

Supervisor subordinate similarities in use of upward influence behaviors and supervisor ratings  
of subordinate performance: A multilevel model

by

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## Abstract

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The purpose of this study is to investigate how similarities in supervisor and subordinate upward influence behaviors are related to supervisor performance appraisal ratings of the subordinate. Investigation is centered on the underlying social exchange processes within the supervisor-subordinate dyadic relationship. Four aspects of upward influence behaviors are examined: 1) the total level of upward influence behaviors; 2) the actual similarity in supervisor-subordinate level of upward influence behaviors; 3) the actual similarity in supervisor-subordinate profile of upward influence behaviors; 4) and supervisor perception of similarity to subordinate influence behaviors. A cross-level effects model is proposed that examines relationships between the dyadic level effects of actual similarity in upward influence behaviors and the individual level effects of subordinate use of upward influence behaviors, supervisor perception of similarity in influence behavior, the quality of the supervisor-subordinate relationship (assessed by supervisor leader-member exchange), and the relationship to subordinate performance ratings. Data were examined for 102 dyads from four for-profit organizations in the northeastern United States. Results showed that actual similarity in level and profile of upward influence behaviors accounted for a sizable amount of variance in perception of similarity and leader-member exchange. In turn, perception of similarity and leader-member exchange accounted for a large amount of variance in supervisor performance ratings with leader-member exchange partially mediating the relationship between perception of similarity and rated performance.

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## **Introduction**

Individuals in organizations compete for raises, bonuses and promotions. In most organizations there are a fixed number of openings available for promotions and a fixed amount of dollars available for raises and bonuses (Miller, 2007). The merit pay system used by many organizations is firmly rooted in the social exchange relationship whereby those employees that are perceived as being the most deserving are rewarded with promotions, higher raises, and higher bonuses. The traditional wisdom to achieving these rewards is that if an individual performs his/her job at a superior level, that individual will be compensated at a comparable level. However, the exchange relationship is more complicated than just high performance leading to high rewards.

In close to 90% of U.S. organizations, performance appraisals are the means to determining how organizational rewards are distributed. Harris, Gilbreath, and Sunday (1998) estimate the corrected correlation between performance appraisal ratings and total pay increases (merit and promotion) to be 0.50, in other words, 25 percent of the variance in total pay increases is explained by performance ratings. Performance ratings are the end result of the performance appraisal process where an employee's job performance is evaluated in relation to a set of job standards. Supervisors are the most common evaluator of subordinate performance. Typically the supervisor rates the employee's performance on a rating scale which then translates to a salary increase scale (Miller, 2007). Of those organizations which have a formal performance appraisal process, eighty-two percent use performance ratings to make salary increase determinations. Forty-nine percent use performance ratings to make promotion decisions in addition to salary increases (Smith, Hornsby, & Shirmeyer, 1996). Performance ratings are a

critical part of an organization's merit-based rewards system. As part of that system, performance ratings are expected to be an accurate reflection of objective performance.

The relationship between objective performance and performance ratings, however, is much lower than one would expect. Only 15.8% of the variance in supervisor sourced performance ratings is explained by objective performance (Bommer, Johnson, Rich, Podsakoff, & Kenzie, 1995). This suggests that objective measures are deficient as criteria for assessing subordinate performance. Instead, other factors clearly influence how supervisors rate their subordinates. A need to explain what factors could contribute to the remaining 84.2% of unexplained variance has precipitated a number of streams of research. A number of exogenous factors to the objective performance-performance ratings relationship have been explored but each primarily within a single level of analysis. For example at the individual level, effectiveness of rating instruments, supervisor related factors, and subordinate related factors have been shown to affect performance ratings (Borman, White, & Dorsey, 1995). At the dyadic level an important factor related to performance ratings is the supervisor-subordinate relationship (Duarte, Goodson, & Klich, 1994). At the macro level organizational and contextual factors, such as HR policies and organizational climate, have an impact on individual performance ratings (Judge & Ferris, 1993).

Of particular interest for the present research is the effect of individual level and dyadic level phenomena as they pertain to the supervisor's evaluation of the subordinate's performance. Framing this relationship in terms of social exchange theory, performance ratings and the distribution of organizational rewards are not solely based on job performance, but are also influenced by the social exchange relationship between supervisor and subordinate. At a dyadic level, similarities between supervisor and subordinate determine how the supervisor responds to

the subordinate's behaviors (Turban & Jones, 1988). Behavioral predictability in the dyad facilitates a stronger social exchange relationship (Komorita, Hilty, & Parks, 1991). If the degree of similarity is high, then the degree of predictability and minimization of risk fosters the development of a high quality exchange relationship (Liden, Wayne, & Stilwell, 1993). This increases the degree of interdependence and trust, and the subordinate's predictability is reciprocated by high performance ratings and greater organizational rewards (Molm, Takahashi, & Peterson, 2000).

This study examines how two aspects of supervisor and subordinate upward influence behaviors--the profile of influence behaviors, operationalized by the pattern of behaviors used, and the level of influence behaviors, operationalized by the total frequency of behaviors used--are related to the supervisor's evaluation of a subordinate's performance. Individual level measures of upward influence behaviors in turn influence two dyadic level measures—actual similarity in profile and actual similarity in level of supervisor and subordinate influence behaviors. Further, this research examines how the two dyadic level variables are related to the quality of the supervisor-subordinate relationship, as operationalized by supervisor leader-member exchange (LMX). Undergirding this research is the premise that the subordinates who are able to modify or align their influence behaviors to be similar to their supervisor's influence behaviors will be more likely to foster the development of actual similarity within the supervisor-subordinate dyad, which mediates the relationship between subordinate use of upward influence behaviors, perceptions of similarity, quality of the supervisor-subordinate relationship (LMX), and performance ratings.

A large number of studies have focused on how a supervisor's perceptions are an important factor in determining how the supervisor assesses a subordinate's performance. For

example, the supervisor's perceptions of performance have been shown to be influenced by a number of factors including positive affect, the ability to observe job performance, demographic similarity, and the quality of the work relationship (Judge & Ferris, 1993). Perceptions of subordinate skills, use of upward influencing behaviors, and perceived similarity have been shown to have a positive effect on supervisor ratings of subordinate performance (Wayne, Liden, Graf, & Ferris, 1997). The quality of the supervisor-subordinate dyadic relationship has also been demonstrated to have a significant influence on performance ratings (Gerstner & Day, 1997).

In the stream of research that explores the relationship between subordinate behaviors and organizational outcomes, a number of studies have shown that there is a positive relationship between the use of upward influence tactics and a number of organizational outcomes that have a direct impact on the worker. Subordinates employ upward influence tactics to influence their performance ratings (Kipnis & Schmidt, 1988), assessment of their promotability (Thacker & Wayne, 1995), salary increases, and career advancement in the organization (Judge & Bretz, 1994). A number of moderators between the effectiveness of upward influence tactics and performance ratings have been identified, such as positive affect (Castro, Douglas, Hochwarter, Ferris, & Frink, 2003) and perceptions of similarity (Wayne, Liden, et al., 1997). Positive affect and perceived similarity have also been identified as significantly influencing the type of relationship that develops between the supervisor and the subordinate (Liden, et al., 1993).

Theoretically the relationship between a subordinate's use of influence behaviors to sway a supervisor is more complicated than merely engaging in the use of a particular influence behavior. Instead, the perception of a subordinate's performance is constructed based on observations of the subordinate's behaviors in a number of work situations. This study predicts

that a subordinate who uses a similar level and/or a similar profile in influence behaviors as the supervisor will be perceived by the supervisor as a “better” performer than a subordinate who uses a different level and/or profile of influence behaviors than does the supervisor. The rationale for this reasoning is that the more similar the influence behaviors are between supervisor and subordinate, the more likely this actual similarity will foster a stronger exchange relationship. This actual similarity in behaviors fosters trust between the supervisor and the subordinate (Whitener, Brodt, Korsgaard, & Werner, 1998). The supervisor trusts that the subordinate will handle a situation in the desired manner—the same way the supervisor would. The subordinate trusts that the supervisor will support his actions and approve of him acting in the expected manner (Molm, 2003). This enhanced relationship positively contributes to the quality of the exchange relationship between supervisor and subordinate which directly affects perceptions of job performance (Gerstner & Day, 1997).

Similarity, in general, has been shown to have a significant effect on the supervisor-subordinate relationship (Turban & Jones, 1988). For example, demographic similarity and perceived similarity are significantly related to positive affect and to a positive or high quality relationship. If a subordinate wishes to strengthen the relationship with a supervisor, the subordinate needs to increase positive affect, trust, and predictability (Liden, et al., 1993). Another possible way in which the subordinate can actively contribute to developing the relationship with the supervisor is to cultivate the supervisor’s perceived similarity by modifying his/her behavior. Subordinates high in self-monitoring will be more likely to alter their behaviors to actually be similar to their supervisor’s behaviors (Gangestad & Snyder, 2000). By adapting the influence behaviors to be more aligned with the same influence behaviors that the supervisor utilizes, the subordinate’s behaviors could possibly foster a heightened perception of

similarity, a higher quality relationship, and also contribute to the supervisor's perception of performance competence.

Although past research has examined how similarity is related to performance ratings, influence styles, and dyadic relationships, to date no research has examined influence behaviors as a basis for determining similarity. Actual similarity has primarily been operationalized as congruence of demographic characteristics (Turban & Jones, 1988), attitudes (Condon & Crano, 1988), and personality traits (Bernerth, Armenakis, Feild, Giles, & Walker, 2008). Perceived similarity has been operationalized primarily by asking the supervisor how similar he/she perceives himself/herself to be in comparison to a particular subordinate (Wayne, Liden, et al., 1997). No dimension of comparison is usually specified. Medin, Godston, and Gentner (1993) advocate specifying the dimension used for assessments of similarity in studies as a means of strengthening the construct validity of a measurement of perceived similarity. In the present study actual similarity between supervisor and subordinate influence behaviors is measured using a behavior-based scale. This broadens our understanding of how behaviors relate to perceptions of similarity and performance ratings.

Another important facet to the current research is the use of a dyadic model to isolate the individual and dyadic effects. Based on dyadic relationship theory (Kenny, Kashy, & Cook, 2006); (Kenny, Mannetti, Pierro, Livi, & Kashy, 2002; Kenny, Mohr, & Levesque, 2001), the current study is best viewed as an actor-partner interdependence model (APIM). The subordinate (actor) and supervisor (partner) each have individual level behaviors, attitudes, and perceptions, and the Actor X Partner interaction occurs at the dyadic level involving shared effects. In order to isolate the effects of shared dyadic behavior, a multi-level analytical approach is used whereby the individual sourced effects (subordinate influence behaviors, self-

monitoring, supervisor perception of similarity, quality of the relationship, and performance ratings) are analyzed at a separate level from the shared dyadic effects (actual similarity in profile and level of influence behaviors).

## **Purpose of Research**

The purpose of this study is to investigate how behavioral similarities within the supervisor-subordinate dyad affect the underlying social exchange process including performance ratings. Previous research supports a positive relationship between use of influence behaviors and performance ratings (Kipnis & Schmidt, 1988), between perception of similarity and performance ratings (Turban & Jones, 1988) , and leader-member exchange (LMX) and performance ratings (Duarte, et al., 1994). Studies have also shown a positive relationship between influence behaviors and LMX (Deluga, 1994). However, to the author's knowledge no previous research has looked at either actual similarity in influence behaviors, nor used a multi-level approach to isolate the dyadic effects of the actual similarity.

The current research proposes a dyadic multi-level model which investigates how the individual level relationship between the subordinate use of influence behaviors, supervisor perception of similarity, supervisor leader-member exchange, and performance ratings is affected by two dyadic level effects--the actual similarity in supervisor-subordinate level of influence behaviors and the actual similarity in supervisor-subordinate profile of influence behaviors. Influence behaviors of the supervisor and subordinate are assessed using the same scale, and supervisor perception of similarity is assessed with regard to use of influence behaviors. Mediating relationships between the dyadic level effects of actual similarity in level and profile of influence behaviors and the individual level relationships between use of influence behaviors, supervisor perception of similarity, leader-member exchange, and performance ratings are also investigated. Based on the results of the study, practical implications and future directions for further research are discussed.

## **Literature Review**

The literature review begins with an overview of social exchange theory. Because the present study is framed within the context of social exchange theory, a review of the social exchange literature with specific focus on the dyadic relationship is included. The review next examines the performance appraisal literature, influence tactics literature, similarity literature, and leader-member exchange as they relate to the proposed components of this study. The review concludes with a rationale for the use of a multilevel approach.

## **Social Exchange Theory**

The relationship between supervisor and subordinate is predicated on an economically based exchange relationship whereby both parties have independently entered into an exchange relationship of work for rewards with the organization, yet are dependent upon each other to maximize their own organizational rewards. Each tries to minimize personal outlay or efforts while simultaneously maximizing rewards. The amount of time and effort invested into the dyadic relationship is based on the perceived likelihood of success in achieving the desired rewards (Emerson, 1976; Thibaut & Kelley, 1959). Generally speaking, social exchange theory implies that two parties enter into an interdependent relationship which is mutually beneficial to both parties and involves an exchange of some “commodity” for reward (Emerson, 1976). The theory explains an essentially economic transaction in terms of social and psychological terms.

The roots of social exchange theory within social psychology start at the fundamental level of an individual entering into an economic exchange with another individual. Homans (1961) identifies three essential elements to social exchange theory. First the interaction must be social in that it occurs between two people as opposed to a person interacting with a non-human entity. Second the interaction can only involve two people where one person acts in a

certain manner and the other person responds with a reward or punishment. Third the interaction must include an actual behavior enacted by the first person.

Homans (1958) further describes the exchange relationship in terms of operant conditioning where an individual behaves or responds in a particular manner contingent upon receiving a desired stimulus or reward. The reward is imparted by the supervisor who acts as a confederate for the organization, both of whom also benefit from the individual's behavior. In this manner, an exchange relationship is defined between the individual and the organization as the individual will behave in a particular manner in anticipation of receiving a reward from the organization. The organization will respond with a reward contingent upon the individual acting in an anticipated manner. The individual perceives value in the behavior as it relates to the value of the reward.

The interaction between the individual and the supervisor is a social exchange as the behavior of each reinforces the behavior of the other creating a relationship of mutual reinforcement—each person works at “receiving” as much as they are “giving” (Homans, 1958). In the work environment the two primary reinforcements are money and social approval. The “value” of either as a reinforcement depends on the degree to which the reward reinforces the behavior. The higher the value of the reward, the more effort will be put into the behavior. In this way value can be determined by the strength of the effort.

Blau (1964) defines the exchange relationship as “voluntary actions of individuals that are motivated by the returns they are expected to bring” (p.91) with the primary reinforcement being something of economic value. However, this view fails to take into account the longitude of the relationship and the structural interaction with other individuals where a value is attributed to the long-term relationship and those interactions. The effects of social stimuli in an

organizational environment contribute to the description of social exchange theory as “social operant behavior... (where) level and frequency of performance over time is sustained by reinforcing (rewarding) activity from other people” (Emerson, 1976, p. 341). The exchange is not solely in response to receiving a reward, but also encompasses a reciprocal stimulus based on social behaviors such as approval, satisfaction, and love (Turner, Foa, & Foa, 1971).

To extend this description within the organizational context, the exchange occurs between two individuals, the supervisor and the subordinate. Unlike an overt single occurrence or transaction, the social exchange is situated within a social relationship which implies social reciprocity, a reciprocal interdependence based on a series of social exchanges. Both individuals seek to maximize gains over the long run as opposed to maximizing rewards over the short term or even in a single event. The longitudinal aspect of the relationship redefines the single economic transaction based on maximization into a dyadic social exchange based on reciprocity (Emerson, 1976). Where the traditional economic exchange assumes both individuals seek to maximize benefits with no underlying social interaction, the dyadic exchange between two individuals in an organization is a social phenomenon based on interpersonal attraction and perceived equity of the exchange (Cook & Emerson, 1978). Both individuals act out of self-interest; however, each performs acts with the expectation of reciprocal exchange. Reciprocity in the dyad between two individuals is established by a pattern of cooperative behavior. If one individual behaves as expected, then the other individual’s perceptions of cooperation, trust and predictability increase (Komorita, et al., 1991). As overtures are made in the exchange, uncertainty diminishes and trust begins to develop between the two individuals, and the perception of equity is developed over time (Molm, Peterson, & Takahashi, 1999).

### ***Situational Determinants***

Thibaut and Kelley (1959) characterize the exchange relationship as inherently a dyad—a “two-person relationship...(with) interaction and ...consequences for the two individuals concerned” (p. 10). In a series of experiments, they examined how the two individuals in the dyad establish a relationship through a series of initial interactions involving the exchange of elicited behaviors for rewards. An interaction is defined as a behavior that affects the other person. They proposed that the exchange interaction occurs within the context of individual determinants and organizational determinants. Of key interest in these studies is what Thibaut and Kelley refer to as “exogenous factors” that each individual possesses. Their studies demonstrated that values, attitudes, motivation, and personality traits influence how each individual engages in the exchange relationship and how the response to the other person is framed. If both individuals evaluate their experiences in the exchange as satisfactory, then an interpersonal relationship will develop between the two individuals and with that a sense of interdependence, trust, attraction, and commitment (Komorita, et al., 1991).

### ***Dyadic Reciprocity***

Reciprocity is a socially based transaction that motivates both individuals to perform services for the other as each is benefiting in some manner from the other's services. Any exchange between the two individuals in the dyad is mutually gratifying for both parties and motivates a return of services in reciprocity. Reciprocity differs from complementarity behavior in that reciprocity implies a bi-directional dependence where complementarity implies unidirectional dependence and obligation (Gouldner, 1960). Reciprocity can also be defined as mutual obligation between two persons. The first performs services for the other who is then

obligated to perform services to the first person. That person is now obligated to return services to the other, and so on, where a series of obligation patterns develops (Blau, 1964).

The economic outcome of the social exchange relationship is uncertain and rarely explicit. Exchanges between members are initially conducted with high risk and high uncertainty until a pattern of predictability is established which leads to the development of trust between the members. Unlike the economic exchange, as a pattern of reciprocated gratification develops, intrinsic feelings of mutual trust enhance the exchange relationship (Molm, et al., 2000). Reciprocal exchange occurs without preempted negotiation and instead consists of an initiating behavior that may or may not be reciprocated, nor is there a specific timeframe for reciprocation (Molm, 2003). Behavioral consistency and behavioral integrity have been identified as two key dimensions that influence the development of trust between supervisor and subordinate (Whitener, et al., 1998). Risk is reduced as cooperation and a pattern of exchanges emerges. The supervisor learns to expect a specific behavior from the subordinate and begins to “trust” that the subordinate will continue to act as expected in the future (Molm, 2003; Molm, et al., 2000).

### ***Relationship to Work Outcomes***

Social exchange in organizations has been theoretically identified as two distinct groups of constructs. The first group of constructs extends social exchange theory into a number of dimensions to develop new theories about the implied relationship between the employee and the employing organization. The employee attributes the organization with human qualities and intentions and perceives the organization’s actions as voluntary discretionary behaviors. The stronger an employee’s perception of organization actions as discretionary, the more the employee is willing to perform tasks outside of the defined job role. The employee believes that

the organization values the employee's contribution. The employee develops perceptions of reciprocity based on the treatment the employee receives in the organization, and the resulting outcome is the construct perceived organizational support (Cropanzano & Mitchell, 2005). Perceived organizational support is significantly correlated to organizational commitment ( $r=0.67$ ), increased job satisfaction ( $r=0.62$ ), and higher job performance ratings ( $r=0.20$ ) (Rhoades & Eisenberger, 2002).

The second group of theoretical constructs focuses on the social exchange relationship specifically between the employee/subordinate and his/her supervisor. This dyadic relationship has been theorized as the vertical dyad linkage (Dansereau, Graen, & Haga, 1975) and also as the leader-member exchange (G. Graen & Schiemann, 1978). Within the context of the social exchange relationship, the supervisor-subordinate relationship has a foundation based on reciprocity of anticipated behaviors and the interdependence of receiving mutually beneficial rewards. The rewards are achieved through the performance appraisal process. The current research uses actual similarity in level and profile of supervisor and subordinate upward influence behaviors as the focus of anticipated behavior. More specifically, this research examines whether a subordinate using a level and/or profile of upward influence behaviors which are similar to his/her supervisor's level and/or profile of upward influence behavior heightens supervisor's perception of similarity and increases the quality of the social exchange relationship as assessed by leader-member exchange. These relationships are reviewed in subsequent sections.

## **Performance Appraisal Literature**

Performance appraisal is a formalized process where an employee's performance is evaluated in comparison to a set of job standards and job objectives. Evaluations can be multi-rater sourced, consisting of a combination of supervisor, peer, and/or subordinate ratings, or single rater sourced, typically based on direct supervisor ratings. Over ninety percent of performance appraisals include supervisor ratings of performance (Smith, et al., 1996). Ideally, the performance appraisal should be an accurate reflection of how well an employee performs job tasks as outlined in a formal job description. However, objective performance accounts for approximately 0% to 40% of the observed variance in supervisor performance ratings (Bommer, et al., 1995; Heneman, 1986). The remaining variance (60% to 100%) is not fully attributable to error, but instead involves both contextual and rater-ratee related effects (Beatty, Cleveland, & Murphy, 2001; Tziner, Murphy, & Cleveland, 2005). Performance appraisal research has taken two primary paths, one which focused on job-task performance related determinants (Schmidt, Hunter, & Outerbridge, 1986), and another which was more rooted in social psychology (Duarte, Goodson, & Klich, 1993; Feldman, 1981; Schraeder & Simpson, 2006).

