



Leader-member exchange and subordinate outcomes: test of a mediation model

Kanika T. Bhal

*Department of Management Studies, Indian Institute of Technology Delhi,
New Delhi, India*

Namrata Gulati

Institute of Management and Technology Dubai, Dubai, United Arab Emirates

Mahfooz A. Ansari

Faculty of Management, University of Lethbridge, Lethbridge, Canada

Abstract

Purpose – Following Hackett *et al.*'s treatment of the reasonably established role of leader-member exchange (LMX) in employee outcomes, this paper seeks to examine the mechanism which operates between LMX and various work outcomes in an attempt to bridge this gap in the literature.

Design/methodology/approach – The hypotheses were tested using data from 306 working software professionals in India. Data were collected through a structured questionnaire that contained standardized scales of LMX (perceived contribution and affect), satisfaction, commitment, and citizenship behavior (loyalty).

Findings – A confirmatory factor analysis (CFA) was done to examine the dimensionality of the study variables. Results provide support to all the hypotheses.

Research limitations/implications – Data were collected from a single source, direction of causality is assumed (not tested) and all the data were collected through self-reports. Some measures are taken to control them.

Practical implications – The findings have implications for LMX enhancement interventions. Focusing on enhancement of the LMX-Contribution dimension is more likely to improve the organization level commitment and citizenship behavior, whereas LMX-Affect is likely to result in more affective reactions like satisfaction with the supervisor and the job.

Originality/value – The study adds to the literature by testing the proposed model in the Indian context, thus providing some empirical cross-cultural validity to LMX-subordinate-related work outcomes relationships.

Keywords Job satisfaction, Citizenship, Leaders, Employee behaviour, India

Paper type Research paper

The dyadic study of leadership focuses on leader-member dyads and their quality of interaction (Dansereau *et al.*, 1975), wherein the nature of exchanges and the quality of interaction of a leader is shown to vary across different subordinates in the work-group. The nature of leader-member exchange (LMX) relationship has a remarkable impact on the subordinate outcomes, like satisfaction with work (Vecchio and Gobdel, 1984), commitment (Duchon *et al.*, 1986; Kee *et al.*, 2004), in-role performance (Deluga, 1998), organizational citizenship behavior (Lee and Ansari, 2004; Hackett and Lapierre, 2007; Hui *et al.*, 1999; Settoon *et al.*, 1996; Wayne *et al.*, 1997),



supervisory ratings of job performance (Duarte *et al.*, 1994; Graen *et al.*, 1982b; Murphy and Ensher, 1999), autonomy (Scandura *et al.*, 1986), and frequency of promotions (Wakabayashi *et al.*, 1988), turnover (Graen *et al.*, 1982a), and turnover intentions (Ansari *et al.*, 2000; Vecchio and Gobdel, 1984).

Clearly, the role of LMX in employee outcomes is reasonably established. But, one issue that has attracted far less empirical attention in the leadership literature is the mechanism that operates between LMX and various work outcomes (Ansari *et al.*, 2007b), and it is to this that we turn our attention in this article. Thus the present study is an attempt to bridge this gap in the literature and makes four key contributions to the existing literature. First, the present research uses a two-dimensional scale of LMX. In most of the previous studies, LMX has been assessed as a one-dimensional construct consisting mostly of on-the-job leader-member interactions. In this study, LMX is assessed through a two-dimensional scale consisting of “contributions” on the job and “affective” interactions off-the-job. Second, it assesses the differential impact of the two dimensions of LMX on subordinate outcomes of satisfaction, commitment, and loyalty dimension of citizenship behavior. Third, it assesses unique process paths through which each dimension of LMX leads to subordinate outcomes of satisfaction, commitment, and organizational loyalty aspect of citizenship behavior. Finally, most of the studies, barring a few on the Chinese and Japanese samples (e.g. Hui *et al.*, 1999; Wakabayashi and Graen, 1984), have been conducted in the US. This study adds to the literature by testing the proposed model in the Indian context, thus providing some empirical cross-cultural validity to LMX-subordinate-related work outcomes relationships. It should, however, be noted that we are not advocating that the proposed relationships hold true for the Indian context only and are not likely to be replicated elsewhere. Past research on LMX in Japan (Graen *et al.*, 1990), Turkey (Erdogan *et al.*, 2006), Malaysia (Ansari *et al.*, 2007a), and China (Wang *et al.*, 2005) has shown that the LMX approach is valid and valuable in understanding leadership across cultures.

Theoretical framework and development of hypotheses

Multidimensional nature of LMX

Leader-member exchange (LMX) has been defined as the quality of exchange relationship between the supervisor and each of his or her subordinates (Dienesch and Liden, 1986). The LMX theory contends that leaders develop different quality of work relationships with different subordinates (Graen and Scandura, 1987; Scandura and Graen, 1984; Scandura and Schriesheim, 1994). High LMX members enjoy high exchange quality relationships as characterized by liking, loyalty, professional respect, and contributory behaviors (Dienesch and Liden, 1986; Liden and Maslyn, 1998). Most of the earlier conceptualizations have treated LMX as a unidimensional construct in predicting subordinate-related outcomes. In this unidimensional measurement, the exchange relationship is limited to the job and tasks at hand, with little or no focus on assessing social interactions. Graen and Uhl-Bien (1995, pp. 237-238) commented:

Development of LMX is based on the characteristics of the working relationship as opposed to a personal or friendship relationship, and this trust, respect, and mutual obligation refer specifically to individual's assessments of each other in terms of their professional capabilities and behavior. This is different from the liking-based dimensions of interpersonal attraction and bonding suggested by others (e.g. Liden and Maslyn, 1998).

