charge of blue-collar subordinates. In such a situation, supervisors might be required to be more attentive to the equitable nature of the relations with subordinates. In this field study of blue-collar workers, strong dyad effects were found. The findings of the present study, therefore, help to extend the generalizability of LMX at the dyad level.

Limitations

Limitations that affect interpretation of the previously discussed results were present in this study. Following is a discussion of these limitations accompanied by suggestions (when appropriate) for improvement of future research. The study sample was not randomly selected. This is a characteristic of quasi-experimental designs. All managers and subordinates were encouraged to participate in

the study. Although all managers participated (100% response rate), the overall subordinate response rate from the eighteen work groups was 68%. Discussions with personnel staff suggested that many nonrespondents were probably illiterate as shown by a previous literacy assessment. Nonrespondents could have been comprised mainly of ingroup or of outgroup members. Due to the obtrusive nature of the behavioral observations and to the fact that subordinates were asked to complete questionnaires on their own time, excessive pressure to respond was not exerted by the experimenter. Given the value of increased generalizability gained from field studies as opposed to lab experiments, the loss of control is justifiable.

LMX theory holds that vertical-dyad relationships develop quickly and remain constant over long periods of time. Due to the cross-sectional nature of this study, no temporal differences could be assessed. Longitudinal studies should be conducted to determine if certain variables (especially supervisor behaviors) are more important than others at different times in the development of manager-subordinate relationships.

Due to time constraints, equal observation time was not allotted to each subordinate in this study. Observation of all 432 subordinates (including respondents and nonrespondents) in the 18 work groups for 7 hours each would

have involved 3,024 hours of observation time as opposed to the 126 hours of observations made in this study. Instead, the manager's behavior scores were weighted for each subordinate in order to assign each subordinate comparable behavior scores adjusted for time of observation. In other words, all managers in this study were observed for equal amounts of time meaning subordinates in larger work groups had less chance of manager interactions than subordinates in smaller work groups. Thus, a weighting strategy was used. Ideally, future research focusing on behaviors involved in vertical dyad relationships should observe subordinates for equal periods of time.

Only manager behaviors were coded primarily due to the theoretical basis for the study. The study evolved from past development of LMX theory using the variable negotiating latitude. Negotiating latitude is a measure of the LMX relationship describing perceptions (in this case from both viewpoints) of how the subordinate is treated by the supervisor, thus supporting the exploration of manager behaviors as they relate to negotiating latitude. However, the notion of mutuality pervades LMX literature. As in this study, perceptual measures are common from both the manager's and subordinate's perspectives. To complete the notion of mutuality in future studies involving behaviors important to the LMX relationship, observation and coding of

subordinate behaviors should be included. For example, given the previous suggestion to observe subordinates for equal periods of time, an ideal study would involve observing each subordinate recording and coding all manager and subordinate behaviors and statements from vertical-dyad interactions. From a practical standpoint, no acceptable coding scheme was available for subordinate behaviors. Time constraints of this study did not allow for development of such an instrument.

Implications for Future Research

This study provided support for the use of dyad level analysis for LMX and variables relating to the LMX construct. However, two group-level effects received weak support in the WABA II analyses and warrant additional research for the relationships between negotiating latitude and growth satisfaction (also found by Brownlee, 1991) as well as negotiating latitude and work satisfaction. Future research of these relationships is suggested to determine if both dyad and group effects are present in the work situation for these variables.

This study supported the relationships between LMX and manager behaviors as well as LMX and important organizational outcome variables. From a practical standpoint, management concerned with the satisfaction of its employees, turnover intention, and absenteeism might

consider reinforcement of the development of high LMX relationships. Likewise, management who wish to improve the quality of LMX relationships might consider the role of providing instructions (antecedents) supported in this study. Finally, management concerned with the general satisfaction of its employees might consider reinforcement of the use of feedback (consequences) by managers. These suggestions are made assuming further research will be conducted focusing on the role manager behaviors play in the quality of work relationships and organizational outcomes. Given the results of this study and previous works (e.g., Brownlee, 1991) leadership researchers should continue to test dyad and group levels of analysis for different samples and variables to extend existing knowledge of relationships between negotiating latitude and organizational outcomes.

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APPENDICES

APPENDIX A
SAMPLE CHARACTERISTICS

<u>Sample Characteristics.</u>		
Variable	Frequency	Percent
ORGANIZATIONAL HIERARCHY LEVEL		
Non-Management	292	94.2
Management	18	5.8
GENDER		
Non-management		
Female	85	29.1
Male	207	70.9
Management		
Female	1	5.6
Male	17	94.4
RACE		
Non-management		
White	271	93.1
Black	17	5.8
Other	3	1.0
Management		
White	17	94.4
Black	1	5.6
MARITAL STATUS		
Non-management		
Married	202	69.2
Not Married	90	30.8
Management		
Married	16	88.9
Not Married	2	11.1
EDUCATION		
Non-management		
Completed 8th grade or less	9	3.1
Completed 1-4 years highschool (no diploma)	28	9.6
High school graduate or equivalent	151	51.7
Completed formal vocational or technical school program	47	16.1
Completed 1-4 years of college work	52	17.8
Graduated from 4-year college	5	1.7
Management		
High school graduate or equivalent	3	16.7
Completed formal vocational or technical school program	3	16.7
Completed 1-4 years of college work	8	44.4

Sample Characteristics (continued).

Variable	Frequency	Percent
Graduated from 4-year college	2	11.1
Completed some graduate training	2	11.1
AGE		
Non-management		
18 - 25	33	11.5
26 - 30	40	17.1
31 - 35	46	16.1
36 - 40	58	20.2
41 - 45	41	14.2
46 - 50	26	8.9
51 - 55	14	4.7
56 - 60	12	4.2
61 - 65	9	3.1
Management		
26 - 30	1	5.5
31 - 35	1	5.5
36 - 40	4	22.3
41 - 45	6	33.4
46 - 50	4	22.3
51 - 55	1	5.5
56 - 59	1	5.5
HIRED BY CURRENT SUPERVISOR		
Non-management		
Yes	17	5.8
No	275	94.2
LAST PERFORMANCE EVALUATION		
Subordinate Report		
Less than one month ago	17	5.9
1 - 3 months ago	15	5.2
4 - 6 months ago	14	4.9
7 - 9 months ago	10	3.5
10 - 12 months ago	14	4.9
Over 1 year ago	78	27.3
Cannot recall	138	48.3
ORGANIZATION TENURE		
Non-management		
0 - 11 Months	47	16.3
1 Year	9	3.1
2 - 3 Years	14	4.8
4 - 6 Years	37	12.8
7 - 10 Years	64	22.1
11 - 15 Years	48	16.6
16 - 20 Years	58	20.1
21 - 25 Years	12	4.2
Management		
4 - 6 Years	1	5.6
7 - 10 Years	4	22.1

Sample Characteristics (continued).

Variable	Frequency	Percent
11 - 15 Years	2	11.1
16 - 20 Years	5	27.8
21 - 25 Years	1	5.6
JOB TENURE		
Non-management		
0 - 11 Months	76	26.6
1 Year	22	7.7
2 - 3 Years	42	14.7
4 - 6 Years	51	17.8
7 - 10 Years	42	14.7
11 - 15 Years	28	9.8
16 - 20 Years	24	8.4
21 - 25 Years	1	.3
Management		
1 Year	5	27.8
2 - 3 Years	1	5.5
4 - 6 Years	5	27.8
7 - 10 Years	1	5.5
11 - 15 Years	3	16.7
16 - 20 Years	2	11.2
21 - 25 Years	1	5.5
TENURE WITH CURRENT SUPERVISOR		
Non-management		
< 1 Year	138	48.6
1 Year	43	15.2
2 Years	39	13.7
3 Years	20	6.9
4 - 5 Years	24	8.4
6 - 10 Years	17	6.1
> 10 Years	3	1.1
Management		
< 1 Year	1	5.5
1 Year	0	
2 Years	1	5.5
3 Years	1	5.5
4 - 5 Years	2	11.2
6 - 10 Years	3	16.7
11 - 15 Years	6	33.5
16 - 20 Years	3	16.8
> 20 Years	1	5.5
AMOUNT OF INTERACTION		
How Often Does Your Supervisor Interact with You?		
Non-management		
Hourly	19	6.6
Several times a day	155	53.4
Once a day	57	19.7
2 or 3 times a week	28	9.7
Once a week	7	2.4

Sample Characteristics (continued).

Variable	Frequency	Percent
Other	24	8.3
How Often Do You Interact with Your Subordinates?		
Hourly	6	33.3
Several times a day	12	66.7
GROUP SIZE		
1 - 10	5	27.8
11 - 20	4	22.2
21 - 30	2	11.1
31 - 40	3	16.7
41 - 50	3	16.7
51 - 55	1	5.5

APPENDIX B
SUBORDINATE QUESTIONNAIRE

8. How would you classify your working relationship with your immediate supervisor?

- 1 = As his/her subordinate I am "Out" (merely a hired hand)
- 2 = As his/her subordinate I am "Middle" to "Out"
- 3 = As his/her subordinate I am "Middle of the Road"
- 4 = As his/her subordinate I am "Middle" to "In"
- 5 = As his/her subordinate I am "In" (a trusted assistant)

9. If you had to guess how closely you and your immediate supervisor would answer these same questions about your working relationship, how close in agreement do you think your answers would be.

- | | | | | |
|-----------|------------|-------|----------|------------|
| 1 | 2 | 3 | 4 | 5 |
| Extremely | Very Close | Close | Not Very | Not at all |
| Close | | | Close | Close |

SECTION TWO

Instructions: The items below concern your personal reactions to your job and aspects of your work. Again, this is COMPLETELY CONFIDENTIAL.

