

Reciprocal Relationships between Leader–Member Exchange (LMX) and Job Satisfaction: A Cross-Lagged Analysis

Judith Volmer*

University of Erlangen, Germany

Cornelia Niessen

University of Konstanz, Germany

Daniel Spurk, Alexandra Linz and Andrea E. Abele

University of Erlangen, Germany

While previous research has mainly emphasised the importance of leader–member exchange (LMX) to job satisfaction, there is a lack of research on reciprocal relationships between job satisfaction and LMX. In this study, we not only suggest that good LMX increases job satisfaction, but that job satisfaction can also enhance high-quality supervisor–employee relationships. A full cross-lagged panel analysis was used to test reciprocal relationships between LMX and job satisfaction. Employees ($N = 279$) of a large information technology company filled out questionnaires at two times, with a time lag of 3 months. In line with our predictions, findings revealed a positive relationship between LMX and job satisfaction both at Time 1 and Time 2. Moreover, LMX at Time 1 predicted the increase of job satisfaction at Time 2, and job satisfaction at Time 1 predicted the increase of LMX at Time 2. The results demonstrate the need to consider reciprocal relationships between job satisfaction and LMX when explaining employees' workplace outcomes. Our findings are discussed in terms of positive psychology theory.

INTRODUCTION

A high-quality relationship between supervisor and employees is crucial for well-being and performance at work (Gerstner & Day, 1997). According to leader–member exchange (LMX) theory (Dansereau, Cashman, & Graen,

* Address for correspondence: Judith Volmer, Social Psychology Group, University of Erlangen-Nuremberg, Bismarckstr. 6, D 91054 Erlangen, Germany. Email: judith.volmer@sozpsy.phil.uni-erlangen.de

We would like to thank Joerg Felfe and Frieder R. Lang for insightful comments on an earlier version of this paper.

1973; Graen & Schiemann, 1978), supervisors have a unique relationship to each of their employees with high-quality relationships characterised by respect, trust, and mutual obligation (Graen & Uhl-Bien, 1995). The payoffs of experiencing a high-quality relationship are extensive. Among many other work-related outcomes (e.g. better job performance, more commitment, better member development, and career mentoring; Gerstner & Day, 1997; Liden, Sparrowe, & Wayne, 1997), numerous studies on LMX theory (Dansereau et al., 1973; Graen & Schiemann, 1978) have shown positive associations between LMX and job satisfaction (Golden & Veiga, 2008; Major, Kozlowski, Chao, & Gardner, 1995; Schriesheim, Neider, Scandura, & Tepper, 1992; Vecchio, Griffeth, & Hom, 1986). Job satisfaction has been defined as a “pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences” (Locke, 1976, p. 1304). Building on this definition, recent theorising (Fisher, 2000; Weiss, 2000) describes job satisfaction as an attitude (Eagly & Chaiken, 1993) with both an affective component (mood, emotions) and a cognitive component (belief, judgment, comparison).

Whereas there are many findings that demonstrate the positive LMX–job satisfaction relationship, we still know little about the direction of influence between both variables because the majority of findings are cross-sectional (e.g. Deluga & Perry, 1991; Erdogan & Enders, 2007; Janssen & Van Yperen, 2004; Ozer, 2008). The few longitudinal studies on the LMX–job satisfaction relationship (Epitropaki & Martin, 2005; Major et al., 1995; Vecchio et al., 1986) have only tested whether LMX predicts job satisfaction, but have ignored any evidence of the relationship in the opposite direction. Meta-analytical work (Gerstner & Day, 1997), as well, does not list a single study that examines the direction of the relationship starting from job satisfaction and leading to LMX.

We found only two studies on the topic of LMX and job satisfaction which have (indirectly) addressed this issue of reciprocity. First, Lapierre and Hackett (2007) tested, in a combination of meta-analysis and structural equation modelling, competing models linking the variables trait conscientiousness, leader–member exchange, job satisfaction, and organisational citizenship behaviour (OCB). They found the strongest support for a model wherein more conscientious employees show more OCB, which enhances LMX quality and leads to higher job satisfaction. Job satisfaction, in turn, was found to be positively associated with OCB. However and most importantly, the majority of primary studies had cross-sectional designs and the authors did not report any reciprocal relationships between LMX and job satisfaction. Consequently, the direction of influence between variables was developed theoretically, but not empirically. Secondly, a study by Tordera, González-Romá, Ramos-López, and Peiró (2005) examined the reciprocal relationship between LMX and job satisfaction with a Spanish sample of 132

professionals. However, findings were mixed since only some facets of job satisfaction (i.e. satisfaction with the team and satisfaction with team goal clarity) were positively related to LMX, and others were not.

The scarcity of studies analysing reciprocal relationships between LMX and job satisfaction is astonishing since LMX theory explicitly builds on social exchange theory (Blau, 1964; Gouldner, 1960). LMX theory proposes that the LMX relationship develops through negotiated exchanges of resources, effort, and support between leaders and members (e.g. Graen & Uhl-Bien, 1995). For example, the leader may offer greater job autonomy to the member and the member might reciprocate by showing greater work engagement and increased investment of effort. According to Byrne's *reinforcement attraction paradigm* (Byrne, 1971, 1997; Byrne & Rhamey, 1965), we like people more when we know that they like us, and consequently we show more positive behaviour towards these people. In a self-fulfilling prophecy manner, the positive/negative behaviour in interpersonal relationships actually leads to liking/disliking (cf. Curtis & Miller, 1986; Snyder & Swann, 1978). Consequently, reciprocity seems to be very likely. Other researchers have already pointed to the importance of reciprocal relationships between LMX and its correlates (e.g. Bauer & Green, 1996; Brower, Schoorman, & Tan, 2000; Liden & Maslyn, 1998; Kozlowski & Doherty, 1989), yet empirical research is scarce.

The present study was designed to close this gap by providing empirical support for the reciprocal relationship between LMX and job satisfaction by means of longitudinal research to address earlier criticism regarding the lack of causal results reported in LMX research (e.g. Cogliser & Schriesheim, 2000). The classical, directional LMX to job satisfaction perspective is supportive of the idea that evaluations of the leader relationship play a key role in influencing followers' effectiveness (cf. Avolio, Walumbwa, & Weber, 2009; Lowe, Kroeck, & Sivasubramaniam, 1996). Conversely, the investigated opposite perspective from job satisfaction to LMX is supportive of the view that affective and cognitive evaluations of job experiences can have an impact on the quality of the LMX relationship. In terms of the *broaden-and-build-theory* (Fredrickson, 1998, 2001) from positive psychology research, a positive attitude increases the likelihood of experiencing positive social interactions and enables human flourishing. Assuming a relationship from job satisfaction to LMX also reflects a more follower-centred perspective of leadership, which has been emphasised in earlier research (e.g. Howell & Shamir, 2005). If influences in both directions are found, this would support the idea of reciprocity and would suggest the need to further investigate the relative strength of influence, in order to form practical implications. From a theoretical point of view, findings on a reciprocal relationship between LMX and job satisfaction would speak in support of the view of a self-reinforcing cycle (Abele & Spurk, 2009; Frese, Garst, & Fay, 2007). In addition, indica-

tions would be that it is not only LMX that can have positive effects on job satisfaction but that job satisfaction itself can trigger either an upward or downward developmental spiral. From a practical point of view, reciprocal effects would suggest that both LMX and job satisfaction should be considered in practical interventions, and that a downward spiral—due to low job satisfaction—should be interrupted immediately to prevent any subsequent negative outcomes.

