



Do Low-quality Leader-Member Relationships Matter for Subordinates? Evidence from Three Samples on the Validity of the Norwegian LMX Scale

■ **Trude Furunes¹**

Norwegian School of Hotel Management, University of Stavanger, Norway

■ **Reidar J. Mykletun**

Professor, Norwegian School of Hotel Management, University of Stavanger, Norway

■ **Ståle Einarsen**

Professor, Faculty of Psychology, University of Bergen, Norway

■ **Lars Glasø**

Professor, Norwegian Business School, Norway

ABSTRACT

Theories on the relations between leaders and subordinates have been of interest to researchers for decades; however, these theories have received less attention in the Nordic countries. The aim of this study is twofold: to investigate the validity of the Leader-Member-Exchange Scale, LMX-7, in three Norwegian samples, and to explore potentially negative relationships between leader-member relationships and work-environment quality indicators. Data were collected from teachers ($n = 409$), industrial workers ($n = 406$), and bus drivers ($n = 1024$). All hypotheses were supported. Results supported use of the measure LMX-7 as indicated by factor structure, high construct validity, sufficient criterion-related validity, discriminant validity, and internal reliability as measured by Cronbach's alpha above 0.90. Poor quality relationships were associated with higher levels of role conflict, stress, bullying, turnover intentions, age discrimination, and negative affectivity, and lower levels of job satisfaction, commitment, skills utilization, autonomy, participation, perceived fairness, and social support. Potential consequences of low-quality relations and implications of findings are discussed.

KEY WORDS

Age discrimination / bullying / leader-member exchange relationships / LMX-7 / low-quality relationships / negative affect / Norway / role conflict, stress / validation

Introduction

A leader's ability to interact successfully with subordinates is crucial for maintaining effective organizations (Harvey et al., 2006). In order to provide a deeper understanding of how leaders form productive relations with their subordinates to achieve company goals, leader-member exchange (LMX) relationships have been of interest to researchers for decades (Schriesheim et al., 1999) and was one of the first

¹ E-mail: trude.furunes@uis.no



systematic leadership theories to include the follower in leadership processes (Schyns & Day, 2010). In their comprehensive review of research on LMX, Schriesheim et al. (1999) argued that validation of scales should be an ongoing process and that validity may change over time (Bernerth et al., 2007). Comparative cross-cultural studies and meta-analyses on LMX (Dulebohn et al., 2012; Rockstuhl et al., 2012) have indicated that LMX relationships may partly be culturally dependent. Hence, further investigations are needed to test both the generalizability of LMX and its antecedent and consequence relationships across countries.

The LMX-7 scale, a seven-item scale measuring LMX relationships (Graen & Uhl-Bien, 1995), has been validated in different research settings and in different languages; however, to the best of our knowledge, only two studies have been published employing a Norwegian sample (Glasø & Einarsen, 2006; Vasset et al., 2012) but without providing a psychometric assessment of the scale. A third Norwegian study explored social (SLMX) and economic (ELMX) LMXs (Kuvaas et al., 2012), but that is different from the LMX-approach applied here. To our knowledge, LMX has received little attention in the Nordic countries, other than a few peer-reviewed contributions using Liden and Maslyn's (1998) four-item scale (LMX-MDM) (Hanse et al., 2014; Olsson et al., 2012), and a review paper (Leponiemi, 2007).

This paper contributes to working life research by offering the first validation of the Norwegian version of the Leader-Member-Exchange Scale, LMX-7, developed by Graen and Uhl-Bien (1995). Demonstration of validity, the extent to which the scale measures what it is intended to measure, follows the reasoning of DeVellis (2012), including reports of internal consistency, construct validity, and criterion-related validity, as well as discriminant validity. Following DeVellis (2012), construct validity is concerned with the theoretical relationship of LMX to other variables, whereas criterion validity is concerned with the empirical associations to other variables.

This article also contributes to the discourse of bad and even destructive leadership by exploring potential correlates of having a low-quality relationship with one's immediate superior. The latter contribution opens up for new discussions of the implications for subordinates of having low-quality relationships with their leader.

