

The Moderating Effect of Leader Prototypicality on the
Relationship between LMX and Follower Attitudes

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The Moderating Effect of Leader Prototypicality on the
Relationship between LMX and Follower Attitudes

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SUMMARY

Leader-Member Exchange (LMX) has provided the Industrial/Organizational Psychologists and Organizational Behaviorists with a theoretical framework for understanding how leaders lead followers. This theory is based on the interpersonal relationship between leader and follower. The theory proposes that the relationship between leaders and followers develops from a dyadic exchange process. However, research has recognized the need to consider the influence of social context on the relationship between LMX and outcomes. The Social Identity Model of Leadership (SIMOL) has proposed a view of leadership from the perspective of the relationship between the leader and a group of followers. This theory is based primarily on group memberships and how the leader fits the group prototype, affecting the leader's ability to lead and how the leader leads. This paper discusses both theories and shows how dyadic and group relationships work in concert to explain how leaders lead followers. The paper hypothesizes that SIMOL, through leader prototypicality, moderates the relationship between LMX and follower attitudes. Together, they provide a more complete framework for understanding leadership based on the simultaneously occurring relationships encountered by a leader.

CHAPTER 1

INTRODUCTION

Leaders get people to work toward a common strategy. For those who observe and study leaders, the question is how does a leader promote desirable actions, behaviors, attitudes, and results (from people) in an effort to achieve the strategy? Academic researchers began their efforts to answer this question by exploring the skills and traits possessed by leaders (Stogdill, 1948; Mann, 1959; Stogdill, 1974). Unable to define a set of traits or a trait theory that consistently predicted a successful leader, researchers investigated leadership styles and behaviors (Fleishman, Harris, & Burt, 1955). Their arguments offered greater insight into leadership, but struggled with questions regarding the role of situations and contexts on leadership. Subsequently, researchers developed contingency models of leadership (Fiedler, 1964; Fiedler, 1967; Fiedler 1971; House, 1971). These suggest that leadership results from combinations of leader style and traits, follower behaviors and skills, and situational constraints.

With each advance in leadership research, it has been suggested that future research should consider more and broader interactions within organizations. For all of this research, the *sine qua non* has been to increase our understanding of the leader's impact on outcomes. More recent relational theories of leadership seek to explain how the leader, through relationships, influences follower behaviors and situational factors (e.g., in-group status, corporate culture) to improve leadership effectiveness and to achieve desired outcomes. One frequent goal (outcome) sought by a leader is to improve the attitude of followers toward a specific activity or change.

Leaders seek this positive attitude because of the perception of a link between attitude and performance in practice and the theoretical links between attitude, behavior, and outcomes that have received significant study through the years. Psychology has posited numerous theories

explaining the influences of attitudes on behaviors and outcomes. In 1975, Fishbein and Ajzen published *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research* and presented the Theory of Reasoned Action (TRA) as a predictive model of behavior. TRA presented scholars with the concept of behavior intention as a function of attitudes and subjective norms. At the Nebraska Symposium on Motivation, Triandis (1979) presented his Theory of Interpersonal Behavior. His ideas elaborated on the underlying mechanisms of belief components in the TRA. The Theory of Planned Behavior, TPB was developed to address the shortcomings identified by researchers regarding the TRA. The TPB (Ajzen, 1985) added the important elements of actual and perceived behavioral control to the TRA model. TPB also added covariances between three belief components to reflect that stable personality variables or individual differences would likely influence multiple belief components. While the TPB changes did not create a perfect theory of behavior, it is worth noting that TPB is the explicit theoretical basis for 222 studies in Medline and 610 studies in PsycINFO between 1985 and 2004 (Francis, et al, 2004). One key element of these theories (and many newer theories) is that the models include attitudes as an important precursor to actual behavior.

Dedicated research into the attitude component of these theories suggests that there are three components of attitude: affective, behavioral, and cognitive (Rosenberg & Hovland, 1960; Breckler, 1984; Millar & Tesser, 1986). These attitude components affect the corresponding belief an individual has about a target and can be predictive of outcomes. Further research has suggested that the three components are actually three bases for an attitude and that any combination of the three bases form the attitude (Cacioppo, Petty, and Geen, 1989). For a leader, influencing the attitude of followers can occur on any or all of these three attitude bases, with the potential to influence follower outcome such as performance and behavior.

Leader Member Exchange Theory and Social Identity Theory of Leadership

Two theories that focus on the relational side of leadership are Leader-Member Exchange Theory (LMX) (Dansereau, Graen, and Haga, 1975) and the Social Identity Theory of Leadership (Hogg, 2001). They examine leadership through the lens of relationships in organizations and both have generated significant support. LMX studies leadership as a dyadic phenomenon between the leader and each individual follower while Social Identity Theory of Leadership (SITOL) investigates leadership in terms of how the leader “fits” the group being led. By considering both approaches simultaneously, researchers have the benefit of considering two of the more important relationships facing leaders. This allows us to gain a more complete picture of the impacts and dynamics of leader relationships.

LMX and SITOL seek to understand two relationships: leader to individual follower and leader to group. As will be developed in this paper, the group perspective provided by Social Identity Model of Leadership (SIMOL) provides a social context that moderates the relationship between LMX and follower attitudes.