The present study expands the current research on the LMX–job satisfaction association in at least three important ways. First, addressing the key weakness of existing research on the LMX–job satisfaction research, we use a longitudinal study and a cross-lagged panel design to overcome limitations of earlier research. Second, the present study adds to the notion that followers can play a crucial role in the leadership process (Howell & Shamir, 2005; Schyns & Day, 2010), which has up to now received only little empirical attention. Third, our study on reciprocal relationships helps to determine the *relative* strength of evaluations of the quality of LMX on the one hand, and job satisfaction on the other, for workplace outcomes, which can be very useful in career counselling, for instance.

THEORETICAL BACKGROUND AND HYPOTHESES

Figure 1 depicts our hypotheses, theoretical model, and empirical approach. First, we hypothesise positive cross-sectional relationships between LMX and job satisfaction at Time 1 and at Time 2, respectively (Hypothesis 1). Second, LMX at Time 1 is hypothesised to predict job satisfaction at Time 2

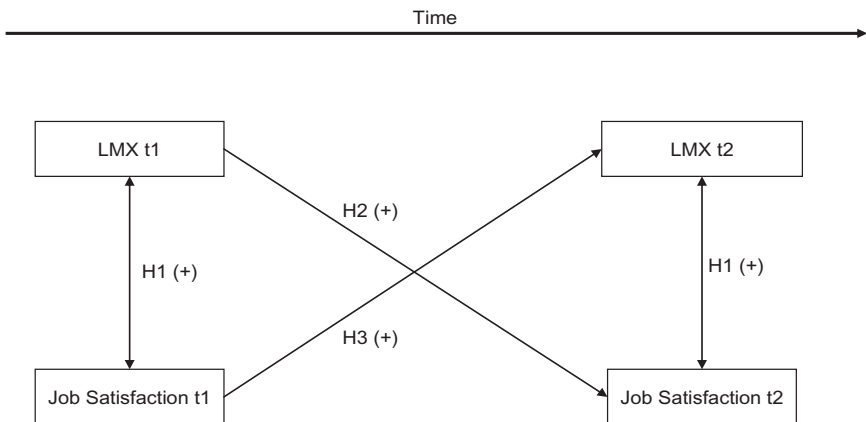


FIGURE 1. Theoretical model for the relationship between Leader–Member Exchange (LMX) and Job Satisfaction.

(Hypothesis 2), and third and most importantly, job satisfaction at Time 1 is hypothesised to predict LMX at Time 2 (Hypothesis 3). We will now develop the theoretical background underlying our hypotheses in more detail.

The Classical Perspective: Cross-Sectional Relationships between Leader–Member Exchange (LMX) and Job Satisfaction

Considerable LMX research has demonstrated positive correlations between LMX and job satisfaction (e.g. Epitropaki & Martin, 1999; Golden & Veiga, 2008; Stepina, Perrewé, Hassell, & Harris, 1991). In their extensive review, Liden et al. (1997) revealed a strong positive relationship between LMX and job satisfaction. Meta-analytic work by Gerstner and Day (1997) also showed a positive association between LMX and job satisfaction of $r_c = .50$.

In summary, findings provide compelling support for a positive cross-sectional job satisfaction–LMX association. Although we are mainly interested in reciprocal relationships between LMX and job satisfaction, for reasons of completeness and to provide information on the stability of our results, we state Hypothesis 1 on the cross-sectional relationships between these constructs.

Hypothesis 1: Job satisfaction and the quality of leader–member exchange (LMX) are positively related at Time 1 and Time 2, respectively.

Leader–Member Exchange (LMX) as a Predictor of Job Satisfaction

There are only a few longitudinal studies which have investigated LMX as a predictor of job satisfaction (Epitropaki & Martin, 2005; Major et al., 1995; Vecchio et al., 1986). Vecchio et al. (1986) found that LMX positively predicted job satisfaction in hospital employees ($r = .35$). Similarly, in their study with 224 newcomers, Major et al. (1995) identified LMX to be a strong predictor of job satisfaction ($r = .48$). In a study of 436 British employees, Epitropaki and Martin (2005) also found LMX to be a strong predictor of job satisfaction ($r = .56$). The existing literature provides several explanations for the positive LMX–job satisfaction link. First, being in a high-quality LMX relationship endows employees with numerous privileges and resources (intrinsic: e.g. empowerment, decision-influence; extrinsic: e.g. salary progress, advancement) and positive socio-emotional experiences (Epitropaki & Martin, 2005), which relate positively to job satisfaction. Second, as job satisfaction is a result of a comparison between what is and what was expected (Locke, 1976), members in high-quality LMXs feel privileged and superior in comparison to fellow group members who have not been selected

as *in-group* members, consequently increasing their job satisfaction. Third, work design models suggest that LMX is positively associated with job satisfaction. The Job Characteristics Model (JCM; Hackman & Oldham, 1976) states that five core job characteristics (task identity, task significance, autonomy, skill variety, and task feedback) are positively associated with job satisfaction. The Job-Demand Job-Control Model (JDJC-M; Karasek & Theorell, 1990) identifies autonomy and social support as significant predictors of job satisfaction. In his Vitamin model, Warr (1999) presented a comprehensive list of predictor variables (e.g. opportunity for personal control, opportunity for skill use, variety, environmental clarity) for job satisfaction. Employees with a high LMX relationship have enriched jobs (Lapierre, Hackett, & Taggar, 2006) with optimal levels of job characteristics that have been shown to positively influence job satisfaction (Parker & Ohly, 2008).

Together, these studies provide consistent support for LMX as a predictor of job satisfaction. Thus, we propose that high-LMX subordinates will experience increased job satisfaction across time.

Hypothesis 2: Leader–member exchange (LMX) at Time 1 will positively predict job satisfaction at Time 2.

The Opposite Perspective: Job Satisfaction as a Predictor of Leader–Member Exchange (LMX)

Although job satisfaction has been shown to be related to numerous positive outcomes (e.g. Judge & Klinger, 2008; Warr, 1999), we are not aware of any study that has empirically tested the direction from job satisfaction to LMX. However, knowledge about this directional relationship leads to speculation about the power of employees to craft the quality of the LMX relationship. We suggest that job satisfaction is a significant predictor of LMX for two reasons: First, happiness researchers (Diener, Kesebir, & Lucas, 2008; Boehm & Lyubomirsky, 2008; Lyubomirsky, King, & Diener, 2005) have revealed substantial influences of happiness measures (including job satisfaction) on a number of outcomes: Happy people are judged by others as strong performers, show increased creativity and problem-solving, are healthier, more involved in their jobs, receive more benefits in the form of interpersonal rewards, and are more likely to remain at their jobs. In terms of the *broaden-and-build-theory* (Fredrickson, 1998, 2001), a positive attitude builds resources, which help in establishing positive and rewarding social interactions.

Following these findings from positive psychology research, we propose that job satisfaction predicts the quality of LMX because satisfied employees should show greater activity in seeking and engaging in social situations.