1. Generally speaking, I am very satisfied with this job.

- | | | | | | | |
|----------|----------|----------|---------|----------|-------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Disagree | Disagree | Disagree | Neutral | Agree | Agree | Agree |
| Strongly | | Slightly | | Slightly | | Strongly |

2. I frequently think of quitting this job.

- | | | | | | | |
|----------|----------|----------|---------|----------|-------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Disagree | Disagree | Disagree | Neutral | Agree | Agree | Agree |
| Strongly | | Slightly | | Slightly | | Strongly |

3. I am generally satisfied with the kind of work I do in this job.

- | | | | | | | |
|----------|----------|----------|---------|----------|-------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Disagree | Disagree | Disagree | Neutral | Agree | Agree | Agree |
| Strongly | | Slightly | | Slightly | | Strongly |

4. The amount of personal growth and development I get in doing my job.

- | | | | | | | |
|------------|--------|------------|---------|----------|---------|-----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely | Dissat | Slightly | Neutral | Slightly | Satisfd | Extremely |
| Dissatisfd | | Dissatisfd | | Satisfd | | Satisfd |

5. The degree of respect and fair treatment I receive from my boss.

- | | | | | | | |
|------------|--------|------------|---------|----------|---------|-----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely | Dissat | Slightly | Neutral | Slightly | Satisfd | Extremely |
| Dissatisfd | | Dissatisfd | | Satisfd | | Satisfd |

6. The feeling of worthwhile accomplishment I get from my job.

- | | | | | | | |
|------------|--------|------------|---------|----------|---------|-----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely | Dissat | Slightly | Neutral | Slightly | Satisfd | Extremely |
| Dissatisfd | | Dissatisfd | | Satisfd | | Satisfd |

7. The amount of support and guidance I receive from my supervisor.

- | | | | | | | |
|------------|--------|------------|---------|----------|---------|-----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely | Dissat | Slightly | Neutral | Slightly | Satisfd | Extremely |
| Dissatisfd | | Dissatisfd | | Satisfd | | Satisfd |

8. The amount of independent thought and action I can exercise in my job.

1	2	3	4	5	6	7
Extremely Dissatisfied	Dissat	Slightly Dissatisfied	Neutral	Slightly Satisfied	Satisfd	Extremely Satisfd

9. The amount of challenge in my job.

1	2	3	4	5	6	7
Extremely Dissatisfied	Dissat	Slightly Dissatisfied	Neutral	Slightly Satisfied	Satisfd	Extremely Satisfd

10. The overall quality of the supervision I receive in my work.

1	2	3	4	5	6	7
Extremely Dissatisfied	Dissat	Slightly Dissatisfied	Neutral	Slightly Satisfied	Satisfd	Extremely Satisfd

Place a check beside your answer for the following six items.

11. Work like mine

- ___ discourages me from doing my best.
- ___ tends to discourage me from doing my best.
- ___ makes little difference.
- ___ slightly encourages me to do my best.
- ___ greatly encourages me to do my best.

12. How often when you finish a day's work do you feel you've accomplished something really worthwhile?

- ___ All of the time
- ___ Most of the time
- ___ About half of the time
- ___ Less than half of the time
- ___ Rarely

13. How does the kind of work you do influence your overall attitude toward your job?

- ___ It has a very unfavorable influence.
- ___ It has a slightly unfavorable influence.
- ___ It has no influence one way or the other.
- ___ It has a fairly favorable influence.
- ___ It has a very favorable influence.

14. How many of the things you do on your job do you enjoy?

- ___ nearly all
- ___ more than half
- ___ about half
- ___ less than half
- ___ almost none

15. How much of the work you do stirs up real enthusiasm on your part?

- ___ nearly all of it
- ___ more than half of it
- ___ about half of it
- ___ less than half of it
- ___ almost none of it

16. How do you feel about the kind of work you do?

- ___ Don't like it, would prefer some other kind of work.
- ___ It's OK, but there's other work I like better.
- ___ I like it, but there is other work I like as much.
- ___ I like it very much.
- ___ It's exactly the kind of work I like best.

17. How satisfied are you with the co-workers you talk to and work with on your job?

- | | | | | | | |
|------------|--------|------------|---------|----------|---------|-----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely | Dissat | Slightly | Neutral | Slightly | Satisfd | Extremely |
| Dissatisfd | | Dissatisfd | | Satisfd | | Satisfd |

18. How satisfied are you with the chance to get to know other co-workers while on the job?

- | | | | | | | |
|------------|--------|------------|---------|----------|---------|-----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely | Dissat | Slightly | Neutral | Slightly | Satisfd | Extremely |
| Dissatisfd | | Dissatisfd | | Satisfd | | Satisfd |

19. How satisfied are you with the chance to help other co-workers while at work?

- | | | | | | | |
|------------|--------|------------|---------|----------|---------|-----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely | Dissat | Slightly | Neutral | Slightly | Satisfd | Extremely |
| Dissatisfd | | Dissatisfd | | Satisfd | | Satisfd |

20. How likely is it that you will actively look for a new job in the next year?

- | | | | | |
|-------------|--------|-------|----------|---------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Likely | Likely | 50-50 | Unlikely | Very Unlikely |

21. How often do you think about quitting?

- | | | | | |
|------------|-------|--------------|----------------|-------------|
| 1 | 2 | 3 | 4 | 5 |
| Very Often | Often | Occasionally | Not Very Often | Hardly Ever |

22. I will probably look for a new job in the next year.

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

SECTION THREE

Instructions: Please respond to the following questions on the blanks provided. All information given will be kept confidential and merely coded for demographic information analyses.

1. I have been with this organization for:
----- years ----- months
2. I have been in my present job or position for:
----- years ----- months
3. I have been working for my present immediate supervisor for:
----- years ----- months
4. My position title is: ----- .
5. Were you hired by your current supervisor? ----- Yes ----- No
6. My present age is: ----- years.
7. My gender is: ----- Male ----- Female
8. I am presently: ----- Married ----- Not Married
9. My race is: -- White -- Black -- Other (specify)-----.
10. My work location is (city) ----- .
11. The highest level of education I have attained is:
---- 8th grade or less
---- Completed 1 - 4 years of high school work (no diploma)
---- High school graduate or equivalent
---- Completed formal vocational or technical school program
---- Completed 1-4 years of college work
---- Graduate from 4-year college
---- Completed some graduate training
---- Completed Master's Degree or higher

12. When was your last (most recent) formal performance evaluation conducted? (please check one)

- less than one month ago
- 1-3 months ago
- 4-6 months ago
- 7-9 months ago
- 10-12 months ago
- over 1 year ago
- cannot recall last evaluation

13. On the average, how often does your immediate supervisor interact with you? (please check one)

- hourly
- several times a day
- once a day
- 2 or 3 times a week
- once a week
- other

PLEASE PLACE YOUR COMPLETED QUESTIONNAIRE IN THE ENVELOPE PROVIDED, SEAL IT, AND PLACE IT IN THE BOX MARKED "VIRGINIA TECH STUDY: EMPLOYEE QUESTIONNAIRES" BY THE END OF YOUR SHIFT WEDNESDAY, MAY 20, 1992.

THANK YOU VERY MUCH FOR YOUR COOPERATION.

APPENDIX C
MANAGER QUESTIONNAIRE

SUPERVISOR QUESTIONNAIRE

Subordinate's Name: -----

Throughout this questionnaire you will be asked questions concerning your relationship with the subordinate named above. Please read each item carefully and answer as appropriately as you can.

SECTION ONE

Instructions: Before answering the following questions, please think about your working relationship with this subordinate. All of the following questions ask about this particular working relationship. Please circle the number that best represents your answer.

1. How well do you understand this subordinate's problems and needs?

1	2	3	4	5
Not at All	A Little	Moderately Well	Quite Well	Fully

2. How well do you feel that you recognize this subordinate's potential?

1	2	3	4	5
Not at All	A Little	Moderately Well	Quite Well	Fully

3. Regardless of how much formal authority you have built into your position, what are the chances that you would be personally inclined to use that power to help this subordinate solve problems in his or her work?

1	2	3	4	5
No Chance	Small Chance	Might or Might Not	Probably Would	Certainly Would

4. Again, regardless of the amount of formal authority you have, what is the chance you would "bail out" this subordinate at your own expense when he or she really needed it?

1	2	3	4	5
No Chance	Small Chance	Might or Might Not	Probably Would	Certainly Would

5. Does this subordinate usually know where he/she stands with you...that is, do you usually let this subordinate know how satisfied you are with what he/she does?

1	2	3	4	5
Rarely	Seldom	Sometimes	Usually	Almost Always

6. How would you characterize your working relationship with this subordinate?

1	2	3	4	5
Extremely Ineffective	Worse than Average	Average	Better than Average	Extremely Effective

7. Do you have enough confidence in this subordinate that you would defend and justify his or her decisions if he or she were not present to do so?

1	2	3	4	5
Yes, Always	Very Often	Often	Sometimes	No, Never

8. How would you classify your working relationship with this subordinate?

- 1 = This subordinate is "Out" (merely a hired hand)
- 2 = This subordinate is "Middle" to "Out"
- 3 = This subordinate is "Middle of the Road"
- 4 = This subordinate is "Middle" to "In"
- 5 = This subordinate is "In" (a trusted assistant)

9. If you had to guess how closely you and this subordinate would answer these same questions about your working relationship, how close in agreement do you think your answers would be.