Insert Figure 1 about here

This partially addresses the call by LMX researchers to better explain the effects of the dyadic, leader-follower relationship by including a social context. This paper examines the LMX and Social Identity literatures and explores how the two theories of leadership might complement each other in predicting follower behavior. The paper presents specific hypotheses regarding how leader prototypicality affects the relationship between LMX and follower attitudes.

It should be noted that the literature suggests additional relationships involving leader prototypicality. These plausible relationships may include leader prototypicality influencing follower performance directly and a feedback relationship between SITOL and LMX (Epitropaki & Martin, 2005). This paper does not examine these relationships, instead choosing to focus on the interaction between the two relationships.

Foundations of Leader Member Exchange Theory

LMX theory is rooted in the Vertical Dyad Linkage theory of Dansereau, et al (1975). This model suggests supervisors form relationships with individual subordinates and these relationships establish the nature of the interaction between leader and follower. LMX relationships develop between leaders and followers through a series of increasingly intricate exchanges of expectation, interaction, and reward (Dienisch & Liden, 1986). LMX posits that the relationship established between leader and follower is a two-way process between the individuals involved in forming the relationship. This process is based on an ongoing exchange of behaviors and expectations between the two parties. From this relationship, the subordinate receives benefits in forms including status, information, resources, reward, promotion and other social related currencies (Maslyn & Uhl-Bien, 2001). To sustain these benefits, leaders expect an exchange in the form of work-related currencies such as performance, support, endorsement and organizational citizenship behaviors (Maslyn & Uhl-Bien, 2001). The available literature shows support for LMX will positively affect follower outcomes.

LMX develops over time and is stable. LMX quality influences the follower evaluation of objects or activities and over time can influence the behavioral (or normative) bases of attitudes. However, there is no research demonstrating that LMX quality actually results in a change to how an individual feels toward an object, only how the individual thinks or behaves toward an

object. Thus, the affective (or emotional component) would not be influenced by LMX strength. This leads to two distinct hypotheses regarding the relationship between LMX quality and follower attitudes.

H1: LMX quality will have a positive relationship with the cognitive basis for follower attitude.

H2: LMX quality will have a positive relationship with the behavioral basis for follower attitude.

Social Identity Theory and Classification

Early research into Social Identity Theory (SIT) examined group identification (Tolman, 1943) and social identification (Tajfel & Turner, 1985). Ashforth and Mael (1989) extended this foundation by defining defined identification and suggesting that “social” and “group” were interchangeable. This collective body of research suggests that individuals evaluate their social environments. To simplify cognitive demand, this evaluations process uses a classification technique to simplify and bound the complex social structure that surrounds them.

The process of classification of one’s self and others begins with categorization (Hogg, 2001) in which an individual assigns him/herself and others into categories based on a set of characteristics the individual uses to define the social group. Individuals are assigned the prototypical characteristics of their respective group. The prototype represents an idealized group member and is reflective of the positive, salient attributes of the group. For example, depending upon the social context, a basketball player may identify with other students on the basis of being a teammate; being a starter/substitute; being an upperclassman; or being of a specific race among the myriad possibilities. Individuals identify with groups for which they are similar to the prototype. Association with the group and reinforcement of the ideals embodied in the prototype are reflected as part of one’s self-concept or ideal self. As such, individuals see the positive

attributes of the prototype in themselves. By extension, their self esteem, at least in part, is tied to this group-linked self-concept. Challenges to the group, the prototype, or the individual's place in the group become challenges to the individual's self-concept and self-esteem (Hogg & Terry, 2000). These challenges elicit a defensive response or posture from the individual. This early research has been shown to influence how individuals perceive themselves and others and led to more recent research that considered the role of SIT in organizations.

Ashforth and Mael (1989) presented research examining SIT in the context of organizations. Their research sought to understand how organizational phenomena such as effectiveness, satisfaction, and commitment could be better understood through SIT. They noted that identification is rooted in an individual's perception of shared fate (with the group), not with actual contributions by the individual or codependency between the individual and the group. Research has further suggested social identification can occur with multiple organizations simultaneously (Ashforth & Mael, 1989; Dose, 1999). It suggests that individuals deal with potential role conflict by defining themselves in terms of the most salient group identity and evaluate the social situation based on those characteristics. Returning to the example of basketball players, a player may identify as both a member of the team, as a starter on the team, and as a racial minority on the team. If the salient group is being a starter, the player may ignore substitutes when they are on the court. Similarly, if race is salient for the individual, the player may bias actions toward members of the same racial group. In this way, the individuals use the salient prototype to streamline the process of making choices and responses to situations. Other less salient prototypes are ignored, thus reducing the potential for role conflict.

Hogg and Terry (2000) proposed that this classification process further depersonalizes the prototype by reducing the number of characteristics represented by a prototype (away from

seeing members as multifaceted individuals). This reduction in characteristics allows individuals to more easily process and respond to variations in their social environments. This reduced set is limited to the most salient traits. The subset tends to represent the best or the most desired characteristics of the group members not necessarily actual characteristics (Van Knippenberg & Hogg, 2003). Thus, individuals evaluate themselves and others against this smaller, easier to consider, prototype and categorizes people based on this prototype (Hogg, 2001; Van Knippenberg & Hogg, 2003). This enables individuals to make sense of the complex social situations and more easily determine their place in that environment as a member with multiple organizational identifications. This explains how individuals evaluate situations and develop beliefs about situations in the workplace. Thus, our basketball player who identifies with the starters on the team may apply that prototype to backup players and use that evaluation as a basis for passing more frequently to starters (who may be viewed as more athletic and better shooters).