Research documents the success of happy employees in forming social relationships (see e.g. Barsade & Gibson, 2007, for a review). People in a positive mood have been shown to perform better on interpersonal tasks compared to people in a negative mood (Staw & Barsade, 1993). Moreover, individuals in a positive mood have been found to be more effective in conflict situations—which require a high amount of interpersonal skills—because they are more likely to adopt a cooperative problem-solving strategy (Baron, 1990). Due to the importance of frequent and positive social interactions for the quality of a relationship, we expect satisfied employees' active and frequent seeking after social opportunities to foster high-quality LMX relationships.

Second, job satisfaction is positively related to a broad set of work behaviours. For instance, Harrison, Newman, and Roth (2006) found a high correlation of $r = .59$ between job attitudes (i.e. job satisfaction and commitment) and a variety of behavioural outcomes (i.e. focal performance, contextual performance, lateness, absence, and turnover), referred to as “individual effectiveness, the tendency to contribute desirable inputs towards one's work role” (p. 308). In other words, positive job attitudes lead employees toward contributing rather than withholding inputs (*attitude-engagement* idea; p. 320). Subordinates in high-quality LMX relationships should very much behave according to the attitude-engagement idea (Harrison et al., 2006). They receive many privileges from their supervisor, which they should reciprocate through favourable behaviour that benefits the leader in the work setting (Ilies, Nahrgang, & Morgeson, 2007; LaPierre & Hackett, 2007). Thus, satisfied employees' engagement in desirable inputs should enhance the quality of the LMX relationship across time.

In summary, we expect that job satisfaction will serve as a means of nurturing high-quality relationships. We state the following hypothesis:

Hypothesis 3: Job satisfaction at Time 1 will positively predict the quality of leader–member exchange (LMX) at Time 2.

The Present Study

The main purpose of our study was to test the effects of LMX and job satisfaction, cross-sectionally, longitudinally, and reciprocally by means of a full cross-lagged panel design. Our design comprised two measurement points with a 3-month interval between the assessments. Addressing limitations of previous studies, we aimed to provide a relatively strict test of the direction of influence between LMX and job satisfaction by using a longitudinal design, including auto-regressors, as well as latent constructs, and testing for measurement invariance. We chose a 3-month time lag to be able to assess variations in LMX and job satisfaction but also to hold constant seasonal effects on business activities. Further reasons for choosing a

3-month interval were to keep the attrition rate as low as possible, and to have a low number of fluctuations of participants from one department to another of the company. Regarding the stability of job satisfaction, work by Staw and Ross (1985) reports moderate stability scores for 2- ($r = .42$), 3- ($r = .32$), and 5- ($r = .29$) year intervals. For LMX, Wakabayashi, Graen, Graen, and Graen (1988) report a median LMX stability of $r = .60$ over the average of all possible test–retest correlations over six separate occasions. Liden, Wayne, and Stilwell (1993) report a stability score of $r = .58$ for a 4-week time period, which reduces gradually with a stability score of $r = .41$ for an 18-week time period. To summarise, analyses of stability scores of LMX and job satisfaction show that these constructs are moderately stable. For example, Liden et al.'s (1993) stability score of $r = .58$ for LMX translates into 67 per cent of unexplained variance, which is a rather large amount.

METHOD

Sample and Procedure

We conducted our study between June and September 2008 in a large international information technology company in Germany. This company has about 2,500 employees at the subsidiary where we conducted our research. We used a survey approach for gathering our data. Questionnaires were administered and filled out during working hours. We assured participants of confidentiality and explained that the study was conducted in agreement with, but independent of, the company's management. Completed questionnaires were collected in a sealed box or could alternatively be sent back to the researchers in a pre-stamped envelope. Participants took part in a lottery and received feedback on the results after Time 2.

A total of 378 randomly selected employees were asked to voluntarily participate in our study. Of these, 279 employees completed the questionnaire at Time 1 (response rate: 73.81%), and 193 employees completed the questionnaire at Time 2 (69.18% of those who participated at Time 1). Of the Time 2 participants, 144 indicated that they had already participated at Time 1 (51.61% of those who participated at Time 1) and thus provided data on both measurement occasions. Our final sample consisted of 279 employees, as we estimated missing values by means of maximum likelihood estimation (more details follow below in the data analysis section).

Of the 279 individuals, 205 were men (74.3%). On average, participants were 39.90 years old ($SD = 10.36$). The majority (79%) of the sample held an apprenticeship, 14.7 per cent had a university degree or a comparable education, and 6.3 per cent had no formal professional training. Only a minority of the participants had a supervisory position (7.6%). The majority (54.2%) had worked in the company for more than 15 years. Respondents worked in

different areas of operation, including production (46.2%), research and development (15.8%), logistics (12.2%), sales and marketing (12.5%), and others (13.3%).

We examined whether the Time 2 sample was representative of the Time 1 sample by conducting drop-out analyses. We found no significant differences with respect to our study variables assessed at Time 1 (age, gender, leadership position, job tenure, education, LMX, job satisfaction). Thus, although there was some attrition in our sample, it seems that it was not selective.

Measures

Leader–Member Exchange. We employed the highly recommended seven-item LMX 7 scale (Graen & Uhl-Bien, 1995) in its German version (Schyns, 2002). Meta-analytical evidence indicates that the LMX 7 provides the soundest psychometric properties and the highest correlations with outcomes, compared to all other available instruments (Gerstner & Day, 1997). A sample item is “How well does your immediate supervisor understand your problems and needs?” Participants answered on 5-point Likert-type scales with question-specific labels (for the sample item, 1 = *not much* to 5 = *a great deal*). Cronbach’s α was .86 (T1) and .87 (T2).

Job Satisfaction. Our measure of job satisfaction was taken from Baillo and Semmer (1994). Following Kunin (1955), participants were instructed to indicate how satisfied they were, in general, with their job, on a 7-point Likert-type faces scale ranging from 1 = *totally dissatisfied* to 7 = *totally satisfied*. We used this single-item measure to assess job satisfaction for three reasons: First, meta-analytic work by Wanous, Reichers, and Hudy (1997) demonstrated that overall job satisfaction correlates highly with multiple-item measures (corrected $R = .67$), thus providing an efficient alternative to more comprehensive facet measures of job satisfaction. Second, Ironson, Smith, Brannick, Gibson, and Paul (1989) also argued that a single item captures the essence of job satisfaction better than a more specific subscale measure. Third, meta-analytical work by Kaplan, Warren, Barsky, and Thoresen (2009) showed that Kunin’s faces scale is best suited to capturing both employees’ affective and cognitive reactions to work; thus, a single-item faces scale is well suited to obtaining a comprehensive rating of employees’ attitude to work.

Control Variables. Leadership position was measured with one item asking if the respondent had any disciplinary responsibilities. Education was measured by asking for a report of the highest degree obtained. The rating scale was 1 = *none*, 2 = *apprenticeship completed*, 3 = *university degree*. Job tenure was measured with one item asking for a report of the number of years

in the company. The rating scale was 1 = *less than one year*, 2 = *1–5 years*, 3 = *6–10 years*, 4 = *10–15 years*, and 5 = *more than 15 years*.