The development of varying quality of interaction in a leader-member dyad has been understood in terms of role development (Graen, 1976) and social exchanges (Graen and Scandura, 1987; Sparrowe and Liden, 1997). The leader assesses the competencies and motivation of the subordinates through role making episodes and offers different inducements to high quality subordinates for collaborating on unstructured tasks. How a subordinate defines the role then determines the quality of interaction in a leader-member dyad. According to role theory (Jacobs, 1971; Katz and Kahn, 1978), roles are multidimensional and are likely to have different combinations of task focus and social interaction (Bales, 1958). Further, the nature of interaction in different quality dyads is maintained through social exchanges. These exchanges too are conceptualized as multidimensional involving material and non-material rewards like advice, workflow, and friendship. Since both roles and exchanges are multidimensional, Dienesch and Liden (1986) and Liden and Maslyn (1998) have proposed that LMX too needs to be studied as a multidimensional construct. Dienesch and Liden (1986) suggested that LMX may be based on three "currencies" of exchange: task behaviors (perceived contribution), loyalty to each other (loyalty), and simply liking for each other (affect). Thus, perceived contribution deals with on-the-job dimension of interaction, loyalty with social support, and affect with affective feelings of liking which go beyond the work situation. This conceptualization was subsequently used by researchers to develop psychometrically sound scales of LMX (e.g. Bhal and Ansari, 1996; Liden and Maslyn, 1998). The Bhal and Ansari (1996) study resulted in a two-dimensional scale consisting of two orthogonal dimensions: LMX-Contribution and LMX-Affect. The two dimensions of LMX-Contribution (on-the-job work related interactions) and LMX-Affect (off-the-job informal interactions) are in line with the previous conceptualizations of leadership that have viewed leader behavior as consisting of consideration and initiating structure (Halpin and Winer, 1957), employee-oriented and production-oriented (Katz and Kahn, 1978), and concern for people and concern for production (Blake and Mouton, 1964). More recently, Maslyn and Uhl-Bien (2001) further proposed that affect, loyalty, and professional respect dimensions are more like social currencies that focus on social exchanges between the leader and the member, whereas contribution dimension is more like work-related currency that focus on on-the job relationship between the leader and the member. Thus, a high "contribution-dominated" exchange (work-related currency) is likely to involve intensive interaction on task-related activities, whereas an "affect-dominated" exchange (social currency) is likely to involve off-the-job, affective and personal interactions. Consequently, different currencies of LMX are likely to predict various work outcomes differently.

LMX, satisfaction, commitment, and loyalty aspect of citizenship behavior

Job satisfaction may be treated as a positive emotional state reflecting an affective response to a job situation (Brayfield and Rothe, 1951; Locke, 1976). A review of the literature (see Gerstner and Day, 1997) suggests that job satisfaction is one of the strongest correlates of LMX. Subordinates with high LMX receive not only extrinsic rewards of better performance ratings (Graen *et al.*, 1982a) and career advancement (Scandura and Schriesheim, 1994; Wakabayashi and Graen, 1984), but also have more intrinsic satisfaction in terms of negotiating latitude, autonomy, and challenging tasks. Job satisfaction is likely to be predicted both by contribution as well as by affect

dimensions of LMX, although for different reasons. Satisfaction is predominantly affective in nature (Kanungo, 1982; Locke, 1976) and it is possible that affective relationship with the leader gets transferred to affective reactions for the job in a work-group, as the job is directly controlled by the immediate leader. So far as perceived contribution of the leader is concerned, since satisfaction is with the job situation, on-the-job interactions with the leader are also crucial in predicting satisfaction. A high contribution from the leader implies greater role clarity and challenging assignments for the member, which also result in higher satisfaction. Hence, our first hypothesis is as follows:

H1. Both LMX-Contribution and LMX-Affect are positively related to job satisfaction of the subordinates.

Commitment is associated with the larger organization. According to Mowday *et al.* (1982), commitment refers to the “relative strength of an individual’s identification with and involvement in a particular organization” (p. 226). In particular, commitment is characterized by a willingness to exert considerable effort on behalf of the organization and reflects the employees’ identification with the organization. Commitment is shown to be another strong correlate of LMX (Ansari *et al.*, 2007b; Hackett and Lapierre, 2007; Schyns, 2006; Gerstner and Day, 1997). However, when we consider the two dimensions of LMX, it is the perceived contribution that relates to efforts put in the job. In an exchange framework, positive exchanges are reciprocated with positive behaviors by the subordinates (Murry *et al.*, 2001). When subordinates perceive that the leader contributes to the job both in terms of quality and quantity, they too reciprocate with more contribution to the work-group and the organization. The subordinates contributing to the work-group do so to benefit the organization (Shore and Wayne, 1993). Our next hypothesis, hence, is as follows:

H2. Relative to LMX-Affect, LMX-Contribution is more strongly (positively) related to organizational commitment of the subordinates.