In 2001, Hogg introduced the Social Identity Theory of Leadership, positing leadership is principally a function of group level dynamics and normative behaviors. Hogg's (2001) research applied the concept of prototypicality to leadership and defined it as the degree to which subordinates view a leader as a member of the group, and has similar goals and normative behaviors as the group. For the subordinate, the degree to which a leader fits the prototype effectively reinforces the individual's self-concept by providing a positive view of the group. The theory suggests that liking and similarity raise the status of the prototypical leader, which can include instilling charismatic leadership qualities on the leader. Thus, the basketball player who is the hardest working player on his team but can't manage to crack the starting lineup rarely is viewed as the team leader because the player does not fit the other members' evaluation of the team prototype.

Van Knippenberg and Hogg (2003) further refined the theory into the Social Identity Model of Leadership (SIMOL). This model defines leader prototypicality as the degree to which a leader is perceived to match or embody the group prototype. The more a leader is perceived to match the prototype, the more followers tend to be receptive to the idea that the leader's actions are group-oriented and the leader's goals align with the group goals (Ashforth and Mael, 1989). Just as individuals identify with a group with which they share a fate, individuals are likely to identify more readily with a leader by how the leader's fate conjoins the group's fate.

The more a leader reflects the characteristics associated with the prototype, the more group members' self-concept is enhanced. The prototype represents the ideal member and a leader that is viewed as reflective of the prototype reinforces the characteristics of the ideal group member. The members see themselves reflected in this ideal member and it reinforces their ideal self. This positive reinforcement serves to reinforce the group members' self image (Hogg, 2001). The result of high leader prototypicality is to provide individuals with positive perceptions of the leader, increased willingness to change, and improved motivation. These conditions have been shown to positively relate to follower outcomes (Tsui & O'Reilly, 1989; Wayne, Liden, Kraimer & Graf, 1999).

When there are perceptions of low leader prototypicality, follower endorsements are usually tempered. Low prototypicality represents a condition of ambiguity or uncertainty for the follower (via less strong social identification) and the follower must devote more cognitive capacity to address and understand the leader, the leader's actions, and the impact on the individual (Hogg & Terry, 2000). This creates two simultaneously occurring conditions: uncertainty within the individual and challenges to the individual's self-concept. Thus, low leader prototypicality will raise resistance; introduce barriers; and create challenges to the

leader's course of action while the individual processes the more complex situation and deals cognitively with threats to the self-concept. These conditions have also been shown to relate negatively to ratings of follower performance (Graen, Novak, & Sommerkamp, 1982; Tepper, Uhl-Bien, Kohut, Rogelberg, Lockhart, & Ensley, 2006).

Van Knippenberg and Hogg (2003) expanded the discussion of SIMOL by comparing it with Leader Member Exchange Theory (LMX). Their study discussed previous empirical studies (Hogg, Martin, Epitropaki, Mankad, Svensson, & Weeden, 2005) showing personalized leadership styles were less effective in groups where group identification is highly salient. The personalized relationships between leaders and followers represent a threat to the group's distinct identity by subdividing members. Van Knippenberg and Hogg (2003) further argue that social identity and LMX both exist in group environments and can influence organizational outcomes.

Interaction between LMX and SIMOL

LMX theory and prototypical leadership from SIMOL offer different perspectives and are potentially complementary. The literature supports the LMX theory concept that leaders form interpersonal relationships with their subordinates. The literature also supports the SIMOL concept that leaders are members of relevant groups and lead through follower perceptions of the leader's prototypicality relative to group ideals (Van Knippenberg & Hogg, 2003). In both literatures, the objective of the leader is to influence follower evaluation through exchange (LMX) or similarity (SIMOL) in the hope of influencing behavior.

Epitropaki and Martin (2005) found LMX may be rated high by both participants even though relationship expectations may differ. The study found LMX quality can affect employee perceptions of manager closeness (similarity) to the implicit leadership theory (ILT) profile. An ILT is a schema describing an idealized leader and is used by an individual to evaluate leaders.

The ILT is oriented toward leader actions and behaviors, but the research and results parallel the idea that followers evaluate a leader against a prototype (as presented in SIMOL). This research provides support for LMX and prototypicality interacting to influence outcomes.

By examining SIMOL and LMX together, we explore each theory in light of its weakness: the effect of individual relationships on SIMOL and the affect of social settings on LMX. Examination of these conditions considers what occurs when the influence of each leadership theory affects the influence of the other leadership theory.

Moderation of LMX and Prototypicality

Recent research has demonstrated that several social context variables serve as moderators of the relationship between LMX and outcomes. Erdogan and Enders (2007) found significant results demonstrating perceived organizational support (POS) acting as a moderator of both the LMX and job satisfaction relationship and the LMX and performance relationship. In this study, POS was as a social context variable describing the exchange relationship between the supervisor and the organization. Likewise, Tangirala, Green, and Ramanujam (2007) found support for the moderating effect of the supervisors upward exchange relationship with his leader on the relationship between LMX and three employee-level outcomes (POS, organizational identification, and depersonalization of customers). This leader-leader exchange represents a social context because the higher level leader represents a number of characteristics of the organization and information/resource flow within the organization. Adding further support for social context as a moderator of LMX relationships, a multi-level study of leadership, empowerment and performance (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007) found that leadership climate moderated the relationship between LMX and individual empowerment.