In the body of research which studies the relationship between job-task performance and performance ratings, researchers have identified a number of task-related dimensions which influence performance ratings. Schmidt, Hunter, and Outerbridge (1986) demonstrated that job knowledge and task performance had a direct effect on performance ratings. Job experience and cognitive ability had indirect effects on performance ratings through job knowledge and task performance. The results concluded that supervisors take into account other factors besides task proficiency when rating a subordinate.

Borman, White and Dorsey (1995) expanded this model to incorporate dependability/trustworthiness of the subordinate in an effort to capture some of the supervisor-subordinate relationship effect on performance ratings. Dependability ( $r = 0.38$ ) and likability as measured by friendliness ( $r = 0.30$ ) were both significantly correlated to performance ratings. In the path analysis, dependability had a significant direct effect on supervisor ratings (path coefficient = 0.31) and on job knowledge (path coefficient = 0.13). The path coefficient for friendliness was not significant at  $p = 0.05$ , but was directionally positive (path coefficient = 0.10). In their analysis dependability had the same magnitude of effect on supervisor performance ratings as task proficiency. These results supported the need to look beyond job-task related dimensions to determine types of rate characteristics, such as dependability, supervisors are using to assess performance.

The second direction that performance appraisal research has taken frames the performance appraisal process within social psychology (Feldman, 1981). Ilgen and Favero (1985) defined the performance appraisal process as an “interaction” between supervisor and subordinate. The interaction consists of three key components, the supervisor or rater, the subordinate or ratee, and the work environment. A number of factors can affect these three components. The subordinate’s characteristics and behaviors interact with the work environment to produce outcomes. The supervisor’s characteristics influence the supervisor’s cognitive process and determine how the supervisor evaluates the subordinate’s behaviors and outcomes. The focus of the proposed model is on the judgment process of the supervisor and the interaction between the supervisor’s cognitive processes, subordinate characteristics, behaviors, and outcomes, and the organizational environment. It is important to also recognize the interdependence of the supervisor, the subordinate, and the workgroup in the performance

appraisal process. The subordinate's performance is a reflection of the supervisor's performance. The performance of the supervisor's work group is the basis of the supervisor's performance ratings. This interdependence between supervisor and his/her subordinates is implicitly a social exchange relationship.

The cognitive processing model explains how subordinate behavioral and performance information is perceived, encoded, stored, retrieved, and interpreted. The process is a dual process which consists of automatic evaluation and conscious deliberation. In the automatic evaluation process, cognition of behaviors and performance occurs unconsciously and is dominant unless equivocal evaluations arise. Then the supervisor must turn to conscious deliberation. Conscious deliberation requires the supervisor to actively recall behavioral and performance information in order to make evaluative decisions on performance. It is during this conscious deliberation process that biases are introduced into the performance appraisal process (Feldman, 1981).

The automatic cognitive process identifies and classifies stimuli from the environment. Until recently this process was theorized to be void of emotion or affect, making it a relatively objective process. However, a number of studies have investigated how emotion or affect is incorporated into the automatic cognitive process (Zajonc, 1980). Bechara and Damasio (1997) found that when an individual engages in deliberate reasoning, a dual process of cognition is activated. The first stimulates an emotional recall of similar experiences activating unconscious biases as part of the automatic cognitive process. Simultaneously, deliberate cognition activates a recall of stimuli, and the stimuli are identified, categorized, and evaluated to determine possible strategies and outcomes. Both the deliberate and automatic cognition processes are preceded by

the activation of emotions into the evaluation process. This suggests that affect is activated during the supervisor's evaluation of subordinate performance.

Scullen, Mount, and Goff (2000) proposed five dimensions relating to performance ratings that incorporated subordinate performance, rater cognition, and measurement error. They analyzed ratee's overall performance, ratee's performance on specific job standards, rater's idiosyncratic rating tendencies, rater's organizational perspective, and random measurement error in relation to ratings of performance. Within these five dimensions rater idiosyncratic biases explained 51% of the observed variance in supervisor ratings of subordinates as opposed to ratee performance (general and specific combined) which accounted for 27% of the observed variance in performance ratings. Rater-organizational biases accounted for 11% of the observed variance, and rater measurement error accounted for 10% of the observed variance. This study strongly suggests that what the researchers identified as rater idiosyncratic rating tendencies have the largest contributing effect to subordinate performance ratings. Rater idiosyncratic rating tendencies include cognitive processes, affect, and perceptual biases. For a subordinate to be evaluated as a high performer, the subordinate must interact with the supervisor in such a manner as to positively influence the supervisor's cognitive process, affect, and perceptual biases. That interaction implies a dyadic relationship.

Hoffman, Lance, Bynum, and Gentry (2010) further investigated the rater effect on performance ratings. Performance ratings were collected from four sources—supervisor, peer, subordinate, and self. The results showed that what had previously been identified as rater idiosyncratic rating tendencies was actually attributable to two effects: idiosyncratic tendencies of the rater and rater source. The source of the rater accounted for 22% of the variance in performance ratings, a much higher amount than previously thought.

Numerous factors outside of job performance influence a supervisor's perceptions and cognitive processes. Landy and Farr (1980) identify five overall components of performance ratings—roles, context, vehicle, rating process, and rating results. For the purposes of this study, only one component—roles—is examined. The current research focuses on the relationship between the supervisor and the subordinate as a potentially significant determinant of how the supervisor's assessment of the subordinate's performance. This study hypothesizes that level of influence behaviors, and actual similarity in level and profile of influence behaviors affect the supervisor perception of similarity in use of influence behaviors and the quality of the leader-member exchange. Further, this study hypothesizes that perception of similarity and leader-member exchange—both measures of the supervisor-subordinate relationship—affect a supervisor's rating tendencies.

## **Influence Behaviors**

Influence behaviors are the behaviors an individual directs towards a person over whom he/she has no formal authority in order to influence that person's attitudes or behaviors (Yukl, Chavez, & Seifert, 2005). An influence attempt occurs within a dyadic relationship between an agent, the person initiating the influence behavior, and a target, the person to whom the behavior is directed (Mowday, 1978; Yukl, Falbe, & Youn, 1993). Depending on the direction of the influence behavior and the desired outcome, the agent chooses a single influence tactic or a combination of influence tactics. The three directions of influence behaviors identified are upward, downward, and lateral (Kipnis, Schmidt, & Wilkinson, 1980; Yukl, et al., 1993). Upward influence tactics are used to influence superiors; lateral tactics are used to influence peers; and downward tactics are used to influence subordinates. The possible outcomes can be categorized as compliance, commitment, and resistance (Falbe & Yukl, 1992). The objective of the influence behavior can vary widely (Yukl & Falbe, 1990).

Characteristics of the individuals involved in the influence attempt and the characteristics of their dyadic relationship also affect the outcome (Yukl, Kim, & Falbe, 1996). The amount of structural power (Brass, 1984; Brass & Burkhardt, 1993) and personal power (Barbuto & Moss, 2006; Castro, et al., 2003) of the agent are interconnected with the type of influence tactic an individual/agent uses and how that influence attempt is viewed by the target. Personal characteristics of both the agent and the target, such as personality (Barbuto & Moss, 2006; Cable & Judge, 2003; Grams & Rogers, 1990) and demographics (Lauterbach & Weiner, 1996), are also related to propensity to use a specific influence tactic and how that influence attempt is perceived. Content of an influence attempt as far as relative importance and ease of

implementation are also significantly related to determining the outcome of an influence attempt (Yukl, et al., 1996).

A number of typologies have been developed to classify influence behaviors. Two primary typological streams have emerged in the literature. The first stream isolates specific influence behaviors. Falbo (1977) identified sixteen distinct influence tactics that an individual uses in a social or personal situation. Building on this work, Kipnis, Schmidt, and Wilkinson (1980) identified eight proactive influence behavior dimensions that are used within an organizational context. Six of these influence tactics, ingratiation, exchange, rationality (later referred to as rational persuasion), assertiveness (later referred to as pressure), upward appeals, and coalition, were later confirmed to be unique and valid as influence dimensions (Schriesheim & Hinkin, 1990). Yukl and colleagues have identified eleven distinct proactive influence tactics which are used in organizations (Yukl, et al., 2005; Yukl & Falbe, 1990; Yukl, Seifert, & Chavez, 2008). Five of the tactics, ingratiation, exchange, rational persuasion, pressure, and coalition, are based on the work of Kipnis, Schmidt, and Wilkinson (1980) and Schriesheim and Hinkin (1990). The remaining six have been developed and validated separately. Consultation, inspirational appeals, apprising, personal appeals, legitimating tactics, and collaboration are identified as unique influence behavior dimensions used to influence supervisors, subordinates, and peers. Reactive influence behaviors have also been identified with the primary purpose of avoiding action, blame, or change, or deceiving others (Ashforth & Lee, 1990).

The measurement of influence tactics primarily focuses on the perceived frequency of use of a single tactic or a set of influence tactics. The two predominantly used scales, the revised POIS (Kipnis & Schmidt, 1988; Schriesheim & Hinkin, 1990) and the IBQ (Yukl, et al., 2008), measure the amount or level of influence tactic usage indirectly by asking how frequently a

respondent uses a particular tactic. Level use, i.e., number of influence attempts over a given time period, has not been measured (Yukl, 2010).

The second stream of influence behavior typology attempts to further classify behaviors in conjunction with another component, typically motivation (Dulebohn & Ferris, 1999), objective of influence attempt, (Yukl, Guinan, & Sottolano, 1995), and interpersonal style (Kipnis & Schmidt, 1988; Thacker, 1995). Within this typology, influence behaviors are not isolated as behaviors, but are co-mingled with another non-behavioral component, primarily an underlying motivation or objective, in order to better interpret the behavior. For example, Kipnis and Schmidt (1988) developed a grouping of four influence styles which combined preferred influence tactics with overall interpersonal style. The four influence styles, Shotgun, Tactician, Bystander, and Ingratiator, met with mixed success. The four styles were not typically used in isolation, thereby lacking uniqueness, and demonstrated contextual boundedness. Another example is the classification of influence tactics as hard, soft, and rational (Thacker, 1995). In this taxonomy a hard tactic could be characterized by coercion, a soft tactic by inspirational appeal, and a rational tactic by rational persuasion. Another method of classification is to distinguish between job-focused influence tactics, tactics necessary to accomplish one's job, and supervisor-focused influence tactics, tactics motivated by self-gain (Dulebohn & Ferris, 1999; Judge & Bretz, 1994). While this approach is successful at measuring the effect of influence behaviors within a particular context, the potential generalizability of the typology can be limiting due to contextual restrictions.

Yukl, Falbe, and Youn (1993) studied the sequencing of influence tactics to determine if certain combinations of tactics were more likely to be used together. The results of their study demonstrated that individuals are more likely to favor specific tactics in a particular situation and

in a particular sequence. Steensma (2007) analyzed the net utility of influence and found that managers have preferred influence tactics but will use a less preferred tactic if they perceive it may be more effective than their preferred tactic. His study suggests that a manager may have a profile of influence behavior use whereby a manager may use a set of influence tactics in a most situations, but will alter from that profile if a situation warrants. Profile of influence behavior has not previously been measured in any published study (Yukl, 2010).

### ***Two Distinctions in Influence Behaviors***

Use of influence behaviors can be quantified by determining the level of occurrences of use and the profile of use. The level of an individual's influence behavior represents the number of overall influence attempts a person enacts over a period of time. The profile of an individual's influence behavior is the pattern or relative frequency with which various types of influence behaviors are used. The present research examines both the profile and level of influence behaviors an individual uses as possibly affecting work-related outcomes. No previous research has investigated the relationship between level and profile of influence behaviors and performance ratings ( Yukl, 2010).

### ***Factors Affecting Influence Behaviors***

There are four factors that can affect the outcome of the influence attempt: organizational context, agent characteristics, target characteristics and the agent-target relationship. The organizational context of the influence attempt can affect whether the influence behavior is perceived as appropriate or effective. Organizational context includes climate, culture, centralization of decision making, and organizational structure (Brass, 1984; Ferris et al., 1997; Krone, 1992). Closely related to organizational context, characteristics of the agent's job, such as degree of autonomy, job ambiguity, and hierarchical level in the organization are related to the

choice of influence tactics used by the agent (Ferris, et al., 1997; Thacker, 1995), and potentially their effectiveness.

Personal characteristics also affect the use of influence behaviors. A number of personality related traits have been shown to be significantly related to influence behaviors. Frequency of use of influence tactics has shown a significant relationship to individual dimensions of the five-factor personality model (Cable & Judge, 2003). For example, individuals with high extraversion are more likely to use inspirational appeal and ingratiation than an individual with low extraversion (IA:  $\beta = 0.256$ ; I:  $\beta = 0.177$ ). Individuals high in agreeableness are less likely to use pressure as an influence tactic than individual with low agreeableness ( $\beta = -0.142$ ). Choice of influence tactics is also positively related to Machiavellianism. Individuals high in Machiavellianism prefer non-rational and indirect tactics such as emotional appeals to influence targets. Need for approval is positively related to use of rational and indirect tactics, such as bargaining (Grams & Rogers, 1990). Self-monitoring has been found to be positively related to the use of ingratiation ( $r = 0.27$ ), upward appeal ( $r = 0.16$ ), exchange ( $r = 0.21$ ), and coalition ( $r = 0.17$ ) (Farmer, Maslyn, Fedor, & Goodman, 1997).

A number of studies have examined the effect of demographic characteristics on influence behaviors with mixed results. Differences between males and females on how the agent is perceived and effectiveness of influence tactics are for the most part non-significant. Females are just as likely to use the full spectrum of influence tactics except for pressure (Barbuto, Fritz, Matkin, & Marx, 2007). However, women who use more rational tactics (Rationality:  $\beta = 0.35$ ,  $p < .01$ ) and less capitulatory tactics (Exchange:  $\beta = -0.24$ ,  $p < .05$ ) are perceived more positively and yield higher salaries among women (Dreher, Dougherty, & Whitely, 1989). Yet, possible differences in the influence objectives between males and females

may exist. Females are more likely to take into account organizational interests, while males are more likely to take into account self-interest (Lauterbach & Weiner, 1996). Female and male targets also evaluate influence attempts differently based on gender of the agent initiating the influence attempt (Drory & Beaty, 1991). Education is positively related to frequency of use of influence tactics (Farmer, et al., 1997). No strong relationship exists between age and the type of influence tactics used (Barbuto, et al., 2007; Castro, et al., 2003).

The fourth factor that impacts the outcome of an influence attempt is the nature of the dyadic relationship between agent and target. Within the dyadic relationship the subordinate proactively attempts to influence supervisor perceptions of the subordinate. The quality of the supervisor-subordinate relationship (leader-member exchange) affects the outcomes of the subordinate's influence attempt. Use of upward influence tactics are significantly more effective in higher quality exchange relationships ( $\beta = 0.32$ ) (Deluga & Perry, 1991). Subordinates also select different upward influence tactics based on their perceptions of the dyadic relationship with their supervisor. Individuals who perceive themselves as part of an "in-group" (higher LMX) are more likely to use "open" upward influence tactics (such as rational persuasion) as opposed to more "political" upward influence tactics (such as using deceit) ( $F = 2.50$ ,  $df = 4,306$ ,  $p < 0.04$ ) (Krone, 1992). The nature of the relationship between supervisor and subordinate impacts which influence tactics are used and the effectiveness of those tactics. A supervisor's perception of a subordinate reflects the actual similarity of a subordinate's use of upward influencing behaviors. The current research examines this process further by hypothesizing that one reason why a subordinate may find a particular set of influence behaviors to be successful in developing the supervisor-subordinate relationship is that the subordinate uses a similar set of influence behavior as his/her supervisor.

### *Relationship to Work Outcomes*

Influence behaviors have been studied in relation to a number of organizational outcomes. This dissertation focuses on the relationship between influence behaviors and performance ratings. For the most part upward influence strategies have been used in studying the relationship between influence tactics and performance ratings. Upward influencing strategies are hypothesized to affect performance ratings through an intervening processing variable. Ferris et al. (1994) found supervisor-focused tactics to significantly affect the supervisor's assessment of subordinate through supervisor affect toward the subordinate (indirect effect = 0.54,  $p < 0.01$ ). The direct effect of supervisor-focused influence tactics on supervisor affect was 0.71 ( $p < 0.01$ ).

Wayne et al. (1997) tested the effect that influence tactics had on supervisor's perceptions about the subordinate which influence evaluations of performance and promotability. The results show reason, bargaining, assertiveness, and favor rendering all significantly affect performance ratings and assessment of promotability through supervisor's perceptions of similarity to the subordinate and to the supervisor's perception of subordinate's interpersonal skills. The indirect effects of reasoning, bargaining, assertiveness and favor rendering on performance ratings were 0.09, -0.09, 0.10, and 0.26, with favor rendering having the strongest effect. These four influence tactics also had a significant indirect effect on assessment of promotability (0.09, -0.09, 0.10, and 0.16).

It should be noted that the research by Wayne et al (1997) partially resembles the current research in that it examined relationships between influence behaviors, perceptions of similarity, and performance ratings using supervisor-subordinate dyads. The current research extends their research by using multi-level modeling as the analytical method and by incorporating several

new measures, including measures of total upward influence behaviors, profile of influence behaviors, and actual similarities in influence behaviors, along with leader-member exchange as part of the research model.

Dulebohn, Murray, and Ferris (2004) investigated the relationship between a subordinate's usage of ingratiation and self-promotion, supervisor affect, and performance ratings at two points in time. Their overarching hypothesis was that use of influence behaviors would be predicated on prior experiences of success or failure on influencing supervisor affect and performance ratings. This hypothesis was partially supported this hypothesis. Depending on the degree of positive affect at time 1, the subordinate used either ingratiation (positively disposed affect) as opposed to self-promotion (negatively disposed affect) to influence supervisor affect and performance ratings. Supervisor affect acted as an antecedent to which influence behavior the subordinate used and acted as an intermediary between influence behavior and performance ratings. Cumulatively, prior research suggests that understanding how influence behaviors cognitively affect the supervisor's perceptions of the subordinate can lead to a further understanding of how influence behaviors can influence performance ratings. However, no previous studies have looked at a composite measure of the total level of similar types of upward influence behaviors.

Relationships have been found between a number of upward influence behaviors in isolation and work outcomes, such as performance ratings. Some types of influence behaviors have been found to have a positive effect on work outcomes. However, other types of influence behaviors have negative effects on work outcomes. Further, prior research has shown that individuals use different influence behaviors when influencing supervisors (upward influencing), peer/coworkers (horizontal influencing), and subordinates (downward influencing).

Table 1 summarizes relationships between influence behaviors and work outcomes (positive, negative, and neutral) and indicates the direction (upward, horizontal, or downward) most commonly used.

**Table 1**  
**Summary of Direction and Effects of Influence Behaviors**

<u>Influence Behaviors</u>	<u>Direction</u>	<u>Effect</u>
Rational Persuasion	Upward <sup>(1,3,4)</sup> Horizontal <sup>(3,4)</sup> Downward <sup>(3,4)</sup>	Positive <sup>(5)</sup>
Inspirational Appeals	Downward <sup>(3,4)</sup>	Positive <sup>(5)</sup>
Legitimizing	Downward <sup>(4)</sup>	Neutral <sup>(5)</sup>
Apprising	Horizontal <sup>(6)</sup> Downward <sup>(6)</sup>	Positive <sup>(5,6)</sup>
Collaboration	Horizontal <sup>(6)</sup> Downward <sup>(6)</sup>	Positive <sup>(5,6)</sup>
Consultation	Upward <sup>(3)</sup> Horizontal <sup>(3,4)</sup> Downward <sup>(3,4)</sup>	Positive <sup>(5)</sup>
Exchange	Horizontal <sup>(3,4)</sup> Downward <sup>(3,4)</sup>	Negative <sup>(1)</sup>
Pressure	Downward <sup>(3,4)</sup>	Negative <sup>(1,2,5)</sup>
Ingratiation	Horizontal <sup>(3)</sup> Downward <sup>(3,4)</sup>	Negative <sup>(2)</sup> Positive <sup>(5)</sup>
Personal Appeals	Horizontal <sup>(3,4)</sup> Downward <sup>(3)</sup>	Negative <sup>(2)</sup>
Coalition	Upward <sup>(3,4)</sup> Horizontal <sup>(3,4)</sup> Downward <sup>(3)</sup>	Negative <sup>(1,2,5)</sup>

Source: (1) Deluga & Perry, 1991; (2) Farmer et al., 1997; (3) Yukl & Falbe, 1990; (4) Yukl et al., 1993; (5) Yukl et al., 2008; (6) Yukl et al., 2005

Five of the influence behaviors—rational persuasion, inspirational appeals, apprising, collaboration, and consultation—have been found to have a positive effect on work outcomes, such as the supervisor-subordinate relationships and performance ratings. Four of the influence behaviors—exchange, pressure, personal appeals, and coalition—have been found in prior studies to have a negative effect on work outcomes. The effects of ingratiation in previous studies have been mixed with there being both negative and positive relationships with work outcomes. Direction of use is less clear cut as most influence behaviors have been studied in singularly with regards to horizontal and downward influence. Rational persuasion and consultation have both been used as upward influencing behaviors and found to have positive effects on performance ratings and leader-member exchange. Prior research has also found that the four influence behaviors which have a negative relationship with work outcomes have been used infrequently for upward influencing. On the other hand, those influence behaviors which do not have a negative relationship with work outcomes have been used more often for upward influencing behaviors. Accordingly, influence behaviors that have had positive effects and have been used for upward influence are used in the aggregate level and profile measures in this research.