Organizational citizenship behavior has been defined by Organ (1988) as that individual behavior “... that is discretionary, not directly or explicitly recognized by the formal reward system and that in the aggregate promotes the effective functioning of the organization” (p. 4). A large variety of activities have been identified within the rubric of extra-role or citizenship behaviors. Podsakoff *et al.* (2000), in an extensive review, identified almost 30 different forms of citizenship behaviors. Considering the conceptual overlap among those forms, they grouped these behaviors into a few dimensions. These dimensions correspond to the original concept of innovative and spontaneous behaviors articulated by Katz (1964). Past research (e.g. Ansari *et al.*, 2007b; Deluga, 1994, 1998; Erdogan *et al.*, 2002; Hackett and Lapierre, 2007; Hui *et al.*, 1999; Ilies *et al.*, 2007; Tierney and Bauer, 1996), though limited, has found support for an association of LMX with organizational citizenship behavior. However, there is a need to identify specific dimensions of citizenship behavior that are likely to be associated with LMX. Organizational loyalty is considered an important dimension of citizenship behavior (George and Brief, 1992; George and Jones, 1997; Graham, 1991). Since both loyalty and LMX (Dienesch and Liden, 1986; Liden and Maslyn, 1998) are based on exchange, loyalty may be considered an important outcome of LMX (Dienesch and Liden, 1986; Liden and Maslyn, 1998). The concept of loyalty, however,

needs to be explained here. Many researchers (e.g. Gilbert, 2001) have emphasized the overlap between commitment and loyalty. These researchers have defined loyalty in terms of one's affective, behavioral, and continuance attitude towards the organization.

However, viewing loyalty as an extra-role behavior (citizenship) defines it as "an expression of public support" (Dienesch and Liden, 1986) for the organization. In this context, it may be understood as spreading goodwill and protecting the organization (George and Brief, 1992), endorsing, supporting, defending organizational goals and values (Borman and Motowidlo, 1993), and organizational allegiance and promotion of its interests (Van Dyne *et al.*, 1994). Citizenship behavior is an extra-role contribution to the organization. The employees who perceive a high contribution from the leader also put in effort towards promoting the organization and leader's contribution garners loyalty on the part of subordinates expressed as citizenship behavior. Hence, our third hypothesis reads as follows:

- H3. LMX-Contribution is positively related to loyalty aspect of organizational citizenship behavior of the subordinates.

Process paths between LMX dimensions and outcomes

How do different outcome variables link with LMX to form a process path might be useful in advancing literature on LMX. Hackett *et al.* (2003) proposed and tested some mediation paths in a meta-analytic study. In this study, we extend that work further. Past research has shown commitment to be an important predictor of citizenship behavior (Bateman and Organ, 1983; Moorman, 1991; Moorman *et al.*, 1993; Organ, 1988, 1990; Smith *et al.*, 1983). Two recent meta-analyses (Podsakoff *et al.*, 2000; LePine *et al.*, 2002) also report commitment to be an antecedent of citizenship behavior. Commitment is an individual's identification with the organization. It is this identification that makes the employee takes up tasks that are not routine. Since loyalty as a form of citizenship behavior is an extra-role behavior of the subordinate, the behavior results from the employees' sense of identification with the organization. Consequently, our next hypothesis goes as follows:

- H4. Commitment mediates the relationship between LMX-Contribution and loyalty aspect of citizenship behavior such that the direct effect of LMX-Contribution becomes non-significant (or weakens) after commitment is considered.

Research on the relationship between job satisfaction and commitment has supported different linkages between the two. The first model that has received considerable support proposes that job satisfaction is an antecedent to organizational commitment (Angle and Perry, 1983; Williams and Hazer, 1986). This is explained through the process of transferring positive affect for the job to the organization, in the form of extra effort and commitment to the organization. The second competing model supports commitment as an antecedent to satisfaction (Bateman and Strasser, 1984; Price and Mueller, 1981). This model uses the cognitive dissonance (Festinger, 1957) approach to explain the link wherein "a cognitive outlook such as commitment is rationalized by subsequent attitudes of job satisfaction" (Bateman and Strasser, 1984, p. 97). Support for both the models point to investigating some other variables that may lead to satisfaction and commitment. It may be possible that if the antecedents of satisfaction and commitment are affect-based variables, then the first model holds true.

However, when these variables are cognitive and behavioral in nature, the second model might stand true.

While assessing the paths that connect satisfaction and commitment with LMX, Hackett *et al.* (2003), too, proposed a reciprocal influence process model. This model uses both the explanations to assess this linkage. In the first case, LMX leads to affective response to the organization (commitment) through affective reactions to the job (job satisfaction)—implying that job satisfaction mediates the relationship between LMX and commitment. Conversely, Hackett *et al.* (2003) also propose that, depending on their attitude towards the organization (commitment), subordinates develop appropriate attitudes towards their job (job satisfaction) in line with the theory of cognitive dissonance (Festinger, 1957). In this case, commitment mediates the relationship between LMX and job satisfaction.

However, understanding these relationships in the context of the two dimensions of LMX may provide more specific associations between satisfaction and commitment as related to LMX and is expected to show unique paths in relation to the different dimensions of LMX. As stated earlier, job satisfaction is an emotional attitude towards the work-group and is likely to be influenced by the affect dimension of LMX. In this case, since job fulfills one's personal and professional needs, it might result in positive feelings for the work-group and the organization. These positive feelings are likely to be translated into extra effort for the organization in terms of higher commitment. Consequently, the following hypothesis is offered:

- H5.* Job satisfaction mediates the relationship of LMX-Affect and organizational commitment such that the direct impact of LMX-Affect becomes non-significant (or weakens) after job satisfaction is considered.