Dyadic relationships between leaders and subordinates

Leader-member exchange theory suggests that leaders develop different (unique) exchange relationships with each of their subordinates (Hooper & Martin, 2008). The approach is different from traditional leadership theories that suggest that leaders use an average leadership style with all subordinates (Martin et al., 2005). It is also different from situational leadership theory (Hersey & Blanchard, 1984), in the sense that the LMX theory focuses on leader-subordinate dyads as such and not on the circumstances of the situation or the characteristics of a specific subordinate. As construct validity is directly concerned with the theoretical relationship of a variable to other variables (DeVellis, 2012), we will explain such theoretical relationships in more detail.

According to the LMX theory, the quality of leader-member relationships falls on a continuum ranging from low-quality, where the exchange is limited to the employment contract, to high-quality relationships, where the latter is based on social exchange, mutual liking, trust, respect, and influence (Liden & Maslyn, 1998). On the basis of

social exchange theory, we may assume that leaders and followers perceiving a mutual beneficiary relationship will tend to exchange and foster more mutual work-related, economic, and social rewards from their interaction. A basic assumption in this is that relationships such as leader–follower relationships evolve over time into trusting, loyal, and mutual commitments, with norms of reciprocity and mutual gain (Coprano & Mitchel, 2005). Hence, in a positive leader–member relationship, subordinates will provide their commitment and their highly energetic and devoted work effort, while leaders will provide not only social and economic rewards but will also set up rewarding and beneficiary working conditions creating a fertile soil for the returns of efforts and results from the subordinates. We may therefore derive from social exchange theory that subordinates in such a relationship will report better working conditions with more possibilities for participation due to their positive working relationship with their superior, more autonomy due to the trust put on them from their superior, and more skill utilization due to the enriched work situation created by their superior on their behalf. In addition, we should assume that they report more social support and good communication with their leader. According to Gerstner and Day (1997), the mutual reciprocation that thus embodies high LMX relationships results in increased affective attachment between supervisor and subordinate. Empirically, it has in fact been shown that subordinates in high-quality relationships are more autonomous, able to use their skills, and have a higher degree of participation in the organization, along with receiving higher social support and greater trust and respect (Bernerth et al., 2007).

Although the LMX-theory describes leader–member relationships on a continuum from low to high and it is therefore measured as a continuous variable, some previous LMX research has illustrated that leaders are more likely to establish *either* a high-exchange relationship *or* a low-exchange relationship with a subordinate (Yukl, 2006). According to the theory, a leader forms high-quality relationships with a small number of trusted members and low-quality relationships with the rest. Thus, some researchers have suggested that subordinates are divided into ‘in groups’ and ‘out groups’ (Varma et al., 2005). It is further suggested that the formation of high-exchange relationships (in-group membership) is largely based on personal compatibility between leader and subordinate, giving the leader control over desirable outcomes, delegation of interesting tasks and responsibility, sharing of information, insight into decision making, tangible rewards, personal support, and career facilitation. High-exchange members are likely to be found in positions of assistants, lieutenants, or advisors (Yukl, 2006).

Referring to the above theoretical notions and earlier empirical findings, the first main hypothesis, H1, aims at testing the construct validity of the Norwegian version of the LMX-7 scale. Seven sub-hypotheses (H1a-H1g) are proposed for this purpose:

- H1a: LMX will be positively correlated with employees’ reports of superior support
- H1b: LMX will be positively correlated with employees’ reports of HR-primacy
- H1c: LMX will be positively correlated with employees’ reports of having mutual exchange with leader
- H1d: LMX will be positively correlated with employees’ reports of having good communication with their leader
- H1e: LMX will be positively correlated with employees’ reports of skill utilization
- H1f: LMX will be positively correlated with employees’ reports of autonomy
- H1g: LMX will be positively correlated with employees’ reports of participation



Criterion-related validity and expected correlates of leadership-member exchange relationships

Criterion-related validity is concerned with the empirical association with some theoretically relevant criterion (DeVellis, 2012), for example, as indicated by the strength of the empirical relationship between our LMX measure and other relevant measures of outcomes expected to follow from a high-quality LMX relationship. Previous research has indicated that LMX can be an important predictor for work-related reactions of subordinates. Hence, important criteria for a high-quality LMX relationship have been shown to be subordinates reporting elevated levels of, job satisfaction, work-related well-being, and organizational commitment (Martin et al., 2005). Subordinates' perceptions of LMX have been found to be positively related to trust in a leader as well as to psychological empowerment (Wat & Shaffer, 2005). Employing meta-analyses, Dulebohn and colleagues (2012) made a summary of antecedents and consequences of LMX across 247 studies. High-quality relationships are typically related to positive consequences, such as higher organizational commitment, job satisfaction, justice perceptions, organizational citizen behavior, empowerment, job performance, higher role clarity, and lower role conflict. Low-quality relationships are associated with higher turnover intentions and higher actual turnover. Low-quality relationships are viewed as undesirable, which may explain subordinates' decisions to quit their employment (Griffeth & Hom, 2001). Rockstuhl and colleagues (2012) investigated 282 independent samples across 23 countries for the role of culture, stating that relationships of LMX with job satisfaction, justice perceptions (i.e., fairness), turnover intentions, organizational citizen behavior, and leader trust are stronger in Western countries than in Asian countries.