Thus, based on prior research which supports a positive relationship between upward influence behaviors and performance ratings, it is predicted that:

*Hypothesis 1: The level of subordinate upward influence behaviors will be positively related to supervisor assessment of subordinate performance.*

## Similarity Literature

Similarity is an important psychological construct. One of the ways the brain organizes information is by grouping stimuli together based on perceptions of similarity. The cognitive process whereby two objects are judged to be similar involves a process of identification, categorization, and judgment. Categorization is the process where a stimulus is compared to a reference group of other known stimuli and matched with the most similar reference group. Membership to a category is based on the degree of similarity with other members of the reference group. Identification and categorization involve multiple properties of the stimulus; judgment involves fewer properties and suggests a cognitive conservation of resources once the stimulus is known (Ashby & Lee, 1991).

An individual develops a judgment of similarity based on comparing two objects in relation to a single or restricted set of properties or criteria. Depending on the property or properties being used for evaluation, an individual will use a different set of criteria or information on which to base the judgment. So for example, if a supervisor is asked how similar a subordinate is to him/herself outside of a work context, the supervisor might evaluate the similarity based on demographic characteristics alone and judge there to be a lack of similarity. Within a work context, the same manager might use attitudinal characteristics as the basis of comparison between him/herself and a subordinate and judge there to be some similarity. A probable basis of judgment of similarity would be for the manager to also consider work behaviors, such as upward influence behaviors, as the basis for assessing similarity. Actual similarity in upward influence behaviors would likely result in a judgment of high similarity. Evaluations of similarity, therefore, should be seen as flexible and incorporating different criteria depending on the context of the similarity judgment (Heit & Rubinstein, 1994).

Similarity judgments can be classified as attributional or relational. Attributional similarity uses one property or criterion to base similarity. Relational similarity uses two or more properties or criteria and evaluates similarity simultaneously in relation to the multiple criteria. Similarity is based on finding a common match between the new stimulus and other stimuli which are previously related to these criteria. The new stimulus is cognitively situated in relation to other known stimuli. In this way the evaluation process is dynamic and occurs within context such that the judgment of similarity involves a process of comparing stimuli (Medin, et al., 1993). This suggests that within a work group, judgments of similarity between subordinates and supervisor may be relative to other members of the work group.

One of the predominant theories in similarity research is the similarity-attraction paradigm (Byrne, 1971). The similarity-attraction paradigm states that individuals are attracted to other individuals who are perceived as similar. The more similar one individual is perceived to be to another individual, the stronger the feelings of liking or positive affect will be towards that individual. The similarity-attraction relationship has been demonstrated in a number of studies across a variety of disciplines. In terms of the social exchange relationship, similarity in the two members of the dyad reduces risk and increases predictability. The result is attraction or liking and a higher quality exchange relationship (Homans, 1961; Thibaut & Kelley, 1959).

Yet the process by which perceived similarity leads to attraction process occurs is still being explored (Herbst, Gaertner, & Insko, 2003; Klohnen & Luo, 2003; Ruys, Spears, Gordijn, & de Vries, 2006). Condon and Crano (1988) suggest that the similarity-attraction paradigm is mediated by reciprocal liking and the expectation of mutual need gratification. When the effects of attitude similarity were controlled for, the expectation of reciprocal liking still had a significant positive relationship with attraction. Simply put—we like people who like us. This

also supports how similarity can influence the development of the dyadic exchange relationship. As liking is reciprocated, an individual's initial evaluations of the other dyadic member are validated. Herbst, Gaertner, and Insko (2003) found the similarity-attraction relationship to be quadratic as opposed to linear. Initially as similarity to the ideal self increases, attraction increases; but when the other dyad member begins to surpass the perceiver's ideal self, the attraction diminishes. Viewed another way, as the other member becomes more dissimilar to the perceiver's self-image, attraction is negatively impacted.

Three types of distinct similarities—actual similarity, perceived similarity, and perceptual congruence have been identified that can explain “similarity” between two individuals. Actual similarity is the objective measure (as opposed to perceived measure) of the similarity of two individuals in values, attitudes, characteristics, and/or behaviors. Perceived similarity is the perception that one individual holds about how similar in values, attitudes, characteristics, and/or behaviors he/she is to another individual. Perceptual congruence is the difference between two individual's perceptions about themselves and their perceptions of the other individual (Turban & Jones, 1988). A review of past research indicates that virtually all past studies have focused on perceived similarity. To the author's knowledge, only one study focused on actual similarity in work behaviors.

An individual develops perceptions of similarity about him/herself and another individual based in part on one's perceptions of self-concept. Self-concept is used to make conjectures about another individual's motivation and behaviors. The characteristics on which the similarity is based reinforce the individual's perception of self-concept (Markus, Smith, & Moreland, 1985). When the supervisor perceives a high degree of similarity with a subordinate, evaluating subordinate performance is also a means of reaffirming the supervisor's self-perceptions of

his/her own ideal self (Herbst, et al., 2003). In a study on attachment styles and perceptions of similarity among couples, Klohnen and Luo (2003) found a significant positive relationship between actual self-description and ideal self-description. Additionally, individuals are attracted to partners who have similar ideal self-descriptions. The attraction serves to self-verify the ideal self.

The present research examines three aspects of similarity: 1) the actual similarity of the levels of influence behaviors between the supervisor and subordinate; 2) the actual similarity of the profile of influence behaviors between supervisor and subordinate; and 3) the supervisor's perception of similarity between his/her own influence behaviors and those of the subordinate. Actual similarity and perceived similarity have been shown to be positively related ( $r = 0.31$ ,  $p < 0.01$  (Wayne & Liden, 1995) ;  $p = 0.23$ ,  $p < 0.05$  (Turban & Jones, 1988)).

As noted above, perceived similarity may developed in part based on observations of actual behavior. The supervisor observes the subordinate's levels and profile of influence behaviors, compares those observations to self-perceptions of level and profile of influence behaviors, and develops a perception of similarity between him/herself and the subordinate. In terms of a dyadic relationship, the behavior of the supervisor and subordinate in interdependent, and based on actual similarities in use of influence behaviors, the supervisor constructs individual perceptions about the subordinate.

Based on prior research which supports a positive relationship between actual similarity and perception of similarity, it is predicted:

*Hypothesis 2a: The actual similarity in level of supervisor and subordinate upward influence behaviors will be positively related to supervisor perception of similarity between supervisor and subordinate influence behaviors.*

*Hypothesis 2b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will be positively related to supervisor perception of similarity between supervisor and subordinate influence behaviors.*

Past research has found a positive relationship between use of upward influence behaviors and perception of similarity (Wayne, Liden, et al., 1997). Therefore it is posited that:

*Hypothesis 3: The level of subordinate upward influence behaviors will be positively related to supervisor perception of similarity between supervisor and subordinate influence behaviors.*

To date no research has investigated the relationship among all three variables: use of upward influence behaviors, actual similarity in use of upward influence behaviors, and perceived similarity. An important part of the present research is investigating whether actual similarity in level and profile of upward influence behaviors mediates the relationship between subordinate use of upward influence behaviors and supervisor perception of the similarity. Based on research which supports direct relationships between use of upward influence and actual and perceived similarity, it is predicted:

*Hypothesis 4a: The actual similarity in level of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor perception of similarity between supervisor and subordinate influence behaviors.*

*Hypothesis 4b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor perception of similarity between supervisor and subordinate influence behaviors.*

### ***Relationship to Work Outcomes***

Many of the studies involving similarity and work outcomes have situated the similarity to work outcome relationship within the similarity-attraction paradigm. Demographic similarity has demonstrated a significant effect on liking or positive affect which in turn influences supervisor's assessment of subordinate performance. Wayne and Liden (1995) found demographic similarity to have a significant effect on performance ratings through supervisor's liking of the supervisor and subordinate's perceptions of similarity to the subordinate ( $t = 3.02$ ,  $p < 0.01$ ). Judge and Ferris (1993) found demographic similarity to have a direct effect on supervisor affect ( $\beta = 0.211$ ,  $p < 0.01$ ) and a non-significant indirect effect on subordinate performance ratings ( $\beta = 0.047$ ). In both studies demographic similarities had a significant direct effect on liking and an indirect effect on performance ratings.

Bates (2002) explored how supervisor liking towards the subordinate, demographic similarity, and perceived attitudinal similarity predicted subordinate performance ratings. Results supported the hypothesized relationships. Perceived attitudinal similarity ( $\beta = 0.75$ ,  $p < 0.05$ ) was the strongest predictor of subordinate performance ratings. Demographic similarity ( $\beta = 0.00$ ) and liking ( $\beta = 0.08$ ) were both non-significant in predicting performance ratings. This suggests that similarities based on dimensions other than demographics may influence a supervisor's perceptions of similarity with a subordinate. Wayne and Liden (1995) found the direct effect of perceived similarity on performance ratings was significant and had a stronger relationship than liking to performance ratings ( $PS = 0.305$ ,  $p < 0.01$ ;  $L = 0.21$ ,  $p > 0.05$ ).

Turban and Jones (1988) suggest an alternative view to the similarity-attraction paradigm within the context of work organizations. The results of their study show perceived similarity to

be the strongest predictor of performance ratings, job satisfaction, and merit pay raise. Actual similarity as measured by demographic similarity was overall positively related to performance but no single characteristic has a sizable effect. They suggest that subordinates who are able to gain insights into the job behaviors and work values that are important to the supervisor are likely to receive higher performance ratings. This alignment of behaviors and values leads to perceptions of similarities from both the subordinate's and supervisor's perspective. The subordinate is actively tailoring work behaviors to be more aligned with his/her supervisor's expectations. This explanation is consistent with research on reciprocity within a social exchange relationship.

These studies suggest that actual similarity and perceptions of similarity based on dimensions other than demographics should have a positive influence on performance ratings. With regard to both actual similarity and perceived similarity in influence behaviors, it is predicted that:

*Hypothesis 5a: The actual similarity in level of supervisor and subordinate upward influence behaviors will be positively related to supervisor assessment of subordinate performance.*

*Hypothesis 5b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will be positively related to supervisor assessment of subordinate performance.*

*Hypothesis 6: The supervisor perception of similarity between supervisor and subordinate influence behaviors will be positively related to supervisor assessment of subordinate performance.*

There is also strong support for the general proposition that upward influence behaviors act on performance ratings through mediating variables, such as perception of similarity and actual similarity. Based on research which has found direct relationships between use of influence, similarities, and performance ratings, it is predicted:

*Hypothesis 7: Supervisor perception of similarity in supervisor and subordinate influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor assessment of subordinate performance.*

*Hypothesis 8a: The actual similarity in level of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor assessment of subordinate performance.*

*Hypothesis 8b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor assessment of subordinate performance.*

## **Leader-Member Exchange Theory**

Leader-member exchange (LMX) was first proposed as Vertical Dyadic Linkage (VDL), an alternative theory to average leadership style (Dansereau, et al., 1975). Average leadership style assumes that a leader uses the same behavioral and interpersonal style equally across members of a group. VDL assumes variations in leadership style depending on the quality of the relationship with each group member. The VDL model explains how the leader/supervisor and the member/subordinate develop a dyadic relationship based on a series of behavioral exchanges. The quality of the leader-member relationship varies from dyad to dyad based on the progression of exchange events and the interdependency that develops between leader and group member (G. Graen & Schiemann, 1978; Liden & Graen, 1980). A major contribution of the VDL theory was to introduce the dyadic relationship as an important unit of analysis. A second contribution was focusing on the exchange process within the dyad that leads to the development of an interpersonal relationship (Gerstner & Day, 1997; G. B. Graen & Uhl-Bien, 1995).

LMX theory has continued to evolve and develop over the years from when the theory was first proposed. The initial focus of LMX research was in applying role theory to differentiate between high quality and low quality relationships. High quality relationships were a result of “in-group” status; low quality relationships were a result of “out-group” status. However, research on the exchange process and how the exchange relationship developed was lacking. One of the shortcomings of an in-group/out-group typology is LMX is narrowed in theoretically to a dichotomous relationship—a subordinate is either “in” or “out” (Dienesch & Liden, 1986).

LMX theory was then broadened to incorporate a social exchange perspective to explain how the exchange relationship develops. The social exchange process is one of the fundamental

underlying structures in the leader-member exchange relationship (Sparrowe & Liden, 1997). The leader's relationship with the different subordinates/members in his/her work group varies depending on the quality of the relationship. High quality LMX relationships extend beyond the basic underlying economic exchange of work for hire to an overlying interpersonal relationship between supervisor and subordinate that includes feelings of liking, trust, personal obligation, and social reciprocity (Liden & Graen, 1980). Scandura, Graen, and Novak (1986) include two key tenets of social exchange—mutuality and interdependence—in an updated definition of leader-member exchange:

*“Leader-member exchange is (a) a system of components and their relationships (b) involving both members of a dyad (c) in interdependent patterns of behavior and (d) sharing mutual outcome instrumentalities and (e) producing conceptions of environments, cause maps, and value.”*  
(p. 580)

The exchange relationship develops based on the behaviors of both members and the interdependence of the members on mutually beneficial outcomes. Dienesch and Liden (1986) propose that the “currencies of exchange” in the LMX relationship are the perceived contributions of the exchange, loyalty, and positive affect. The exchange relationship develops strength as these three dimensions increase in effect and as members experience reciprocity of these three dimensions. Liden and Maslyn (1998) proposed professional respect as a fourth dimension necessary in the exchange development. An important aspect is that the theory is process oriented and focuses on how behaviors and outcomes affect the development of the dyadic exchange relationship. Based on prior research which shows a positive relationship

between use of upward influence behaviors and positive affect (Kipnis, Schmidt, Price, & Stitt, 1981), it is predicted:

*Hypothesis 9: The level of subordinate upward influence behaviors will be positively related to supervisor leader-member exchange.*

LMX theory has a number of weaknesses. One weakness is the lack of a universal construct definition (Gerstner & Day, 1997; Schriesheim, Castro, & Cogliser, 1999; Sparrowe & Liden, 1997). LMX has been defined as one-dimensional (Scandura & Graen, 1984) and as multi-dimensional (Dienesch & Liden, 1986; Liden & Maslyn, 1998). There are also a number of overarching theories (role theory, social exchange, attribution) used to describe the LMX process. Regardless of these different approaches, the underlying construct that is the strength of the theory is the heterogeneity of the relationships among the supervisor-subordinate dyads based on the unique development of the leader-member exchange relationship.

A second weakness is that due to the proliferation of competing LMX construct definitions, there are also a number of competing “best measures”. Further, there is also disagreement as to who should assess LMX, the leader or the member. A number of researchers recommend measuring LMX from both perspectives, however this raises the issue of whether member LMX and leader LMX are the same construct and whether they are similarly developed (Greguras & Ford, 2006). The most common practice in prior research has been to measure LMX from the subordinate perspective. In a meta-analysis on LMX, Gerstner and Day (1997) found thirty studies which assessed LMX from the member perspective, while twelve used the leader perspective.

Despite these weaknesses, the leader-member exchange relationship continues to be used as a construct to explain the complicated relationship which develops between supervisor and

subordinate and demonstrates significant relationships with other individual outcomes, such as performance ratings. Researchers have explored how the subordinate/member contributes to the development of the LMX relationship and what subordinate/member factors affect the dyadic interplay of perceptions, thereby influencing how the LMX relationship is developed and solidified. The current research proposes another possible determinant in the development of the supervisor-subordinate dyadic relationship—actual similarity in level and profile of influence behaviors between the supervisor and the subordinate.

### ***Relationship between LMX and Similarity***

Similarity based on factors other than demographics have been found to have a significant relationship to leader-member exchange. In a longitudinal study on LMX development, Liden, Wayne, and Stilwell (1993) found member-perceived similarity to be predictive of member LMX at 2 weeks ( $\beta = 0.43, p < 0.01$ ) and at 6 weeks ( $\beta = 0.42, p < 0.01$ ), as well as leader-perceived similarity to be predictive of leader LMX at 2 weeks ( $\beta = 0.21, p < 0.01$ ), 6 weeks ( $\beta = 0.25, p < 0.01$ ), and at 6 months ( $\beta = 0.36, p < 0.01$ ). Demographic similarity was not significant at any of the points in time. Engle and Lord (1997) examined the relationship of cognitive factors (liking, perceived similarity, and self-schema) to supervisor LMX and subordinate LMX. Supervisor perception of similarity was strongly related to supervisor LMX ( $\beta = 0.75, p < 0.001$ ), and subordinate perception of similarity was also strongly related to subordinate LMX ( $\beta = 0.64, p < 0.001$ ).

Similarity in personality traits along four of the Big Five dimensions (emotional stability, intellectual openness, agreeableness, and conscientiousness) positively influences the LMX relationship. Bernerth et al. (2008) compared supervisor and subordinate personality measures in work dyads and found that large differences between individual personality dimensions

negatively impacted the leader-member exchange relationship (ES:  $\beta = -0.17$ ,  $p < 0.05$ ; O:  $\beta = -0.20$ ,  $p < 0.01$ ; A:  $\beta = -0.15$ ,  $p < 0.05$ ; C:  $\beta = -0.14$ ,  $p < 0.05$ ). Allinson, Armstrong, and Hayes (2001) investigated the relationship between congruence of cognitive styles and quality of the supervisor-subordinate relationship. The results suggest that large disparities in cognitive style may inhibit the development of the supervisor-subordinate relationship.

The similarity of supervisor and subordinate work behaviors has been studied as a possible determinant of the supervisor-subordinate exchange relationship. Snyder and Bruning (1985) examined the effects of supervisor competence and subordinate competence on the supervisor-subordinate relations. Supervisor competence and subordinate competence interacted such that large disparities in competence negatively influenced the supervisor-subordinate relationship ( $F = 7.52$ ,  $df = 620$ ,  $p < 0.01$ ). The support for similarity as a determinant of the supervisor-subordinate relationship is compelling. Similarity-LMX relationships which have been found to be significant are rooted in dimensions other than demographics. If we extend this relationship within the context of social exchange theory, actual similarity in upward influence behaviors should be perceived by the other member as higher predictability of the other member and lower risk associated with the relationship. Based on this line of reasoning and prior research, it is predicted:

*Hypothesis 10a: The actual similarity in level of supervisor and subordinate upward influence behaviors will be positively related to supervisor leader-member exchange.*

*Hypothesis 10b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will be positively related to supervisor leader-member exchange.*

Further, based on research which supports direct relationships between use of upward influence behaviors, actual similarities, and leader-member exchange, it is predicted:

*Hypothesis 11a: The actual similarity in level of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor leader-member exchange.*

*Hypothesis 11b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor leader-member exchange.*

### ***Relationship between LMX and Performance Ratings***

LMX is strongly related to supervisor assessed performance ratings of a subordinate. In a meta-analysis conducted by Gerstner and Day (1997), both subordinate LMX and supervisor LMX were positively related to the supervisor's ratings of the subordinate's performance. The mean sample weighted correlation between subordinate LMX and performance ratings was 0.28 ( $n = 30, p < 0.01$ ). The mean sample weighted correlations between supervisor LMX and performance ratings was 0.41 ( $n = 12, p < 0.01$ ). In a subsequent study, Wayne, Shore, and Liden (1997) investigated whether the quality of the exchange relationship between supervisor and subordinate influences subordinate performance ratings. Using structural equation modeling, the results showed a significant relationship between LMX and performance ratings ( $\beta = 0.32, p < 0.01$ ).

Based on the previously established relationships between use of upward influence behaviors, LMX, and performance ratings, it is predicted:

*Hypothesis 12: Supervisor leader-member exchange will be positively related to supervisor assessment of subordinate performance.*

*Hypothesis 13: Supervisor leader-member exchange will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor assessment of subordinate performance.*

Based on the previously established relationships between perception of similarity, LMX, and performance ratings, it is predicted:

*Hypothesis 14: Supervisor leader-member exchange will mediate the positive relationship between supervisor perception of similarity between supervisor and subordinate influence behaviors and supervisor assessment of subordinate performance.*

## **Rationale for Multilevel Approach**

The present research focuses on two levels of effect: the individual characteristics of the subordinate and the supervisor, and the dyadic interactive effects of the supervisor and subordinate. The primary question is whether the dyadic effects of actual similarities in supervisor-subordinate upward influence behaviors have a cross-level effect on the perceptions of the supervisor and whether the dyadic level effects mediate the individual level direct effects in the model.

The supervisor-subordinate dyadic relationship is best described as an actor-partner interdependence model (APIM) (Kenny, et al., 2006). In APIM, actor effects and partner effects affect each other through interactions with one another. The interactive effects characterize the “relationship” component of the dyadic model. More importantly, APIM enables us to partition out the variance which is attributable to the actor characteristics and the partner characteristics, leaving systematic variance. The systematic variance which remains is partially attributable to the interaction effect and partially attributable to error variance (Kenny, et al., 2001).

Putting the supervisor-subordinate dyad in terms of the APIM, subordinate characteristics and supervisor characteristics are considered actor and partner effects. The subordinate effects in this study are the subordinate’s level and profile of influence behaviors. The supervisor effects in this study are the supervisor’s level and profile of influence behaviors, the supervisor perception of similarity in influence behaviors, the supervisor leader-member exchange, and the supervisor’s assessment of subordinate performance. The interaction effects within the dyad are the actual similarity in level of influence behaviors and the actual similarity in profile of influence behaviors. These are operationalized by calculating similarity measures of supervisor and subordinate level and profile of influence behaviors. The dyadic interaction effect is not

independent of the actor and partner characteristics, but instead is the result of the reciprocity or exchange within the dyadic relationship. The variance associated with interaction theoretically represents the degree of reciprocity in the dyadic relationship (Kenny, et al., 2001).