As mentioned before, work-related contribution is likely to transfer the positive affect and contribution to the organization. In this case, a strong commitment for the organization, which results from behavioral inputs on the job, predisposes an employee to have a more positive affective reaction to the work-group. This notion is in line with the theory of cognitive dissonance (Festinger, 1957), as Batemen and Strasser (1984) conjecture “commitment initiates a rationalization process through which individuals make sense of their current situation by altering their attitudes that are consistent with commitment” (p. 97). Consistent with this logic, it is hypothesized that:

- H6.* Commitment mediates the relationship between LMX-Contribution and job satisfaction such that the direct impact of LMX-Contribution becomes non-significant (or weakens) after commitment is considered.

Method

Research site and participants

Data were collected with the help of a structured questionnaire personally distributed by the second author to 700 professionals working in over 40 software organizations. Participation was voluntary in the research. These organizations were situated in the southern, western, and northern regions of India and each employed more than 100 software professionals and recruited them from engineering and business schools. The professionals were contacted using the alumni network of a premier engineering/management school in India. To maintain the confidentiality of their responses, they were asked to return the completed questionnaire in a sealed envelope

that was provided to them. Only those questionnaires that were returned within three weeks of their distribution were considered usable for the study. A total of 338 questionnaires (a response rate of 48.28 percent) were returned within the stipulated time. After deleting the questionnaires that were incomplete, a sample of usable 306 responses, representing a response rate of 43.71 percent, was considered for the final analysis. Of these, 260 were males and 46 were females, over 90 percent were in the range of 20 to 31 years. A young sample is representative of the actual software professional population. Their mean tenure in the organization was 2.38 years ($SD = 2.67$). Respondents were asked not to sign or give any form of identification to ensure the anonymity of their responses. Care was taken to include only those respondents who had worked with their supervisor for over six months. This was necessary to make sure that the subordinates were in a position to assess the quality of interaction (LMX) with their supervisors.

Measures

Leader-member exchange (LMX). The quality of exchange was assessed using a ten-item quality of interaction scale (Bhal and Ansari, 1996, 2000). This was a two-dimensional scale of LMX, based on the conceptualization by Dienesch and Liden (1986). The two dimensions were perceived contribution and affect. The scale consisted of ten items, with five items each of perceived contribution (referred to as contribution subsequently) and affect. The respondents were asked to rate the statements on a five-point scale (1 = not at all true; 5 = very true) as to how true the statements were to their relationship with their immediate supervisor. Sample items include, "How much responsibility does he/she take for the jobs that are to be done together by you and him/her?" (LMX-Contribution); "How much do you help each other in personal matters?" (LMX-Affect).

Organizational commitment. Organizational commitment was assessed using the nine items of affective commitment questionnaire (Mowday *et al.*, 1979). The respondents rated on a five-point scale (1 = strongly disagree; 5 = strongly agree) their degree of agreement or disagreement with each statement. An example of commitment item is, "I am proud to tell others that I am a part of this organization."

Satisfaction. Satisfaction was assessed using six-item scale taken from Brayfield and Rothe (1951) scale, which has recently been used by Price (2001). The respondents were asked to rate on a 5-point scale (1 = strongly disagree; 5 = strongly agree) the degree to which they agreed or disagreed with the statements pertaining to satisfaction with their job. An example of satisfaction item is, "I am fairly well satisfied with my job."

Loyalty-organizational citizenship behavior. We measured loyalty to the organization as indicative of citizenship behavior by using a seven-item scale (Van Dyne *et al.*, 1994). The respondents were asked to rate on a five-point scale (1 = never; 5 = always) the frequency with which they indulged in the stated behaviors. An example of loyalty item is, "How often do you represent the organization favorably to others?"

Personal-demographics. A series of single-statement items were used to collect information on participants' demographic variables such as age, gender, and tenure. We used gender and tenure as controls in our regression equations. Gender was a dummy coded (0 = male; 1 = female) variable.

Results

Before testing the major hypotheses, we conducted confirmatory factor analyses (CFA) using Amos 5.0 (Arbuckle, 2006) to determine if the items loaded on their respective scales. The CFA was based on using raw data as input and maximum likelihood estimation. In this stage, a single-factor model was compared to the hypothesized five-factor (LMX-Contribution, LMX-Affect, satisfaction, commitment, and organizational loyalty) model. The two LMX dimensions – LMX-Contribution and LMX-Affect – were treated as co-varying. Four measures were used to assess the fit of structural models: the goodness of fit index (GFI), the adjusted goodness of fit index (AGFI, Jöreskog and Sörbom, 1993), comparative fit index (CFI, Bentler, 1990) and root mean square error of approximation (RMSEA, Browne and Cudeck, 1989).