Similarly, a recent study demonstrated that leader prototypicality moderated the relationship between leader fairness and workgroup cooperative behaviors (DeCremer, Van Dyke, & Mayer, 2010). This study found that coworkers cooperated toward group goals when treated procedurally fairly by a highly prototypical leader.

This paper depicts the leader prototypicality moderating the relationship between LMX and follower attitudes for two reasons: 1) LMX is based on an exchange relationship that is very stable over time while SIMOL is based on cognition and is subject to modification and adjustment over time (Hogg & Terry, 2000) and 2) the exchange relationship generally does not rely on group salience to be effective (as the theory behind SIMOL requires). However, both work to influence follower cognition and behavior through expectations and similarity. To understand a possible moderating role of leader prototypicality, consider what happens when prototypicality and LMX interact. That is to say, consider a 2 x 2 matrix of how low and high leader prototypicality functions for low and high LMX.

Insert Figure 2 about here

In a condition of high leader prototypicality, followers have evaluated leaders against the established prototype. Thus, they have identified the leader as one who closely matches the characteristics in the prototype. They are predisposed to believe the leader's goals align with the group norms and behaviors. Research suggests leaders evaluated as prototypical will benefit from lower barriers and greater support for implementing programs and changes (Hogg & Terry, 2000). Thus, followers will be more likely to support leader initiatives and actions with greater cooperation and low resistance. When a high LMX relationship exists, attitudes are already high

in this condition, so any increase is not expected to be significant. However, in the condition of low LMX, the high leader prototypicality is expected to raise follower attitudes.

In a condition with low leader prototypicality, the leader represents a challenge to the group and, by inference, to the individual's self concept. Again, the low level LMX relationship will have little impact on the follower. However, if the leader and the individual have high quality LMX relationship this relationship will encourage improved attitudes in the follower. The magnitude of this influence will be large as followers seek the benefits of positive exchange. These benefits have demonstrated value to the individual and will continue to provide benefits that are desirable. Thus, the benefits provided by the LMX relationship will offset the effect of low leader prototypicality.

LMX quality affects the follower evaluation of objects or activities and over time can influence the behavioral (or normative) bases of attitudes. However, the affective or emotional component would not be influenced by LMX strength. Thus, leader prototypicality will only moderate the LMX to attitude relationship for the cognitive and behavioral components.

H3: Leader prototypicality moderates the relationship between LMX and with the cognitive basis for follower attitude, such that the effect is stronger for low leader prototypicality than for high leader prototypicality.

H4: Leader prototypicality moderates the relationship between LMX and with the behavioral basis for follower attitude, such that the effect is stronger for low leader prototypicality than for high leader prototypicality.

CHAPTER 2

METHOD

Participants

The original sample included 115 employees at a nuclear power plant located in the Midwestern United States. Participants were employees from various maintenance and craft departments within the organization, including construction, facilities, instrumentations and controls (I&C), mechanical, and planning. In addition, the sample included a number of contractors working for a large supplier of temporary contract technical personnel. All subjects worked exclusively at a single nuclear power plant facility. This project is part of a larger data collection effort at the power plant. The larger project involves employees completing various measures over the course of three data collection periods. This first set of questionnaires was administered in June, 2009.

Of the 115 participants, two were excluded because they did not provide consent and two were excluded for failing to answer dependent or independent variable scales (3.5%). Therefore, the final sample included 111 participants (103 men, 8 women). The 99 participants who reported age ranged from 26 to 62 years ($M_{\text{age}} = 45.83$ years; $SD = 9.41$ years). For 109 participants who reported education level, 26 completed high school (24%), 62 attended some college (57%), 11 earned a four-year degree (10%), three completed some graduate school (3%), and seven earned a graduate degree (6%).

Measures

This research focused on two independent variables and one dependent variable. The two independent variables presented in the model are leader-member exchange relationship quality

(LMX) and leader prototypicality (SIMOL). The dependent variable is follower attitudes (tripartite). All of the variables will be assessed at the individual (or dyadic) level of analysis.

Leader prototypicality was measured from the perspective of the follower. Perception of leader prototypicality was measured using a scale developed by incorporating elements of the Offerman, Kennedy, and Wirtz (1994) measures into the 2 item scale developed by Platow and Van Knippenberg (2001). An explanation of this scale development and a full list of items is provided in Appendix A (see page 28).

Leader Member Exchange was assessed from the perspective of the follower. The measure of LMX was LMX-MDM, the multi-dimensional measure developed by Liden and Maslyn (1998). This measure has been psychometrically tested and represents the most current measure of LMX available to researchers. Sample items can be found in Appendix B.

This study collected separate measures for three attitude factors: emotion, intention, and cognition. These were borrowed from EMSMOT data developed for other research at Georgia Tech. Reliability data for these items are reported in Table 1. Sample items can be found in Appendix C.

Procedure

The data collection took place in the industrial facility. Participants completed the study during a one-hour time period designated for morning department meetings. The sample was split into four groups (by work department), each of which completed the set of measures in their normal meeting locations. The procedure and purpose of the study were explained and participants were asked to complete a consent form. Names of participants were collected and participants were assured that surveys would remain confidential. Once the consent forms step was completed, a research assistant handed out the questionnaires.