- | | | | | |
|--------------------|------------|-------|-------------------|---------------------|
| 1 | 2 | 3 | 4 | 5 |
| Extremely
Close | Very Close | Close | Not Very
Close | Not at all
Close |

SECTION TWO

Instructions: In the following section, questions refer to reactions to the job and aspects of work. As best you can, please indicate how satisfied you believe this subordinate is with each aspect of his/her job listed below. Do not answer these questions personally, rather answer as if you were this subordinate answering them.

1. Generally speaking, I think this subordinate is very satisfied with this job.

- | | | | | | | |
|----------------------|----------|----------------------|---------|-------------------|-------|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Disagree
Strongly | Disagree | Disagree
Slightly | Neutral | Agree
Slightly | Agree | Agree
Strongly |

2. I think this subordinate frequently thinks of quitting this job.

- | | | | | | | |
|----------------------|----------|----------------------|---------|-------------------|-------|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Disagree
Strongly | Disagree | Disagree
Slightly | Neutral | Agree
Slightly | Agree | Agree
Strongly |

3. I think this subordinate is generally satisfied with the kind of work he/she does in this job.

- | | | | | | | |
|----------------------|----------|----------------------|---------|-------------------|-------|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Disagree
Strongly | Disagree | Disagree
Slightly | Neutral | Agree
Slightly | Agree | Agree
Strongly |

Please indicate how satisfied you believe this subordinate is with:

4. ...the amount of personal growth and development this subordinate gets in doing his/her job.

- | | | | | | | |
|---------------------------|--------|--------------------------|---------|-----------------------|-----------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely
Dissatisfied | Dissat | Slightly
Dissatisfied | Neutral | Slightly
Satisfied | Satisfied | Extremely
Satisfied |

5. ...the degree of respect and fair treatment this subordinate receives from you as the supervisor.

- | | | | | | | |
|---------------------------|--------|--------------------------|---------|-----------------------|-----------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely
Dissatisfied | Dissat | Slightly
Dissatisfied | Neutral | Slightly
Satisfied | Satisfied | Extremely
Satisfied |

6. ...the feeling of worthwhile accomplishment this subordinate gets from doing his/her job.

- | | | | | | | |
|---------------------------|--------|--------------------------|---------|-----------------------|-----------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Extremely
Dissatisfied | Dissat | Slightly
Dissatisfied | Neutral | Slightly
Satisfied | Satisfied | Extremely
Satisfied |

7. ...the amount of support and guidance this subordinate receives from you as the supervisor.

1	2	3	4	5	6	7
Extremely	Dissat	Slightly	Neutral	Slightly	Satisfd	Extremely
Dissatisfd		Dissatisfd		Satisfd		Satisfd

8. ...the amount of independent thought and action this subordinate can exercise in his/her job.

1	2	3	4	5	6	7
Extremely	Dissat	Slightly	Neutral	Slightly	Satisfd	Extremely
Dissatisfd		Dissatisfd		Satisfd		Satisfd

9. ...the amount of challenge in this subordinate's job.

1	2	3	4	5	6	7
Extremely	Dissat	Slightly	Neutral	Slightly	Satisfd	Extremely
Dissatisfd		Dissatisfd		Satisfd		Satisfd

10. ... the overall quality of the supervision he/she receives in his/her work

1	2	3	4	5	6	7
Extremely	Dissat	Slightly	Neutral	Slightly	Satisfd	Extremely
Dissatisfd		Dissatisfd		Satisfd		Satisfd

Place a check beside your answer to the following six items.

11. The work like this subordinate does probably

- discourages this subordinate from doing his/her best.
- tends to discourage this subordinate from doing his/her best.
- makes little difference.
- slightly encourages this subordinate to do his/her best.
- greatly encourages this subordinate to do his/her best.

12. How often do you think when this subordinate finishes a day's work he/she feels that something really worthwhile has been accomplished?

- All of the time
- Most of the time
- About half of the time
- Less than half of the time
- Rarely

13. How does the kind of work this subordinate does influence his/her overall attitude toward his/her job?

- It has a very unfavorable influence.
- It has a slightly unfavorable influence.
- It has no influence one way or the other.
- It has a fairly favorable influence.
- It has a very favorable influence.

14. How many of the things done on the job do you think this subordinate enjoys?

- nearly all
- more than half
- about half
- less than half
- almost none

15. How much of this subordinate's work do you think stirs up real enthusiasm on his/her part?

- nearly all of it
- more than half of it
- about half of it
- less than half of it
- almost none of it

16. How do you think this subordinate feels about the kind of work he/she does?

- Doesn't like it, would prefer some other kind of work.
- It's OK, but there's other work he/she would like better.
- Likes it, but there is other work he/she would like as much.
- Likes it very much.
- It's exactly the kind of work he/she likes best.

17. How satisfied do you think this subordinate is with the co-workers he/she talks to and works with on the job.

1	2	3	4	5	6	7
Extremely	Dissat	Slightly	Neutral	Slightly	Satisfd	Extremely
Dissatisfd		Dissatisfd		Satisfd		Satisfd

18. How satisfied do you think this subordinate is with the chance to get to know other co-workers while on the job.

1	2	3	4	5	6	7
Extremely	Dissat	Slightly	Neutral	Slightly	Satisfd	Extremely
Dissatisfd		Dissatisfd		Satisfd		Satisfd

19. How satisfied do you think this subordinate is with the chance to help other co-workers while at work.

1	2	3	4	5	6	7
Extremely	Dissat	Slightly	Neutral	Slightly	Satisfd	Extremely
Dissatisfd		Dissatisfd		Satisfd		Satisfd

20. How likely is it that this subordinate will actively look for a new job in the next year?

1	2	3	4	5
Very Likely	Likely	50-50	Unlikely	Very Unlikely

21. How often do you think this subordinate thinks about quitting?

1	2	3	4	5
Very Often	Often	Occasionally	Not Very Often	Hardly Ever

22. This subordinate will probably look for a new job in the next year.

1	2	3	4	5
Very Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Very Strongly Disagree

SUPERVISOR DEMOGRAPHIC INFORMATION

Instructions: Please respond to the following questions about yourself on the blanks provided. All information given will be kept confidential and merely coded for demographic information analyses.

1. I have been with this organization for:
----- years ----- months
2. I have been in my present job or position for:
----- years ----- months
3. I have been working as a supervisor for:
----- years ----- months
4. How many employees report directly to you? ----- employees
5. My position title is: -----.
6. My present age is: ----- years.
7. My gender is: ----- Male ----- Female
8. I am presently: ----- Married ----- Not Married
9. My race is: -- White -- Black -- Other (specify) .
10. My work location is (city) -----.
11. The highest level of education I have attained is:
---- 8th grade or less
---- Completed 1 - 4 years of high school work (no diploma)
---- High school graduate or equivalent
---- Completed formal vocational or technical school program
---- Completed 1-4 years of college work
---- Graduate from 4-year college
---- Completed some graduate training
---- Completed Master's Degree or higher

12. On the average, how often do you interact with your subordinates? (please check one)

---- hourly

---- several times a day

---- once a day

---- 2 or 3 times a week

---- once a week

---- other

13. What do you feel are the important aspects or qualities that define the type of relationship you have with your subordinates?

THANK YOU VERY MUCH FOR YOUR COOPERATION.

APPENDIX D
SUBORDINATE COVER LETTER

WORK RELATIONSHIP QUESTIONNAIRE

Dear Employee:

This questionnaire is designed to find out how you feel about particular aspects of your work. This is a research project conducted by, Marta Carter, an Industrial/Organizational Psychology doctoral student from Virginia Tech. These data will provide information to better understand working relationships between supervisors and subordinates. This is strictly a research project and will have no direct impact on you or your work.

If this questionnaire is to be useful, it is important that you answer all questions frankly and honestly. There are no right or wrong answers to these questions, since I am interested in what you think and feel about your work life.

Your answers to these questions are completely confidential. All questionnaires are to be returned in the envelope provided directly to the researcher at Virginia Tech for analyses and safekeeping. No one at your organization will ever have access to your individual answers. Once the questionnaire answers have been coded and entered into the computer for analyses, the questionnaires will be destroyed. As part of the same research project, if you choose to answer this survey you will be asked for your performance evaluation rating data for computer analyses.

For analysis purposes, it is necessary to identify individual responses from different work groups. During analysis you will be assigned a number, and your name will never be put directly with your answers.

For the purposes of this project, every opinion counts. Therefore, your opinions are very important to this study. Supervisors will also be asked to complete a similar questionnaire about these relationships. Completion of the questionnaire is voluntary but I do hope you will take the time to complete this survey. The questionnaire should take about 15 minutes to complete.

After you complete the questionnaire, please place the questionnaire back in the envelope. Place the envelope in the box marked "Virginia Tech Study: Employee Questionnaires" at the personnel office by the end of your shift on Wednesday, May 20, 1992. To keep your answers confidential and anonymous, please do not discuss this questionnaire with other employees.

Thank you in advance for your cooperation and assistance.

I hope you find the questionnaire interesting and thought provoking. You are free to discontinue participation in this project at any time. This project has been approved by the Human Subjects Research Committee and Institutional Review Board of Virginia Tech. If you have any concerns about the content of this questionnaire and with further discussion, please contact the researchers: Marta Carter, at (703) 552-9752 or her researcher advisor, Dr. Roseanne Foti, at (703) 231-5814. Questions may also be directed to members of the Human Subjects Research Committee: Dr. Helen Crawford, at (703) 231-6581 or Dr. Ernest Stout, at (703) 231-9359.