For confirmatory factor analysis, two sets of analyses were done. Since there are many studies that treat LMX as unidimensional (though recently there has been reconsideration of LMX as a multi-dimensional construct), we wanted to test whether our scale was also two-dimensional as hypothesized. In this analysis, first a one-factor model (where all the ten items of LMX were made to load on one factor) was tested. This model showed poor fit indices ($\chi^2 = 810.63$, $df = 34$, $p < 0.01$, $GFI = 0.58$, $AGFI = 0.33$, $CFI = 0.59$, $RMSEA = 0.27$). This model was compared with the two-factor model (where five items each of contribution and affect were expected to load on two dimensions). The results showed very good fit indices ($\chi^2 = 122.880$, $df = 35$, $p < 0.01$, $GFI = 0.93$, $AGFI = 0.89$, $CFI = 0.95$, $RMSEA = 0.09$). Thus, the analysis confirms the two-factor model of LMX. As can be seen the hypothesized two-factor model showed much improved χ^2 ($\Delta\chi^2 = 687.75$, $\Delta df = 0$, $p < 0.01$) and fit statistics, providing substantial support to our two factor model of LMX. All the items were significant predictors of their respective latent variables.

The second set of CFA confirmed the factor structure for all the study variables. First a single-factor model (for all the five study variables) was estimated. This model turned out to be a very poor fit to the data ($\chi^2 = 3024.82$, $df = 464$, $p < 0.01$, $GFI = 0.50$, $AGFI = 0.44$, $CFI = 0.35$, $RMSEA = 0.14$). Next, the hypothesized (five-factor) model was tested. Given the number of variables, the results of the CFA provided a reasonable model fit ($\chi^2 = 1019.75$, $df = 463$, $p < 0.01$, $GFI = 0.83$, $AGFI = 0.81$, $CFI = 0.86$, $RMSEA = 0.06$). As can be seen, the hypothesized five-factor model showed much improved χ^2 ($\Delta\chi^2 = 2005.07$, $\Delta df = 1$, $p < 0.01$) and fit statistics, providing support to our five-factor model. All the items were significant predictors of their respective latent variables.

After confirming the factor structures, we formed composite variables for each construct from their respective items and used those composites as single indicators of their respective factors. The reliability of the scales was assessed with Cronbach's coefficients alpha. The reliability coefficients, descriptive statistics, and inter-correlations of the study variables are contained in Table I. Table I shows that reliabilities of all the variables are acceptable for research purposes that ranged from 0.60 to 0.91 (Nunnally and Bernstein, 1994). In conclusion, results of CFA and reliability indicate that the measures have sound psychometric properties.

The zero order correlations were in the expected directions (Table I). Satisfaction was significantly related to both perceived contribution ($r = 0.19$, $p < 0.01$) and affect ($r = 0.23$, $p < 0.01$) dimensions of LMX. This provides support to our first hypothesis (H1). Though commitment was also related to both, its relationship with

LMX-Contribution ($r = 0.30, p < 0.01$) was much stronger than its relationship with LMX-Affect ($r = 0.14, p < 0.05$). This result supports our second hypothesis (*H2*) that LMX-Contribution is significantly related to commitment. Citizenship behavior was significantly related only to the perceived contribution dimension of LMX ($r = 0.20, p < .01$) and not to affect ($r = 0.09, p > 0.05$) – thus supporting our third hypothesis (*H3*).

The mediation hypothesis was tested using multiple regression analysis. It should be noted that all our hypotheses use LMX as a predictor of employee outcomes. Previous research has found the role of supervisor gender (Duchon *et al.*, 1986; Green *et al.*, 1996) and LMX tenure (i.e. duration of the dyad working together) as possible antecedents of leader-member exchange (Ang *et al.*, 2005; Wayne *et al.*, 1997). Thus, we controlled for the effects of these two relational demographic variables by including them as predictors in regression equations. Regression results corroborate the correlation results (Table II) providing further support to our first three hypotheses.

The process paths proposed in our study are mediation models. To test hypotheses four through six, the three conditions of mediation proposed by Baron and Kenny (1986) were assessed: First, the predictor (independent variable) must significantly impact the mediator. Second, the predictor must significantly impact the criterion (dependent variable). Third, the mediator must impact the criterion variable. The impact of predictor (independent variable) on criterion must either become non-significant (full mediation) or less significant (partial mediation) in the third equation when the criterion is regressed on both independent and mediator variables. Thus, for *H4*, *H5*, and *H6*, regression equations using Baron and Kenny’s (1986) recommendations were run. Gender and LMX tenure (control variables) were also used as predictors in the equations as predictors. The results are contained in Table II and Figures 1-3.

It can be seen from Table II that all three mediation hypotheses find full support from the data. In support of *H4*, it can be seen that the impact of LMX-Contribution on loyalty aspect of citizenship behavior becomes non-significant once commitment is added to the equation. Similarly, the impact of LMX-Affect on commitment becomes non-significant once satisfaction is included in the equation as a predictor, providing support for a full mediation hypothesis (*H5*). Finally, the impact of LMX-Contribution on satisfaction becomes non-significant once commitment is added as a predictor (*H6*). Thus, our three mediation hypotheses (*H4*, *H5*, and *H6*) find full support from the data.

| Variable | M | SD | 1 | 2 | 3 | 4 | 5 | 6 |
|---------------------|------|------|--------|--------|--------|--------|--------|------|
| 1. LMX-Contribution | 3.55 | 0.73 | (0.91) | | | | | |
| 2. LMX-Affect | 2.81 | 0.82 | 0.36** | (0.88) | | | | |
| 3. Satisfaction | 2.96 | 0.88 | 0.10** | 0.23** | (0.87) | | | |
| 4. Commitment | 3.41 | 0.56 | 0.30** | 0.14* | 0.37** | (0.76) | | |
| 5. OCB-Loyalty | 3.70 | 0.50 | 0.17** | 0.09 | 0.03 | 0.28** | (0.63) | |
| 6. Gender | – | – | 0.04 | –0.03 | –0.05 | –0.07 | –0.01 | |
| 7. Tenure | 2.38 | 2.67 | 0.00 | 0.06 | –0.01 | 0.02 | 0.05 | 0.01 |