Another meta-analysis showed that high LMX is generally associated with positive performance-related and attitudinal variables, including higher performance ratings, better objective performance, higher overall satisfaction, greater satisfaction with supervisor, stronger organizational commitment, and more positive role perceptions (Gerstner & Day, 1997). Glasø and Einarsen (2006) found that members perceiving emotional recognition from their leaders also reported high LMX scores. Further, Borchgrevink et al. (2001) have shown that poor leader-member communication correlates with low LMX scores, which again relates to the poor quality of the member role and high turnover intentions. They suggested, furthermore, that an employee's turnover intention is mediated by role quality and not simply being an effect of poor LMX and that the inconsistent findings of the relationships between turnover intentions and LMX might, in part, be explained this way. Contradicting this, research by Morrow et al. (2005) showed a curvilinear relationship between LMX and employee turnover, with a higher turnover for low and high-exchange members. High turnover for high-exchange members is explained by the fact that when these subordinates get access to new networks, they also expose themselves to new job opportunities. In addition, expectations from one's leader to perform extra-role behavior may involve a lot of effort and is, thus, demanding. These findings deviate from other studies. For instance, the meta-analysis by Gerstner and Day (1997) established negative correlations between LMX and turnover intentions, but no significant relationship between LMX and actual turnover.

For the matter of validating the LMX-7 scale to a new cultural setting, established relationships between LMX and expected subordinate-related correlates would, as noted above, indicate satisfactory criterion-related validity. Thus, the second main hypothesis,

H2, aimed at testing the criterion-related validity of the Norwegian version of LMX-7. Six sub-hypotheses (H2a-H2f) were proposed for this purpose:

- H2a: LMX will be positively correlated with employees' reports of organizational commitment
- H2b: LMX will be positively correlated with employees' reports of and job satisfaction
- H2c: LMX will be positively correlated to employees' reports of role clarity
- H2d: LMX will be negatively correlated with employees' reports of role conflict
- H2e: LMX will be positively correlated with employees' reports of perception of fairness
- H2f: LMX will be negatively correlated with employees' reports of intentions to leave

Additional drawbacks of a low-quality leader-member exchange: expanding the nomological net of LMX

As LMX theory indicates that only a small number of individuals will have a high-quality exchange with their leader, we have taken an interest in investigating additional drawbacks of a low-quality exchange, as having a low-quality relationship may have various negative consequences for the employee that are hitherto not investigated. According to the theory, low-quality relationships would be characterized by lack of mutual influence, are subject to less consultation and delegation, less mentoring and support, as well as closer monitoring due to lack of trust; therefore, subordinates in such relationships typically only comply with the formal – and minimal – role requirements (Yukl, 2006). These subordinates may possess fewer skills, receive little support, and obtain no or little trust or respect, which in turn may lead to mutual dislike. If that is the case, out-group members are expected to feel more work-related stress. Likewise, it is expected that members experiencing a low-quality relationship with their nearest supervisor would perceive less social support. This is supported by Glasø and Einarsen (2006) who found that those who experience frustration, violation, or uncertainty in relationship to their leader reported low LMX scores.

In the Nordic countries, there has been an increasing attention on negative aspects of leadership (e.g., destructive leadership, see Kant et al., 2013) and related negative aspects of the psycho-social work environment (e.g., bullying and age discrimination, see Einarsen & Skogstad, 1996; Furunes & Mykletun, 2010). Thus, we are interested in exploring how these aspects may relate to the quality of leader–member exchange relationships. On the basis of previous studies, we expect that subordinates who have experienced bullying themselves or seen colleagues being bullied would have lower trust in their immediate supervisor (Einarsen & Skogstad, 1996) and, accordingly, report lower levels of LMX. Further, we expect that subordinates that report age discrimination also have low-quality relationships with their closest supervisor. Previous studies have shown that subordinates that experience age discrimination also lack support from superiors and colleagues (Furunes & Mykletun, 2010) and perceive higher levels of stress (Dallner et al., 2000). For instance, regarding teachers, the quality of the teacher-superior relationships clearly relates to stress and burnout (Van Droogenbroeck et al., 2014). On the basis of this reasoning, it was expected that out-group members may experience higher levels of stress, bullying, and negative affectivity (Watson et al., 1988).