I give permission to access my performance evaluation and attendance record data for the time of April 1991 - April 1992. This information will only be seen by the research, Marta Carter. It will be destroyed by the researcher, Marta Carter.

Please sign if you agree to participate in this research as stated above:

Print Name _____

Signature _____

Date _____

APPENDIX E
SUPERVISOR COVER LETTER

WORK RELATIONSHIP QUESTIONNAIRE

Dear Supervisor:

These questionnaires are designed to find out how you and your subordinates feel about particular aspects of work. This is a research project conducted by, Marta Carter, an Industrial and Organizational Psychology doctoral student from Virginia Tech. These data will provide information to better understand working relationships between supervisors and subordinates. This is strictly a research project and will have no direct impact on you and your work.

If this questionnaire is to be useful, it is important that you answer all questions frankly and honestly. There are no right or wrong answers to these questions, since I am interested in what you think and feel about your work life.

Your answers to these questions are completely confidential. All questionnaires are to be returned in the envelope provided directly to the researcher at Virginia Tech for analyses and safekeeping. No one at Federal Mogul will ever have access to your individual answers. Once the questionnaire answers have been coded and entered into the computer for analyses, the questionnaires will be destroyed.

As part of the same research project, the participating subordinates will have their performance evaluation rating and attendance record data coded and given to the researcher for computer analyses. The subordinates you are asked to complete the questionnaires about have already participated in this research and agreed to the conditions.

Enclosed you will find several questionnaires to fill out about your perception of your own subordinates named on the questionnaires. For analysis purposes, it is necessary to identify individual responses from different work groups. As a result, I have given each individual a number so pairs of supervisors and subordinates can be matched.

Completion of the questionnaires is voluntary but I do hope you will take the time to complete the surveys as complete supervisor-subordinate pairs are needed to analyze the data. Each questionnaire should take about 10-20 minutes to complete. After you complete the questionnaires, please place them in the Supervisor Questionnaires box in the personnel office. To keep your answers confidential and anonymous, please do not discuss this questionnaire with other employees.

Thank you in advance for your cooperation and assistance. We hope you find the questionnaire interesting and thought provoking. You are free to discontinue participation in this project at any time. This project has been approved by the Human Subjects Research Committee and Institutional Review Board of Virginia Tech. If you have any concerns about the content of this questionnaire and wish further discussion, please contact researchers: Marta Carter, at (703) 552-9752 or her research advisor, Dr. Roseanne Foti, at (703) 231-5814. Questions may also be directed to members of the Human Subjects Research Committee: Dr. Helen Crawford, at (703) 231-6581 or Dr. Ernest Stout, at (703) 231-9359. This information will only be seen by the researcher, Marta Carter. It will be destroyed by the researcher, Marta Carter. Please sign if you agree to participate in this research as stated above:

APPENDIX F
OPERANT SUPERVISORY TAXONOMY AND INDEX (OSTI)
CODING SHEET

2 -----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH
Subordinate interacted with/referred to: -----

3 -----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH
Subordinate interacted with/referred to: -----

4 -----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH
Subordinate interacted with/referred to: -----

5 -----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH
Subordinate interacted with/referred to: -----

6 -----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH
Subordinate interacted with/referred to: -----

7 -----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH
Subordinate interacted with/referred to: -----

8 -----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

9 -----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

10-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

11-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

12-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

13-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

14-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

15-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

16-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

17-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

18-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

19-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

20-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

21-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

22-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

23-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

24-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

25-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

26-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

27-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

28-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

29-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

30-----

Mws2 Cd-o+ Ci-o+ Aacondi Ocma Win NW NS S DH

Subordinate interacted with/referred to: -----

APPENDIX G
RESULTS TABLES

Table 1

Descriptive Statistics for Subordinate Report.

Variable	N	Mean	S.D.	Min	Max	Alpha
Negotiating Latitude	292	3.44	.79	1.14	5.00	.88
General Satisfaction	292	5.34	1.33	1.00	7.00	.78
Supervisor Satisfaction	292	5.05	1.29	1.00	7.00	.83
Growth Satisfaction	292	4.93	1.25	1.25	7.00	.84
Co-worker Satisfaction	292	5.47	1.05	1.33	7.00	.76
Work Satisfaction	292	3.57	.89	1.00	5.00	.88
Turnover Intention	292	4.07	1.03	1.00	5.00	.87
Monitors	292	1.49	1.95	0	5.66	
Consequences	292	.84	1.58	0	5.80	
Antecedents	292	1.50	1.97	0	6.31	
Days Absent in One Year	292	3.13	2.95	0	17.00	
Days Absent (log-transformed)	264	1.17	.73	0	2.89	
Absence Rate	262	.01	.01	0	.07	
Absence Rate (log-transformed)	262	.01	.01	0	.06	

Descriptive Statistics for Manager Report.

Variable	N	Mean	S.D.	Min	Max	Alpha
NEGLAT	292	3.66	.52	2.29	5.00	.79
GENSAT	292	5.33	.92	2.00	7.00	.80
SUPSAT	292	5.49	.81	2.00	7.00	.90
GRSAT	292	5.36	.83	3.00	7.00	.88
COWSAT	292	5.49	.83	2.00	7.00	.86
WRKSAT	292	3.66	.63	1.67	4.83	.87
TRNVR	292	3.97	.64	1.00	5.00	.70

Higher numbers indicate a higher level of the characteristic being measured with exception to turnover intention.

Table 2-A

Total Correlations Between Manager and Subordinate Reports
On All Variables.

Variable	Correlation
Negotiating Latitude	.24
General Satisfaction	.30
Supervisor Satisfaction	.25
Growth Satisfaction	.25
Co-worker Satisfaction	.17
Work Satisfaction	.18
Turnover Intention	.30

Manager n = 292
 Subordinate n = 292
 Total N = 584

Table 2-B
Total Correlation Matrix Including Dyad Means.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 NEGLAT													
2 GENSAT	.45												
	292												
3 SUPSAT	.80	.48											
	292	292											
4 GRSAT	.66	.72	.72										
	292	292	292										
5 COWSAT	.47	.38	.52	.57									
	292	292	292	292									
6 WRKSAT	.54	.77	.56	.82	.50								
	292	292	292	292	292								
7 TRNVR	.30	.69	.29	.50	.21	.53							
	292	292	292	292	292	292							
8 MONS	.21	.02	.12	.15	.14	.08	.02						
	292	292	292	292	292	292	292						
9 CONS	.20	-.06	.12	.06	.14	.07	-.03	.47					
	292	292	292	292	292	292	292	292					
10 ANTS	.26	.01	.14	.11	.09	.10	.04	.54	.41				
	292	292	292	292	292	292	292	292	292				
11 ABS	-.18	-.20	-.15	-.18	-.16	-.28	-.17	-.01	-.04	-.08			
	264	264	264	264	264	264	264	264	264	264			
12 LABS	-.20	-.21	-.14	-.19	-.12	-.29	-.21	-.04	-.08	-.02	.92		
	264	264	264	264	264	264	264	264	264	264	264		
13 ABSRT	-.20	-.22	-.15	-.20	-.15	-.29	-.20	-.08	-.10	-.04	.95	.88	
	262	262	262	262	262	262	262	262	262	262	262	262	
14 LABRT	-.20	-.22	-.15	-.20	-.15	-.29	-.21	-.08	-.10	-.04	.95	.89	.99
	262	262	262	262	262	262	262	262	262	262	262	262	262

Note: n-sizes are located underneath each correlation

=====

NEGLAT = Negotiating Latitude (dyad means)
 GENSAT = General Satisfaction (dyad means)
 SUPSAT = Supervisor Satisfaction (dyad means)
 GRSAT = Growth Satisfaction (dyad means)
 COWSAT = Co-worker Satisfaction (dyad means)
 WRKSAT = Work Satisfaction (dyad means)
 TRNVR = Turnover Intention (dyad means)
 MONS = Monitors
 CONS = Consequences
 ANTS = Antecedents
 ABS = Days Absent (subordinate)
 LABS = Days Absent (subordinate [log-transformed])
 ABSRT = Absence Rate (subordinate)
 LABRT = Absence Rate (subordinate [log-transformed])

Table 2-C

Descriptive Statistics for Dyad Report.

Variable	N	Mean	S.D.	Min	Max
Negotiating Latitude	292	3.55	.52	1.71	4.86
General Satisfaction	292	5.33	.91	1.50	7.00
Supervisor Satisfaction	292	5.27	.84	1.67	7.00
Growth Satisfaction	292	5.14	.83	2.25	6.88
Co-worker Satisfaction	292	5.48	.72	3.00	6.83
Work Satisfaction	292	3.62	.59	1.33	4.75
Turnover Intention	292	4.02	.68	1.50	5.00

Table 3-A

One-Way ANOVA: Work Group.

Dependent Variable	SS	df	F
Subordinate Gender	9.81	17	3.13 ***
Error	50.45	274	
Total	60.26	291	

- * p < .05
- ** p < .01
- *** p < .001

Tukey's Tests Between Work Group Means.

Subordinate Gender

Work Group	N	Mean	
1	11	1.00	BCD
2	30	1.22	ABCD
3	5	2.00	ACD
4	8	1.00	BCD
5	16	1.44	ABCD
6	10	1.50	ABCD
7	5	1.17	ABCD
8	6	1.14	ABCD
9	12	1.31	ABCD
10	26	1.37	ABC
11	13	1.15	ABCD
12	26	1.52	ABC
13	29	1.28	ABCD
14	17	1.11	BCD
15	9	1.20	ABCD
16	17	1.00	BD
17	5	1.00	BCD
18	38	1.36	ABCD

Means with different letters are different at the p < .05 level.