Table I.
Means, standard deviations, coefficients alpha, and correlations among study variables

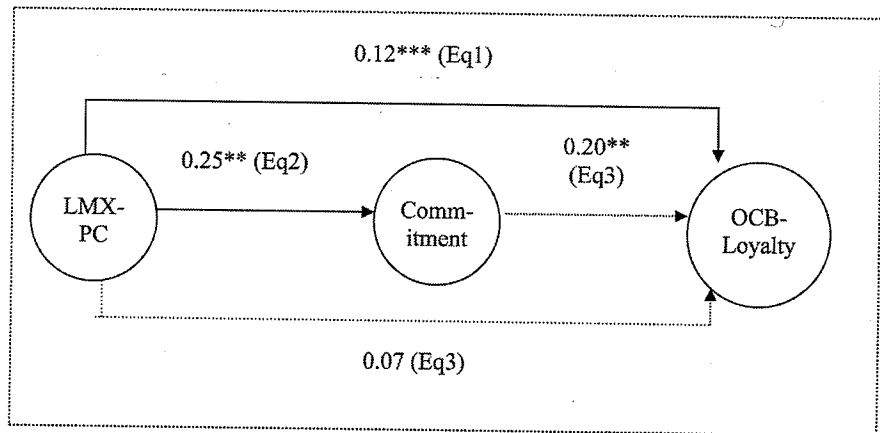
Notes: $n = 306$; Numbers in parentheses indicate the reliability coefficients; * $p < 0.05$; ** $p < 0.01$; Gender was a dummy coded (0 = Male; 1 = Female) variable; OCB = Organizational Citizenship Behavior

| Criterion | Hypothesis 4 | | Hypothesis 5 | | Hypothesis 6 | | |
|--|---|--|--|--|--|--|--|
| | Eq 1 | Eq 2 | Eq 1 | Eq 2 | Eq 1 | Eq 2 | |
| Predictor(s) | ¹ Gender ² Tenure ³ PC | ¹ Gender ² Tenure ³ PC Com | ¹ Gender ² Tenure ³ Af Com | ¹ Gender ² Tenure ³ Af Sat | ¹ Gender ² Tenure ³ PC Sat | ¹ Gender ² Tenure ³ PC Com | ¹ Gender ² Tenure ³ PC ⁴ Com Sat |
| Loy-OCB | Com | Loy-OCB | Loy-OCB | Sat | Sat | Com | Sat |
| Unstandardized regression coefficients | 1 - 0.15 | 1 - 0.01 | 1 - 0.02 | ¹ 0.01 | 1 - 0.12 | 1 - 0.10 | 1 - 0.14 |
| | ² 0.01 | ² 0.00 | ² 0.01 | 2 - 0.01 | ² 0.00 | ² 0.00 | 2 - 0.00 |
| | ³ 0.12** | ³ 0.25* | ³ 0.07* | ³ 0.25* | ³ 0.05 | ³ 0.25* | ³ 0.11 |
| | | ⁴ 0.20* | ⁴ 0.20* | | ⁴ 0.26* | | ⁴ 0.48** |
| MS | 0.03 | 0.09 | 0.09 | 0.06 | 0.15 | 0.09 | 0.15 |
| F | 3.30 | 9.55 | 7.26 | 6.08 | 13.24 | 9.55 | 13.42 |
| df | (3,302) | (3,302) | (4,301) | (3,302) | (4,301) | (3,302) | (4,301) |

Notes: Equation 1 = Independent Variable predicts dependent variable; Equation 2 = Independent variable predicts the mediator; Equation 3 = Both independent variable and the mediator predict the dependent variable; PC = LMX - Perceived Contribution; Af = LMX - Affect; Com = Commitment; Sat = Satisfaction; Loy-OCB = Loyalty - Organizational Citizenship Behavior; * $p < 0.01$; MS = Model Statistics

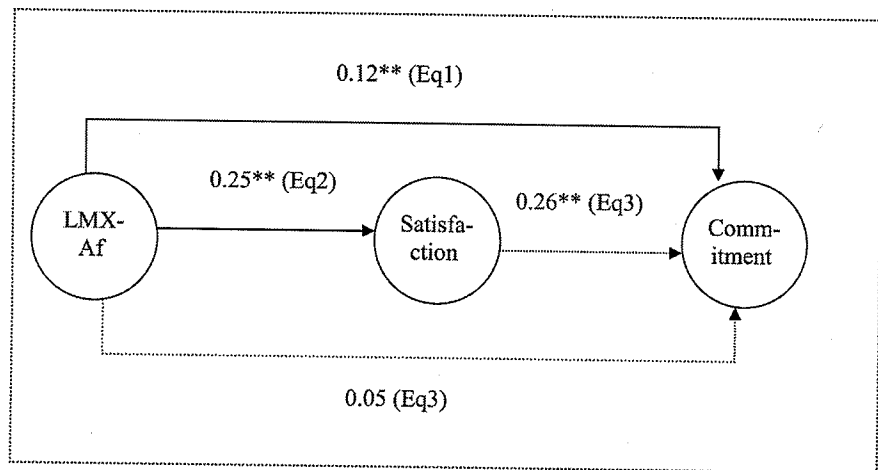
Table II.
Regression results for testing mediation