CHAPTER 3

RESULTS

Data were recorded in Microsoft Excel and analyzed using Excel, SPSS Statistics 18, and HLM 6.08 (Student). All three programs were also used to calculate various descriptive statistics. Scores on the LMX-MDM ranged from 17 to 84 (mean = 60.06; SD = 14.397; $\alpha = .939$). Scores on the SIMOL ranged from 9 to 40 (mean = 27.98; SD = 6.809; $\alpha = .938$). The scales for cognitive, affective, and behavioral components of attitude exceed the 0.70 threshold for reliability suggested by Nunnally (1978).¹ Full descriptive statistics can be found in Table 1. Correlation data can be found in Table 2.

Table 1

Descriptive statistics for primary dependent and independent variables.

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Alpha
LMXMDM	111	17	84	60.06	14.397	207.260	.939
SIMOL	111	9	40	27.98	6.809	46.363	.938
EMOTATTI	111	6	24	16.02	3.521	12.400	.745
INTEATTI	111	12	27	19.64	2.756	7.596	.733
COGNATTI	111	6	30	18.63	4.649	21.617	.823

Note. $N = 111$. LMXMDM = Leader-Member Exchange - MDM. SIMOL = Leader

Prototypicality. EMOTATTI = Affective Component of Attitude. INTATTI = Behavioral

Component of Attitude. COGNATTI = Cognitive Component of Attitude.

¹ The original behavior scale resulted in $\alpha = .486$. The second behavioral item, "I will continue to register my concerns about this change," was an odd question for a sample trained to always voice concerns. Removal of that item resulted in $\alpha = .733$ for the remaining 5 item scale. Thus, this item was removed from further analysis.

Table 2

Correlations between the LMX, SIMOL, and attitude factors.

	LMXMDM	SIMOL	EMOTATTI	INTEATTI	COGNATTI
LMXMDM	1				
SIMOL	.867	1			
EMOTATTI	.346	.301	1		
INTEATTI	.386	.417	.654	1	
COGNATTI	.347	.275	.779	.637	1

All correlations are significant at the 0.01 level (2-tailed).

Note. $N = 111$. LMXMDM = Leader-Member Exchange - MDM. SIMOL = Leader Prototypicality. EMOTATTI = Affective Component of Attitude. INTEATTI = Behavioral Component of Attitude. COGNATTI = Cognitive Component of Attitude. Pearson coefficients were used for correlations.

Hypothesis 1 states that LMX will have a positive relationship with the cognitive component of follower attitudes. Hypothesis 2 states that LMX will have a positive relationship with the cognitive component of follower attitudes. No hypothesis was presented between LMX and the affective component of follower attitude because of a lack of theoretical basis linking LMX and emotions. However, this third scenario was investigated with an exploratory intent. There was a positive and significant relationship with LMX-MDM for the each component of attitude: Affective (.346), Cognition (.347), and Behavioral (.386). These results support Hypothesis 1 and 2. They also provide some empirical evidence for a relationship between LMX and the affective components of attitudes.

Hypothesis 3 states that SIMOL will moderate the relationship between LMX and the cognitive component of attitude. However, inclusion of SIMOL in the regression equation as a moderator between LMX and each of the three attitude components does not improve the prediction significantly. Thus, SIMOL did not function as a moderator.

In an effort to investigate further, HLM was used to divide the analysis by groups (attempts to treat groups as blocking variables did not yield significant results). The groups used for this analysis were the respective departments that are naturally occurring in the workplace. The HLM analysis provided evidence of SIMOL moderating the relationship between LMX and Cognitive Attitude at the $p < .1$ level. Table 3 contains the results of the HLM analysis with LMX, SIMOL, and Cognitive Attitude. Hypothesis 3 suggests that the effect of the SIMOL on the LMX-Attitude relationship will be less for high leader prototypicality than for low leader prototypicality. The negative coefficient of .0288 is consistent with this hypothesis. This result suggests support for Hypothesis 3.

The percent of variance explained by the LMX to attitude relationship is $\sigma^2 = 14.28\%$. Using HLM reported values for τ , I was able to calculate the percentage variance in the level-2 that is in the LMX slope (analogous to intraclass correlation coefficient). This shows that just 0.09% of the slope variation is due to the level 2 variable, SIMOL. This is not inconsistent with the expectation developed in the theory but it is weaker than expected. The weakness suggests that group identification may not be strongly salient in the subject pool.

I also examined the high correlation between LMX-MDM and SIMOL ($\rho = .867$). The result explained 11.7% of the variance ($R^2 = .117$). Examination of the semi-partials for each variable ($Sr^2_{LMX} = .0437$ and $Sr^2_{SIMOL} = .0023$) shows that variables have 7.1% shared variance and 4.6% unique variance.

Continuing to investigate the high correlation, a confirmatory factor analysis was completed using the individual survey responses in MPlus. The CFA was intended to investigate whether the two variables were simply a single factor predicting attitude. The CFA demonstrated that the two factor model (figure 3; $\chi^2 = 653.484$, $df = 188$; CFI = .780; RMSEA = .140) in the study had better fit than the one factor model (figure 4; $\chi^2 = 771.940$, $df = 190$; CFI = .725; RMSEA = .165). However, the CFI values for both models are low and neither meets the standard for being considered a good model. A Wald Test was used to compare the 2 factor model against the 2 factor model where the factor correlation was constrained to equal 1.0. The test was not significant ($p=.22$) indicating that it remains plausible that the models explain the data similarly well..