Referring to the above review and to widen the nomological net of LMX, it is hypothesized (H3) that low LMX-7 scores will relate to a wider range of indicators of negative work environment than hitherto observed. Thus, the following hypotheses are proposed:

- H3a: LMX will be negatively correlated with employees' reports of stress
- H3b: LMX will be negatively correlated with employees' reports of bullying
- H3c: LMX will be negatively correlated with employees' reports of age discrimination
- H3d: LMX will be negatively correlated with employees' reports of negative affectivity

Discriminant validity of the LMX-7 scale

As recommended by DeVellis (2012), we have also tested for discriminant validity, for example, the absence of correlation between measures of unrelated measures. The following hypotheses were posed:

- H4a: LMX will be unrelated to employees' reports of tenure
- H4b: LMX will be unrelated to employees' reports of felt age

Method

Participants

Sample 1 data were collected by administering self-report questionnaires to a random sample of 1050 primary and secondary school teachers in Norway. The teachers' labor union performed the random sampling from its member lists. This dataset comprises 409 teachers' evaluations of their relationship with their headmasters (38% response rate). The sample was predominantly female (65%), and the mean age was 53.8 years (SD 9.5). Among all Norwegian teachers, the distribution is 74% women, mean age 44 years (22% over 55 years of age), for example, slightly more female dominated and younger than the current sample. The data collection was a part of a larger Nordic study on work environment quality, the QPS Nordic-ADW, which included the LMX scale for the Norwegian sample that we analyzed in this study. In accordance with Rogelberg and Stanton's (2007) response facilitation approaches, the study was designed carefully, and survey length was managed. Due to anonymity reasons, surveys were distributed by the labor union headquarter, excluding the possibilities of pre-notifying the participants, publicizing the survey, establishing survey importance, and fostering commitment up-front. An informative letter of invitation accompanied the survey. Because paper surveys were used, there was a little possibility for monitoring survey responses, using reminder notes or wave analyses.

Sample 2 data were gathered from blue-collar male workers in one industrial engineering company. Questionnaires were distributed on paper to all workers, and the dataset comprises 406 subordinates' evaluations of their immediate superior (34% response rate). The mean age was 44.5 years (SD 7.0). Aiming for a high response rate, the company pre-notified the participants and publicized the survey to establish survey importance and survey commitment. The survey was kept short and designed carefully,

incentives were used, and one reminder was sent. Because paper surveys were used, there was a little possibility for monitoring survey response. Survey feedback was given on a company level.

Sample 3 data were collected among bus drivers in a large transport company in Norway. The company distributed questionnaires to all 1024 workers, with a 60% response rate. The sample was predominantly male (86.5%), and the mean age was 48.5 years (SD 10.5). To facilitate a high response rate, the company pre-notified the participants and publicized the survey to establish its importance and survey commitment. The survey was kept short and designed carefully, and two reminders were sent. Survey feedback was given on company level.

Measures

Several scales for measuring LMX relationships exist, and LMX-7, developed by Graen and Uhl-Bien (1995), is the most widely cited LMX measure (Bernerth et al., 2007). The questionnaire, which uses a uni-dimensional scale (Greguras & Ford, 2006), contains seven items in which subordinates are asked to rate their relationship with their leader. Previous research reported Cronbach's alpha's from 0.76 to 0.91 for this scale, and Gerstner and Day (1997) and Borchgrevink et al. (2001) recommended that LMX-7 be used as the uni-dimensional scale to assess LMX.