Data Analysis

We tested our hypotheses by means of structural equation modelling (SEM) using Mplus (Muthén & Muthén, 1998–2004). Structural equation modelling has several advantages for this analysis. In addition to being able to include the measurement model of LMX measures, SEM can test specific postulated paths. Also, besides providing the path coefficients, a series of overall fit statistics show how well the empirical data fit the theoretical model (Kline, 2005).

Regarding our reciprocal hypotheses (LMX and job satisfaction) we estimated a cross-lagged panel model with these variables. In this modelling design, every outcome variable (LMX and job satisfaction) is regressed on its auto-regressor and cross-lagged on the other variable in the previous time of measurement (LMX t_2 regressed on job satisfaction t_1 and job satisfaction t_2 regressed on LMX t_1). This strategy is broadly accepted in the analysis of reciprocal effects (cf. Cieslak, Knoll, & Luszczynska, 2007; Farrell, 1994; Zapf, Dormann, & Frese, 1996) and has several advantages compared to other research designs. Controlling for variables measured earlier (i.e. LMX Time 1, as well as job satisfaction Time 1 as auto-regressors) rules out several alternative explanations of findings which may occur in cross-sectional studies. Occasion factors are controlled for, which refer to effects of mood or day-specific work settings. Additionally, stable background variables like social status or positive affect, which may account for the relationship between LMX and job satisfaction, are also controlled for and cannot be considered further as alternative explanations (cf. Zapf et al., 1996).

We tested all models using maximum likelihood estimation with robust standard errors (MLR) against non-normality. Because we had missing values due to drop-outs at Time 2, we used a Full Information Maximum Likelihood approach (FIML). By using an FIML approach, all available information in the data set is used to estimate the individual log likelihood functions. The necessary precondition of missing at random (MAR) assumes that the probability of missing values depends on observed variables. If, for instance, the probability of responding is higher for persons with a leadership position or higher education, and these variables are included in the model, then MAR is suitable and missing values should be treated with a full information maximum likelihood approach (cf. Little & Rubin, 2002). In contrast, treating missing data by means of list-wise deletion presumes an even more restrictive assumption, which is the assumption of missing completely at random (MCAR) (cf. Little & Rubin, 2002), i.e. the probability of assessment is independent of observed and unobserved variables as well as

independent of time. We therefore assume that MAR is the more suitable approach here. Nevertheless, we also tested whether the kind of estimation of missing values had an effect on the findings by comparing a model with list-wise deletion of missing values with our full information maximum likelihood approach. The results were, by and large, the same. For nested model comparisons, we used the χ^2 difference statistic (Bentler & Bonnet, 1980), corrected by a procedure from Satorra and Bentler (2001).

RESULTS

Table 1 displays means, standard deviations, and zero-order correlations between study variables estimated by a full information maximum likelihood approach using Mplus.

Model Building

We followed a recommended two-step modelling approach (Kline, 2005). First, we tested the measurement portion of the model. Since only LMX was measured as latent variable, the measurement model only comprised the LMX construct. Therefore, we conducted a confirmatory factor analysis of the LMX measures. Both latent LMX constructs were represented by seven indicators (items of the LMX scale). Corresponding measurement errors across time for each indicator were correlated together. The resulting fit indices were good ($\chi^2 = 108.64$, $df = 69$, $p < .01$, CFI = .97, TLI = .96, RMSEA = .04, SRMR = .06). We also tested for measurement invariance of the factor loadings of the LMX measure across time as an important precondition for interpreting auto-regressive models (Chan, 1998) because if measurement invariance exists, participants interpreted the LMX scale equally across time. For this purpose, we computed a model with the corresponding factor loadings (factor loading 1, factor loading 2, etc.) of both LMX measures, fixed to be equal at the two time points. The χ^2 difference test between the free and fixed model was not significant ($\Delta\chi^2(6) = 7.16$, $p = .31$), indicating that the measurement of LMX was invariant across time. Because the restricted model is more parsimonious and because measurement invariance is an important precondition for interpreting the results, we used this model in further structural analyses (final model: $\chi^2 = 115.80$, $df = 75$, $p < .05$, CFI = .97, TLI = .96, RMSEA = .04, SRMR = .07). The factor loadings can be seen in Figure 2. All factor loadings were highly significant.

In a second step, we built the structural model and added job satisfaction at both times as well as all controls represented by manifest variables. Categorical variables were dummy coded. In line with our theoretical model (Figure 1), we specified auto-regressive paths from LMX and job satisfaction at Time 1 to LMX and job satisfaction at Time 2. To test the reciprocal

TABLE 1
Means, Standard Deviations, and Zero-Order Correlations between Study Variables

	M	SD	1	2	3	4	5	6	7
1 Age	39.78	9.41							
2 Gender ^a	1.21	.41	.12*						
3 Leadership Position ^b	1.94	.42	-.02	.09					
4 Tenure ^c	3.89	1.40	.58***	.10	-.04				
5 LMX (Time 1)	3.38	.72	-.07	-.06	-.12	-.10			
6 LMX (Time 2)	3.42	.69	.09	-.21*	-.07	.02	.72***		
7 Job satisfaction (Time 1)	4.85	.98	-.06	-.04	-.17**	-.11	.51***	.49**	
8 Job satisfaction (Time 2)	4.87	1.01	.03	-.09	-.19*	.04	.47***	.55**	.57***

Note: N = 279. * p < .05; ** p < .01; *** p < .001. ^a Gender is coded as 1 = male, 2 = female. ^b Leadership position is coded as 1 = no, 2 = yes. ^c Tenure is coded as 1 = less than one year, 2 = 1-5 years, 3 = 6-10 years, 4 = 10-15 years, 5 = more than 15 years. Dummy variables for education used as controls in the structural equation models are excluded from the correlation table.

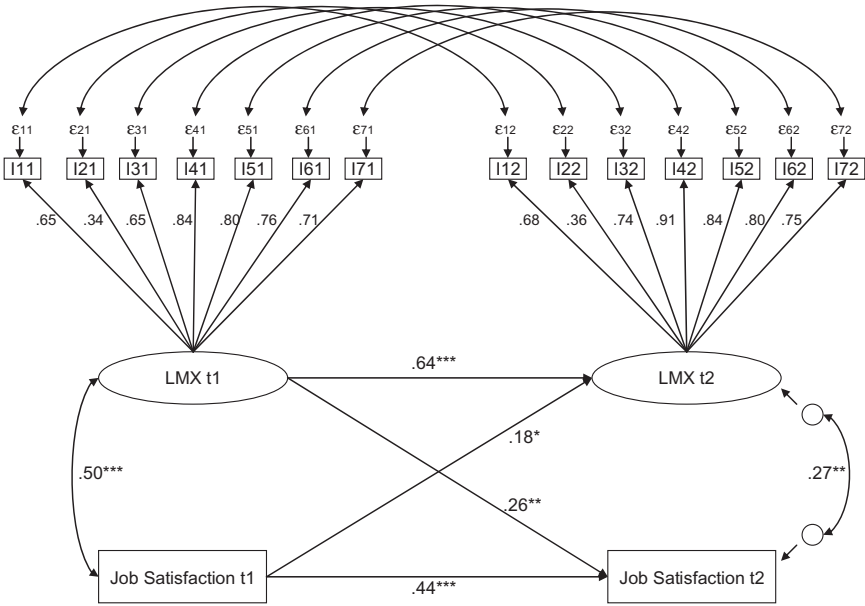


FIGURE 2. Structural equation model for the relationship between Leader–Member Exchange (LMX) and Job Satisfaction.