Table 3

HLM results for LMX, SIMOL, and Cognitive Attitude (outcome variable).

Subjects = 111; Groups = 5; Method of estimation: restricted maximum likelihood

The model specified for the fixed effects was:

Level 1 Coefficients: Intrcpt1, B0; LMXMDM slope, B1 (centered around group mean)

Level 2 Predictors: Intrcpt2, G00; Intrcpt2, G10; SIMOL, G11

Level-1 Model: $Y = B0 + B1*(LMXMDM) + R$

Level-2 Model: $B0 = G00 + U0$; $B1 = G10 + G11*(SIMOL) + U1$

Final estimation of fixed effects:

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx d.f.	P-value
INTRCPT1, B0					
INTRCPT2, G00	17.686937	1.717611	10.297	4	0.000
LMXMDM slope, B1					
INTRCPT2, G10	0.842732	0.353952	2.381	3	0.087
SIMOL, G11	-0.028823	0.012586	-2.290	3	0.095

Hypothesis 4 states that SIMOL will moderate the relationship between LMX and the behavioral component of attitude. Again, HLM was used to analyze the data. The groups used for this analysis were the respective departments that are naturally occurring in the workplace. The HLM analysis did not provide significant evidence of SIMOL moderating the relationship between LMX and Behavioral Attitude. Table 4 contains the results of the HLM analysis with LMX, SIMOL, and Behavioral Attitude. This result suggests no support for Hypothesis 4.

Table 4

HLM results for LMX, SIMOL, and Behavioral Attitude (outcome variable).

Subjects = 111; Groups = 5; Method of estimation: restricted maximum likelihood

The model specified for the fixed effects was:

Level 1 Coefficients: Intrcpt1, B0; LMXMDM slope, B1 (centered around group mean)

Level 2 Predictors: Intrcpt2, G00; Intrcpt2, G10; SIMOL, G11

Level-1 Model: $Y = B0 + B1*(LMXMDM) + R$

Level-2 Model: $B0 = G00 + U0$; $B1 = G10 + G11*(SIMOL) + U1$

Final estimation of fixed effects:

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx d.f.	P-value
INTRCPT1, B0					
INTRCPT2, G00	19.223425	0.847054	22.694	4	0.000
LMXMDM slope, B1					
INTRCPT2, G10	0.236097	0.201373	1.172	3	0.326
SIMOL, G11	-0.006932	0.007152	-0.969	3	0.404

The exploratory analysis of the affective component of attitude investigated if SIMOL will moderate the relationship between LMX and Affective Attitude. Again, HLM was used for analytic purposes. The groups used for this analysis were the respective departments that are naturally occurring in the workplace. The HLM analysis did not provide significant evidence of SIMOL moderating the relationship between LMX and Affective Attitude. Table 5 contains the results of the HLM analysis with LMX, SIMOL, and Affective Attitude.

Table 5

HLM results for LMX, SIMOL, and Affective Attitude (outcome variable).

Subjects = 111; Groups = 5; Method of estimation: restricted maximum likelihood

The model specified for the fixed effects was:

Level 1 Coefficients: Intrcpt1, B0; LMXMDM slope, B1 (centered around group mean)

Level 2 Predictors: Intrcpt2, G00; Intrcpt2, G10; SIMOL, G11

Level-1 Model: $Y = B0 + B1*(LMXMDM) + R$

Level-2 Model: $B0 = G00 + U0$; $B1 = G10 + G11*(SIMOL) + U1$

Final estimation of fixed effects:

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx d.f.	P-value
INTRCPT1, B0					
INTRCPT2, G00	15.243865	1.311049	11.627	4	0.000
LMXMDM slope, B1					
INTRCPT2, G10	0.150111	0.233493	0.643	3	0.566
SIMOL, G11	-0.003581	0.008306	-0.431	3	0.695

CHAPTER 4

DISCUSSION

The results of this study provide support for the relationship between LMX and the cognitive component of attitude that has been established in previously cited research. The results also suggest a relationship where LMX and leader prototypicality are complementary in explaining follower attitudes. The study used recognized scales for attitude factors as a proxy for actual performance data and obtained results that were consistent with the theory developed and presented in the discussion. This support was at the $p < .10$ level of significance consistent with significance criteria for interactions due to low power inherent in observational research (Cohen, 1988). Additional investigation confirmed that while the effect was relatively small, the two factor model more accurately predicted attitudes of followers in this sample.

The moderator is working at the group level but did not work at the individual level. This is consistent with the theories underlying LMX and SIMOL. LMX is conceived of as an individual level interaction or exchange between dyad pairs. SIMOL, the moderator in this study, is theorized to work because the leader shares group level attributes, goals, and objectives. Thus, the small effect attributable to SIMOL moderation is an effect that represents leadership influence at the group level. This influence is shown to be a small but incremental increase in explained variance for follower attitudes.

In Hogg's (2001) development, he emphasizes that SIMOL will be more effective when group membership is salient. For this study, there was not observation of particular group salience (the sample was simply maintenance and craft workers in an industrial setting) and no effort or manipulation was made by the researchers to create group salience. However, the differences between groups may indicate that the leaders have been varying effective at

creating group identification or perhaps developing a sense of “team” in the respective work group.