The questionnaires used to collect data from Sample 1 and Sample 2 included the LMX-7 scale (Graen & Uhl-Bien, 1995), as well as scales from QPS Nordic (Dallner et al., 2000) and the revised QPS Nordic-ADW (Lindström et al., 2008). Questions originating from QPS Nordic already existed in Norwegian, but LMX-7 was translated from the original English version. The translation from English to Norwegian was performed using a back-translation procedure (see Appendix 1). As the way of questioning is slightly different in the Norwegian and English languages, the sentence structure was somewhat changed. There was a small change in wording to avoid ambiguities. The questionnaire used for sample 3 included LMX-7 and the bus-drivers' evaluations of their psychosocial working environment, including their relationship with their immediate leader.

Validity testing

Table 1 gives an overview of all constructs used to test validity in all samples. As a test of construct validity, LMX was correlated to items and constructs that are theoretically related to LMX, hypotheses H1a-H1g. Testing for criterion-related validity, LMX was correlated to items and constructs that are empirically related to LMX, hypotheses H2a-H2f. In order to widen the *nomological net* of low-quality relationships, indicators of negative social work environment, such as stress, bullying, age discrimination, and negative affectivity, were included. All correlations were expected to be negative, hypotheses H3a-H3d.

As recommended by DeVellis (2012), we have also tested for discriminant validity, for example, the absence of correlation between measures of unrelated measures, hypotheses H4a-H4b. For Samples 1 and 3, we used tenure as an expected unrelated measure. For Sample 2, the item 'how old do you feel?' is used to test discriminant validity. An employee's felt age is expected to be unrelated to LMX.



Table 1 Overview of functions of validation, scales, references to source, and expected outcomes of correlations to LMX in the present study

Validity indications	Concept	Source*	Sample in current study	Expected correlations with LMX-7	Hypothesis
Construct validity	Superior support	(Wännström et al., 2009)	1	Positive	H1a
	HR-primacy	(Wännström et al., 2009)	1	Positive	H1b
	Mutual exchange relationship with leader	(Bernerth et al., 2007)	2	Positive	H1c
	I have good communication with my leader	(Bernerth et al., 2007)	3	Positive	H1d
	Skill utilization	(Van Veldhoven & Meijman, 1994)	3	Positive	H1e
	Autonomy	(Van Veldhoven & Meijman, 1994)	3	Positive	H1f
	Participation	(Van Veldhoven & Meijman, 1994)	3	Positive	H1g
Criterion-related validity	Organizational commitment	(Wännström et al., 2009)	1 2	Positive	H2a
	Job satisfaction	(Pahkin, 2008) (Pahkin, 2008) (Brayfield & Rothe, 1951)	1 2 3	Positive	H2b
	Role clarity	(Wännström et al., 2009) (Rizzo et al., 1970)	1 3	Positive	H2c
	Role conflict	(Wännström et al., 2009) (Rizzo et al., 1970)	1 3	Negative	H2d
	Level of fairness in leadership	(Wännström et al., 2009) (Grimsmo, 2003)	1 3	Positive Positive	H2e
	Turnover intentions	(Sjøberg & Sverke, 2000)	3	Negative	H2f
	Widening of nomological net	Stress	(Dallner, et al., 2000)	1 2	Negative
Bullying		(Einarsen & Skogstad, 1996)	1 3	Negative	H3b
Age discrimination		(Furunes & Mykletun, 2010)	1 2	Negative	H3c
Negative affectivity		(Watson et al., 1988)	3	Negative	H3d
Discriminant validity	Tenure	Single item Single item	1 3	None	H4a
	How old do you feel?	Single item	2	None	H4b

*Only established scales are used. This column gives the reference to the scale developers.

Statistical analyses

Factorial validity of the Norwegian version of LMX-7 scale was initially assessed separately for each of the three samples by principal component analysis (PCA), yielding one factor in which all seven items were included (Tab. 2). Subsequently, as an extra precaution, we ran principal axis factoring (PAF) and maximum likelihood (ML) with Varimax rotation and extraction methods, respectively. All analyses, including Scree plots, supported a one-factor solution. Likewise, internal consistency was tested by reliability tests (Cronbach's alpha) separately for each of the samples (see Tab. 3).