The appropriate analytical method for analyzing a dyadic model is to use multi-level modeling. This approach permits the researcher to isolate the independent effects from the interdependent effects and takes into account non-independence of dyadic level effects from individual level effects (Kenny, et al., 2002). The APIM model incorporates the concepts from the within analysis-between analysis approach (Kenny, et al., 2002), but presents the dyadic relationship in a more practical conceptual framework. The APIM incorporates the individual effects of the subordinate and the group effects of the other subordinates in the work group on the supervisor's perceptions of an individual subordinate (Kenny, et al., 2002). In other words, the behaviors and attitudes of the other members in the supervisor's workgroup affect how the supervisor perceives a particular subordinate. In a sense, the behaviors of all subordinates help the supervisor to calibrate his/her assessment of each one. Within the context of this research, the supervisor's perceptions about a particular subordinate are the results of direct interaction with that subordinate and the result of interactions with other members of his/her work group. The value of using a multi-level methodology is that it allows the research to identify at which level the effect under study is attributable. The relationships could exist at the individual level or within dyads, or a combination of both resulting in a cross-level effect (Kenny, et al., 2006; Schriesheim, 1995).

## **Hypothesized Model and Relationships**

### **Model**

The primary phenomenon of interest is how individual performance ratings are affected by individual and dyadic effects. One component of the model is the hypothesis that, at the dyadic level, similarities in supervisor and subordinate upward influence behaviors affect subordinate performance ratings. The proposed model incorporates behavioral variables to investigate how dyadic effects of actual similarities between supervisor upward influence behaviors and subordinate upward influence behaviors relate to the relationships between individual level effects of supervisor perception of similarity, leader-member exchange, and supervisor assessment of subordinate performance (see Figure 2-5). Upward influence behaviors are measure in two ways: level is operationalized by total frequency of use of upward influence behaviors; and profile is operationalized by the pattern of upward influence behaviors used. Three types of similarity are included in the model: actual similarity in levels of upward influence behaviors used by an individual, actual similarity in profile of upward influence behaviors used by an individual, and perceived similarity. Perceived similarity is based on similarity in use of influence behaviors.

The model proposes that the actual similarities in a supervisor and subordinate upward influence behaviors—the dyadic level effects—mediate the individual level relationships between subordinate use of upward influence behaviors and perception of similarity, between subordinate use of upward influence behaviors and leader-member exchange, and between subordinate use of upward influence behaviors and supervisor assessment of subordinate performance.

## **Summary of Hypotheses for Supervisor Subordinate Similarity Model**

### ***Direct Relationships:***

#### **Within Level Effects:**

##### ***Level 1 Relationships (Individual):***

*Hypothesis 1: The level of subordinate upward influence behaviors will be positively related to supervisor assessment of subordinate performance.*

*Hypothesis 3: The level of subordinate upward influence behaviors will be positively related to supervisor perception of similarity between supervisor and subordinate influence behaviors.*

*Hypothesis 6: The supervisor perception of similarity between supervisor and subordinate influence behaviors will be positively related to supervisor assessment of subordinate performance.*

*Hypothesis 9: The level of subordinate upward influence behaviors will be positively related to supervisor leader-member exchange.*

*Hypothesis 12: Supervisor leader-member exchange will be positively related to supervisor assessment of subordinate performance.*

**Cross Level Effects:*****Between Level 2 (Dyadic) and Level 1 (Individual) Relationships:***

*Hypothesis 2a: The actual similarity in level of supervisor and subordinate upward influence behaviors will be positively related to supervisor perception of similarity between supervisor and subordinate influence behaviors.*

*Hypothesis 2b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will be positively related to supervisor perception of similarity between supervisor and subordinate influence behaviors.*

*Hypothesis 5a: The actual similarity in level of supervisor and subordinate upward influence behaviors will be positively related to supervisor assessment of subordinate performance.*

*Hypothesis 5b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will be positively related to supervisor assessment of subordinate performance.*

*Hypothesis 10a: The actual similarity in level of supervisor and subordinate upward influence behaviors will be positively related to supervisor leader-member exchange.*

*Hypothesis 10b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will be positively related to supervisor leader-member exchange.*

***Mediating Relationships:*****Within Level:**

*Hypothesis 7: Supervisor perception of similarity in supervisor and subordinate influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor assessment of subordinate performance.*

*Hypothesis 13: Supervisor leader-member exchange will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor assessment of subordinate performance.*

*Hypothesis 14: Supervisor leader-member exchange will mediate the positive relationship between supervisor perception of similarity between supervisor and subordinate upward influence behaviors and supervisor assessment of subordinate performance.*

**Mediating Relationships:****Cross Level:**

*Hypothesis 4a: The actual similarity in level of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor perception of similarity between supervisor and subordinate influence behaviors.*

*Hypothesis 4b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor perception of similarity between supervisor and subordinate influence behaviors.*

*Hypothesis 8a: The actual similarity in level of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor assessment of subordinate performance.*

*Hypothesis 8b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor assessment of subordinate performance.*

*Hypothesis 11a: The actual similarity in level of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor leader-member exchange.*

*Hypothesis 11b: The actual similarity in profile of supervisor and subordinate upward influence behaviors will mediate the positive relationship between the level of subordinate upward influence behaviors and supervisor leader-member exchange.*

## Figure 1

### Levels of Variables in Analysis

#### Individual Level Variables

Subordinate Level of Upward Influence Behaviors  
Supervisor Perception of Similarity  
Supervisor Leader-Member Exchange  
Subordinate Performance Ratings

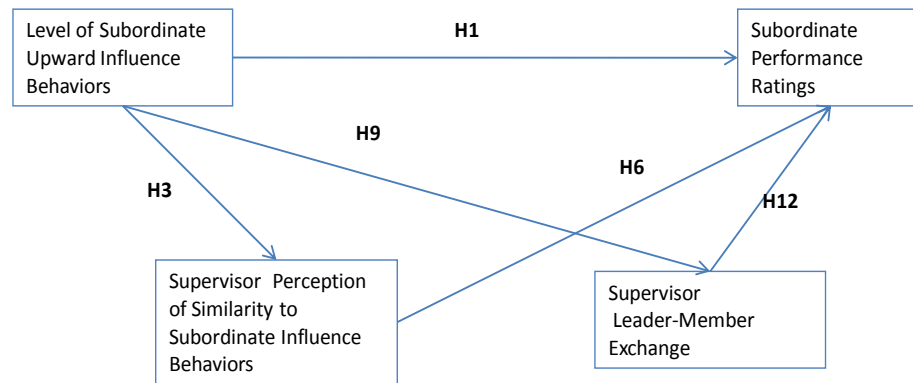
#### Dyadic Level Variables

Similarity in Level of Supervisor and Subordinate Upward Influence Behaviors  
Similarity in Profile of Supervisor and Subordinate Upward Influence Behaviors

**Figure 2**

**Multilevel Model of Supervisor Subordinate Similarities in Upward Influence Behaviors  
Within Level Direct Effects**

**Level 1:  
Individual**

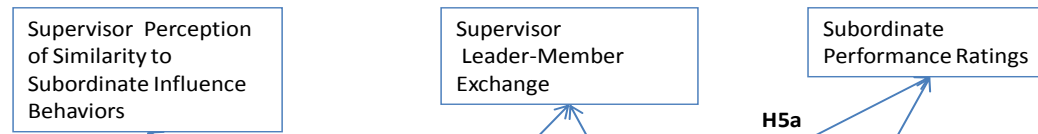


**Solid Blue Arrow= Direct Relationship**

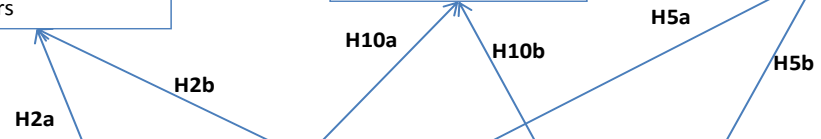
**Figure 3**

**Multilevel Model of Supervisor Subordinate Similarities in Upward Influence Behaviors  
Cross Level Direct Effects**

**Level 1:  
Individual**



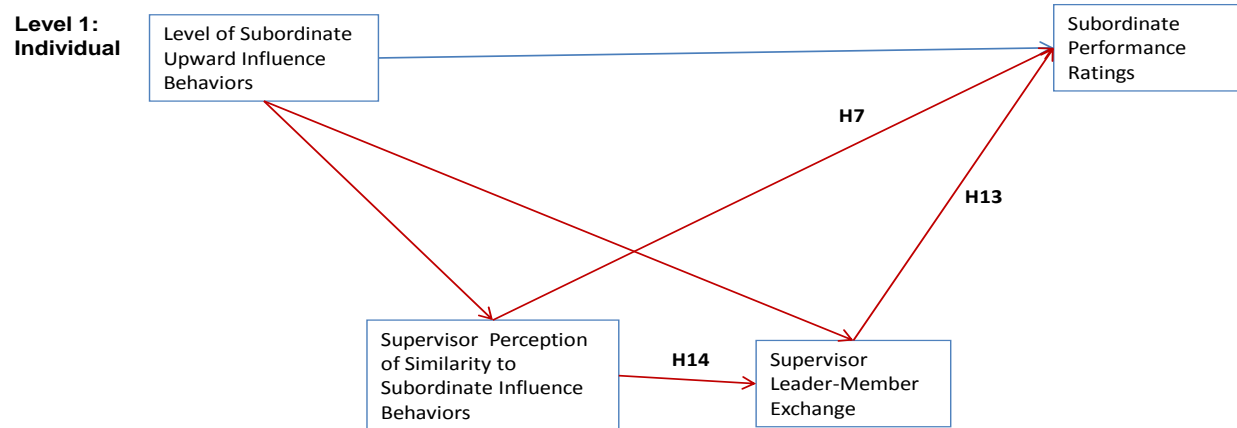
**Level 2:  
Dyadic**



**Solid Blue Arrow= Direct Relationship**

**Figure 4**

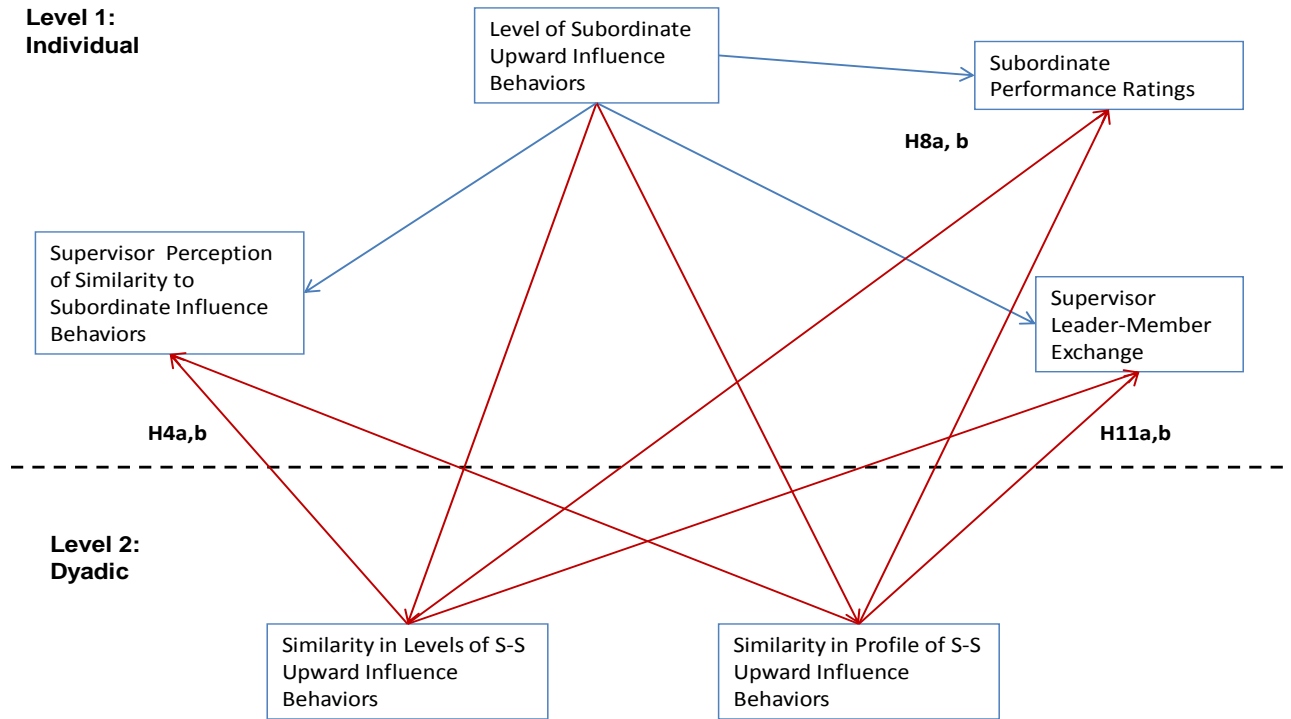
**Multilevel Model of Supervisor Subordinate Similarities in Upward Influence Behaviors  
Mediating Effects Within Level**



**Solid Blue Arrow= Direct Relationship; Solid Red Arrow= Mediating Effect**

**Figure 5**

**Multilevel Model of Supervisor Subordinate Similarities in Upward Influence Behaviors  
Mediating Effects Cross Levels**



**Solid Blue Arrow= Direct Relationship; Solid Red Arrow= Mediating Effect**

## **Method**

### **Design and Procedure**

This study was conducted using a sample of participants employed in four for-profit companies located in the northeastern United States. One hundred and forty-nine employees (124 subordinates and their 25 direct supervisors) were asked to complete a survey involving work behaviors and work relationships. The researcher emphasized that participation was voluntary and that all responses were completely confidential and would only be accessible to the primary researchers. Of these 149 employees, 125 agreed to participate in the study, resulting in a total response rate of 84%.

The survey was distributed to the participants by the researcher. Supervisors and subordinates were asked to complete the surveys in different locations in order to promote awareness of confidentiality and minimize negative feelings. Subordinates were asked a series of questions about their work behaviors, their influence behaviors, and demographics. Supervisors were asked the same set of questions, and were also asked to assess the subordinates in their work groups regarding LMX and job performance. The survey took approximately ten minutes to complete. Participants who completed the survey were given a \$10 Dunkin Donut gift card as a token of appreciation.

Because the primary unit of analysis in the present inquiry is the supervisor-subordinate dyad, it was necessary to link supervisors with their direct reports. To accomplish this, supervisors were asked to identify themselves and the members of their work group. Subordinates were asked to identify themselves and their direct supervisor. A pre-test of supervisor and subordinate surveys was conducted prior to launching the full study.

## Sample

The survey process yielded data from 102 subordinate participants and 23 supervisor participants. Of the 102 subordinate participants, three did not complete key predictive scales and were dropped from the sample due to missing data. An additional seven subordinate participants were dropped from the analysis sample due to a short duration working with their current supervisor--five respondents had worked three weeks or less, and two had worked less than 2 months. The rationale for dropping respondents is that in order for a supervisor to be able to assess subordinate performance reliably, the subordinate would need to have worked for the supervisor for some minimum amount of time. Three months was selected as the minimum threshold for inclusion as prior research has found that perceptions of similarity and supervisor leader-member exchange develop during the first three months of tenure. After three months there is little change in both perceptions of similarity or supervisor leader-member exchange (Liden, et al., 1993).

Participants on average had worked for their companies 7.3 years and had worked for their current supervisors on average 2.6 years. The average age of participants was 45.4 years, and 82.6% of the sample was female. Participants primarily worked in either a professional position (52.2%) or an administrative position (38.3%). Most participants had completed some college (36.5%) or had a bachelor degree (33.0%). Table 2 presents demographic data for the total sample and for subordinates and supervisors separately. Supervisors were somewhat more likely to work in a professional position (78.3%), to be male (34.8%), and to have a graduate degree (43.5%).

**Table 2**  
**Demographic Characteristics of Participants**

Variable	Total Sample	Subordinates	Supervisors
Number of Respondents	115	92	23
Mean Age in years	45.4	45.7	44.5
Gender			
Male	17.4	13.0	34.8
Female	82.6	87.0	65.2
Education			
High School	4.3	5.4	0.0
Some College	36.5	42.4	13.0
Bachelors Degree	33.0	30.4	43.5
Graduate Degree	26.1	21.7	43.5
Type of Position			
Administrative	38.3	42.4	21.7
Technical	1.7	2.2	0.0
Professional	52.2	45.7	78.3
Other	7.8	9.8	0.0
Mean Number of Years Worked for Supervisor	2.6	2.6	2.6
Mean Number of Years Worked for Organization	7.3	7.9	5.0

### **Statistical Power of the Present Research**

The sample size needed to achieve a power of 0.8 was estimated using parameters from the existing literature and the *Optimum Design* software for HLM power analysis {(Raudenbush & Liu, 2002)). Work group size was estimated at 6. Effect size was estimated to be between 0.3 and 0.5 based on prior studies of influence behaviors. For the purposes of this study, an estimated effect size of 0.4 was used for sample size estimation. Intra-class correlation was estimated to be between 0.05 and 0.15 (Scherbaum & Ferreter, 2009). Variance in rated performance was estimated to be large given the small number of individuals in each group and was set at 0.15 (Scherbaum & Ferreter, 2009). Based on these estimates, twenty-seven work groups were needed to achieve a power of approximately 0.6, and thirty-six groups would be needed for a power of 0.8.

The power for the current research was calculated after the sample data were collected using actual parameters from the study. Actual data parameters included: average group size of between four and five ( $n$ ), the number of groups was 23 ( $j$ ), the intra-class correlation as defined by  $\rho = \text{variance between groups} / (\text{variance between groups} + \text{variance within groups})$  was 0.20; and the standardized effect size ( $\delta$ ) was 0.46. The resulting power for the current study is approximately 0.4. The impact of the lower power is discussed in the limitations section.

## Measures

### *Primary Variables*

#### *Level of Upward Influence Behaviors*

#### *Actual Similarity in Level of Upward Influence Behaviors*

#### *Actual Similarity in Profile of Upward Influence Behaviors*

Level (frequency) of upward influence behaviors, actual similarity in level (frequency) of upward influence behaviors, and similarity in profile (range) of upward influence behaviors were calculated using data provided by the supervisor and the subordinate. The supervisor and subordinate were asked to indicate frequency of use of eleven different influence behaviors during the last two years to influence their supervisors. Identical shortened eleven-item versions of the 44-item Influence Behavior Questionnaire (IBQ) (Yukl, et al., 2008) were used in the supervisor and subordinate surveys. The shortened IBQ used in this study was created using the scale item with the highest inter-item correlation within each sub-scale as recommended by Stanton, Sinar, Blazer, and Smith (2002). This resulted in eleven influence items, each measuring one type of influence behavior. The items were measured using the same five point scale (ranging from “almost never” to “almost always”) as in the original IBQ. One item was used for each of the eleven influence behaviors: ingratiation, exchange, rational persuasion, pressure, consultation, inspirational appeals, collaboration, apprising, personal appeals, legitimating tactics, and coalition tactics. Reliability and test-retest measures for the IBQ as reported by Yukl et al. (2008) have consistently been above 0.70. The reliability measure for the shortened IBQ in this research was  $\alpha = 0.75$ .

Because some of the influence behaviors have previously been found to be used less frequently as upward influence behaviors and, additionally, to have a negative effect on leader member exchange and performance ratings, these items were not included as measures of

upward influence behaviors in the present research (see Table 1). However, respondents were asked to evaluate their use of all eleven influence behaviors to collect comprehensive influence behavior data. Responses to the eleven items were examined in a factor analysis in order to identify dimensions of influence behaviors. The factor analysis yielded three interpretable dimensions of influence behaviors. The influence behaviors that comprised two of the factors have previously been identified as positive upward influencing factors (Deluga & Perry, 1991; Krone, 1992) and were used in this study. The level of influence behaviors was assessed by summing the frequency of use for items comprising the two upward influencing behavior factors.

The actual similarity in profile of upward influence behaviors was measured by first developing a difference measure between the subordinate's profile and the supervisor's profile. The sum of squared differences between supervisor and subordinate scores on each of the upward influence items were used to construct a difference score (Kenny, et al., 2006). This was then multiplied by negative one such that values closer to zero represented a high level in similarity between the supervisor's and subordinate's influence profile of upward influence behaviors, while values further away from zero represented a larger level of dissimilarity between the supervisor's and subordinate's profile of upward influence behaviors.

The actual similarity in level of influence behaviors measure was operationalized by determining the absolute differences in the total number of influence attempts used by the supervisor and the subordinate (Kenny, et al., 2006). The absolute difference between the supervisor's level and the subordinate's level was calculated without consideration for direction—i.e. whether the supervisor or the subordinate had a higher level of influence attempts. As with the profile, the difference measure was multiplied by negative one to create a similarity score where 0 represents the highest level of similarity between the supervisor's and the

subordinate's level of influence behaviors while values further away from zero represent a larger level of dissimilarity between level of influence behaviors.

#### *Perceived Similarity in Influence Behaviors*

Perceived similarity was measured by asking the supervisor how similar a specific subordinate's influence style is to his/her own influence style. A five point scale was used to indicate level of similarity ranging from "not at all" to "almost exactly".

#### *Leader-Member Exchange*

Leader-member exchange was measured using a shortened version of the MD-LMX scale (Liden & Maslyn, 1998). MD-LMX consists of 4 subscales with a total of 11 items. Within each subscale, the item with the highest inter-item correlation was selected. The shortened version consists of 4 items, and responses were measured on a five point scale with values ranging from "strongly disagree" to "strongly agree". Supervisors were asked to assess the supervisor-subordinate relationship. Reliability measures for the MD-LMX have been above 0.80 (Greguras & Ford, 2006). The reliability measure for the shortened MD-LMX in this study was  $\alpha = 0.83$ .