This study had several important limitations. First, the power of the study was limited by the small number of subjects and the small number of groups. Additional planned data collections may afford the researcher the opportunity to increase the number of participants. Likewise, expansion of the research scope to include additional facilities would result in more groups if the divisions are segregated by department plus facility. This segregation would be consistent with the social identity theory that forms the foundation of SIMOL as the groups would be more tightly aligned as peers. Also, the groups would continue to be naturally occurring groups in a real-world situation. However, these problems are not atypical for practical, applied samples.

The study is subject to problems related to common method variance and use of self report data. All of the scales in the study were obtained from surveys administered to the subjects.² The potential exists that the study results are flawed due to introduction of self report related biases. More seriously, the study may be subject to measurement error that results in alternative explanations for the results presented herein.

Another limitation involves the demographic characteristics of this sample. Although the sample is more diverse in age than samples found in many psychological studies, it is less diverse in education. Less than 20% of the sample reported completing a four-year degree indicating a lack of diversity in educational level. These characteristics make it difficult to generalize these results beyond this specific (or similar) population.

² The original study design included an objective DV but the researcher discovered this data were unavailable in a usable format after the self report data had been collected.

The most significant limitation was related to the high correlation between the LMX and SIMOL (prototypicality) measures. The result of the Wald Test of the two CFA models was not significant, leaving the possibility that the one and two factor models were the same. In this scenario, the two scales are testing the same variable. In this study, the independence of those constructs cannot be determined using existing measures and the significant moderation result (hypothesis 3) may not be valid. The SIMOL measure was taken from two previous studies on leader prototypicality.

This problem strongly suggests that the next step in research into prototypicality should be development of a psychometrically tested measure for the construct of leader prototypicality. SIMOL represents an opportunity to answer calls in leadership research to consider social environments and calls to consider multiple levels of relationships that can be influenced by a leader. SIMOL has a well developed theoretical foundation and enjoys face validity with leaders and management practitioners. Research into this promising approach will only make progress if there is a measure that demonstrates leader prototypicality to be a distinctly different construct.

Despite these limitations, this study provides several important findings and insights. First, the findings support the established relationship between LMX and attitudes. In addition, the partial support for the moderating affect of SIMOL on this relationship warrants additional investigation. Leadership research continues to explore how to improve organizational attitudes and how to extend that research to applied solutions. This study suggests that applied samples hold interesting lessons for researchers.

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FIGURES

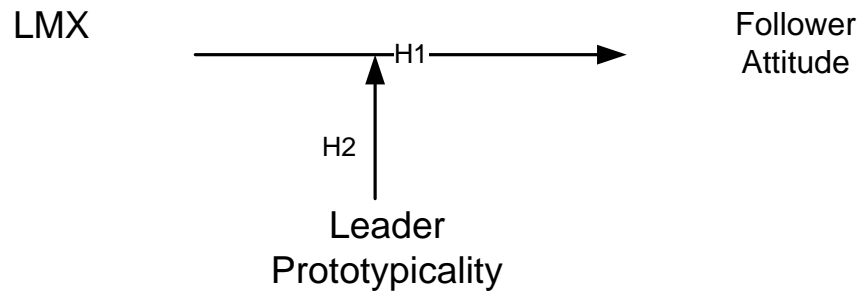


Figure 1 - Leader Prototypicality as a Moderator of the Relationship between LMX and Follower Attitude

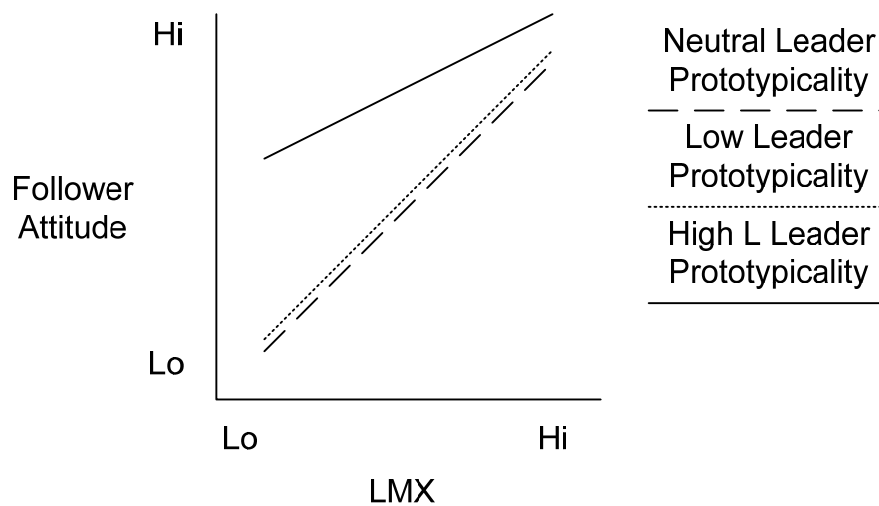


Figure 2 – The Moderating Effect of Leader Prototypicality on the Relationship between LMX and Follower Attitude