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; LMX = leader member exchange; ϵ = measurement error; I11 = item one at time 1, I12 = item one at time 2, . . . ; oval fields represent latent constructs; rectangular field represents manifest constructs.

effects, we specified paths from LMX at Time 1 to job satisfaction at Time 2 and from job satisfaction at Time 1 to LMX at Time 2. LMX and job satisfaction within the same time points were correlated together. Finally, we specified paths from all controls to LMX and job satisfaction at Time 2.

Hypotheses Testing

The complete structural equation model is depicted in Figure 2. The resulting fit indices are good ($\chi^2 = 231.58$, $df = 171$, $p < .01$, CFI = .96, TLI = .95, RMSEA = .04, SRMR = .06). Hypothesis 1 was confirmed because we found a positive correlation between LMX and job satisfaction at Time 1 ($r = .50$, $p < .001$) and between LMX and job satisfaction at Time 2 ($r = .27$, $p < .01$). In confirmation of Hypothesis 2, LMX at Time 1 positively predicted job satisfaction at Time 2 ($\beta = .26$, $p < .01$), and also after controlling for the auto-regressor ($\beta = .44$, $p < .001$). Even more interesting, in confirmation of

Hypothesis 3, job satisfaction at Time 1 was a positive predictor for LMX at Time 2 ($\beta = .18, p < .05$), even after controlling for the auto-regressor ($\beta = .64, p < .001$). As suggested by Farrell (1994), we constrained the model allowing for reciprocal effects between LMX and job satisfaction, for a more direct test of the reciprocal effects assumption. First, we fixed the path from LMX at Time 1 to job satisfaction at Time 2 to zero ($\Delta\chi^2(1) = 9.04, p < .01$), and second, we fixed the path from job satisfaction at Time 1 to LMX at Time 2 to zero ($\Delta\chi^2(1) = 5.29, p < .05$) since both of these models tested for unidirectional effects assumptions. Both unidirectional effects models had a significantly worse fit compared to the hypothesised reciprocal model. This suggests a reciprocal relationship between LMX and job satisfaction. The more people are satisfied with their work at Time 1, the more they engage in positive LMX relationships; the more people engage in positive LMX relationships, the more their job satisfaction increases. To analyse whether one direction of the relationship is stronger than the other, we constrained the cross-lagged effects to be equal. The χ^2 difference test ($\Delta\chi^2(1) = 3.34, p = .07$) indicated that the constrained model did not differ from the free estimated model presented above. Therefore, we conclude that the influence of LMX on job satisfaction has the same strength as the effect from job satisfaction to LMX. The model explains 60 per cent of variance in LMX at Time 2 and 40 per cent of job satisfaction at Time 2.

DISCUSSION

The aim of the present study was to examine the reciprocal relationship between the quality of supervisor–employee relationship (i.e. LMX) and job satisfaction. We not only hypothesised that LMX predicts job satisfaction but that job satisfaction itself enables employees to engage in positive personal interactions which build further resources, and that job satisfaction predicts the quality of supervisor–employee relationships.

Supporting Hypothesis 1, we found that LMX and job satisfaction are cross-sectionally related at both measurement points. These findings replicate previous results (Gerstner & Day, 1997; Graen & Uhl-Bien, 1995; Liden et al., 1997). In line with Hypothesis 2, we found that LMX at Time 1 significantly predicted job satisfaction at Time 2. This finding corresponds to earlier studies that have empirically examined this direction of influence (e.g. Epitropaki & Martin, 2005; Major et al., 1995). Most interestingly, however, our study shows that in accordance with Hypothesis 3, job satisfaction also predicts the quality of LMX relationship across time. Thus, our findings suggest that the opposite direction of influence—from job satisfaction to LMX—which has been neglected so far, is very important to consider. Overall, our findings support the idea of reciprocal relationships between LMX and job satisfaction. Extending the research by Lapiere and

Hackett (2007), who mainly addressed the issue of reciprocity in a meta-analysis with cross-sectional studies, our longitudinal study design enabled us to demonstrate reciprocal relationships between LMX and job satisfaction empirically.

A closer inspection of the reciprocal influences revealed that the cross-lagged effects from LMX to job satisfaction and from job satisfaction to LMX were equally strong. This research adds to the analyses performed in positive psychology demonstrating the impact of people's happiness on their social relationships, and in work-related contexts (Lyubomirsky et al., 2005). People are not only driven by work characteristics that are outside of their influence, but their job attitude may result in the reality of experiencing a high LMX relationship. Importantly, our findings show that job satisfaction helps to nurture a high-quality LMX relationship *over time*, even though our core constructs (i.e. LMX and job satisfaction) show high stability scores. Interestingly, we found both effects (from LMX to job satisfaction and vice versa) to be equally strong. In contrast, the majority of previous studies found work characteristics to be a stronger predictor of job satisfaction than the inverse (e.g. De Jonge, Dormann, Janssen, Dollard, Landeweerd, & Nijhuis, 2001; James & Tetrick, 1986). One possible explanation for these different findings might be the temporal pattern of the dynamics (Ibrahim, Smith, & Muntaner, 2009). Studies that have found well-being measures to affect proximal measures to LMX (e.g. social support) have used very short time lags (e.g. Daniels & Guppy, 1997; Fisher, 1985) or time lags longer than 1 year (Marcelissen, Winnubst, Buunk, & De Wolff, 1988), while research not finding this relationship has used 1-year time lags (De Jonge et al., 2001). Future research should explore the temporal dynamics of the LMX–job satisfaction relationship in more detail.

Limitations

As with any study, there are limitations to consider. First, in the current study we adopted a follower-centred perspective and focused on the quality of supervisor–employee relationship as perceived by employees (i.e. members). Future studies should add the supervisor perspective in order to gain a more complete picture (e.g. Gerstner & Day, 1997; Graen & Uhl-Bien, 1995; Scandura & Schriesheim, 1994). However, in our study employees had already been working in the organisation for several years, which has been found to lead to increases in the agreement of leader and member judgments (Hock-Peng, Nahrgang, & Morgeson, 2009). Second, the use of self-report data might have led to common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Therefore, besides our attitude-engagement explanation discussed above (Harrison et al., 2006) which suggested that the subordinate's satisfaction actually produces a higher quality relationship between

leader and follower, the relationship between job satisfaction and LMX could be perceptual: job satisfaction might have influenced the perception in subordinates about their relationship with their leaders (James, James, & Ashe 1990). However, we used a longitudinal design with two measurement occasions, which reduces the likelihood of common method bias according to Podsakoff and colleagues (2003). Yet, we admit that we cannot completely rule out common method bias. Third, although the use of a single-item measure for job satisfaction has important advantages (e.g. it captures affective and cognitive components; Brief & Roberson, 1989), multiple-item measures capture different aspects of work (e.g. supervisor, pay, promotion opportunities) and thus provide a more comprehensive picture (Kaplan et al., 2009; Oshagbemi, 1999). Specifically, it is possible that the measure of job satisfaction can influence LMX differently. For example, a cognitive measure of job satisfaction could be more strongly related to the contribution component of LMX compared to the affect component (see Dienesch & Liden, 1986, for a discussion of the LMX dimensionality). Future research should compare findings from our one-item measure of job satisfaction with results from studies using multi-item measures. Finally, although we found support for reciprocal relationships, strictly speaking no causal inferences should be drawn from non-experimental studies. Nonetheless, we are confident about the respective direction of influence because we have a temporal lag of 3 months between our measurements, and because we included control variables—of special importance are the auto-regressors—into our analyses. Therefore occasion factors like mood, and stable background variables like personality, are ruled out as possible alternative explanations (Zapf et al., 1996).