#### *Individual Performance Rating*

Behavior-based performance data were obtained from the supervisor for each subordinate. Performance was assessed using a shortened version of a recently validated behavior-based performance scale (Griffin, Neal, & Parker, 2007). Behavior-based measures are viewed as being less subjective than other ratings as supervisors are asked to assess a specific work behavior rather than an overall impression of performance (Griffin, Neal, & Parker, 2007). The reliability measure for the three behavior-based performance items in this research was  $\alpha = 0.82$ .

### *Control Variables*

Five individual difference variables were measured as possible control variables for the study. Each measure was tested for significance as a contributor to explaining the variance in performance ratings in the models. Significant individual difference variables were incorporated into the models to remove their effects from the theorized relationships. Results are discussed in the Analysis and Results section.

#### *Gender*

Gender effects have been found with regard to a number of variables used in this study. Within the social exchange dyad, females and males behave differently. Females form stronger attachments resulting in higher loyalty to a supervisor than their male counterparts (Cook & Emerson, 1978). Both males and females are more likely to positively rate a subordinate of the same gender (Varma & Stroh, 2001). Additionally, women are less likely to receive outstanding or above average performance ratings (a 4 or a 5 on a 5 point scale) than their male counterparts (Castilla, 2008). Gender of the subordinate and the supervisor was measured and analyzed for possible effects in the model.

#### *Age*

Age effects have been identified in prior studies. Age of the subordinate is negatively related to supervisor's assessment of subordinate performance. Older workers receive lower performance ratings than their younger peers when controlling for objective performance data (Ferris, Yates, Gilmore, & Rowland, 1985). Both age of the supervisor and age of the subordinate are measured and analyzed for effects in the model.

### *Education*

Educational level has been found to be positively related to use of influence tactics (Farmer, et al., 1997). Subordinates with similar educational backgrounds as their supervisors are more likely to receive higher performance ratings (Zalesny & Kirsch, 1989). Educational level of both supervisor and subordinate was measured and analyzed for possible effects in the model.

### *Years Worked for Supervisor*

The length of time a subordinate has worked for a supervisor moderates the relationship between LMX and an employee's work attitudes (Epitropaki & Martin, 1999). Tenure of the relationship clearly affects opportunities observe a subordinate performing his/her job tasks. Further, as familiarity with a subordinate's performance increases, a supervisor is more likely to use job-task related dimensions as opposed to idiosyncratic perceptions to evaluate subordinate performance (Kingstrom & Mainstone, 1985). Tenure of the relationship was measured and analyzed as a control variable.

### *Years of Employment with the Organization*

Participants were asked the length of time they had worked for the current organization. This was also analyzed as a possible control variable.

## Analysis Strategy

In this study there are two levels of effects under study. The first level under study is the individual. The second level under study is the dyad. The question is whether similarities in supervisor-subordinate influence behaviors have an effect on the supervisor's perception of the subordinate and on the relationship with the subordinate, thereby affecting the supervisor's assessment of the subordinate's performance. The appropriate analytical method for determining whether the cross-level effects between the individual and dyadic levels are significant is a multilevel analysis (Castro, 2002; Dansereau, Cho, & Yammarino, 2006; Kenny, et al., 2006; Kenny, et al., 2001). The multilevel approach used in this research closely follows the procedures recommended by Hofmann (1997) and Zhang, Zyphur, and Preacher (2009), as many of the hypotheses evaluate cross-level and mediating effects across individual and dyadic levels. Hypotheses were evaluated based on significance of effects and the amount of variance attributable to the effect in relation to the outcome measure. The amount of variance attributable to the predictor relationship with the outcome variable was calculated using the method suggested by Hofmann (1997): The null model is calculated to determine the amount of variance in performance ratings attributable to within group variance ( $r$  = level 1 variance) and between group variance ( $u$  = level 2 variance) without any predictors. This model is used as the base estimate of variance at both levels. The amount of variance attributable to adding a single predictor in the model is calculated by the following method:

$$\frac{(\text{Variance in Null Model}) - (\text{Variance in Predictor Model})}{\text{Variance in Null Model}}$$

The resulting value is the change in R-squared by adding the predictor in the model. This number also represents the amount of variance attributable to the predictor relationship with the outcome variable. When calculating the change in R-squared for control variables, the null

model had no predictors. When calculating the change in R-squared for the hypothesized effects, the null model included the control variables.

The first step in the analysis process was to run descriptive statistics on all measures. The second step was to examine the psychometric properties of the measures used in the study. Cronbach alpha was calculated to measure the internal consistency reliability of the three scales used in the study. Inter-item correlations were also run on the items.

Because the eleven influence behaviors have been previously identified as being associated with different directions (upward, horizontal, and downward) and with a number of outcomes (positive and negative) (see Table 1) (Yukl, et al., 1995; Yukl, et al., 2008), a factor analysis was conducted prior to testing any hypotheses. Although all eleven influence behaviors were measured, prior research has shown that not all of the eleven influence behaviors have a positive effect on supervisor perceptions (Yukl & Falbe, 1990; Yukl, et al., 1995). The factor analysis yielded three distinct dimensions of influencing behaviors.

Similarity measures were then calculated for each supervisor-subordinate dyad. A number of different approaches have been advocated as methods of developing similarity and difference measurements between two points. Two methods—difference in two points, and sums of squared differences between multiple points--were used in this research to calculate the actual similarity in level and the actual similarity in profile between supervisor and subordinate influence behaviors. Prior to calculating actual difference measures, a test for homogeneity of variances between supervisor influence behaviors and subordinate influence behaviors was conducted. The purpose of the test was to verify that significant difference in the variances of the two groups did not introduce additional variance into the analysis. If the variance between the groups was unequal, a difference measure would have incorporated additional variance by expanding the range of scores. Use of difference measures is only recommended when the two

sets of measures used for calculations do not have significantly different variances (Edwards, 1994).

The next step was to analyze the control variables to determine if one or more measure explained a significant amount of variance in rated job performance and should, therefore, be included as controls in the model. Two approaches were used in this analysis. The first was to examine demographic variables at the dyadic level. Each dyadic demographic variable was included in the model to predict performance ratings at level 2 in order to test the significance for that particular variable in the following equations:

Level 1 Model:

$$\text{Performance Rating}_{ij} = \beta_{0j} + r_{ij}$$

Level 2 Model:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * \text{Dyadic Demographic Variable}_j + u_{0j}$$

Combined Model (Level 1 and Level 2):

$$\text{Performance Rating}_{ij} = \gamma_{00} + \gamma_{01} * \text{Dyadic Demographic Variable}_j + u_{0j} + r_{ij}$$

where:

$\beta_{0j}$  = level 1 slope

$\gamma_{00}$  = level 2 intercept for level 1 intercept

$\gamma_{01}$  = level 2 slope for level 1 intercept

$r_{ij}$  = level 1 residual variance

$u_{0j}$  = level 2 residual intercept variance.

None of the dyadic level control variables was significantly associated with rated performance nor did they explain a sizable amount of variance. Although it would be possible to use control variable at level two, doing so would decrease the degrees of freedom by one for every variable controlled, thereby reducing the power of the study to detect differences. At the individual level demographics variables were also analyzed as possible control variables. The error term for the level 1 intercept was intentionally fixed. As with the dyadic demographic

variables, each individual demographic variable was included in the model to predict performance ratings at level 1 in order to test the significance for that particular variable in the following equations:

Level 1 Model:

$$\text{Performance Rating}_{ij} = \beta_{0j} + \beta_{1j} * \text{Demographic Variable}_{ij} + r_{ij}$$

Level 2 Models:

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

Combined Model (Level 1 and Level 2):

$$\text{Performance Rating}_{ij} = \gamma_{00} + \gamma_{10} * \text{Demographic Variable}_{ij} + u_{0j} + r_{ij}$$

where:

$\beta_{0j}$  = level 1 intercept

$\beta_{1j}$  = level 1 slope

$\gamma_{00}$  = level 2 intercept for level 1 intercept

$\gamma_{10}$  = level 2 intercept for level 1 slope

$r_{ij}$  = level 1 residual variance

$u_{0j}$  = level 2 residual intercept variance.

The effects of three demographic variables were significant and included in the models as control variables—the number of years a subordinate worked for a supervisor, the gender of the subordinate, and the education of the subordinate.

Residuals at both levels 2 (dyadic) and at level 1 (individual) were analyzed to identify possible outliers with regard to performance ratings. Four subordinate observations were identified as outliers based on having residual values greater than 3.8 or -3.8 when predicting performance. These four observations were dropped for the purpose of assessing the hypothesized relationships.

Multi-level models were then constructed to test each of the hypotheses. Direct effects at the individual level (level 1 predictor to level 1 outcome) were tested first. The equations tested for each of these direct effects was:

Level-1 Model:

$$\begin{aligned} \text{Outcome Variable}_{ij} = & \beta_{0j} + \beta_{1j} * \text{Individual Level Predictor}_{ij} \\ & + \beta_{2j} * \text{Gender}_{ij} + \beta_{3j} * \text{Education}_{ij} + \beta_{4j} * \text{Yrs w/Supervisor}_{ij} + r_{ij} \end{aligned}$$

Level-2 Models:

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

$$\beta_{4j} = \gamma_{40}$$

Combined Model (Level 1 and Level 2):

$$\begin{aligned} \text{Outcome Variable}_{ij} = & \gamma_{00} + \gamma_{10} * \text{Individual Level Predictor}_{ij} \\ & + \gamma_{20} * \text{Gender}_{ij} + \gamma_{30} * \text{Education}_{ij} + \gamma_{40} * \text{Yrs w/Supervisor}_{ij} + u_{0j} + r_{ij} \end{aligned}$$

where:

$\beta_{0j}$  = level 1 intercept

$\beta_{nj}$  = level 1 slope

$\gamma_{00}$  = level 2 intercept for level 1 intercept

$\gamma_{n0}$  = level 2 intercept for level 1 slope  $n$

$r_{ij}$  = level 1 residual variance

$u_{0j}$  = level 2 residual intercept variance.

Cross-level effects—dyadic level predictor (level 2) to individual level outcome (level 1)—were then tested. The equations tested for each of these effects was:

Level-1 Model:

$$\text{Outcome Variable}_{ij} = \beta_{0j} + \beta_{1j} * \text{Gender}_{ij} + \beta_{2j} * \text{Education}_{ij} + \beta_{3j} * \text{Yrs w/Supervisor}_{ij} + r_{ij}$$

Level-2 Models:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * \text{Dyadic Level Predictor}_j + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

Combined Model (Level 1 and Level 2):

$$\begin{aligned} \text{Outcome Variable}_{ij} = & \gamma_{00} + \gamma_{01} * \text{Dyadic Level Predictor}_j \\ & + \gamma_{10} * \text{Gender}_{ij} + \gamma_{20} * \text{Education}_{ij} + \gamma_{30} * \text{Yrs w/Supervisor}_{ij} + u_{0j} + r_{ij} \end{aligned}$$

where:

$\beta_{0j}$  = level 1 intercept

$\beta_{nj}$  = level 1 slope

$\gamma_{00}$  = level 2 intercept for level 1 intercept

$\gamma_{01}$  = level 2 slope for level 1 intercept

$\gamma_{n0}$  = level 2 intercept for level 1 slope  $n$

$r_{ij}$  = level 1 residual variance

$u_{0j}$  = level 2 residual intercept variance.

Lastly—two types of mediation were tested: the individual level mediation between an individual level predictor and an individual level outcome (a 1-1-1 model):

Level-1 Model:

$$\begin{aligned} \text{Outcome Variable}_{ij} = & \beta_{0j} + \beta_{1j} * \text{Individual Level Mediator}_{ij} + \beta_{2j} * \text{Individual Level Predictor}_{ij} \\ & + \beta_{3j} * \text{Gender}_{ij} + \beta_{4j} * \text{Education}_{ij} + \beta_{5j} * \text{Yrs w/Supervisor}_{ij} + r_{ij} \end{aligned}$$

Level-2 Models:

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

$$\beta_{4j} = \gamma_{40}$$

$$\beta_{5j} = \gamma_{50}$$

Combined Model (Level 1 and Level 2):

$$\begin{aligned} \text{Outcome Variable}_{ij} = & \gamma_{00} + \gamma_{10} * \text{Individual Level Mediator}_{ij} + \gamma_{20} * \text{Individual Level Predictor}_{ij} \\ & + \gamma_{30} * \text{Gender}_{ij} + \gamma_{40} * \text{Education}_{ij} + \gamma_{50} * \text{Yrs w/Supervisor}_{ij} + u_{0j} + r_{ij} \end{aligned}$$

where:

$\beta_{0j}$  = level 1 intercept

$\beta_{nj}$  = level 1 slope

$\gamma_{00}$  = level 2 intercept for level 1 intercept

$\gamma_{n0}$  = level 2 intercept for level 1 slope  $n$

$r_{ij}$  = level 1 residual variance

$u_{0j}$  = level 2 residual intercept variance.

and the dyadic level mediation between an individual level predictor and an individual level outcome ( a 1-2-1 model):

Level-1 Model:

$$\begin{aligned} \text{Outcome Variable}_{ij} = & \beta_{0j} + \beta_{1j} * \text{Individual Level Predictor}_{ij} \\ & + \beta_{2j} * \text{Gender}_{ij} + \beta_{3j} * \text{Education}_{ij} + \beta_{4j} * \text{Yrs w/Supervisor}_{ij} + r_{ij} \end{aligned}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * \text{Dyadic Level Mediator}_j + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

$$\beta_{4j} = \gamma_{40}$$

Combined Model (Level 1 and Level 2):

$$\begin{aligned} \text{Outcome Variable}_{ij} = & \gamma_{00} + \gamma_{01} * \text{Dyadic Level Mediator}_j + \gamma_{10} * \text{Individual Level Predictor}_{ij} \\ & + \gamma_{20} * \text{Gender}_{ij} + \gamma_{30} * \text{Education}_{ij} + \gamma_{40} * \text{Yrs w/Supervisor}_{ij} + u_{0j} + r_{ij} \end{aligned}$$

where:

$\beta_{0j}$  = level 1 intercept

$\beta_{nj}$  = level 1 slope

$\gamma_{00}$  = level 2 intercept for level 1 intercept

$\gamma_{01}$  = level 2 slope for level 1 intercept

$\gamma_{n0}$  = level 2 intercept for level 1 slope  $n$

$r_{ij}$  = level 1 residual variance

$u_{0j}$  = level 2 residual intercept variance.

Mediation was determined per the procedure outlined by Zhang, Zyphur, and Preacher (2009) as well as Baron and Kenny (1986). The first step is to test for a significant relationship between the predictor and the outcome. Second there should be significant relationships between the predictor and the mediator and the mediator and the outcome. The third step is to include the predictor and the mediator in the model. Full mediation occurs when the effect of the mediator is significant while at the same time the effect of the predictor decreases and is no longer

significant. Partial mediation occurs when the effect of the mediator is significant while the effect of the predictor decreases but is still significant.

## **Results**

### **Measure Development**

#### ***Influence Behaviors***

The IBQ (Yukl, et al., 2008) measures eleven distinct influence behaviors using 11 subscales each comprised of four items. Subscales are designed to be used to measure one type of individual influence behavior or in combination with other influence behaviors. There is an extensive body of literature which shows that the eleven influence behaviors are used in different directions and to elicit different outcomes depending on the context of use (see Table 1) (Deluga & Perry, 1991; Farmer, et al., 1997; Yukl & Falbe, 1990; Yukl, et al., 1995). Based on prior research, four influence behaviors—exchange, pressure, personal appeals, and coalition—have been found to have a negative effect on LMX and on performance (Farmer, et al., 1997); (Yukl, et al., 2008). These four influence behaviors are not viewed as positive upward influencing behaviors and were only included in the survey to obtain comprehensive data. They were not for use in the present inquiry. The factor analysis was conducted to investigate the dimensionality of the eleven influence behaviors. Based on the results of the factor analysis, one additional influence behavior, ingratiation, was omitted from the study as it loaded highly with the four influence behaviors not included in the study. In prior research, ingratiation has both a negative (Wayne, Liden, et al., 1997) and a positive (Kipnis & Schmidt, 1988) effect on performance ratings. In the current study ingratiation was strongly related to exchange ( $r = 0.31$ ), pressure ( $r = 0.39$ ), personal appeals ( $r = 0.29$ ), and coalition ( $r = 0.39$ ), the four influence behaviors not included in the current study. The factor analysis and inter-correlation analysis both supported omitting ingratiation from the current study.

Descriptive statistics and correlations were calculated for all eleven influence items. An inter-correlation matrix of the eleven influence measures shows several uncorrelated items across the IBQ, as would be expected based on prior research (see Table 3). The six influence behaviors expected a priori to be associated with upward influencing have a median intercorrelation of  $r = 0.33$ . (Table 3 values in bold.) Influence behaviors not expected a priori to be associated with upward influencing had a median intercorrelation of  $r = 0.31$ . (Table 3 values in italics.) In contrast, the median intercorrelation among upward influence behaviors and non-upward influence behaviors was  $r = 0.16$ .

**Table 3**  
**Inter-correlations Among Eleven IBQ Items**

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Rational Persuasion	3.82	0.93										
2. Inspirational Appeals	3.28	1.05	<b>0.49<sup>***</sup></b>									
3. Legitimizing	3.15	1.05	<b>0.42<sup>***</sup></b>	<b>0.44<sup>***</sup></b>								
4. Apprising	3.10	1.19	<b>0.52<sup>***</sup></b>	<b>0.55<sup>***</sup></b>	<b>0.46<sup>***</sup></b>							
5. Collaboration	3.84	0.89	<b>0.30<sup>***</sup></b>	<b>0.41<sup>***</sup></b>	<b>0.22<sup>**</sup></b>	<b>0.33<sup>***</sup></b>						
6. Consultation	3.75	0.85	<b>0.16<sup>*</sup></b>	<b>0.25<sup>***</sup></b>	<b>0.11</b>	<b>0.08</b>	<b>0.34<sup>***</sup></b>					
7. Exchange	2.18	1.05	0.16 <sup>*</sup>	0.26 <sup>***</sup>	0.18 <sup>**</sup>	0.33 <sup>***</sup>	0.09	<i>0.16<sup>**</sup></i>				
8. Pressure	1.58	0.80	0.21 <sup>**</sup>	0.17 <sup>**</sup>	0.26 <sup>***</sup>	0.40 <sup>***</sup>	0.13 <sup>*</sup>	<i>0.02</i>	<i>0.32<sup>***</sup></i>			
9. Ingratiation	1.92	0.99	0.15 <sup>**</sup>	0.26 <sup>***</sup>	0.18 <sup>**</sup>	0.34 <sup>***</sup>	0.16 <sup>*</sup>	<i>-0.08</i>	<i>0.31<sup>***</sup></i>	<i>0.39<sup>***</sup></i>		
10. Personal Appeals	1.60	0.84	-0.07	0.07	0.12 <sup>*</sup>	0.13 <sup>*</sup>	0.08	<i>0.07</i>	<i>0.31<sup>***</sup></i>	<i>0.19<sup>**</sup></i>	<i>0.29<sup>***</sup></i>	
11. Coalition	1.62	0.81	0.17 <sup>**</sup>	0.20 <sup>**</sup>	0.23 <sup>***</sup>	0.39 <sup>***</sup>	0.19 <sup>**</sup>	<i>0.02</i>	<i>0.34<sup>***</sup></i>	<i>0.41<sup>***</sup></i>	<i>0.39<sup>***</sup></i>	<i>0.34<sup>***</sup></i>

\*\*\* Correlation is significant at  $p < 0.001$  level (2-tailed).

\*\* Correlation is significant at  $p < 0.01$  level (2-tailed).

\* Correlation is significant at  $p \leq 0.05$  level (2-tailed).

Note: Correlations shown in bold are among a priori upward influence behaviors.  
Correlations shown in regular font are among a priori upward influence behaviors and non-upward influence behaviors.  
Correlations shown in italics are among a priori non-upward influence behaviors.

To examine the dimensionality of the items, a factor analysis using principal components analysis as the extraction method with a Varimax rotation was conducted on the eleven influence measures. The objective of the factor analysis was to determine if there were interpretable dimensions within the eleven influence behaviors. Results yielded three distinct factors with eigenvalues above one, with each item loading on one factor (See Table 4 below). Based on a review of the literature, the three factors appear to be identifiable dimensions corresponding to influence behaviors previously used in combination.

**Table 4**  
**Factor Analysis of Influence Behaviors**

Rotated Factor Matrix			
	Rational	Emotional	Cooperative
	<i>1</i>	<i>2</i>	<i>3</i>
Rational Persuasion	<b>0.799</b>	-0.023	0.132
Exchange	0.127	<b>0.633</b>	0.171
Inspirational Appeals	<b>0.699</b>	0.132	0.364
Legitimizing	<b>0.683</b>	0.174	0.029
Apprising	<b>0.757</b>	0.361	0.038
Pressure	0.334	<b>0.611</b>	-0.172
Collaboration	0.367	0.088	<b>0.649</b>
Ingratiation	0.184	<b>0.668</b>	0.052
Consultation	0.026	0.047	<b>0.860</b>
Personal Appeals	-0.203	<b>0.695</b>	0.176
Coalition	0.225	<b>0.708</b>	-0.050
<b>% Variance</b>	<b>23.23</b>	<b>21.75</b>	<b>12.80</b>

Factor 1 (Rational Influence Behaviors) is comprised of rational persuasion, inspirational appeals, legitimizing, and apprising, and accounts for 23.3% of the variance within the structure of the data. Factor 2 (Emotional Influence Behaviors) is comprised of exchange, pressure,

ingratiation, personal appeals, and coalition, and accounts for 21.8% of the variance within the structure of the data. Factor 3 (Cooperative Influence Behaviors) is comprised of collaboration and consultation, and accounts for 12.8% of the variance within the structure of the data.