Table 3-B

One-Way ANOVA: Work Group.

Dependent Variable	SS	df	F
Subordinate Age	8230.65	17	5.63 ***
Error	23228.26	270	
Total	31458.91	287	

- * p < .05
- ** p < .01
- *** p < .001

Tukey's Tests Between Work Group Means.

Subordinate Age

Work Group	N	Mean	
1	11	46.73	ADEF
2	30	34.67	ABCEF
3	5	40.60	ABCDEF
4	8	35.25	ABCDEF
5	16	38.94	ABCDEF
6	10	47.44	ADEF
7	5	39.33	ABCDEF
8	6	47.00	ABCDEF
9	12	39.77	ABCDEF
10	26	41.93	ACDEF
11	13	34.58	ABCDE
12	26	38.96	ABCDEF
13	29	30.43	BCDEF
14	17	31.50	BCDEF
15	9	48.80	ADF
16	17	43.41	ACDEF
17	5	34.20	ABCDEF
18	38	33.31	BCDEF

Means with different letters are different at the p < .05 level.

Table 3-C

One-Way ANOVA: Work Group.

Dependent Variable	SS	df	F
Subordinate Education	34.99	14	2.06 **
Error	273.13	274	
Total	308.12	291	

- * p < .05
- ** p < .01
- *** p < .001

Tukey's Tests Between Work Group Means.

Subordinate Education

Work Group	N	Mean	
1	11	4.09	AB
2	30	3.43	AB
3	5	3.40	AB
4	8	3.25	AB
5	16	2.94	AB
6	10	3.40	AD
7	5	3.50	AB
8	6	2.71	AB
9	12	3.23	AB
10	26	2.89	A
11	13	3.23	AB
12	26	3.15	AB
13	29	3.93	B
14	17	3.58	AB
15	9	3.40	AB
16	17	3.88	AB
17	5	3.20	AB
18	38	3.49	AB

Means with different letters are different at the p < .05 level.

Table 3-D

One-Way ANOVA: Work Group.

Dependent Variable	SS	df	F
Subordinate's Tenure With Current Manager	120733.40	17	15.30 ***
Error	122994.40	265	
Total	243727.81	282	

- * p < .05
- ** p < .01
- *** p < .001

Tukey's Tests Between Work Group Means.

Subordinate's Tenure With Current Manager

Work Group	N	Mean	
1	11	23.91	BD
2	30	12.63	BD
3	5	7.20	BD
4	8	28.75	BCD
5	16	11.13	BD
6	10	17.10	BD
7	5	34.20	BCD
8	6	40.67	BCD
9	12	96.50	A
10	26	23.96	BD
11	13	14.92	BD
12	26	12.92	BD
13	29	2.00	BD
14	17	7.35	BD
15	9	49.33	BCD
16	17	54.24	BC
17	5	6.80	BD
18	38	16.03	BD

Mean scores reflect months of tenure.

Means with different letters are different at the p < .05 level.

Table 3-E

One-Way ANOVA: Work Group.

Dependent Variable	SS	df	F
=====			
Subordinate's Job Tenure			
	332822.86	17	5.35 ***
Error	980289.47	268	
Total	1313123.33	285	

- * p < .05
- ** p < .01
- *** p < .001

Tukey's Tests Between Work Group Means.

Subordinate's Job Tenure

Work Group	N	Mean	
=====			
1	11	74.18	ABCDEF
2	30	30.73	BDF
3	5	113.80	ABCDEF
4	8	59.13	ABCDEF
5	16	95.69	ABCDEF
6	10	118.00	ABCDE
7	5	83.83	ABCDEF
8	6	67.83	ABCDEF
9	12	114.31	ABCEF
10	26	95.70	ABCDE
11	13	44.85	BCDEF
12	26	60.42	ABCDEF
13	29	33.17	BDF
14	17	36.61	BDEF
15	9	138.10	ACDEF
16	17	115.18	ABCEF
17	5	20.00	BCDEF
18	38	38.47	BDF

Mean scores reflect months of tenure.

Means with different letters are different at the p < .05 level.

Table 3-F

One-Way ANOVA: Work Group.

Dependent Variable	SS	df	F
=====			
Subordinate's Organizational Tenure			
	815496.00	17	11.18 ***
Error	1162884.38	271	
Total	1978380.38	285	

- * p < .05
- ** p < .01
- *** p < .001

Tukey's Tests Between Work Group Means.

Subordinate's Organizational Tenure

Work Group	N	Mean	
=====			
1	11	112.45	BCDEFGH
2	30	57.63	BDFH
3	5	194.80	ABCDEGH
4	8	108.13	BCDEFGH
5	16	136.06	BCDEFG
6	10	198.80	ABCEFGH
7	5	132.83	ABCDEFHG
8	6	222.43	ABCEFGH
9	12	156.62	ABCDEGH
10	26	177.59	ABCEFGH
11	13	118.00	BCDEFGH
12	26	88.15	BDEFGH
13	29	65.55	BDFGH
14	17	58.00	BDFGH
15	9	247.50	ACDEFGH
16	17	145.76	BCDEFGH
17	5	138.00	ABCDEFHG
18	38	71.32	BDFGH

Mean scores reflect months of tenure.

Means with different letters are different at the p < .05 level.

Table 3-G
One-Way ANOVA: Work Group.

Dependent Variable	SS	df	F
Subordinate's Rating of Supervisor Interaction	86.99	17	3.53 ***
Error	394.49	272	
Total	481.48	285	

* p < .05
 ** p < .01
 *** p < .001

Tukey's Tests Between Work Group Means.

Subordinate's Rating of Supervisor Interaction

Work Group	N	Mean	
1	11	2.55	ABCDEF
2	30	3.13	ABCDE
3	5	2.40	ABCDEF
4	8	2.25	ABCDEF
5	16	2.31	BCDEF
6	10	4.11	ACDEF
7	5	2.33	ABCDEF
8	6	2.71	ABCDEF
9	12	2.54	ABCDEF
10	26	2.33	BDEF
11	13	2.31	BDEF
12	26	2.96	ABCDEF
13	29	2.00	BDF
14	17	2.26	BDEF
15	9	2.20	ABCDEF
16	17	3.12	ABCDEF
17	5	2.80	ABCDEF
18	38	3.54	ABCEF

Means with different letters are different at the p < .05 level.

Table 4

Possible Inferences

Single Variable Analysis (WABA I)

=====

Research question: Is the mean of dyad member responses a valid measure of dyad characteristic?

=====

CONDITION	INFERENCE	IMPLICATION
Between > Within	Dyad mean valid	Dyad mean may be used to represent dyad
Between < Within	Dyad mean not valid	Dyad mean should not be used to represent dyad
Between = Within	Both sources valid	Equivocal
0=Between=Within	Neither valid	Traditional null

=====

Two Variable Anal. (correlation between pairs of variables) (WABA II)

=====

Research question: Does dyad membership affect the relation between the two variables?

=====

CONDITION	INFERENCE	IMPLICATION
Between > Within	Dyad is valid influence on correlation	Dyad membership influences relation
Between < Within	Dyad is not valid influence	Dyad membership does not influence relation
Between = Within	Both sources valid	Equivocal
0 = Between = Within	Neither valid	Traditional null

=====

Table 5

WABA I: Test for the Practical Significance of Variables at the Dyad Level.

Variables	Eta Correlations		E Ratio	Induction
	Between	Within		
NEGLAT	.77	.64	1.21	Between-0
GENSAT	.80	.60	1.33	Between-15
SUPSAT	.77	.64	1.20	Between-0
GRSAT	.77	.64	1.19	Between-0
COWSAT	.76	.64	1.19	Between-0
WRKSAT	.76	.65	1.19	Between-0
TRNVR	.79	.61	1.31	Between-15

N = 584 Manager & Subordinate Reports
 J = 292 Dyads

WABA I: Test for the Practical Significance of Variables at the Group Level Using Dyad Means.

Variables	Eta Correlations		E Ratio	Induction
	Between	Within		
NEGLAT	.47	.88	.54	Within-30
GENSAT	.32	.95	.34	Within-30
SUPSAT	.44	.90	.49	Within-30
GRSAT	.41	.91	.45	Within-30
COWSAT	.49	.87	.56	Within-30
WRKSAT	.44	.90	.50	Within-30
TRNVR	.42	.91	.47	Within-30

N = 292 Dyads
 J = 18 Groups

Practical Significance Criteria:

- Between-0 E > or = 1.00
- Between-15 E > or = 1.30
- Between-30 E > or = 1.73
- Within-0 E < or = 1.00
- Within-15 E < or = 0.77
- Within-30 E < or = 0.58

- NEGLAT = Negotiating Latitude
- GENSAT = General Satisfaction
- SUPSAT = Supervisor Satisfaction
- GRSAT = Growth Satisfaction
- COWSAT = Coworker Satisfaction
- WRKSAT = Work Satisfaction
- TRNVR = Turnover

Table 6

WABA I: Variance based on between and within dyad scores to test which is statistically significant.

Variable	Between Eta	Within Eta	Alternate F-test	Cond.
NEGLAT	.77	.64	1.47**	B > W
GENSAT	.80	.60	1.78**	B > W
SUPSAT	.77	.64	1.44**	B > W
GRSAT	.77	.64	1.45**	B > W
COWSAT	.76	.64	1.41**	B > W
WRKSAT	.76	.65	1.39**	B > W
TRNVR	.79	.61	1.71**	B > W

N = 584 Manager & Subordinate reports

J = 292 Dyads

Degrees of freedom = 291, 292.