Contribution and Research Implications

The present study examined the critical question of reciprocal influences between LMX and job satisfaction and found that there are equally strong reciprocal relationships between LMX and job satisfaction over time. Future studies should examine the processes that are operative and adopt a contingency approach. For example, LMX might have stronger effects on job satisfaction for people with a strong affiliation motive or for highly agreeable people. Similarly, general tendencies of approach and avoidance focus, job design, size of work group, or organisational climate might affect the strength of influence of job satisfaction on LMX. In addition, investigating reciprocal effects between LMX and other variables (e.g. proactivity, organisational citizenship behaviour) would be a worthwhile future research direction. Moreover, we suggest investigating mediating variables (e.g. empowerment, Liden, Wayne, & Sparrowe, 2000; procedural justice climate, Ansari, Hung, & Aafaqui, 2007) that help to explain *why* there is a reciprocal relationship

between LMX and job satisfaction. Beyond that, we have to remark that our longitudinal study with only two measurement points represents “two snapshots of a continuous growth process” (Chan, 2003, p. 347). Therefore, we were not able to utilise growth-curve modelling to describe the pattern of change of LMX and job satisfaction and the dynamic nature of the relationship. Repeated measurements over multiple (i.e. three or more) time points are needed in future research. Finally, previous research has discussed curvilinear relationships between LMX and job outcomes (e.g. Harris & Kacmar, 2006; Harris, Kacmar, & Witt, 2005; Hochwarter & Byrne, 2005) which should be addressed in future research.

In addition to these theoretical considerations, the current study has several practical implications. Our study shows that organisations should be aware of the importance and mutually reinforcing nature of LMX and job satisfaction: Ensuring a high-quality LMX relationship has positive implications for employees’ well-being and performance. Likewise, it appears central to nurture job satisfaction in order to put employees in the mode to actively shape their work environment. Of course, job satisfaction alone is not sufficient for establishing a positive LMX relationship; for example, characteristics such as a negative organisational climate, personal dislike, or a negative feedback culture might interfere with potentially beneficial effects of job satisfaction on LMX. Nevertheless, organisations have several opportunities to increase LMX and job satisfaction. For instance, similarity, liking, and leader and member performance have been shown to positively influence the development of LMX relationships (Bauer & Green, 1996; Liden et al., 1993; Murphy & Ensher, 1999; Nahrgang, Morgeson, & Ilies, 2009). Likewise, job satisfaction can be increased by several personal and situational variables (cf. Arvey, Carter, & Buerkley, 1991; Judge, Heller, & Klinger, 2008). Job design literature offers several practical implications for enhancing job satisfaction such as increasing job autonomy and task variety. Moreover, as a more general strategy, enhancing employees’ occupational self-efficacy (Schyns & von Collani, 2002) and centrality of work (Cohrs, Abele, & Dette, 2006) has been shown to be positively related to job satisfaction.

Conclusion

This study contributes to the investigation of leader–member exchange (LMX) theory by considering the nature of the relationship between LMX and job satisfaction. Overall, our study showed that this relationship is positive and significant and that LMX and job satisfaction appear to mutually influence each other. The cross-sectional results suggest a strong bidirectional association. The longitudinal results yield a significant effect over time from LMX to job satisfaction and also a significant and equally strong effect

from job satisfaction to LMX. This study suggests that people can actively shape their environment at work and that they should be encouraged to take responsibility for their own careers, thereby crafting their own workplace outcomes.

REFERENCES

- Abele, A.E., & Spurk, D. (2009). How do objective and subjective career success interrelate over time? *Journal of Occupational and Organizational Psychology*, *82*, 803–824.
- Ansari, M.A., Hung, D.K.M., & Aafaqui, R. (2007). Leader–member exchange and attitudinal outcomes: Role of procedural justice climate. *Leadership & Organization Development Journal*, *28*, 690–709.
- Arvey, R.D., Carter, G.W., & Buerkley, D.K. (1991). Job satisfaction: Dispositional and situational influences. In C.L. Cooper & I.T. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 359–383). Oxford: John Wiley & Sons.
- Avolio, Bruce J., Walumbwa, Fred O., & Weber, Todd J. (2009). Leadership: Current theories, research, and future directions. *Annual Review of Psychology*, *60*, 421–449.
- Bailloid, J., & Semmer, N. (1994). Fluktuation und Berufsverläufe bei Computerfachleuten [Turnover and career paths of computer specialists]. *Zeitschrift für Arbeits- und Organisationspsychologie*, *38*, 152–163.
- Baron, R.A. (1990). Environmentally induced positive affect: Its impact on self-efficacy, task performance, negotiation, and conflict. *Journal of Applied Social Psychology*, *20*, 368–384.
- Barsade, S.G., & Gibson, D.E. (2007). Why does affect matter in organizations? *Academy of Management Perspectives*, *21*, 36–59.
- Bauer, T.N., & Green, S.G. (1996). Development of leader–member exchange: A longitudinal test. *Academy of Management Journal*, *39*, 1538–1567.
- Bentler, P., & Bonnet, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*, 588–606.
- Blau, P. (1964). *Exchange and power in social life*. New York: Wiley.
- Boehm, J.K., & Lyubomirsky, S. (2008). Does happiness promote career success? *Journal of Career Assessment*, *16*, 101–116.
- Brief, A.P., & Roberson, L. (1989). Job attitude organization: An exploratory study. *Journal of Applied Social Psychology*, *19*, 717–727.
- Brower, H.H., Schoorman, F.D., & Tan, H.H. (2000). A model of relational leadership: The integration of trust and leader–member exchange. *Leadership Quarterly*, *11*, 227–250.
- Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.
- Byrne, D. (1997). An overview (and underview) of research and theory within the attraction paradigm. *Journal of Social and Personal Relationships*, *14*, 417–431.
- Byrne, D., & Rhamey, R. (1965). Magnitude of positive and negative reinforcements as a determinant of attraction. *Journal of Personality and Social Psychology*, *2*, 884–889.