These three influence dimensions parallel prior research on influence behaviors however no published research to date has conducted a factor analysis of the IBQ nor have these three factors been reported previously in the literature. Prior research on influence behaviors has identified which behaviors are most likely to be used by a subordinate to elicit a positive effect on supervisor perceptions. However, the research has predominantly investigated the effect of a single influence behavior on work outcomes, such as performance ratings and leader-member exchange.

There was strong support in the literature to retain the Rational Influence Dimension as positive upward influencing behaviors. Among the influence behaviors that comprise the Rational Influence Dimension, rational persuasion is the most frequently used influence behaviors for upward influencing (Yukl, et al., 1993). Wayne, Graff, Liden, and Ferris (1997) found reasoning (later identified as rational persuasion) to be significantly related to performance ratings ( $r = 0.13$ ,  $p < 0.05$ ) and to be moderately related to perceptions of similarity ( $r = 0.10$ , not significant). Yukl, Seifert, and Chavez (2008) found rational persuasion ( $r = 0.56$ ,  $p < 0.001$ ), inspirational appeals ( $r = 0.53$ ,  $p < 0.001$ ), and apprising ( $r = 0.35$ ,  $p < 0.001$ ) to be positively related to leader-member exchange.

Prior literature also showed support for the Cooperative Influence Dimension as upward influencing behaviors. Consultation ( $r = 0.53$ ,  $p < 0.001$ ) and collaboration ( $r = 0.63$ ,  $p < 0.001$ ) were both found to be positively related to leader-member exchange (Yukl, et al.,

2008) (See Table 1). In addition, consultation has been identified as an upward influence behavior.

The influence behaviors which comprise the Emotional Influence Dimension have been found in prior literature to be negatively related to leader-member exchange. Farmer, Maslyn, Fedor, and Goodman (1997) found assertiveness (later identified as pressure) ( $r = -0.38$ ,  $p < 0.001$ ), as well as upward appeals (later identified as personal appeals) ( $r = -0.15$ ,  $p < 0.05$ ) to have a significant negative relationship with leader-member exchange. In addition both coalition ( $r = -0.11$ ) and ingratiation ( $r = -0.10$ ) had a weak directionally negative effect on leader-member exchange. Yukl, Seifert and Chavez (2008) also found pressure ( $r = -0.55$ ,  $p < 0.001$ ) and coalition ( $r = -0.38$ ,  $p < 0.001$ ) to have significant negative effects on leader-member exchange. Given the evidence that the influence behaviors comprising the Emotional Influence Dimension have been shown in past studies to have a negative effect on the dyadic relationship, the influence behaviors which comprise the Emotional Influence Factor were omitted in developing of influence behaviors in the current study.

Further investigation of the three influence behavior dimensions and their relationships with perception of similarity, leader-member exchange, and rated performance showed the Rational Influence Dimension to have the strongest relationship to the outcome variables in the current study (Table 5). The Rational Influence Dimension was positively and significantly related to leader-member exchange ( $r = 0.24$ ,  $p = 0.02$ ) and performance ratings ( $r = 0.27$ ,  $p = 0.011$ ). The Cooperative Influence Dimension was directionally related to perception of similarity ( $r = 0.11$ ,  $p = 0.32$ ) and leader-member exchange ( $r = 0.12$ ,  $p = 0.25$ ) but neither relationship was significant. The Emotional Influence Dimensions was unrelated to perception of similarity ( $r = 0.02$ ), leader-member exchange ( $r = -0.07$ ), and performance ratings ( $r = 0.02$ ).

In concert with the results from prior studies, the factor analysis confirmed the influence behaviors to be used in the present research. Accordingly, the four influence behaviors in the Rational Influence Dimension—rational persuasion, inspirational appeals, legitimating, and apprising—and the two influence behaviors in the Cooperative Influence Dimension—collaboration and consultation—were used. There was also strong reason to omit the five influence behaviors in the Emotional Influence Dimension—exchange, pressure, ingratiation, personal appeals, and coalition—based on the lack of support for their use in upward influencing in previous literature. The level and profile measures were calculated using the influence behaviors in the Rational Influence Dimension and the Cooperative Influence Dimension.

**Table 5**  
**Descriptive Statistics and Correlations for Influence Behavior Factors and Outcome Measures**

Variable	Mean	SD	1	2	3	4	5	6
1. Subordinate Level of IB (all 6 items)	20.39	3.71	(0.71)					
2. Subordinate Level of Cooperative IB	7.38	1.32	0.61 <sup>***</sup>	(0.41)				
3. Subordinate Level of Rational IB	13.01	3.14	0.94 <sup>***</sup>	0.30 <sup>**</sup>	(0.79)			
4. Perception of Similarity	2.35	1.01	0.15	0.11	0.13	na		
5. Supervisor LMX	14.79	2.70	0.25 <sup>*</sup>	0.12	0.24 <sup>*</sup>	0.64 <sup>***</sup>	(0.83)	
6. Subordinate Performance Ratings	9.17	2.76	0.23 <sup>*</sup>	0.03	0.27 <sup>*</sup>	0.47 <sup>***</sup>	0.72 <sup>***</sup>	(0.82)

\*\*\* Correlations are significant at the  $p < 0.001$  level (2-tailed)

\*\* Correlations are significant at the  $p < 0.01$  level (2-tailed)

\* Correlations are significant at the  $p \leq 0.05$  level (2-tailed)

Reliability measures are shown in parentheses.

*Test for Homogeneity of Variances in Development of Similarity Indexes*

Prior to calculating the indexes, an analysis of variance was conducted to test for homogeneity of variance between supervisor influence behaviors and subordinate influence behaviors. The Levine Statistic was equal to 0.307, with  $df = 1,123$ , and  $p = 0.580$ . According to Edwards (1994) difference calculations between two measures are only appropriate if the variances of the two groups are not significantly different. The variances within the two primary groups of interest in this study—supervisors and subordinates—met the criteria.

## **Descriptive Statistics and Correlations**

Descriptive statistics and correlations were calculated for all variables in the study. The intercorrelations do not control for the three demographic variables used as control variables in the models. Table 6 includes all variables examined in this study, including actual similarity in level and actual similarity in profile in influence behaviors.

The correlation analysis shows significant relationships between a number of effects in the study. Subordinate level of influence behaviors is significantly related to leader-member exchange ( $r = 0.25$ ) and to performance ratings ( $r = 0.23$ ). Actual similarity in level of influence behaviors is positively related to perception of similarity ( $r = 0.27$ ), to leader-member exchange ( $r = 0.27$ ), and to performance ratings ( $r = 0.18$ ). Actual similarity is moderately related to perception of similarity ( $r = 0.15$ ), leader-member exchange ( $r = 0.18$ ), and to performance ratings ( $r = 0.13$ ). Perception of similarity is sizably and significantly related to leader-member exchange ( $r = 0.64$ ) and to performance ratings ( $r = 0.47$ ). Leader-member exchange is also strongly related to performance ratings ( $r=0.72$ ),

Intercorrelations were also examined in relation to control variables. Subordinate education was positively related to perception of similarity ( $r = 0.19$ ), to leader-member exchange ( $r = 0.21$ ), and to performance ratings ( $r = 0.29$ ). The number of years a subordinate worked for their supervisor was significantly related to perception of similarity ( $r = 0.23$ ) and positively related to leader-member exchange ( $r = 0.14$ ). Subordinate age was negatively related to the subordinate level of influence behaviors ( $r = -0.14$ ).

**Table 6**  
**Descriptive Statistics and Correlations**

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Subordinate Level of IB	20.39	3.71	(0.71)									
2. Actual Similarity in Level of IB	-4.15	3.53	0.62 <sup>***</sup>									
3. Actual Similarity in Profile of IB	-10.80	10.24	0.46 <sup>***</sup>	0.79 <sup>***</sup>								
4. Perception of Similarity	2.35	1.01	0.15	0.27 <sup>**</sup>	0.15							
5. Supervisor LMX	14.79	2.70	0.25 <sup>*</sup>	0.27 <sup>**</sup>	0.18 <sup>+</sup>	0.64 <sup>***</sup>	(0.83)					
6. Subordinate Performance Ratings	9.17	2.76	0.23 <sup>*</sup>	0.18 <sup>+</sup>	0.13	0.47 <sup>***</sup>	0.72 <sup>***</sup>	(0.82)				
7. Years Employed w/Company	7.58	7.63	-0.04	0.00	0.04	-0.06	-0.07	-0.04				
8. Years Worked for Supervisor	2.51	3.00	0.04	0.04	0.06	0.23 <sup>*</sup>	0.14	0.10	0.37 <sup>***</sup>			
9. Subordinate Gender	1.12	0.33	0.04	0.11	0.08	-0.09	-0.11	-0.10	0.07	-0.08		
10. Subordinate Age	5.33	1.78	-0.14	-0.09	-0.16	-0.03	-0.09	-0.05	0.42 <sup>***</sup>	0.25 <sup>*</sup>	-0.15	
11. Subordinate Education	2.63	0.85	0.13	0.12	0.06	0.19 <sup>+</sup>	0.21 <sup>*</sup>	0.29 <sup>**</sup>	0.14	0.12	0.20	0.06

\*\*\* Correlation is significant at  $p < 0.001$  level (2-tailed).

\*\* Correlation is significant at  $p < 0.01$  level (2-tailed).

\* Correlation is significant at  $p \leq 0.05$  level (2-tailed).

+ Correlation is significant at  $p \leq 0.05$  level (1-tailed).

Reliability measures are in parentheses.

### Analysis of Control Variables

For the purposes of hypothesis testing, each of the five control variable (years employed with the organization, years worked for current supervisor, gender, age, and education) was added to the model separately in order to assess the significance of its effects in the model and the amount of variance attributable to the measure. Starting at the dyadic level, demographic differences among three of the variables (age, gender, and education) were first tested as control variables. The other two variables, years with organization and years worked for current supervisor were not tested at the dyadic level. Five of the supervisors had missing data for years with the company, which if used as a control variable at the dyadic level would have resulted in eliminating 22 dyads from the study. Years worked for current supervisor was only asked of the subordinate. None of the three dyadic level demographic differences effects tested was significant in the model nor did any account for significant variance in the outcome variable performance ratings (Table 7).

**Table 7**  
**Effects of Control Variables on Performance Ratings: Dyadic Level**

Fixed Effect	Coefficient	SE	<i>t</i> -ratio	<i>df</i>	<i>p</i> -value	Δ R-Sq
Difference in Gender, $\gamma_{01}$	-0.414	0.963	-0.43	21	0.67	0.001
Difference in Education, $\gamma_{01}$	0.154	0.268	0.57	21	0.57	0.006
Difference in Age, $\gamma_{01}$	-0.062	0.044	-1.40	21	0.18	0.010

Based on these results, demographic variables were analyzed at the individual level (level 1). Three demographic measures—years worked for current supervisor, gender, and education--were found to have a significant effect ( $p < 0.10$ ) in the model. In addition, these three demographic variables each accounted for over 5% of the variance in the outcome variable

performance ratings. Table 8 provides results for all five individual level demographic variables. All models used for hypothesis testing included the three individual level control variables—subordinate gender, subordinate education, and years subordinate has worked for current supervisor. The control variables were included at the individual level (level 1).

**Table 8**  
**Effects of Control Variables on Performance Ratings: Individual Level**

Fixed Effect	Coefficient	SE	<i>t</i> -ratio	<i>df</i>	<i>p</i> -value	$\Delta$ R-Sq
Years Employed w/Org $\gamma_{10}$	-0.021	0.038	-0.57	68	0.57	-0.002
Years Worked for Supervisor, $\gamma_{10}$	0.176	0.098	1.79	68	0.08	0.055
Subordinate Gender, $\gamma_{10}$	-1.483	0.637	-2.33	68	0.02	0.053
Subordinate Age, $\gamma_{10}$	-0.024	0.029	-0.83	68	0.41	0.005
Subordinate Education, $\gamma_{10}$	0.498	0.175	2.84	68	0.01	0.083

## Hypothesis Testing

### *Within Individual Level Direct Effects*

Hypothesis 1 predicted that there would be a positive relationship between subordinate level of upward influence behaviors and the supervisor's assessment of subordinate performance. This relationship was positive ( $\gamma = 0.165$ ) and significant at  $p = 0.014$ . In addition, the amount of variance explained in performance ratings attributable to the subordinate's level of upward influence behaviors is 4.7%. Hypothesis 3 examined the relationship between subordinate level of upward influence behaviors and supervisor perception of similarity. The effect size was  $\gamma = 0.061$  and was significant at  $p = 0.007$ . The amount of variance in supervisor perception of similarity explained by subordinate level of upward influence behaviors is 5.1%. There was strong support for Hypothesis 6, which tested the relationship between supervisor perception of similarity and supervisor assessment of subordinate performance. The effect size was  $\gamma = 1.705$  with a significance of  $p < 0.001$ . Perception of similarity accounts for 38.9% of the variance in performance ratings. Hypothesis 9, which predicted a positive relationship between subordinate level of upward influence behaviors and leader-member exchange, was also significant with an effect size of  $\gamma = 0.135$  and  $p = 0.023$ , Subordinate level of upward influence behaviors accounted for 1% of the variance in leader-member exchange. Hypothesis 12 showed strong support for positive relationship between leader-member exchange and supervisor assessment of subordinate performance ( $\gamma = 0.789$ ) with a significance level of  $p < 0.001$  and with 54% of the variance in performance ratings explained by leader-member exchange. The within individual level direct effects are summarized in Table 9 below.

**Table 9**  
**Within Individual Level Direct Effects**

	Coefficient	SE	t- ratio	df	p- value	$\Delta$ R-SQ
<b><i>Outcome Variable--Performance Ratings:</i></b>						
H1: Subordinate Level of IB, $\gamma_{10}$	0.165	0.073	2.26	62	0.014	0.047
H6: Perception of Similarity, $\gamma_{10}$	1.705	0.271	6.29	62	<0.001	0.389
H12: Supervisor LMX, $\gamma_{10}$	0.789	0.085	9.32	62	<0.001	0.540
<b><i>Outcome Variable--Perception of Similarity:</i></b>						
H3: Subordinate Level of IB, $\gamma_{10}$	0.061	0.024	2.52	62	0.007	0.051
<b><i>Outcome Variable--LMX:</i></b>						
H9: Subordinate Level of IB, $\gamma_{10}$	0.135	0.066	2.04	62	0.023	0.010

*All equations controlled for subordinate gender, subordinate education, and years subordinate has worked for supervisor.  
All p-values are one-tailed.*

To summarize individual level results, upward influence behaviors are associated with higher subordinate performance ratings, a better quality relationship with the subordinate, and greater perceived similarity between supervisor and subordinate. Additionally, the higher the supervisor's perception of similarity and leader-member exchange—quality of the dyadic relationship—the more likely he/she is to assess the subordinate's performance as higher.

### *Cross Level Effects Between Dyadic and Individual Levels*

Actual similarity in level of upward influence behaviors and actual similarity in profile of upward influence behaviors were hypothesized to have positive relationships with perception of similarity, performance ratings, and leader-member exchange. Hypothesis 2a and 2b were both supported. Hypothesis 2a tested the positive relationship between actual similarity in level of upward influence behaviors and perception of similarity. The effect size was  $\gamma = 0.079$  and was significant at  $p = 0.004$ . Actual similarity in level accounted for 42.4% of the variance in perception of similarity. Hypothesis 2b had an effect size of  $\gamma = 0.022$  and was significant at  $p = 0.025$ . Actual similarity in profile of upward influence behaviors accounted for 19.5% of the variance in perception of similarity. Neither Hypothesis 5a, the positive relationship between actual similarity in level and performance ratings, nor Hypothesis 5b, the positive relationship between actual similarity in profile of upward influence behaviors and performance ratings, was supported. Hypothesis 10a, which posited a positive relationship between actual similarity in level of upward influence behaviors was supported with an effect size of  $\gamma = 0.168$  and was significant at  $p = 0.024$ . Actual similarity in level accounted for 27.1% of the variance in leader-member exchange. On the other hand, Hypothesis 10b was not significant ( $\gamma = 0.045$ ,  $p = 0.072$ ), yet actual similarity in profile accounted for 11.1% of the variance in leader-member exchange.

The dyadic level effect of actual similarity of level of upward influence behaviors was positively related to perception of similarity and to leader-member exchange and accounted for a large portion of the variance in both measures. Actual similarity in profile was positively related to perception of similarity, and while the relationship was not significant with leader-member exchange, actual similarity in profile accounted for a large portion of the variance in both measures. Interestingly, neither measure of actual similarity had a relationship with

performance ratings and actually failed to explain any of the variance directly in performance ratings. Taking into account the direct relationships at the individual level, actual similarity appears to be related to performance ratings indirectly through perception of similarity and leader-member exchange. These results are summarized in Table 10.

**Table 10**  
**Cross Level Direct Effects**

	Coefficient	SE	t-ratio	df	p-value	$\Delta R-SQ$
<b><i>Outcome Variable--Perception of Similarity:</i></b>						
H2a: Actual Similarity in Level, $\gamma_{01}$	0.079	0.027	2.92	20	0.004	0.424
H2b: Actual Similarity in Profile, $\gamma_{01}$	0.022	0.010	2.09	20	0.025	0.195
<b><i>Outcome Variable--Performance Ratings:</i></b>						
H5a: Actual Similarity in Level, $\gamma_{01}$	0.021	0.088	0.24	20	0.406	0.000
H5b: Actual Similarity in Profile, $\gamma_{01}$	0.002	0.031	0.06	20	0.476	0.000
<b><i>Outcome Variable--LMX:</i></b>						
H10a: Actual Similarity in Level, $\gamma_{01}$	0.168	0.080	2.11	20	0.024	0.271
H10b: Actual Similarity in Profile, $\gamma_{01}$	0.045	0.030	1.52	20	0.072	0.111

*All equations controlled for subordinate gender, subordinate education, and years subordinate has worked for supervisor.*

*All p-values are one-tailed.*

### *Mediating Relationships Within Individual Level*

Hypothesis 7 posited that supervisor perception of similarity in supervisor and subordinate influence behaviors mediates the positive relationship between the subordinate level of upward influence behaviors and the supervisor assessment of subordinate performance. A full mediation was found. Hypothesis 1, 3, and 6 all established the significant relationships between the predictor, the mediator, and the outcome variables. Hypothesis 1 predicted that subordinate level of upward influence behaviors is positively related to performance ratings. This hypothesis was supported with an effect size of  $\gamma = 0.165$  and  $p = 0.014$ . Hypothesis 3 predicted that subordinate level of upward influence behaviors is positively related to supervisor perception of similarity. This relationship was also supported with an effect size of  $\gamma = 0.061$  and  $p = 0.007$ . Hypothesis 6 posited that perception of similarity is positively related to performance ratings. This was also supported ( $\gamma = 1.705$ ,  $p < 0.001$ ). When supervisor perception of similarity was added to the subordinate level of upward influence behaviors, perception of similarity was significant at  $p < 0.001$  ( $\gamma = 1.624$ ). At the same time, the effect of level of subordinate upward influence behavior decreased from  $\gamma = 0.165$  to  $\gamma = 0.067$ , and was non-significant at  $p = 0.144$ . Based on the significance of the effect size for perception of similarity and the decrease in effect size for subordinate level of upward influence behaviors as well its level of non-significance, Hypothesis 7 was fully supported.

Hypothesis 13 was also supported with leader-member exchange fully mediating the relationship between subordinate level of upward influence behaviors and supervisor assessment of performance. Hypothesis 1, 9 and 12 supported the significant relationships between the predictor, the mediator, and the outcome variables. Hypothesis 1 predicted that subordinate level of upward influence behaviors is positively related to performance ratings. This hypothesis was supported with an effect size of  $\gamma = 0.165$  and  $p = 0.014$ . Hypothesis 9 posited that subordinate

level of upward influence behaviors is positively related to leader-member exchange. This was supported with a direct effect of  $\gamma = 0.135$  and  $p = 0.023$ . Hypothesis 12 predicted that leader-member exchange is positively related to performance ratings. This relationship was also significant ( $\gamma = 0.789$ ,  $p < 0.001$ ). When leader-member exchange was added to the model with subordinate level of upward influence behaviors and supervisor assessment of performance, the significance of leader-member exchange was  $p < 0.001$  ( $\gamma = 0.769$ ) and the level of subordinate influence behaviors became non-significant,  $p = 0.112$ , and the effect decreased from  $\gamma = 0.165$  to  $\gamma = 0.065$ . This indicates leader-member exchange fully mediates the relationship between subordinate level of upward influence behaviors and performance ratings.

Hypothesis 14 tested whether leader-member exchange mediated the relationship between supervisor perception of similarity in influence behaviors and supervisor assessment of subordinate performance. This relationship was partially supported. Hypothesis 6 and 12 established the significant relationships between the predictor and the outcome and the mediator and the outcome. Hypothesis 6 predicted that perception of similarity is positively related to performance ratings. This hypothesis was supported with an effect size of  $\gamma = 1.705$  and  $p < 0.001$ . Hypothesis 12 predicted that leader-member exchange is positively related to performance ratings. This relationship was also significant ( $\gamma = 0.789$ ,  $p < 0.001$ ). The relationship between the predictor, perception of similarity, and the mediator, leader-member exchange, was tested and supported with a significance level of  $p < 0.001$ . In the mediation model, the significance for leader-member exchange was  $p < 0.001$  ( $\gamma = 0.672$ ), and the effect of perception of similarity decreased from  $\gamma = 1.705$  to  $\gamma = 0.521$  with a decreased significance level of  $p = 0.042$ . The significance level of leader-member exchange and the decreases in effect size and significance level of perception of similarity in the model indicate partial mediation.