* p < .05 for F > or = 1.26

** p < .01 for F > or = 1.39

WABA I: Variance based on between and within group scores using dyad means to test which is statistically significant.

Variable	Between Eta	Within Eta	Alternate F-test	Cond.
NEGLAT	.47	.88	4.63**	W > B
GENSAT	.32	.95	1.83*	W > B
SUPSAT	.44	.90	3.93**	W > B
GRSAT	.41	.91	3.25**	W > B
COWSAT	.49	.87	5.05**	W > B
WRKSAT	.44	.90	3.97**	W > B
TRNVR	.42	.91	3.54**	W > B

N = 292 Dyads

J = 18 Groups

Degrees of freedom = 17, 274.

* p < .05 for F > or = 1.69

** p < .01 for F > or = 2.09

NEGLAT = Negotiating Latitude
 GENSAT = General Satisfaction
 SUPSAT = Supervisor Satisfaction
 GRSAT = Growth Satisfaction
 COWSAT = Coworker Satisfaction
 WRKSAT = Work Satisfaction
 TRNVR = Turnover

Table 7

Summary of WABA Equations with Negotiating Latitude (NL) as the Dependent Variable.

MANAGER-SUBORDINATE DYAD

	Between Components				Within Components				Total
	NLeta	eta	r	prod	NLeta	eta	r	prod	
GENSAT	.77	.80	.45	.28	.64	.60	.40	.15	.43
SUPSAT	.77	.77	.80	.47	.64	.64	.68	.28	.75
GRSAT	.77	.77	.66	.39	.64	.64	.55	.22	.62
COWSAT	.77	.76	.47	.28	.64	.64	.28	.12	.39
WRKSAT	.77	.76	.54	.32	.64	.65	.41	.17	.49
TRNVR	.77	.79	.31	.18	.64	.61	.20	.08	.26

N = 584 manager & subordinate reports

J = 292 dyads

MANAGERIAL GROUP USING DYAD MEANS

	Between Components				Within Components				Total
	NLeta	eta	r	prod	NLeta	eta	r	prod	
GENSAT	.47	.32	.53	.08	.88	.95	.45	.37	.45
SUPSAT	.47	.44	.82	.17	.88	.90	.79	.63	.80
GRSAT	.47	.41	.85	.16	.88	.91	.61	.49	.66
COWSAT	.47	.49	.60	.14	.88	.87	.43	.33	.47
WRKSAT	.47	.44	.76	.16	.88	.90	.49	.38	.54
TRNVR	.47	.42	-.07	-.01	.88	.90	.40	.32	.30

N = 292 dyads

J = 18 groups

- NEGLAT = Negotiating Latitude
- GENSAT = General Satisfaction
- SUPSAT = Supervisor Satisfaction
- GRSAT = Growth Satisfaction
- COWSAT = Coworker Satisfaction
- WRKSAT = Work Satisfaction
- TRNVR = Turnover

Table 8

WABA II Difference Tests: Negotiating Latitude and Outcome Variables.

DYAD	TOT	CORRELATIONS		A	PRACTICAL INF	Z	STATISTICAL INF
		BET	WITH				
NEGLAT &							
GENSAT	.43	.45	.40	.06	B=W	.83	B=W
SUPSAT	.75	.80	.68	.18	B=W	3.17**	B>W
GRSAT	.62	.66	.55	.14	B=W	2.06*	B>W
COWSAT	.39	.47	.28	.20	B=W	2.63**	B>W
WRKSAT	.49	.54	.41	.16	B=W	2.13*	B>W
TRNVR	.26	.30	.20	.10	B=W	1.28	B=W

N = 584 manager & subordinate reports
 J = 292 dyads

GROUP	TOT	CORRELATIONS		A	PRACTICAL INF	Z	STATISTICAL INF
		BET	WITH				
NEGLAT &							
GENSAT	.45	.53	.45	.10	B=W	.44	B=W
SUPSAT	.80	.82	.79	.04	B=W	.28	B=W
GRSAT	.66	.85	.61	.36	B-15	2.05*	B>W
COWSAT	.47	.60	.43	.20	B=W	.89	B=W
WRKSAT	.54	.76	.49	.36	B-15	1.79*	B>W
TRNVR	.30	-.07	.40	-.34	W-15	-1.31*	W>B

N = 292 dyads
 J = 18 groups

A (> or = .26) = B-15
 A (> or = .52) = B-30
 A (< or = -.26) = W-15
 A (< or = -.52) = W-30

p (< or = .05) = *
 p (< or = .01) = **

NEGLAT = Negotiating Latitude
 GENSAT = General Satisfaction
 SUPSAT = Supervisor Satisfaction
 GRSAT = Growth Satisfaction
 COWSAT = Coworker Satisfaction
 WRKSAT = Work Satisfaction
 TRNVR = Turnover

Table 9

Dyadic Inferences.

Variable	WABA I	WABA II	COMPONENTS	FINAL INDUCTION
NEGLAT	Between			
and				
GENSAT	Between	Equivocal	Equivocal	Weak Between
SUPSAT	Between	Between	Equivocal	Between
GRSAT	Between	Between	Equivocal	Between
COWSAT	Between	Between	Equivocal	Between
WRKSAT	Between	Between	Equivocal	Between
TRNVR	Between	Equivocal	Equivocal	Weak Between

Group Inferences.

Variable	WABA I	WABA II	COMPONENTS	FINAL INDUCTION
NEGLAT	Between			
and				
GENSAT	Within	Equivocal	Equivocal	Weak Within
SUPSAT	Within	Equivocal	Equivocal	Weak Within
GRSAT	Within	Between	Equivocal	None
COWSAT	Within	Equivocal	Equivocal	Weak Within
WRKSAT	Within	Between	Equivocal	None
TRNVR	Within	Equivocal	Within	Weak Within

- NEGLAT = Negotiating Latitude
- GENSAT = General Satisfaction
- SUPSAT = Supervisor Satisfaction
- GRSAT = Growth Satisfaction
- COWSAT = Coworker Satisfaction
- WRKSAT = Work Satisfaction
- TRNVR = Turnover

Table 10

Multiple Regression With Dependent Variable: Dyad
Negotiating Latitude.

Equation 1 Regressors: Monitors, Consequences, Antecedents

Source	Df	Sum of Squares	Mean Square	F=	Sg. F
Model	3	6.22	2.07	8.21	.0001
Error	288	72.74	.25		

R² = .079

R² Adjusted = .069

Parameter	Estimate	t	Prob > t
Intercept	3.43	98.35	.0001
Monitors	.02	1.03	.3037
Consequences	.03	1.36	.1753
Antecedents	.05	2.61	.0095

N = 292 Dyads

Table 11

Multiple Regression

Regressors: Monitors, Consequences, and Antecedents

Dependent Variable: Dyad General Satisfaction

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	3	1.77	.59	.70	.5510
Error	288	241.44	.84		

R² = .007 R² adjusted = .003

Dependent Variable: Dyad Supervisor Satisfaction

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	3	5.15	1.17	2.46	.0631
Error	288	201.22	.70		

R² = .025 R² adjusted = .015

Dependent Variable: Dyad Growth Satisfaction

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	3	4.66	1.55	2.29	.0785
Error	288	195.31	.68		

R² = .023 R² adjusted = .013

Dependent Variable: Dyad Coworker Satisfaction

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	3	4.15	1.38	2.68	.0471
Error	288	148.43	.52		

R² = .027 R² adjusted = .017

Parameter	Estimate	t	Prob > t
Intercept	5.39	96.33	.0001
Monitors	.04	1.42	.1561
Consequences	.04	1.34	.1821
Antecedents	-.001	-.04	.9653

Table 11 (cont)

Multiple Regression

Regressors: Monitors, Consequences, and Antecedents

Dependent Variable: Dyad Work Satisfaction

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	3	1.07	.36	1.03	.3786
Error	288	99.78	.35		

R² = .011 R² adjusted = .000

Dependent Variable: Dyad Turnover Intent

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	3	.60	.20	.43	.7316
Error	288	134.49	.47		

R² = .005 R² adjusted = .006

Dependent Variable: Days Absent

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	3	14.27	4.76	.544	.6523
Error	260	2272.09	8.74		

R² = .006 R² adjusted = .005

Table 12-A

Hierarchical Regression With Dependent Variable: Dyad
General Satisfaction.

Equation 1 Regressor: Dyad Negotiating Latitude

Source	Df	Sum Squrs	Mean Square	F =	Signif. F
Model	1	50.15	50.15	75.33	.0001
Error	290	193.06	.67		

R² = .206 R² adjusted = .204

Equation 2 Regressors: Dyad Negotiating Latitude, Monitors,
Consequences, Antecedents

Source	Df	Sum Squrs	Mean Square	F =	Signif. F
Model	4	56.83	14.21	21.88	.0001
Error	287	186.38	.65		

R² = .234 R² adjusted = .223

R² Change = .028 F Change = 3.37 *

Parameter	Estimate	t	Prob > t
Intercept	2.35	7.11	.0001
Negot. Lat.	.87	9.21	.0001
Monitors	.01	.25	.8021
Consequences	-.08	-2.34	.0199
Antecedents	.03	-1.07	.2857

N = 292 Dyads

* p < .01

Table 12-B

Hierarchical Regression With Dependent Variable: Dyad Supervisor Satisfaction.