- Chan, D. (1998). The conceptualization and analysis of change over time: An integrative approach incorporating longitudinal mean and covariance structures analysis (LMACS) and multiple indicator latent growth modeling (MLGM). *Organizational Research Methods*, *1*, 421–483.
- Chan, D. (2003). Data analysis and modeling longitudinal processes. *Group & Organization Management*, *28*, 341–365.
- Cieslak, R., Knoll, N., & Luszczynska, A. (2007). Reciprocal relationships among job demands, job control, and social support are moderated by neuroticism: A cross-lagged analysis. *Journal of Vocational Behavior*, *71*, 84–96.
- Cogliser, C.C., & Schriesheim, C.A. (2000). Exploring work unit context and leader–member exchange: A multi-level perspective. *Journal of Organizational Behavior*, *21*, 487–511.
- Cohrs, J.C., Abele, A.E., & Dette, D.E. (2006). Integrating situational and dispositional determinants of job satisfaction: Findings from three samples of professionals. *Journal of Psychology: Interdisciplinary and Applied*, *140*, 363–395.
- Curtis, R.C., & Miller, K. (1986). Believing another likes or dislikes you: Behaviors making the beliefs come true. *Journal of Personality and Social Psychology*, *51*, 284–290.
- Daniels, K., & Guppy, A. (1997). Stressors, locus of control, and social support as consequences of affective psychological well-being. *Journal of Occupational Health Psychology*, *2*, 154–174.
- Dansereau, F., Cashman, J., & Graen, G. (1973). Instrumentality theory and equity theory as complementary approaches in predicting the relationship of leadership and turnover among managers. *Organizational Behavior & Human Performance*, *10*, 184–200.
- De Jonge, J., Dormann, C., Janssen, P.P.M., Dollard, M.F., Landeweerd, J.A., & Nijhuis, F.J.N. (2001). Testing reciprocal relationships between job characteristics and psychological well-being: A cross-lagged structural equation model. *Journal of Occupational and Organizational Psychology*, *74*, 29–46.
- Deluga, R.J., & Perry, J.T. (1991). The relationship of subordinate upward influencing behaviour, satisfaction and perceived superior effectiveness with leader–member exchanges. *Journal of Occupational Psychology*, *64*, 239–252.
- Diener, E., Kesebir, P., & Lucas, R. (2008). Benefits of accounts of well-being—for societies and for psychological science. *Applied Psychology: An International Review*, *57*, 37–53.
- Dienesch, R.M., & Liden, R.C. (1986). Leader–member exchange model of leadership: A critique and further development. *Academy of Management Review*, *11*, 618–634.
- Eagly, A.H., & Chaiken, S. (1993). *The psychology of attitudes*. San Diego, CA: Harcourt Brace Jovanovich.
- Epitropaki, O., & Martin, R. (1999). The impact of relational demography on the quality of leader–member exchanges and employees' work attitudes and well-being. *Journal of Occupational and Organizational Psychology*, *72*, 237–240.
- Epitropaki, O., & Martin, R. (2005). From ideal to real: A longitudinal study of the role of implicit leadership theories on leader–member exchanges and employee outcomes. *Journal of Applied Psychology*, *90*, 659–676.

- Erdogan, B., & Enders, J. (2007). Support from the top: Supervisors' perceived organizational support as a moderator of leader-member exchange to satisfaction and performance relationships. *Journal of Applied Psychology, 92*, 321-330.
- Farrell, A.D. (1994). Structural equation modelling with longitudinal data: Strategies for examining group differences and reciprocal relationships. *Journal of Consulting and Clinical Psychology, 62*, 477-487.
- Fisher, C.D. (1985). Social support and adjustment to work: A longitudinal study. *Journal of Management, 11*, 39-53.
- Fisher, C.D. (2000). Mood and emotions while working: Missing pieces of job satisfaction? *Journal of Organizational Behavior, 21*, 185-202.
- Fredrickson, B.L. (1998). What good are positive emotions? *Review of General Psychology, 2*, 300-319.
- Fredrickson, B.L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218-226.
- Frese, M., Garst, H., & Fay, D. (2007). Making things happen: Reciprocal relationships between work characteristics and personal initiative in a four-wave longitudinal structural equation model. *Journal of Applied Psychology, 92*, 1084-1102.
- Gerstner, C.R., & Day, D.V. (1997). Meta-analytic review of leader-member exchange theory: Correlates and construct issues. *Journal of Applied Psychology, 82*, 827-844.
- Golden, T.D., & Veiga, J.F. (2008). The impact of superior-subordinate relationships on the commitment, job satisfaction, and performance of virtual workers. *Leadership Quarterly, 19*, 77-88.
- Gouldner, A.W. (1960). The norm of reciprocity. *American Sociological Review, 25*, 165-167.
- Graen, G., & Schieman, W. (1978). Leader-member agreement: A vertical dyad linkage approach. *Journal of Applied Psychology, 63*, 206-212.
- Graen, G.B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *Leadership Quarterly, 6*, 219-247.
- Hackman, J.R., & Oldham, G.R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior & Human Performance, 16*, 250-279.
- Harris, K.J., & Kacmar, K.M. (2006). Too much of a good thing: The curvilinear effect of leader-member exchange on stress. *Journal of Social Psychology, 146*, 65-84.
- Harris, K.J., Kacmar, K.M., & Witt, L.A. (2005). An examination of the curvilinear relationship between leader-member exchange and intent to turnover. *Journal of Organizational Behavior, 26*, 363-378.
- Harrison, D.A., Newman, D.A., & Roth, P.L. (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and time sequences. *Academy of Management Journal, 49*, 305-325.
- Hochwarter, W., & Byrne, Z.S. (2005). LMX and job tension: Linear and non-linear effects and affectivity. *Journal of Business and Psychology, 19*, 505-520.

- Hock-Peng, S., Nahrgang, J.D., & Morgeson, F.P. (2009). Understanding why they don't see eye to eye: An examination of leader-member exchange (LMX) agreement. *Journal of Applied Psychology, 94*, 1048–1057.
- Howell, J.M., & Shamir, B. (2005). The role of followers in the charismatic leadership process: Relationships and their consequences. *Academy of Management Review, 30*, 96–112.
- Ibrahim, S., Smith, P., & Muntaner, C. (2009). A multi-group cross-lagged analyses of work stressors and health using Canadian national sample. *Social Science & Medicine, 68*, 49–59.
- Ilies, R., Nahrgang, J.D., & Morgeson, F.P. (2007). Leader-member exchange and citizenship behaviors: A meta-analysis. *Journal of Applied Psychology, 92*, 269–277.
- Ironson, G.H., Smith, P.C., Brannick, M.T., Gibson, W.M., & Paul, K.B. (1989). Construction of a job in general scale: A comparison of global, composite, and specific measures. *Journal of Applied Psychology, 74*, 193–200.
- James, L.R., James, L.A., & Ashe, D.K. (1990). The meaning of organizations: The role of cognition and values. In B. Schneider (Ed.), *Organizational climate and culture* (pp. 40–84). San Francisco, CA: Jossey-Bass.
- James, L.R., & Tetrick, L.E. (1986). Confirmatory analytic tests of three causal models relating job perceptions to job satisfaction. *Journal of Applied Psychology, 71*, 77–82.
- Janssen, O., & Van Yperen, N.W. (2004). Employees' goal orientations, the quality of leader member exchange, and the outcomes of job performance and job satisfaction. *Academy of Management Journal, 47*, 368–384.
- Judge, T.A., Heller, D., & Klinger, R. (2008). The dispositional sources of job satisfaction: A comparative test. *Applied Psychology: An International Review, 57*, 361–372.
- Judge, T.A., & Klinger, R. (2008). Job satisfaction: Subjective well-being at work. In M. Eid & R.J. Larsen (Eds.), *The science of subjective well-being* (pp. 393–413). New York: Guilford Press.
- Kaplan, S.A., Warren, C.R., Barsky, A.P., & Thoresen, C.J. (2009). A note on the relationship between affect(ivity) and differing conceptualizations of job satisfaction: Some unexpected findings. *European Journal of Work and Organizational Psychology, 18*, 29–54.
- Karasek, R., & Theorell, T. (1990). *Healthy work: Stress, productivity and the reconstruction of working life*. New York: Basic Books.
- Kline, R.B. (2005). *Principles and practice of structural equation modeling*. New York: Guilford Press.
- Kozlowski, S.W.J., & Doherty, M.L. (1989). Integration of climate and leadership: Examination of a neglected issue. *Journal of Applied Psychology, 74*, 546–553.
- Kunin, T. (1955). The construction of a new type of attitude measure. *Personnel Psychology, 9*, 65–78.
- Lapierre, L.M., & Hackett, R.D. (2007). Trait conscientiousness, leader-member exchange, job satisfaction and organizational citizenship behaviour: A test of an integrative model. *Journal of Occupational and Organizational Psychology, 80*, 539–554.