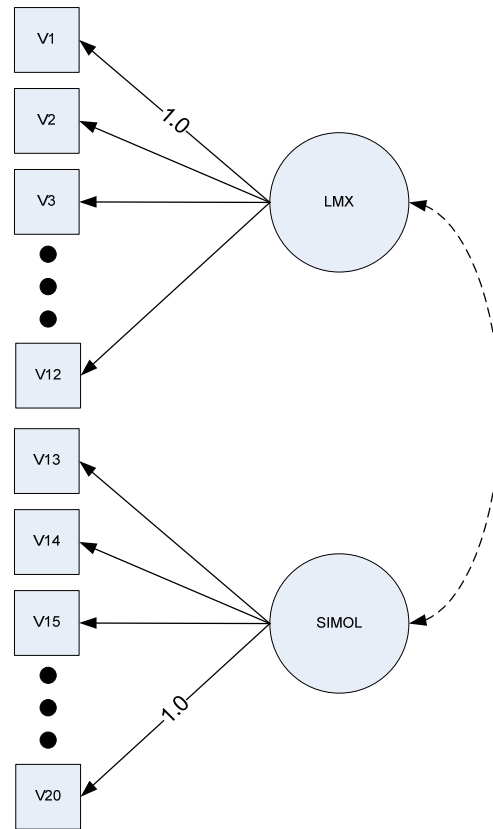


Figure 3 – Confirmatory Factor Analysis
Two Factor Model

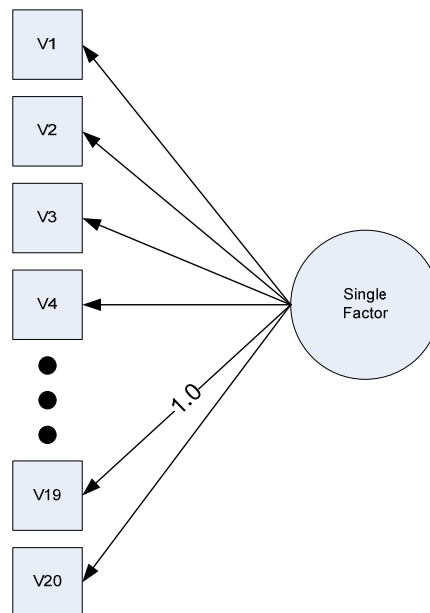


Figure 4 – Confirmatory Factor Analysis
Single Factor Model

APPENDICES

Appendix A

Existing research on prototypicality does not have psychometrically tested scales for measuring prototypicality or leader prototypicality. To date, existing empirical research has used measures of leader similarity (Platow & Van Knippenberg, 2001) or applicable portions of a psychometrically tested measure of implicit leadership theories (Offerman, Kennedy, & Wertz, 1994) as a proxy for prototypicality in the studies. This study combined elements of each of these approaches to better address two very important elements of the Social Identity Model of Leadership. The process for SIMOL is that individuals develop a group prototype and then evaluate the leader against that prototype.

The existing leader similarity scale has too few items to be a good scale of leader prototypicality and ILTs have only been used to capture an individual's general perception of leadership characteristics, not those that are important for a particular group or situation with which the individual identifies. However, the ILT measure has developed nine distinct factors for leadership from 41 distinct characteristics. These factors are independent of group or situation. Using this knowledge, this paper has developed several additional items to add to the leadership similarity scale. This expanded scale more accurately measures the construct of leader prototypicality.

Leader Prototypicality Measure

Subjects were asked to evaluate the leader by answering the following questions about the leader. Subjects were provided with a brief definition of the term prototype in this context.

Answers were based on a Likert scale (1-5) with the following anchors:

1—Strongly disagree 2—Disagree 3—Neutral 4—Agree 5—Strongly agree

This team leader is very similar to the members of my team.

The team leader is hard working and dedicated to the group compared with the prototypical group member.

The team leader is intelligent, wise, and knowledgeable compared to the prototypical group member.

The team leader is dynamic, enthusiastic, and inspiring compared with the prototypical group member.

The team leader is attractive and professional in appearance compared to the prototypical group member.

The team leader is helpful and supportive compared to the prototypical group member.

1—Seldom 2—Not Often 3—Same as Other Leaders 4—Sometimes 5—Frequently

This team leader is a good leader.

The team leader shares the group member's goals and objectives.

Appendix B

Subjects were asked to answer all questions from the Leader Member Exchange Scale (LMX-MDM). Answers were based on a Likert scale (1-7) with the following anchors:

1-strongly disagree 2-disagree 3-disagree slightly 4-neither agree nor disagree 5-agree slightly 6- agree 7-strongly agree

Leader Member Exchange Scale (LMX-MDM):

I like my supervisor very much as a person.

My supervisor is the kind of person one would like to have as a friend.

My supervisor is a lot of fun to work with.

My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question.

My supervisor would come to my defense if I were “attacked” by others.

My supervisor would defend me to others in the organization if I made an honest mistake..

I do work for my supervisor that goes beyond what is specified in my job descriptions.

I am willing to apply extra efforts, beyond those normally required, to meet my supervisor’s work goals.

I do not mind working my hardest for my supervisor.

I am impressed with my supervisor’s knowledge of his/her job.

I respect my supervisor’s knowledge of and competence on the job.

I admire my supervisor’s professional skills.

Appendix C

Subjects were asked to evaluate the leader by answering the following questions about the leader. Answers were based on a Likert scale (1-5) with the following anchors:

1–Strongly disagree 2–Disagree 3–Neutral 4–Agree 5–Strongly agree

Example items from EMSMOT Attitude measures:

I am doing whatever I can to help this change be successful.

This change is important for the entire organization.

I am happy about this change.