Equation 1 Regressor: Dyad Negotiating Latitude

Source	Df	Sum Squrs	Mean Square	F =	Signif. F
Model	1	131.35	131.35	507.78	.0001
Error	290	75.02	.26		

$R^2 = .637$ R^2 adjusted = .635

Equation 2 Regressors: Dyad Negotiating Latitude, Monitors, Consequences, Antecedents

Source	Df	Sum Squrs	Mean Square	F =	Signif. F
Model	4	132.39	33.10	128.39	.0001
Error	287	73.98	.26		

$R^2 = .642$ R^2 adjusted = .637

R^2 Change = .005 F Change = 1.36

Parameter	Estimate	t	Prob > t
Intercept	.620	2.98	.0031
Negot. Lat.	1.323	22.22	.0001
Monitors	-.009	-.47	.6422
Consequences	-.004	-.20	.8458
Antecedents	-.024	-1.30	.1965

N = 292 Dyads

Table 12-C

Hierarchical Regression With Dependent Variable: Dyad Growth Satisfaction.

Equation 1 Regressor: Dyad Negotiating Latitude

Source	Df	Sum Squrs	Mean Square	F =	Signif. F
Model	1	86.84	86.84	222.60	.0001
Error	290	113.13	.39		

R² = .434 R² adjusted = .432

Equation 2 Regressors: Dyad Negotiating Latitude, Monitors, Consequences, Antecedents

Source	Df	Sum Squrs	Mean Square	F =	Signif. F
Model	4	88.64	22.16	57.13	.0001
Error	287	111.32	.39		

R² = .443 R² adjusted = .436

R² Change = .009 F Change = 1.55

Parameter	Estimate	t	Prob > t
Intercept	1.35	5.31	.0001
Negot. Lat.	1.07	14.72	.0001
Monitors	.03	1.35	.1795
Consequences	-.04	-1.51	.1330
Antecedents	.03	-1.22	.2250

N = 292 Dyads

Table 12-D

Hierarchical Regression With Dependent Variable: Dyad
Coworker Satisfaction.

Equation 1 Regressor: Dyad Negotiating Latitude

Source	Df	Sum Squrs	Mean Square	F =	Signif. F
Model	1	33.83	33.83	82.62	.0001
Error	290	118.75	.41		

R² = .220 R² adjusted = .220

Equation 2 Regressors: Dyad Negotiating Latitude, Monitors,
Consequences, Antecedents

Source	Df	Sum Squrs	Mean Square	F =	Signif. F
Model	4	35.04	8.76	21.39	.0001
Error	287	117.54	.41		

R² = .230 R² adjusted = .219

R² Change = .01 F Change = 1.00

Parameter	Estimate	t	Prob > t
Intercept	3.16	12.05	.0001
Negot. Lat.	.65	8.69	.0001
Monitors	.03	1.07	.2874
Consequences	.02	.80	.4229
Antecedents	-.03	-1.37	.1719

N = 292 Dyads

Table 12-E

Hierarchical Regression With Dependent Variable: Dyad Work Satisfaction.

Equation 1 Regressor: Dyad Negotiating Latitude

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	1	29.86	29.86	121.96	.0001
Error	290	71.00	.24		

R² = .296 R² adjusted = .294

Equation 2 Regressors: Dyad Negotiating Latitude, Monitors, Consequences, Antecedents

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	4	30.14	7.53	30.58	.0001
Error	287	70.72	.25		

R² = .299 R² adjusted = .289R² Change = .003 F Change = .38

Parameter	Estimate	t	Prob > t
Intercept	1.40	6.87	.0001
Negot. Lat.	.63	10.86	.0001
Monitors	-.004	-.22	.8272
Consequences	-.01	-.46	.6492
Antecedents	-.008	-.46	.6432

N = 292 Dyads

Table 12-F

Hierarchical Regression With Dependent Variable: Dyad Turnover Intent.

Equation 1 Regressor: Dyad Negotiating Latitude

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	1	12.31	12.31	29.07	.0001
Error	290	122.79	.42		

R² = .090 R² adjusted = .090

Equation 2 Regressors: Dyad Negotiating Latitude, Monitors, Consequences, Antecedents

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	4	13.33	3.33	7.86	.0001
Error	287	121.77	.42		

R² = .099 R² adjusted = .086

R² Change = .009 F Change = .796

Parameter	Estimate	t	Prob > t
Intercept	2.567	9.63	.0001
Negot. Lat.	.418	5.48	.0001
Monitors	-.001	-.05	.9602
Consequences	-.037	-1.33	.1834
Antecedents	-.000	-.00	.9978

N = 292 Dyads

Table 12-G

Hierarchical Regression With Dependent Variable: Days Absent.

Equation 1 Regressor: Dyad Negotiating Latitude

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	1	71.47	71.47	8.45	.004
Error	262	2214.89	8.45		

R² = .031 R² adjusted = .028

Equation 2 Regressors: Dyad Negotiating Latitude, Monitors, Consequences, Antecedents

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	4	80.44	20.11	2.36	.05
Error	259	2205.92	8.52		

R² = .035 R² adjusted = .020

R² Change = .004 F Change = .351

Parameter	Estimate	t	Prob > t
Intercept	6.68	5.31	.0001
Negot. Lat.	-1.00	-2.79	.0057
Monitors	- .01	- .05	.9597
Consequences	- .11	- .86	.3932
Antecedents	.07	.72	.4701

N = 264 Dyads

Table 12-H

Hierarchical Regression With Dependent Variable: Absence Rate.

Equation 1 Regressor: Dyad Negotiating Latitude

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	1	.0008	.0008	6.19	.014
Error	260	.0346	.0001		

R² = .0233 R² adjusted = .0195

Equation 2 Regressors: Dyad Negotiating Latitude, Monitors, Consequences, Antecedents

Source	Df	Sum of Squares	Mean Square	F =	Sg. F
Model	4	.001	.0003	2.004	.09
Error	257	.034	.0001		

R² = .0303 R² adjusted = .0152

R² Change = .01 F Change = .61

Parameter	Estimate	t	Prob > t
Intercept	.0205	6.34	.0001
Negot. Lat.	-.0021	-2.25	.0252
Monitors	-.0002	-.50	.6140
Consequences	-.0005	-1.02	.3068
Antecedents	.0002	.42	.6744

N = 264 Dyads

Table 13

Summary of Hierarchical Multiple Regressions With Outcome Variables.

Dependent Variable	Neg. Lat. R ²	Unique Variance of M,C,A	R ² Change/F
General Sat	.206	.028	3.37*
Supervisor Sat	.637	.005	1.36
Growth Sat	.434	.009	1.55
Coworker Sat	.220	.010	1.00
Work Sat	.296	.003	.38
Turnover Intent	.090	.009	.80
Days Absent	.031	.004	.35
Absence Rate	.023	.010	.61

N = 292 Dyads

* p < .05

** p < .01

M = Monitors

C = Consequences

A = Antecedents

FIGURES



FIGURE 1
PROPOSED MANAGER BEHAVIOR MODEL

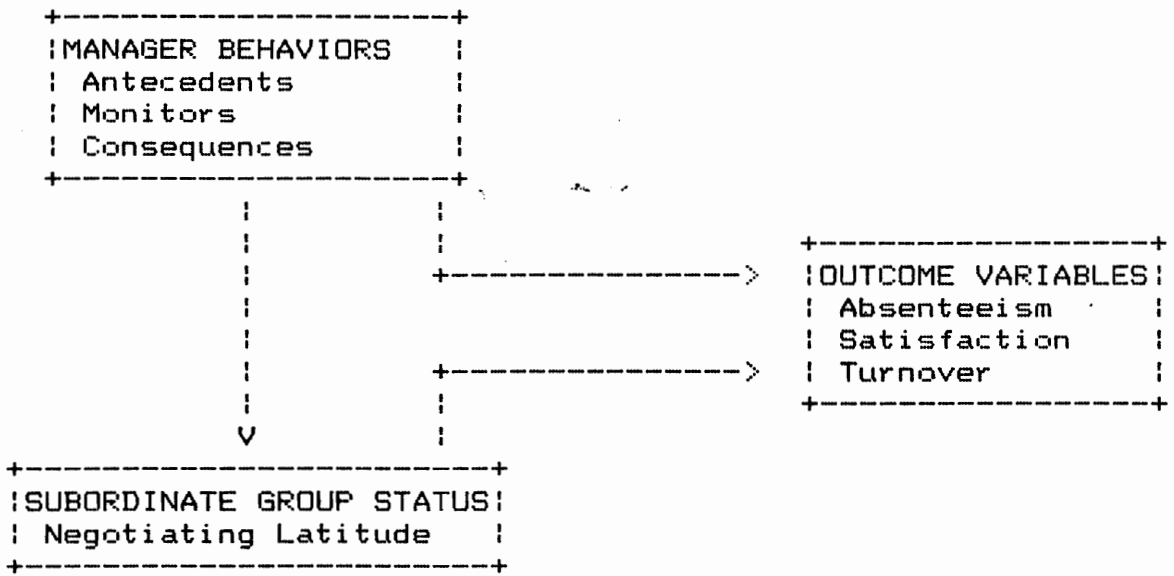


Figure 1
Proposed Manager Behavior Model

April 1993

Vita

MARTA L. CARTER

PERSONAL INFORMATION

Address 205 Marlinton Street
Blacksburg, VA 24060

Phone (703) 552-9752

Marital Status Single

Born February 1, 1963

EDUCATION

Ph.D. Virginia Tech University, 1993

Major Field Industrial and Organizational
Psychology

Dissertation Manager-Subordinate Exchange
Relationships: Investigation of
a Leader Behavior Model
To be presented at the 1993
American Psychological Association
Conference

M.S. Virginia Tech University, 1989

Major Field Industrial and Organizational
Psychology

Thesis Effects of Appraisal Purpose and
Rating Format on Performance
Appraisal Accuracy
Presented at the 1989 American
Psychological Association
Conference