The results for the individual level mediating relationships are summarized in Table 11 below. Mediating variables are denoted by (M); predictor variables are denoted by (P).

**Table 11**  
**Within Individual Level Mediation Effects**

	Coefficient	SE	t- ratio	df	p- value	$\Delta \gamma$
<b><i>Outcome Variable—Performance</i></b>						
<b><i>Ratings:</i></b>						
H7: Perception of Similarity, $\gamma_{10}$ (M)	1.624	0.281	5.79	61	<0.001	
Subordinate Level of IB, $\gamma_{20}$ (P)	0.067	0.063	1.07	61	0.144	-0.098
H13: LMX, $\gamma_{10}$ (M)	0.769	0.086	8.91	61	<0.001	
Subordinate Level of IB, $\gamma_{20}$ (P)	0.065	0.053	1.23	61	0.112	-0.100
H14: LMX, $\gamma_{10}$ (M)	0.672	0.109	6.14	61	<0.001	
Perception of Similarity, $\gamma_{20}$ (P)	0.521	0.296	1.76	61	0.042	-1.184

*All equations controlled for subordinate gender, subordinate education, and years subordinate has worked for supervisor.*

*(M)=Mediator; (P)= Predictor*

*All p-values are one-tailed.*

### *Mediating Relationships Cross Level*

Three cross level mediation relationships were investigated. Data for testing Hypothesis 4a indicate support for partial mediation of actual similarity in level of upward influence behaviors between subordinate level of upward influence behaviors and perception of similarity. The significant relationships between the predictor and mediator and the outcome variable was established in Hypothesis 3 and Hypothesis 2a. Hypothesis 3 posited that subordinate level of upward influence behaviors is positively related to perception of similarity. This relationship was found to be significant with an effect of  $\gamma = 0.061$  and  $p = 0.007$ . Hypothesis 2a predicted that actual similarity in level of upward influence behaviors is positively related to perception of similarity. This relationship was supported with an effect of  $\gamma = 0.079$  and  $p = 0.004$ . The third requirement for testing mediation is to establish a significant relationship between subordinate level of upward influence behaviors and actual similarity in level of upward influence behaviors. As HLM does not allow a level 2 outcome, the relationship between actual similarity in level of influence behaviors was tested by regressing actual similarity in level of influence on level of subordinate influence behaviors and found to be significant at  $p = 0.005$ . In the cross level mediation model, actual similarity in level of influence behaviors was significant at  $p = 0.016$  ( $\gamma = 0.065$ ) as the mediating variable, and the effect of level of subordinate influence behaviors decreased from  $\gamma = 0.061$  to  $\gamma = 0.048$ , and was significant at  $p = 0.026$ . This indicates partial mediation.

Hypothesis 4b was not fully supported, but did approach significance. The hypothesis tested whether actual similarity in profile of influence behaviors mediates the relationship between subordinate level of upward influence behaviors and perception of similarity. The relationship between the predictor and mediator and the outcomes were shown to be significant by Hypothesis 3 and 2b. Hypothesis 3, which predicted a positive relationship between

subordinate level of upward influence behaviors and perception of similarity, was supported ( $\gamma = 0.061$ ,  $p = 0.007$ ). Hypothesis 2b posited that actual similarity in profile is positively related to perception of similarity. This relationship was significant with an effect of  $\gamma = 0.022$  and  $p = 0.025$ . As with Hypothesis 4b, a significant relationship was established between actual similarity of profile of upward influence behaviors and subordinate level of upward influence behaviors by regressing actual similarity of profile on subordinate level of influence behaviors. This relationship was found to be significant ( $p = 0.01$ ). In the mediation model, actual similarity of profile was not significant as a mediator but did approach significance ( $\gamma = 0.017$ ,  $p = 0.06$ ) and the effect of subordinate level of upward influence behaviors remained significant ( $p = 0.017$ ). However, the effect for subordinate level of upward influence behaviors did decrease from  $\gamma = 0.061$  to  $\gamma = 0.048$ .

Hypothesis 8a and 8b, which hypothesized that actual similarity in level and in profile would mediate the relationship between subordinate level of upward influence behaviors and supervisor assessment of performance, was not tested as neither measure of actual similarity had a significant relationship with performance ratings (Hypothesis 5a and 5b).

The third cross level mediation relationship tested was Hypothesis 11a, which posited that actual similarity in level of upward influence behavior mediates the relationship between subordinate level of upward influence behaviors and leader-member exchange, was partially supported. The relationships between predictor and mediator were established by Hypothesis 9 and 10a. Hypothesis 9 predicted a positive relationship between subordinate level of upward influence behaviors and leader-member exchange. This relationship was significant with an effect of  $\gamma = 0.135$  and  $p = 0.023$ . Hypothesis 10 predicted that actual similarity in level of upward influence behaviors is positively related to leader-member exchange. This relationship was also significant ( $\gamma = 0.168$ ,  $p = 0.024$ ). The relationship between actual similarity in level

and subordinate level of upward influence behaviors was found to be significant as part of testing Hypothesis 4a ( $p = 0.01$ ). Hypothesis 10a was partially supported as actual similarity in level of upward influence behaviors was significant in the mediation model ( $\gamma = 0.138$ ,  $p = 0.05$ ), and the effect of subordinate level of influence behaviors decreased from 0.135 to 0.113 but was still significant ( $p = 0.05$ ). Hypothesis 11b was not tested as the relationship between actual similarity in profile and leader-member exchange (Hypothesis 10b) was non-significant ( $p = 0.072$ ). The results of the cross level mediation effects are summarized in Table 12 below.

**Table 12**  
**Cross Level Mediation Effects**

	Coefficient	SE	t-ratio	df	p-value	$\Delta \gamma$
<b>Outcome Variable—Perception of Similarity:</b>						
H4a: Actual Similarity in Level, $\gamma_{01}$ (Level 2 Mediator)	0.065	0.028	2.32	20	0.016	
Subordinate Level of IB, $\gamma_{10}$ (Level 1 Predictor)	0.048	0.024	1.98	62	0.026	-0.012
H4b: Actual Similarity in Profile, $\gamma_{01}$ (Level 2 Mediator)	0.017	0.011	1.62	20	0.060	
Subordinate Level of IB, $\gamma_{10}$ (Level 1 Predictor)	0.053	0.024	2.16	62	0.017	-0.008
<b>Outcome Variable--LMX:</b>						
H11a: Actual Similarity in Level, $\gamma_{01}$ (Level 2 Mediator)	0.138	0.080	1.73	20	0.050	
Subordinate Level of IB, $\gamma_{10}$ (Level 1 Predictor)	0.113	0.068	1.67	62	0.050	-0.022

*H8a, H8b, H11b were not tested due to non-significant results between the predictor and the outcome variable. All equations controlled for subordinate gender, subordinate education, and years subordinate has worked for supervisor.*

*All p-values are one-tailed.*

### ***Summary of Relationships with Perception of Similarity***

Three measures of upward influence behaviors are positively related to perception of similarity. Subordinate level of influencing behaviors is positively related to perception of similarity ( $\gamma = 0.061$ ,  $p = 0.007$ ). In addition, both actual similarity in level of influence behaviors ( $\gamma = 0.079$ ,  $p = 0.004$ ) and actual similarity in profile of influence behaviors ( $\gamma = 0.022$ ,  $p = 0.025$ ) are positively related to perception of similarity. The relationships among these four measures was further investigated by testing whether the two measures of actual similarity in influence behaviors mediated the relationship between subordinate level of upward influence behaviors and perception of similarity. There was partial support for actual similarity in level of upward influence behaviors mediating the relationship between subordinate level of upward influence behavior and perception of similarity. Also, the mediating effects of actual similarity in profile of upward influence behaviors between subordinate level of influence behaviors and perception of similarity approached significance ( $p = 0.06$ ) for partial mediation. The level of use in influence behaviors affects perception of similarity based on how similar a subordinate's upward influence behaviors actually are to their supervisor's behaviors. In other words, the actual similarity in level and profile of upward influencing behaviors partially accounts for the relationship between the subordinate's level of upward influence behaviors and the supervisor's perception of similarity. The relationships of predictor and mediator variables with perception of similarity are summarized in Table 13 below.

**Table 13**  
**Relationships with Perception of Similarity**

	Coefficient	SE	t- ratio	df	p- value	$\Delta$ R-Sq
<i>Direct Effects</i>						
H3: Subordinate Level of IB, $\gamma_{10}$	0.061	0.024	2.52	62	0.007	0.051
H2a: Actual Similarity in Level, $\gamma_{01}$	0.079	0.027	2.92	20	0.004	0.424
H2b: Actual Similarity in Profile, $\gamma_{01}$	0.022	0.010	2.09	20	0.025	0.195
	Coefficient	SE	t- ratio	df	p- value	$\Delta\gamma$
<i>Mediating Effects:</i>						
H4a: Actual Similarity in Level, $\gamma_{01}$ (Level 2 Mediator)	0.065	0.028	2.32	20	0.016	
Subordinate Level of IB, $\gamma_{10}$ (Level 1 Predictor)	0.048	0.024	1.98	62	0.026	-0.012
H4b: Actual Similarity in Profile, $\gamma_{01}$ (Level 2 Mediator)	0.017	0.011	1.62	20	0.060	
Subordinate Level of IB, $\gamma_{10}$ (Level 1 Predictor)	0.053	0.024	2.16	62	0.017	-0.008

*All equations controlled for subordinate gender, subordinate education, and years subordinate has worked for supervisor.  
All p-values are one-tailed.*

### *Summary of Relationships with Leader-Member Exchange*

Results showed support for two of the three direct relationships. Subordinate level of upward influence behaviors is positively related to leader-member exchange ( $\gamma = 0.135$ ,  $p = 0.026$ ). Actual similarity in level of upward influence behaviors is also positively related to leader-member exchange ( $\gamma = 0.168$ ,  $p = 0.024$ ). The relationship between actual similarity in profile and leader-member exchange was not supported. Actual similarity in profile of upward influence behaviors was found to partially mediate the relationship between subordinate level of upward influence behaviors and leader-member exchange. That is, the relationship between subordinate level of upward influence behaviors and leader-member exchange is partially accounted for by the actual similarity in profile of upward influence behaviors. The relationships of predictor and mediator variables with leader-member exchange are summarized below in Table 14.

**Table 14**  
**Relationships with LMX**

	Coefficient	SE	t-ratio	df	p-value	$\Delta R-Sq$
<i>Direct Effects</i>						
H9: Subordinate Level of IB, $\gamma_{10}$	0.135	0.066	2.04	62	0.026	0.010
H10a: Actual Similarity in Level, $\gamma_{01}$	0.168	0.080	2.11	20	0.024	0.271
H10b: Actual Similarity in Profile, $\gamma_{01}$	0.045	0.030	1.52	20	0.072	0.111
	Coefficient	SE	t-ratio	df	p-value	$\Delta \gamma$
<i>Mediating Effects:</i>						
H11a: Actual Similarity in Level, $\gamma_{01}$ ( <i>Level 2 Mediator</i> )	0.138	0.080	1.73	20	0.050	
Subordinate Level of IB, $\gamma_{10}$ ( <i>Level 1 Predictor</i> )	0.113	0.068	1.67	62	0.050	-0.022

*H11b was not tested due to non-significant results between the predictor and the outcome variable.*

*All equations controlled for subordinate gender, subordinate education, and years subordinate has worked for supervisor.*

*All p-values are one-tailed.*

### ***Summary of Relationships with Supervisor Assessment of Performance***

Both the supervisor's perception of similarity and the quality of the relationship with that subordinate (LMX) are strongly related to the supervisor's assessment of a subordinated performance. Results show strong support for leader-member exchange partially mediating the relationship between perception of similarity and performance ratings. Leader-member exchange partially accounts for the relationship between perception of similarity and performance ratings. The implication is that the means by which a supervisor's perception of similarity acts on performance ratings is partly through the relationship that a subordinate has with a supervisor

Subordinate level of upward influence behaviors also has a positive effect on performance ratings. This relationship is fully mediated by perception of similarity and by leader-member exchange. The relationship between level of subordinate influence behaviors and performance ratings is accounted for by perception of similarity. The results of the current study also found actual similarity in level of upward influence behaviors to mediate the relationship between subordinate level of influence behaviors and perception of similarity, which indicates that actual similarity has an indirect effect in the relationship between subordinate level of upward influence behaviors, perception of similarity, and performance ratings. The relationship between subordinate level of upward influence behaviors and performance ratings is also accounted for by leader-member exchange. Influence behaviors act on performance ratings through perception of similarity, which in turn acts on performance ratings through leader-member exchange.

There was no support for actual similarity of either level or profile of influence behaviors having a direct effect on performance ratings. The relationships of predictor and mediator variables with performance ratings are summarized below in Table 15.

**Table 15**  
**Relationships with Performance Ratings**

	Coefficient	SE	t-ratio	df	p-value	$\Delta$ R-Sq
<i>Direct Effects</i>						
H1: Subordinate Level of IB, $\gamma_{10}$	0.165	0.073	2.26	62	0.014	0.047
H6: Perception of Similarity in IB, $\gamma_{10}$	1.705	0.271	6.29	62	<0.001	0.389
H9: Supervisor LMX, $\gamma_{10}$	0.789	0.085	9.32	62	<0.001	0.540
H5a: Actual Similarity in Level, $\gamma_{01}$	0.021	0.088	0.24	20	0.406	0.000
H5b: Actual Similarity in Profile, $\gamma_{01}$	0.002	0.031	0.06	20	0.476	0.000
	Coefficient	SE	t-ratio	df	p-value	$\Delta \gamma$
<i>Mediating Effects:</i>						
H7: Perception of Similarity, $\gamma_{10}$ (M)	1.624	0.281	5.79	61	<0.001	
Subordinate Level of IB, $\gamma_{20}$ (P)	0.067	0.063	1.07	61	0.144	-0.098
H13: LMX, $\gamma_{10}$ (M)	0.769	0.086	8.91	61	<0.001	
Subordinate Level of IB, $\gamma_{20}$ (P)	0.065	0.053	1.23	61	0.112	-0.100
H14: LMX, $\gamma_{10}$ (M)	0.672	0.109	6.14	61	<0.001	
Perception of Similarity, $\gamma_{20}$ (P)	0.521	0.296	1.76	61	0.042	-1.184

*H8a and H8b were not tested due to non-significant results between the predictor and the outcome variable.*

*All equations controlled for subordinate gender, subordinate education, and years subordinate has worked for supervisor.*

*(M)= mediator; (P)=predictor*

### *Summary of Results*

Of the twenty relationships hypothesized and tested, thirteen were statistically significant ( $p \leq 0.05$ ), two were marginally supported ( $p \leq 0.07$ ), and five were not supported. Of the direct relationships within individual level (H1, H3, H6, H9, and H12), all five were found to be significant and fully supported. Full support was found for three of the six cross level direct effects (H2a, H2b, and H10a), and one hypothesis was marginally supported (H10b,  $p = 0.072$ ). Two cross level direct effects were not supported (H5a and H5b). Among the three within individual level mediation effects (H 7, H13, and H14), full or partial support was found for all three. Of the six cross level mediation effects, partial support was found for two (H4a and H11a) of the hypotheses, and marginal support was found for one (H4b) of the remaining cross level mediation effects. Further explanation for these results is provided in Table 16 and the discussion section.

**Table 16**  
**Summary of Hypotheses and Results**

<b><u>Hypotheses</u></b>	<b><u>Results</u></b>	<b><u>Significance</u></b>
<b>H1:</b> Positive relationship between Subordinate Level of IB and Performance Ratings	Supported	p = 0.014
<b>H2a:</b> Positive relationship between Actual Similarity in Level of IB and Perception of Similarity	Supported	p = 0.004
<b>H2b:</b> Positive relationship between Actual Similarity in Profile of IB and Perception of Similarity	Supported	p = 0.025
<b>H3:</b> Positive relationship between Subordinate Level of IB and Perception of Similarity	Supported	p = 0.007
<b>H4a:</b> Actual Similarity in Level of IB mediates the relationship between Subordinate Level of IB and Perception of Similarity	Supported Partial Mediation	p = 0.016
<b>H4b:</b> Actual Similarity in Profile of IB mediates the relationship between Subordinate Level of IB and Perception of Similarity	Marginal Support Partial Mediation	p = 0.060
<b>H5a:</b> Positive relationship between Actual Similarity in Level of IB and Performance Ratings	Not Supported	p = 0.406
<b>H5a:</b> Positive relationship between Actual Similarity in Profile of IB and Performance Ratings	Not Supported	p = 0.476
<b>H6:</b> Positive relationship between Perception of Similarity and Performance Ratings	Supported	p < 0.001
<b>H7:</b> Perception of Similarity mediates the relationship between Subordinate Level of IB and Performance Ratings	Supported Full Mediation	p < 0.001
<b>H8a:</b> Actual Similarity in Level of IB mediates the relationship between Subordinate Level of IB and Performance Ratings	Not Tested	
<b>H8b:</b> Actual Similarity in Profile of IB mediates the relationship between Subordinate Level of IB and Performance Ratings	Not Tested	

<b><u>Hypotheses</u></b>	<b><u>Results</u></b>	<b><u>Significance</u></b>
<b>H9:</b> Positive relationship between Subordinate Level of IB and Leader-Member Exchange	Supported	$p = 0.023$
<b>H10b:</b> Positive relationship between Actual Similarity in Profile of IB and Leader-Member Exchange	Marginal Support Partial Mediation	$p = 0.072$
<b>H11a:</b> Actual Similarity in Level of IB mediates the relationship between Subordinate Level of IB and Leader-Member Exchange	Supported Partial Mediation	$p = 0.050$
<b>H11b:</b> Actual Similarity in Profile of IB mediates the relationship between Subordinate Level of IB and Leader-Member Exchange	Not Tested	
<b>H12:</b> Positive relationship between Leader-Member Exchange and Performance Ratings	Supported	$p < 0.001$
<b>H13:</b> Leader-Member Exchange mediates the relationship between Subordinate Level of IB and Performance Ratings	Supported Full Mediation	$p < 0.001$
<b>H14:</b> Leader-Member Exchange mediates the relationship between Perception of Similarity and Performance Ratings	Supported Partial Mediation	$p < 0.001$

## **Discussion**

The purpose of the study was to investigate how the dyadic level effects of actual similarities in level and profile of upward influence behaviors affect performance ratings, perception of similarity, and leader-member exchange. Surprisingly, there is no direct relationship between either actual similarity in level of upward influence behaviors or in actual similarity in profile of upward influence behaviors and performance ratings. However, actual similarity in level of upward influence behaviors does have a significant positive relationship with perception of similarity and with leader-member exchange. In addition, actual similarity in profile of upward influence behaviors has a significant positive relationship with perception of similarity, and a marginally significant relationship ( $p = 0.072$ ) with leader-member exchange. The results also show that actual similarity in level of upward influence behaviors partially mediate the relationship between subordinate level of upward influence behaviors and perception of similarity, and there is marginal statistical support for actual similarity in profile of upward influence behaviors mediating the relationship between subordinate level of upward influence behaviors and perception of similarity ( $p = 0.060$ ). While there is no direct relationship between actual similarity and performance ratings, it appears based on the results that actual similarity of level and profile of upward influence behaviors affect performance ratings indirectly through perception of similarity and leader-member exchange. In brief, performance ratings are the supervisor's perceptions which are attributable to a number of factors, especially supervisor perception of similarity and the supervisor's perception of the quality of the dyadic relationship as assessed by leader-member exchange.

The study sheds light on the relationship between actual similarity and perceived similarity. Perception of similarity is developed based on actual similarities—in particular behavioral similarities. Most studies investigating perceptions of similarity are based on either

demographic similarity (Judge & Ferris, 1993; Tsui & O'Reilly Iii, 1989; Wayne & Liden, 1995) or attitudinal similarity (Bates, 2002; Turban & Jones, 1988). Based on the findings from the present research, perception of similarity is strongly rooted in behavioral similarity. Perception of similarity was found to be strongly related to leader-member exchange and to performance ratings. In most organizational research, including the current research, perception of similarity is treated as a uni-dimensional construct measured by a one item response. In fact, perceptions of similarity are more than likely due to complex multi-dimensional components reflecting demographic, attitudinal, and behavioral similarities. Supervisors develop perceptions of similarity based on a number of actual similarities—demographic, attitudinal, and (as this research shows) behaviors.

Actual similarity also contributes to the leader-member exchange relationship. The similarity-attraction paradigm (Byrne, 1971) posits that people like individuals who are more like themselves. This study confirms that similarity in behavior is strongly related to the type of relationship an employee has with his/her supervisor. Supervisors like, trust, and can depend on subordinates who behave similarly to themselves. Similarity fosters predictability. Predictability in behavior strengthens the dyadic exchange relationship.