Figure 1.
Unstandardized
coefficients for mediation
effect of commitment on
the perceived
contribution-OCB loyalty
relationship (H4)



Note: LMX-PC = LMX-Perceived Contribution; ** $p < 0.01$

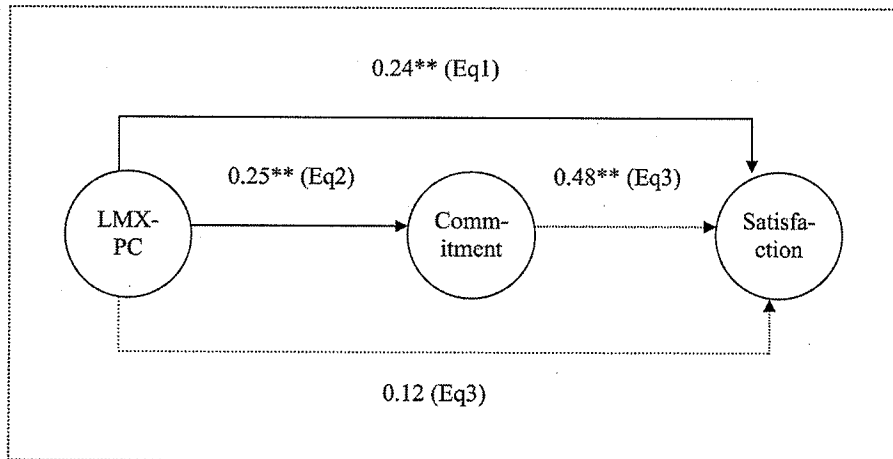
Figure 2.
Unstandardized
coefficients for mediation
effect of satisfaction on
affect-commitment
relationship (H5)



Note: LMX-Af = LMX-Affect; ** $p < 0.01$

Discussion

The present work extends LMX theory in five important ways. First, the study conceptualizes dyadic leader-member exchanges as multidimensional. The unique quality of interaction develops as an outcome of the role development by the subordinates. Through repeated role episodes at the role taking, role making, and role routinization stages, subordinates develop this quality of interaction (Graen, 1976; Graen and Scandura, 1987). Roles are negotiable and multidimensional. The process of role development involves exchanges at every level of role development. Thus it is possible for the members of the dyad to exchange a variety of material like physical resources and non-material goods like information, valued task assignments (Gouldner, 1960; Graen and Cashman, 1975), which indicate towards a



Note: LMX-PC = LMX-Perceived Contribution; ** $p < 0.01$

Figure 3.
Unstandardized
coefficients for mediation
effect of commitment on
perceived
contribution-satisfaction
relationship (*H6*)

multidimensional nature of exchanges too. Both roles and exchanges that form the bases for LMX are multidimensional, which provide support for a multidimensional nature of LMX. The emergence of two dimensions of contribution and affect which relate to on-the-job work related interaction and off-the-job social and affective interactions is in line with the previous conceptualizations of leader behavior (Blake and Mouton, 1964; Halpin and Winer, 1957; Katz and Kahn, 1978). Our findings indicate that LMX can be conceptualized as focusing on two aspects – task and social interactions (Bales, 1958). Emergence of the two dimensions of LMX thus finds support from the role, social exchange, and leader behavior theories.

Second, the study provides evidence for the predictive validity of the two dimensions of LMX. The significance of understanding leader behavior is largely determined by understanding its impact on employee behavior. The study shows that the contribution and affect dimensions of LMX predict employee outcomes differently. Predominantly, affective outcome of satisfaction is predicted by LMX-Affect. Contribution on-the-job may be done to benefit the organization (Shore and Wayne, 1993); therefore, employee outcomes of commitment and organizational citizenship behavior, which involve both affective and behavioral components, get more influenced by the contribution aspect of LMX.

Third, a significant contribution of the study is the identification of process paths through which LMX leads to subordinate outcomes of satisfaction, commitment, and organizational citizenship behavior. Hackett *et al.* (2003) proposed these paths based on a unidimensional understanding of LMX. They hypothesized that both satisfaction and commitment can work as mediators for their independent relationship with LMX and found support for their hypothesis from a meta-analytic study. However, in the present research, we proposed specific paths between the two dimensions of LMX, satisfaction, and commitment. Much in line with Hackett *et al.* (2003) results, this study too found support for both satisfaction and commitment operating as mediators but with different dimensions of LMX. The contribution and affect dimensions of LMX uniquely relate with satisfaction and commitment. Contribution dimension may be

seen as a rational component of LMX, where the subordinate assesses the contribution of the leader and based on equitable notion of exchange (Adams, 1965) contributes proportionately. This contribution may also be done to benefit the organization leading to organizational commitment. The commitment to the organization influences the thought processes and concomitant feelings that are brought in sync with the behavior in line with the recommendations of cognitive dissonance theory (Festinger, 1957). On the other hand, affective relationship with the leader results in affective reactions to the job (satisfaction), which results in organizational commitment. In this case, the behavior is aligned with the feelings. This not only identifies emotional and the rational paths that the two dimensions take to employee outcomes of satisfaction and commitment, but also provides support for the multidimensional nature of LMX as proposed by Dienesch and Liden (1986) and Liden and Maslyn (1998).