B.A. University of Tennessee, 1985
Graduated with honors

Major Field Academic Psychology

WORK EXPERIENCE

Virginia Quality and Productivity Center
Blacksburg, VA

Research Scientist, Management Systems Engineer 5/93

Will generate and deliver quality and productivity
management products and services

Community Resource Development
Blacksburg, VA

Survey Analyst 10/92 - 3/93

Analyzed Virginia Beach Department of Agriculture land
development survey

Virginia Tech, Department of Psychology
Blacksburg, VA

Project Coordinator, Outcome Assessment Team 8/91 - 5/92

Coordinated retention rates, capstone assessment, senior
interview, long-term alumni survey, and major field
achievement test projects

Bell Atlantic
Arlington, VA

Test Administrator 12/91 - 2/92

Administered computerized tests on-site for selection
battery validation at locations in PA, NJ, MD, and VA

Center for Survey Research
Blacksburg, VA

Interviewer 5/91 - 8/91

Conducted telephone surveys, trained callers, and revised
survey items

Management Consulting Team, Neil Hauenstein
Christiansburg, VA

Job Analyst, Montgomery Regional Hospital 8/90 - 5/91

Conducted on-site job analysis interviews with hospital employees and wrote job descriptions for the development of selection battery, performance appraisal, and feedback systems

BellSouth Corporation

Atlanta, GA

Human Resources Research Intern 1/90 - 7/90

Assessed transportability of strength test for three positions at printing facility
Conducted focus groups and revised items for corporate-wide employee attitude survey
Examined validity of spelling subtest for Director Assistance and Toll Operator selection battery
Established new qualification standard for general aptitude selection test

Shenandoah Life Insurance

Roanoke, VA

Field Test Representative 5/90 - 6/90

Administered selection tests to Atlanta area recruits

Management Consulting Team, Neil Hauenstein

Roanoke, VA

Job Analyst, Shenandoah Life Insurance 8/89 - 12/89

Conducted on-site job analysis interviews with insurance firm employees and wrote job descriptions for the development of selection battery, performance appraisal, and feedback systems

Applied Opinion Research

Salem, VA

Interviewer 11/89 - 12/89

Conducted telephone survey research

Whittle Communications,
Knoxville, TN

Field Operations Administrator

6/85 - 8/86

Coordinated magazine and product sample distribution
Supervised distribution on-site at selected locations
Prepared and presented reports to upper management
Coordinated activities of field representatives,
warehouse personnel, sponsors, computer services, and
print department
Duties also included survey development and computer file
maintenance

TEACHING AND ADVISING EXPERIENCE

Radford University, Psychology Department
Radford, VA

Course Instructor

Social Psychology 1/93 - 5/93
4 classes (230 students)

Concord College, Social Sciences Division
Athens, WV

Course Instructor

Industrial and Organizational Psychology 1/92 - 5/92
Introductory Psychology 1/92 - 5/92
Experimental Psychology 8/91 - 12/91

Virginia Tech, Department of Psychology
Blacksburg, VA

Course Instructor 1/91 - 5/91

Principles of Research Methodology

Advisor, Undergraduate Information Office 1/91 - 5/91

Advised students of course requirements
Maintained confidential files
General administrative duties

Course Instructor 8/90 - 12/90

Principles of Research Methodology

Course Instructor 8/89 - 12/89
 Industrial and Organizational Psychology

Advisor, Undergraduate Information Office 8/89 - 12/89
 Same duties as listed above

Graduate Teaching Assistant 8/87 - 5/89
 Industrial and Organizational Psychology
 4 classes

Assistant Coordinator, Introductory Psych 1/87 - 5/87
 Compiled exams and extra credit data with interactive
 computer programs
 Organized and conducted weekly GTA meetings
 Coordinated subject pool and proctored exams

Lab Instructor 8/86 - 5/87
 Introductory Psychology Labs
 6 classes

RESEARCH EXPERIENCE

Field Research

Dissertation, Roseanne Foti, Chair
 Blacksburg, VA

Leader-Member Exchange Field Study 8/91 - 8/92
 Federal Mogul, Inc.

Investigated relations among objectively observed manager behaviors, manager-subordinate exchange relationships, and subordinate outcome variables (satisfaction, turnover intent, absenteeism) with first-level managers and manufacturing employees

Virginia Tech, Department of Psychology, Dr. Geller
 Radford, VA

Driver Safety Field Experiment, Pools 6/89 - 8/89

Collected behavioral data on-site for field study testing community interventions to increase safety belt use at local swimming pools

INMAR, Inc., Monnie Bittle
Winston-Salem, NC

Employee Attitudes Field Study

3/89 - 5/89

Administered employee surveys for field study
investigating employee attitudes, job environment, and
selection procedures

Virginia Tech, Department of Psychology, Geller
Blacksburg, VA

Driver Safety Field Experiment, Schools

6/88 - 8/88

Carried out interventions and collected behavioral data
for field study testing community awareness
interventions to increase safety belt use at local
elementary schools

Virginia Tech, Department of Psychology, Foti
Blacksburg, VA

U. S. Marine Corps Grant

6/87 - 8/87

Analyzed data for development of U.S. Marine Corps
performance appraisal system

Laboratory Research

Virginia Tech, Department of Psychology
Blacksburg, VA

Performance Appraisal Experiment, Foti

1/90 - present

Testing effects of time delay crossed with consistency of
rating purpose and format on performance appraisal
accuracy

Thesis, Roseanne Foti, Chair

8/88 - 3/89

Tested effects of purpose and rating format on raters'
appraisal accuracy of filmed grocery baggers;
investigated encoding specificity's generalizability to
a performance appraisal setting

Performance Appraisal Experiment, Foti

8/87 - 5/88

Assisted in data collection and data analysis for study
investigating social information processing effects of
consistent encoding and retrieval cues on performance
appraisal accuracy

Leader Emergence Experiment, Zaccaro

1/87 - 5/87

Assisted in literature review, experimental design, task preparation, data collection, and data analysis for a study testing the relationship between leader emergence and self-monitoring; resulted in publication

Social Loafing Experiment, James Nimmer

8/86 - 12/86

Collected data and reviewed manuscript of a study testing the effects of cognitive social loafing in groups performing production tasks

PRESENTATIONS

Carter, M. L., & Foti, R. J. (1993, August). Manager behaviors, leader-member exchange quality, and employee attitudes. Paper to be presented at the 101st Annual American Psychological Association (APA) Conference, Toronto, Ontario.

Carter, M. L. (1992). Supervisor-subordinate exchange relationships: Investigation of a leader behavior model. Paper presented at the 8th Annual Graduate Research Symposium at Virginia Tech, Blacksburg, VA.

Carter, M. L., & Foti, R. J. (1989). Effects of appraisal purpose and rating format on performance appraisal accuracy. Paper presented at the 97th Annual American Psychological Association (APA) Conference, New Orleans, LA.

TECHNICAL REPORTS

- Carter, M. L. (1993). Investigation of work relationships, manager behaviors, and absenteeism at Federal Mogul.
To be submitted to Federal Mogul, Inc.
- Carter, M. L. (1992). Summary of retention rates in the Virginia Tech Psychology Department. Virginia Tech Psychology Department.
- Carter, M. L., Flaherty, V. L., & Waung, M. (1990).
Examination of the physical ability requirements for Bookbinder II, Production Assistant, and Third Pressman positions at Stevens Graphics, Inc. BellSouth HRR.

PAPERS IN PROGRESS

- Carter, M. L., & Foti, R. J. (1992). Manager-subordinate exchange relationships: Investigation of a manager behavior model. Unpublished doctoral dissertation, Virginia Tech, Blacksburg, VA.
- Carter, M. L., & Foti, R. J. (1992). [Effects of time delay, appraisal purpose, and rating format on performance appraisal accuracy]. Unpublished raw data.

SKILLS AND KNOWLEDGE

Project coordination, group facilitation, presentation, teaching, human relations, research, organizational, and analytic skills

Familiar with SAS, SPSS, DETECT, Harvard Graphics, and various wordprocessing software packages

SELECTED GRADUATE COURSES

Content

Work and Motivation
Psychology of Leadership
Leadership and Levels of Analysis
Organizational Psychology
Personnel Psychology
Job Analysis and Evaluation
Social Psychology
Criterion Development and Evaluation
Contemporary Topics in Applied Psychology
Human Learning and Cognitive Process

Research Methods

Research Design and Methods
Research Design, Methods, and Analysis in Field Settings
Behavior Management in Large Scale Systems

Statistics and Test Development

Statistics I and II
Multiple Regression
Multivariate Analysis
Within and Between Analysis
Advanced Test Theory

PROFESSIONAL ACTIVITIES

Service

Area Coordinator, American Mensa, Blacksburg, 92-present
Industrial / Organizational Area Student Representative,
Virginia Tech Psychology Department, 1988 - 1989
Industrial / Organizational Area Faculty Selection
Committee,
Virginia Tech Psychology Department, 1988 - 1989
Departmental Evaluation Team,
Virginia Tech Psychology Department, 1987 - 1988
Departmental Student Representative,
Virginia Tech Psychology Department, 1987 - 1988

Member

Society for Industrial and Organizational Psychology

American Psychological Association

Southeastern Psychological Association

Society for Psychological Study of Social Issues

Psi Chi Honor Society

REFERENCES

Dr. Roseanne J. Foti, Associate Professor
Psychology Department
Derring Hall
Virginia Tech
Blacksburg, VA 24061-0436
(703) 231-5814

Dr. Neil M. A. Hauenstein, Assistant Professor
Psychology Department
Derring Hall
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