The current study also investigates the direct and indirect relationships among subordinate level of upward influence behaviors, perception of similarity, leader-member exchange, and performance ratings. Level of subordinate influence behaviors is positively related to perception of similarity, leader-member exchange, and performance ratings. Further, actual similarity in level of influence behaviors partially mediates the relationships between level of influence behaviors and perception of similarity and between level of influence behaviors and leader-member exchange. In addition, there was marginal statistical support for actual similarity in profile partially mediating the relationship between subordinate level of influence behaviors

and perception of similarity. Although the relationship between subordinate level of influence behaviors and perception of similarity is significant, subordinate level of influence behaviors only accounts for 5% of the variance in perception of similarity. On the other hand, actual similarity in level of influence use accounts for 42.4% of the variance in perception of similarity. The judgment of perceived similarity is largely based on actual similarity in level of influence behaviors. Subordinates who use upward influence behaviors more frequently are directly and indirectly increasing their performance ratings, partly if the types and frequency of upward influence behaviors they use are actually similar to the types and frequency of upward influence behaviors used by their supervisor

Likewise, the relationship between use of upward influence behaviors and leader-member exchange is partially attributable to the relationship between actual similarity in level of upward influence behaviors and leader-member exchange. The results of the current study found that actual similarity in level of upward influence behaviors partially mediates the relationship between subordinate use of influence behaviors and leader-member exchange. Further, while subordinate level of upward influence behaviors is significantly related to leader-member exchange, subordinate level of upward influence behaviors explains only 1% of the variance in leader-member exchange. On the other hand, actual similarity in level of upward influence behaviors accounts for 27.1% of the variance in leader-member exchange and actual similarity in profile of upward influence behaviors accounts for 11.1% of the variance in leader-member exchange.. The effects associated between use of upward influence behaviors and leader-member exchange are largely attributable to the degree of actual similarity in use of upward influence behaviors between a subordinate and a supervisor.

A number of studies have looked at and found relationships between use of upward influence behaviors and performance. The results from the current study shed important insight

into this relationship, Use of upward influence behaviors by a subordinate are most effective when the dyadic relationship between supervisor and subordinate is strong. A supervisor's perception of similarity fully mediates the relationship between the subordinate's level of influence behaviors and performance ratings. Similarly, the supervisor's perception of the dyadic relationship, as assessed by leader-member exchange, fully mediates the relationship between the subordinate's level of influence behaviors and performance ratings. Again, the relationship between the subordinate's use of upward influence behaviors and performance ratings are really the result of the supervisor's perceptions regarding similarity and quality of the dyadic relationship. The subordinate's use of upward influence behaviors are only effective if the subordinate is using upward influence behaviors similar to the supervisor, thereby developing high levels of supervisor perception of similarity and leader-member exchange, which in turn have direct effects on performance ratings.

The results also show that leader-member exchange partially mediates the relationship between perception of similarity and performance ratings. The relationship between perception of similarity and leader-member exchange implies that people are more likely to develop relationships with individuals they perceive to be similar to themselves. One implication of these findings is that a subordinate can possibly cultivate a better relationship with his/her supervisor by fostering the supervisor's perception of similarity. One means is to use similar type and frequency of upward influence behaviors as his/her supervisor's. The more closely a subordinate behaves like his/her supervisor, the more the subordinate will be perceived as similar, leading to higher performance ratings.

One possible conclusion from these results is that the relationship between use of influence behaviors and performance ratings is fully explained by the relationship (1) between actual similarity in use of upward influence behaviors and perception of similarity and (2)

between actual similarity in use of upward influence behaviors and leader-member exchange. Although the relationship between subordinate level of influence behaviors and performance ratings is significant ( $p = 0.014$ ), subordinate level of influence behaviors only accounts for 4.7% of the variance in performance ratings. On the other hand, much of the variance in performance ratings is explained by the supervisor's perception of the subordinate-supervisor relationship. In the current research perception of similarity accounts for 38.9% of the variance in performance ratings; leader-member exchange accounts for 54% of the variance in performance ratings. The use of upward influence behaviors in themselves do not lead to higher performance ratings. Instead, the relationship between subordinate level of upward influence behaviors and performance ratings is fully mediated by perception of similarity and leader-member exchange. Further, a large part of the variance in perception of similarity and leader-member exchange is explained by the actual similarity in level and profile of upward influence behaviors. The explanation for these relationships is that supervisors develop perceptions about a subordinate based on observations of how that subordinate behaves. The level and profile of upward influence behaviors of a subordinate positively affect the supervisor's perceptions of similarity to the supervisor. Actual similarities in use of influence behaviors and supervisor's perceived similarity are both positively related to developing the supervisor-subordinate relationship. Subordinates who develop better relationships with their supervisors are perceived as better performers.

## **Contributions to Field of Organizational Behavior**

### *Theoretical Contributions*

The present research makes a number of theoretical contributions to the field of organizational behavior. First, it distinguishes between individual and dyadic level phenomena and conceptualizes them within the context of the actor-partner interdependence model (APIM). Viewing the supervisor subordinate relationship in terms of a dyadic interaction provides a better understanding of how subordinate characteristics and behaviors affect a supervisor's perceptions within the context of the dyadic exchange relationship. Actual similarity in level and profile of upward influence behaviors—dyadic interactions—affect the supervisor's perception of similarity, the quality of the exchange relationship, and indirectly the supervisor's assessment of the subordinate's performance. Interactions between supervisor and subordinate are central to the dyadic relationship; and, clearly, the subordinate plays an integral role. This research furthers our understanding of how dyadic interactions affect the supervisor's and subordinate's attitudes and behaviors which are situated within dyadic theoretical framework.

Another theoretical contribution is the conceptualization of influence behaviors in terms of level and profile. Prior research has predominantly used a single influence behavior or subset of single behaviors to investigate the effects of influence behaviors on work outcomes. The current research goes beyond this approach by conceptualizing influence behaviors as both in terms of level and profile, and, secondly investigating these measures of influence behaviors in relation to a supervisor's own level and profile of influence behaviors.

Further, the present research conceptualizes similarity in terms of behavioral constructs. Previous research on dyadic similarity has primarily defined "actual" similarity in terms of demographic characteristics, attitudes, values, or personality traits. Often, the basis of perceived

similarity has not been specified, and it has typically been measured by asking, “How similar is your subordinate to you?” The current study uses influence behaviors to specify the basis for the supervisor’s assessment of similarity between supervisor and subordinate influence behaviors.

As discussed in the literature review, prior research has explored relationships among some of the following variables: supervisor and subordinate upward influence behaviors, perceptions of similarity, leader-member exchange and performance ratings. The present research expands on prior research by looking collectively at all these factors plus factors not previously addressed, such as level of upward influence behaviors and actual similarities in level and profile of upward influence behaviors, and perceptions of similarity based on influence behavior. Further, the current research provides a more comprehensive understanding of the mediating effects, particularly the cross-level mediating effects of actual similarity in level and profile of influence behaviors and their effects on the relationship between level of influence behaviors and performance ratings. Another significant theoretical contribution is the posited and found mediating effect of leader-member exchange between the relationship between perception of similarity and performance ratings.

Lastly, the current research further contributes to our theoretical understanding of influence behaviors by conceptualizing the eleven categories of influence behaviors from the IBQ in terms of as three distinct dimensions. No previous research has identified these three dimensions of influence behaviors. Rather than looking at influence behaviors separately, it is proposed that the three dimensions prospectively provide a more parsimonious conceptualization of influence behaviors.

### *Empirical Contributions*

To date, prior research on influence behaviors has almost exclusively investigated the relationships between supervisor and subordinate based on analysis at the individual level. This type of analysis ignores the possible effects of dyadic level phenomena interacting with individual level effects. Organizations can be viewed as multiple layers of systems which traditionally have been separated into two distinct levels of study, micro (or individual) and macro (or organizational), each having its own distinct theories and analyses (Klein & Kozlowski, 2000). However, if we think of an organization as a number of nested systems, relationships between micro levels and macro levels become a series of overlapping and interdependent relationships. Individual level phenomena are embedded within group phenomena which are in turn embedded in organizational phenomena. The analysis of individual level phenomena should take into account dyadic level phenomena which affect individual level effects. Specifically, this research frames individual level behaviors within a multilevel context, using multi-level analyses to identify and measure individual and dyadic level effects. On the dyadic level, the interaction between supervisor and subordinate use of influence behaviors are analyzed over and above the individual level effects (e.g., level of influence behaviors, supervisor perception of similarity in use of influence behaviors, leader-member exchange, and performance ratings).

The results of the current study also empirically advance our understanding of how both actual similarity in level and actual similarity in profile relate to perceived similarity and leader-member exchange. It was found that leader-member exchange accounts for 54% of the variance in performance ratings, and perception of similarity accounts for 39% of the variance in performance ratings. These are very high levels of explained variance. Actual similarity in use

of upward influence behaviors acts on performance ratings indirectly through perception of similarity and leader-member exchange.

Another significant finding of the current research is that the relationship between subordinate level of influence behaviors and performance is fully mediated by both perception of similarity and leader-member exchange. Both perception of similarity and leader-member exchange are significant contributors to the cognitive process of a supervisor assessing a subordinate's performance. Use of upward influence behaviors is only indirectly associated with performance ratings acting through perceived similarity and leader-member exchange.

The current study also makes an empirical contribution by using actual supervisor subordinate dyads within an organizational environment. Only one prior study (Wayne et al., 1997) has previously examined influence behaviors, perceptions of similarity, and leader-member exchange using actual dyads. Most prior studies have collected data on supervisor and subordinate influence behaviors from one source—either the supervisor or the subordinate. To the author's knowledge no prior research has used multiple dyads situated within work groups. The current study uses on four dyads within each work group, thereby allowing the researcher to make comparisons across dyads under the same supervisor. The effects under study reflect comparative relationships between subordinates within a work group. By having supervisors describe and evaluate multiple subordinates at one time, the results implicitly incorporate comparisons of one subordinate to another. The use of multiple dyads within the same work group is an important empirical contribution.

### ***Practical Implications***

The results of the current study may help managers better understand the dynamics of supervisor-subordinate relationships and how these dynamics affect rated performance. More specifically, it was found that individuals who are better able to enact behaviors that more closely resemble those of their manager apparently are better performers. When employees adopt the types of behaviors of their managers, they might not just appear to “fit in” better; they might in fact perform better. In an action-related vein, organizations might communicate to new employees (perhaps through training) the types of influence behaviors which have yielded successful outcomes. Part of the new employee acclimation process is to adopt the behaviors of other managers whose behaviors have led to performance success within the organization. One means of training new employees is through the supervisor-subordinate relationship, perhaps through coaching or mentoring.

Another practical implication of the current research is to give human resource professionals a better understanding of the subjectivity inherent in supervisor performance ratings. It was found that supervisor assessed performance strongly reflects the supervisor’s perception of the relationship between him/herself and a subordinate. These findings support the recommendation by Hoffman, Lance, Bynum, and Gentry (2010) that performance ratings in organizations need to be collected from multiple sources as opposed to a single source. Most performance appraisals are based solely on supervisor evaluations. The rater, in this case the supervisor, evidently makes judgments about a subordinate’s performance based on a number of factors, especially the quality of the relationship with the subordinate. Supervisor assessment of performance may, in fact, be a better barometer of the supervisor’s relationship with a subordinate than it is of the subordinate’s task performance.

## Limitations

No research is without limitations. The current study is limited in its ability to make causal inferences as it is a non-experimental design. The relationships under study are measured using data collected through a survey. The study does not employ a treatment condition to isolate a particular effect, nor is there a control group that can be used for a treatment comparison. However, there is validity in using self-reported data to measure behavioral and psychological data in organizational research (Howard, 1994).

Another limitation of the study was the lower than desired power. Based on estimates made prior to gathering data, 27 work groups would have yielded a power of around 0.60. However, due to the higher than expected intra-class correlation, the actual power was approximately 0.40. This may have impacted the ability to detect differences in three hypotheses where the significance levels were between  $p = 0.05$  and  $p = 0.072$ . If the study had included 3 more work groups, potentially these hypotheses would have been found significant.

Because the current study focused on degree of similarity in the supervisor-subordinate dyad, differences in level and profile of influence behaviors were calculated based on absolute values. Magnitudes of differences were captured, but the directionality of differences was not captured. Incorporating directionality into measures of actual similarity would allow for differentiation between low influencing supervisor-high influencing subordinate dyads and high influencing supervisor-low influencing subordinate dyads.

## **Validity Assessment**

One strength of the present research is that it utilizes established scales that have historically demonstrated good psychometric properties and consistent validity. The current study used three scales which have been used in prior research. The IBQ (Yukl, et al. 2008) has been used in numerous studies on influence behaviors. The scale used to measure leader-member exchange—MD-LMX (Liden & Maslyn, 1998)—has been frequently used in LMX research. The behavior-based performance scale (Griffin, Neal, & Parker, 2007) is a recently developed scale, but has been employed as a measure of individual, group, and organizational performance.

A second strength of the study design is that it does not rely on self-reported data from a single source (Spector, 1994). Rather, both supervisor and subordinate-sourced data are used in the analysis. Supervisors and subordinates were asked to assess their own influence behaviors. These results were then used to calculate the actual similarity measures. In contrast, most prior research has collected data from only one source—either the subordinate or the supervisor. Also, supervisors were asked to assess on average four subordinates in their work group regarding perceived similarity, leader-member exchange, and performance. This provided multiple measures for subordinates within the same work group

The external validity of the study is strong as the sample is drawn from actual dyads comprised of full-time employees in four companies across four industries. Supervisors and subordinates were matched to identify dyads in the study. Further, subordinates were also identified by work group. Having data at the dyadic and work group level allowed for comparisons among subordinates within work groups and across work groups, further strengthening the external validity of the findings.

The statistical validity of the study is strong. In order to assess the impact of dyadic effects, the most appropriate method of analysis is a multivariate multilevel analysis (Dansereau, et al., 2006; Kenny, et al., 2002; Kenny, et al., 2001; Schriesheim, 1995). There was a significant level of variance within and between dyads. Had the multilevel nature of the data structures been ignored, a single level model would have incorporated additional variance into the individual level effects which should have been attributed to across dyadic variance (Kenny, et al., 2006). A multilevel analysis enables the researcher to attribute variance to the appropriate level, and minimizes the measurement error associated with aggregated data (Castro, 2002; Kenny, et al., 2006; Ostroff, 1993). Additionally, analysis of dyadic data as an APIM—actor-partner independence model (Kenny, et al., 2006)—strengthens the statistical validity of the study by framing the supervisor-subordinate relationship as a dyadic interaction.

One weakness of the study is that it utilizes a single method to collect data. A possible threat to substantive validity is common method variance, where the significance of any relationships could be attributable to method variance instead of actual differences between the effects under study. The threat is reduced by three means. First, data were collected from two different sources—the supervisor and the subordinate—thereby minimizing the method connection between the dependent variable, subordinate performance rating, and the independent variables in the model. Second, the scales employed different scoring approaches, such as frequency and degree of agreement, to capture information (Podsakoff, MacKenzie, Jeong-Yeon, & Podsakoff, 2003; Spector, 2006). Third, the data was collected from four different organizations, which minimized the possible systematic variance from collecting data in one organization.

## **Future Research**

Results of the current research suggest a number of directions for future research. First, the three distinct dimensions of influence behaviors identified in this study—Rational, Emotional, and Cooperative—need to be researched further. It should be stated that no prior research has factor analyzed the eleven types of influence behaviors. Further research is needed which investigates what phenomena the three dimensions are related to and whether certain personality types are more likely to use one influence dimensions over another. Additionally, relationships among influence dimensions, work attitudes, and work outcomes need to be investigated..

Second, the perception of similarity construct needs further investigation. Perception of similarity is a more complex construct than can be captured using a single item measure. Previous research on the relationship between actual similarity and perceived similarity have investigated the relationships between similarities in demographic characteristics, attitudes, and values. The current research found significant relationships between actual similarity in influence behaviors and perceived similarity in influence behaviors. Perception of similarity should reflect multiple dimensions including demographic, attitudinal, and behavioral similarities. Future research should also investigate the conditions where particular types of actual similarities are most likely to affect perceptions of similarity.

Third, further research into the factors which affect the development of leader-member exchange is still needed. Liden, Wayne, and Stillwell (1993) performed the only longitudinal study the author is aware of that investigates the development of leader-member exchange. Based on the results of the current research, leader-member exchange significantly affects supervisor assessment of performance. A better understanding of additional factors affecting the development of leader-member exchange is needed.

Lastly, another possible direction for research is to investigate how actual similarities in work groups—behaviors, attitudinal, and demographic—are related to work group performance. Similarities and differences in demographics, attitudes, values, and behaviors appear to impact group performance. Based on the results of the current study, it seems plausible that similarities within work groups indirectly affect performance through a number of perceptual and relationship based phenomena. Further research is needed to better understand how differences and similarities in work group variables affect group relationships and group performance.

## **Conclusions**

Little research has been done on how actual similarities in work behaviors directly and indirectly affect performance ratings. The results of this study show a strong indirect relationship between actual similarities in use of influence behaviors and performance ratings. Actual similarity in influence behaviors has a significant direct effect on perception of similarity and leader-member exchange, both of which have a significant direct effect on performance ratings. Actual similarity in use of influence behaviors affects performance ratings indirectly through perception of similarity and leader-member exchange. This study contributes to our understanding of how similarity in behaviors within the supervisor-subordinate dyad affects performance ratings. In addition, this research furthers our understanding of the relationships among use of influence behaviors, perception of similarity, leader-member exchange, and performance ratings. The current study offers significant theoretical and empirical contributions. There are also practical implications and several new directions for future research.

**Appendices**

## Appendix A: Informed Consent Form

### HUMAN SUBJECT CONSENT FORM

TITLE OF RESEARCH: Supervisor-subordinate similarities in use of influence behaviors and supervisor ratings of subordinate performance: A multilevel model  
 PRINCIPAL INVESTIGATOR: Leanna Lawter  
 CO-PRINCIPAL INVESTIGATOR: Richard Kopelman  
 DEPARTMENT: Management

I. You are being invited to participate in a research project that investigates how supervisor and subordinate influence behaviors are related to individual performance. Participation requires that you provide the researchers with consent that you have voluntarily chosen to participate in this research. If you agree to participate, you may discontinue participation at any time without penalty. After reading the statement in section II below, please indicate your consent by signing and dating the form below. This indicates you have read this consent form and agree to participate in this survey.

#### II. STATEMENT OF PROCEDURE:

I understand that I will be asked to complete a survey of work attitudes including influence behaviors, work relationships, background experiences, and self-assessment of performance. I understand that my main task is to complete the survey. The survey will be completed either by paper or online using a secure website, and it will take approximately 10-15 minutes of my time should I choose to complete the survey. I understand that the data I provide will be kept in the strictest of confidence. Only the principal investigator and her colleague will have access to the data, which will be encrypted and kept on secure server. No one else, including anyone at your place of work, will ever see the data.

There are no physical risks and the social risks involved in this study are minimal.

If you would like to know more about this study or have any questions about this study, please contact please contact Leanna Lawter, (Leanna.Lawter@baruch.cuny.edu) in the Management Department at Baruch College, One Bernard Baruch Way, New York, NY 10010.

III. I certify that I have read and understand this consent form and agree to participate as a subject in this study. I agree that the known risks have been explained to me. I certify that I am 18 years of age or older. My participation in this research is given voluntarily.

If you have any questions regarding your rights as a research participant, please contact Keisha Peterson, the administrator of the Baruch College Institutional Review Board, (646) 312-3785, [Keisha.Peterson@baruch.cuny.edu](mailto:Keisha.Peterson@baruch.cuny.edu); 55 Lexington Ave, Box B 8-215 New York, NY 10010.

**By Signing below, you consent to participating in this study:**

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**Signature**

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**Date**

## Appendix B: Measures Used in the Study

### *Influencing Behaviors*

Using the scale below, indicate how often you have used each behavior to influence your **SUPERVISOR** in the past two years.

	Almost Never	Infrequently	Sometimes	Frequently	Almost Always
1. Use facts and logic to make a persuasive case for a request or a proposal					
2. Offer to do something in exchange for carrying out a request or a task					
3. Make an inspiring appeal to create enthusiasm for a proposed activity or change					
4. Say that a request or proposal is consistent with prior precedent and established practice					
5. Describe benefits he/she could gain from doing a task or activity					
6. Try to pressure him/her to carry out a request					
7. Offer to provide assistance or resources he/she would need to do a task					
8. Use praise or flattery before requesting something of him/her					
9. Consult with him/her to get ideas about a how best to achieve a task or resolve a problem					
10. Ask for help as a personal favor					
11. Ask someone else to help influence him/her to support a request or proposal					

***LMX***

Using the scale below, indicate the degree to which you agree or disagree with the following statements about the working relationship between YOU and your SUPERVISOR

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I like my supervisor very much as a person					
2. My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question					
3. I do work for my supervisor that goes beyond what is specified in my job description					
4. I am impressed with my supervisor's knowledge of his/her job					

***Performance******During the past month to what extent has this employee:***

- a. Initiated better ways of doing his/her core tasks
- b. Acquired new skills to help adapt to changes in his/her job
- c. Carried out all the core parts of his/her job well

Not this month	A small amount	A moderate amount	A large amount	A great deal

***Perception of Similarity*****Rate this employee on the following questions:**

1. How similar are you and this employee in how you influence others?

Not at all\_\_\_\_\_ Slightly\_\_\_\_\_ Somewhat\_\_\_\_\_ Highly\_\_\_\_\_ Almost Exactly\_\_\_\_\_

***Demographics***

1. Length of employment at your present or most recent job to the nearest year: \_\_\_\_\_
2. Length of time you have worked for you current boss to the nearest year: \_\_\_\_\_
3. Age Category (check one):  
20-24 \_\_\_\_\_ 25-29 \_\_\_\_\_ 30-34 \_\_\_\_\_ 35-39 \_\_\_\_\_ 40-44 \_\_\_\_\_ 45-49 \_\_\_\_\_ 50+ \_\_\_\_\_
4. Sex: Female \_\_\_\_\_ Male \_\_\_\_\_
5. Highest level of education you have attained (check one):  
High school \_\_\_\_\_ Some college \_\_\_\_\_ Bachelors Degree \_\_\_\_\_ Graduate Degree \_\_\_\_\_
6. What best describes the type of position you have in the company?  
\_\_\_\_\_Administrative \_\_\_\_\_Technical \_\_\_\_\_Professional \_\_\_\_\_Other

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