Fourth, a result that merits some discussion is the lack of correlation of loyalty as citizenship behavior with affect. We conceptualized affect as affective interactions between the leader and the member off-the-job. Bowler and Brass (2006) distinguish between organizational and interpersonal citizenship behavior, which include "helping" as defined by Van Dyne and LePine (1998), and "task-focused support to the leader" (or group members) as defined by Settoon and Mossholder (2002). Thus affect for the leader might lead to some extra-role contribution by the subordinate for the leader (interpersonal citizenship behavior), it is not necessary that it also transfers to the organization. Additionally, Sparrowe and Liden (1997, 2005), using network theory, propose that the centrality of the leader is also important in determining how a good quality of relationship translates into subordinate outcomes, a proposition that may be tested in subsequent studies.

Finally, though we had proposed our hypotheses on theoretical considerations assuming that the nature of relationship would be universal and the fact that they find support from the data confirm our assumption. At the same time, it is important that the results are examined in the backdrop of the cultural context of Indian software professionals who form the sample for this study. Many might argue that Indians prefer personalized interpersonal relations (Sinha, 1995) and in this scenario affect dimension of LMX should be a predominant predictor of all employee outcomes. However, this does not hold true for our sample, as affect shows weak or non-significant correlations with commitment and loyalty. The results, however, need to be interpreted in light of the sample that consists predominantly of young software professionals working in software organizations, who are relatively younger (i.e. in the range of 21 to 30 years). Singh (1990) has shown that the work values of Indians significantly vary across age groups, where younger professionals show significantly different work values from their older counterparts. Thus this sample is less likely to value personalized interpersonal relations at work. A low mean on affect (Table I) further corroborates this observation.

Practical implications

The findings have implications for LMX enhancement interventions. In general, enhancing work related interaction through guiding, coaching, or delegation (Bauer and Green, 1996) can result in higher-level employee outcomes. Next, focusing on enhancement of LMX-Contribution dimension is more likely to improve the organization level commitment and citizenship behavior, whereas LMX-Affect is

likely to result in more affective reactions like satisfaction with the supervisor and the job. The study provides new insight into social psychological processes that are in operation while LMX theory is exercised. The fact that a work-group under a leader is likely to be differentiated into the in- and the out-groups is likely to be more true in times when the environmental dynamism is increasing negotiability on the jobs/roles. In general, enhancing work-related interaction through guiding, sharing, and communicating (Bauer and Green, 1996) can result in higher-level employee outcomes. Further, leaders by focusing on different aspects of their relationships (contribution and affect) can influence different employee outcomes. A greater understanding of how the two LMX dimensions influence different outcomes would help them use their relationships more fruitfully in the organizational context. Finally, it is possible for the leaders to use either the affective (emotional) or the behavioral (contribution) routes to influence employee reactions. Depending on the current requirements the leaders can be appropriately trained on these dimensions of LMX. At a generic level, the results show that leaders have two routes to impact subordinate perceptions/outcomes. The affect-based relationship depends on personal interactions and is useful in generating positive affect in the subordinates. On the other hand, the contribution aspect requires a cognitive appraisal of the exchanges (contribution) which leads to appropriate behavioral responses (like extra effort on the job). Helping leaders understand these two routes would help in enhancing their effectiveness.

Limitations of the study

The implications of the study must be considered in light of its limitations. First, data for this study were collected from a single source, raising concerns for common method bias. However, there is little credible evidence that common method variance exists, and much evidence is to the contrary (Spector, 2006). Nonetheless, due to the nature of our cross-sectional data collected at one time, we followed suggestions in the literature (Podsakoff *et al.*, 2003) and examined this issue. We conducted Harman's one-factor test and examined the unrotated factor solution involving 32 items of five variables in a specified principal components analysis. The amount of variance explained and items or factors of a scale are listed as follows: 20.72 percent (LMX-Contribution), 10.80 percent (items of commitment with cross-loadings), 9.89 percent (LMX-Affect), 7.21 percent (items of satisfaction with cross-loadings) and, 5.13 percent (loyalty) (total = 53.75 percent). Clearly, no single factor accounted for the majority of the variance in the data. Thus, the concern for common method variance is not warranted. However, we also conducted a CFA on all the scales used, as detailed in the Method section. Second, since the data were cross-sectional, direction of causality is assumed, and not tested. Thus, inclusion of longitudinal studies and others ratings of behavior and attitudes could provide support for current findings. Longitudinal studies are also likely to provide insight into how dyadic relationships in a software project team grow over a period of time. Third, all the data were collected through self-reports, which may be limited. However, recent research suggests that self-reported data are not as limited as was previously believed and that people often accurately perceive their social environment (Alper *et al.*, 1998). Further, self-reports are also likely to be influenced by social desirability. Although this bias cannot be ruled out, some researches have shown that social desirability may not be a source of bias in measuring organizational perceptions (Moorman and Podsakoff, 1992; Spector, 1987).

In conclusion, the present research adds to our understanding of the social psychological mechanisms involved in the leader-member exchange-work outcomes relationships. It suggests that managers should look for ways of enhancing and maintaining positive relationships with their subordinates in order to promote organizational success.

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Corresponding author

Kanika T. Bhal can be contacted at: kanika@dms.iitd.ernet.in