- Lapierre, L.M., Hackett, R.D., & Taggar, S. (2006). A test of the links between family interference with work, job enrichment and leader-member exchange. *Applied Psychology: An International Review*, 55, 489-511.
- Liden, R.C., & Maslyn, J.M. (1998). Multidimensionality of leader-member exchange: An empirical assessment through scale development. *Journal of Management*, 24, 43-72.
- Liden, R.C., Sparrowe, R.T., & Wayne, S.J. (1997). Leader-member exchange theory: The past and potential for the future. In G.R. Ferris (Ed.), *Research in personnel and human resources management* (pp. 47-119). Greenwich, CT: Elsevier Science/JAI Press.
- Liden, R.C., Wayne, S.J., & Sparrowe, R.T. (2000). An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *Journal of Applied Psychology*, 85, 407-416.
- Liden, R.C., Wayne, S.J., & Stilwell, D. (1993). A longitudinal study on the early development of leader-member exchanges. *Journal of Applied Psychology*, 78, 662-674.
- Little, R.J.A., & Rubin, D.B. (2002). *Statistical analysis with missing data* (2nd edn.). Hoboken, NJ: Wiley.
- Locke, E.A. (1976). The cause and nature of job satisfaction. In M.D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297-1349). Chicago, IL: Rand McNally.
- Lowe, K.B., Kroeck, K.G., & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review of the MLQ literature. *Leadership Quarterly*, 7, 385-425.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131, 803-855.
- Major, D.A., Kozlowski, S.W.J., Chao, G.T., & Gardner, P.D. (1995). A longitudinal investigation of newcomer expectations, early socialization outcomes, and the moderating effects of role development factors. *Journal of Applied Psychology*, 80, 418-431.
- Marcelissen, F.H.G., Winnubst, J.A.M., Buunk, B., & De Wolff, C.J. (1988). Social support and occupational stress: A causal analysis. *Social Science & Medicine*, 26, 365-373.
- Murphy, S.E., & Ensher, E.A. (1999). The effects of leader and subordinate characteristics in the development of leader-member exchange quality. *Journal of Applied Social Psychology*, 29, 1371-1394.
- Muthén, L.K., & Muthén, B.O. (1998-2004). *Mplus user's guide* (3rd edn.). Los Angeles, CA: Muthén & Muthén.
- Nahrgang, J.D., Morgeson, F.P., & Ilies, R. (2009). The development of leader-member exchanges: Exploring how personality and performance influence leader and member relationships over time. *Organizational Behavior and Human Decision Processes*, 108, 256-266.
- Oshagbemi, T. (1999). Overall job satisfaction: How good are single versus multiple-item measures? *Journal of Managerial Psychology*, 14, 388-403.

- Ozer, M. (2008). Personal and task-related moderators of LMX among software developers. *Journal of Applied Psychology, 93*, 1174–1182.
- Parker, S.K., & Ohly, S. (2008). Designing motivating jobs. In R. Kanfer, G. Chen, & R. Pritchard (Eds.), *Work motivation: Past, present, and future* (pp. 233–284). Mahwah, NJ: Routledge.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879–903.
- Satorra, A., & Bentler, P.M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika, 66*, 507–514.
- Scandura, T.A., & Schriesheim, C.A. (1994). Leader–member exchange and supervisor career mentoring as complementary constructs in leadership research. *Academy of Management Journal, 37*, 1588–1602.
- Schriesheim, C.A., Neider, L.L., Scandura, T.A., & Tepper, B.J. (1992). Development and preliminary validation of a new scale (LMX-6) to measure leader–member exchange in organizations. *Educational and Psychological Measurement, 52*, 135–147.
- Schyns, B. (2002). Überprüfung einer deutschsprachigen Skala zum Leader–Member-Exchange-Ansatz [Evaluation of a German scale for the Assessment of Leader–Member-Exchange]. *Zeitschrift für Differentielle und Diagnostische Psychologie, 23*, 235–245.
- Schyns, B., & Day, D. (2010). Critique and review of leader–member exchange theory: Issues of agreement, consensus, and excellence. *European Journal of Work and Organizational Psychology, 19*, 1–29.
- Schyns, B., & von Collani, G. (2002). A new occupational self-efficacy scale and its relation to personality constructs and organizational variables. *European Journal of Work and Organizational Psychology, 11*, 219–241.
- Snyder, M., & Swann, W.B. (1978). Behavioral confirmation in social interaction: From social perception to social reality. *Journal of Experimental Social Psychology, 14*, 148–162.
- Staw, B.M., & Barsade, S.G. (1993). Affect and managerial performance: A test of the sadder-but-wiser vs. happier-and-smarter hypotheses. *Administrative Science Quarterly, 38*, 304–331.
- Staw, B.M., & Ross, J. (1985). Stability in the midst of change: A dispositional approach to job attitudes. *Journal of Applied Psychology, 70*, 469–480.
- Stepina, L.P., Perrewé, P.L., Hassell, B.L., & Harris, J.R. (1991). A comparative test of the independent effects of interpersonal, task, and reward domains on personal and organizational outcomes. *Journal of Social Behavior & Personality, 6*, 93–104.
- Tordera, N., González-Romá, V., Ramos-López, J., & Peiró, J.M. (2005). La calidad del intercambio líder-miembro (LMX) y la satisfacción laboral: Un análisis de sus relaciones recíprocas [Leader–member exchange (LMX) and work satisfaction: A reciprocal relationship analysis]. *Revista de Psicología de la Salud, 17*, 123–143.
- Vecchio, R.P., Griffeth, R.W., & Hom, P.W. (1986). The predictive utility of the vertical dyad linkage approach. *Journal of Social Psychology, 126*, 617–625.

- Wakabayashi, M., Graen, G., Graen, M., & Graen, M. (1988). Japanese management progress: Mobility into middle management. *Journal of Applied Psychology, 73*, 217–227.
- Wanous, J.P., Reichers, A.E., & Hudy, M.J. (1997). Overall job satisfaction: How good are single-item measures? *Journal of Applied Psychology, 82*, 247–252.
- Warr, P. (1999). Well-being and the workplace. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 392–412). New York: Russell Sage Foundation.
- Weiss, H.M. (2000). Deconstructing job satisfaction: Separating evaluations, beliefs, and affective experiences. *Human Resource Management Review, 12*, 173–194.
- Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: A review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology, 2*, 145–169.