Table II Principal component analysis of LMX-7, factor loadings, eigenvalue, and explained variance for all samples

LMX-7 items (Graen & Uhl-Bien, 1995)	Sample 1 (n = 409)	Sample 2 (n = 406)	Sample 3 (n = 1024)
1. Do you know where you stand with your leader ... do you usually know how satisfied your leader is with what you do?	0.81	0.81	0.76
2. How well does your leader understand your job problems and needs?	0.84	0.84	0.86
3. How well does your leader recognize your potential?	0.80	0.80	0.84
4. Regardless of how much formal authority he/she has built into his/her position, what are the chances that your leader would use his/her power to help you solve problems in your work?	0.83	0.82	0.85
5. Again, regardless of the amount of formal authority your leader has, what are the chances that he/she would 'bail you out' at his/her expense?	0.79	0.79	0.84
6. I have enough confidence in my leader that I would defend and justify his/her decision if he/she were not present to do so.	0.75	0.75	0.85
7. How would you characterize your working relationship with your leader?	0.78	0.78	0.81
Eigenvalue	4.5	4.5	4.8
Variance explained	64%	64%	68%

Table III Mean values, median, SD, range, Cronbach's alpha, and skewness for LMX-7 in all samples

	Sample 1 (n = 409)	Sample 2 (n = 406)	Sample 3 (n = 1024)
Mean, total sample	3.27	3.38	3.28
Male subsample	3.17	3.38	3.34
Female subsample	3.31	N/A	3.29
Median	3.29	3.43	3.37
SD	0.73	0.72	0.94
Variance	0.53	0.52	0.89
Range	3.57	4.00	4.00
Cronbach's alpha	0.91	0.91	0.92
Skewness	-0.16	-0.74	-0.38
St. E. of skewness	0.12	0.12	0.08



To test the hypothesized correlations, two-tailed bivariate Pearson correlation was performed. Data analyses were run separately for Samples 1, 2, and 3. All analyses were performed using SPSS version 21. As missing values appeared at random on single items and not on entire scales, pairwise exclusion of missing values was applied.

Results

Factor structure of LMX

For all samples, all seven items loaded on factor 1, with factor loadings between 0.75 and 0.83 (Tab. 2), way above often used cut off points of 0.50 for an item to be allowed to load on a given factor. Eigenvalues were 4.5 for Samples 1 and 2 and 4.8 for Sample 3. The one-factor solution explained 64% and 68% of the total variance, respectively (see Tab. 2), voting for the *factorial validity* of the scale. We also tested factor structures across gender-split samples and found them to be robust.

Internal consistency

It has been recommended that the internal consistency, as measured by Cronbach's alpha, should be at least 0.70 for a self-report instrument and at least 0.80 when used as a screening instrument (Nunnally & Bernstein, 1994). In this study, the Cronbach's alpha for LMX-7 was 0.91, 0.91, and 0.92 for the three samples, respectively. The stability of the findings on the internal consistency of LMX-7 across three samples supported the robustness of the scale (see Tab. 3). Average scores (M) for Samples 1 and 3 were somewhat lower than for Sample 2, but the difference was not significant. As the median was also lower in Samples 1 and 3, this difference may reflect differences in actual levels of LMX, as perceived by teachers and bus drivers compared with industrial workers. Hence, this does not necessarily affect the internal consistency of the scale. Robustness tests were run for gender in the mixed gender samples 1 and 3. Among teachers, LMX mean was slightly higher among women, but the difference was not significant. Among bus drivers, LMX mean was slightly higher among males, and the difference was significant on a 0.05 level of significance. The low response rate in Samples 1 and 2 could have an effect on the distribution and range of responses but not on the correlations.

Correlates of LMX

Table 4 presents the correlations of all the included variables. *Construct validity* was assessed by checking that all correlations between LMX and variables that are theoretically linked to LMX (Hypotheses 1a-1g) were significant and in the predicted direction. As summarized in Tab. 3, members with high LMX reported higher superior support ($r = 0.82$, H1a supported), HR-primacy ($r = 0.74$, H1b supported), mutual exchange ($r = 0.60$, H1c supported), good communication with their leader ($r = 0.85$, H1d supported), skill utilization ($r = 0.42$, H1e supported), autonomy ($r = 0.35$, H1f supported), and participation ($r = 0.57$, H1g supported).

Table IV Cronbach's alphas and correlates of LMX-7 as measures of validity for all samples

Validity	Scales	Cronbach's alpha	Sample	Sample 1 (n = 409)	Sample 2 (n = 406)	Sample 3 (n = 1024)
Construct	Superior support	0.89	1	0.82**	N/A	N/A
	HR-primacy	0.84	1	0.74**	N/A	N/A
	Mutual exchange relationship with leader	N/A	2	N/A	0.60**	N/A
	I have good communication with my leader	N/A	3	N/A	N/A	0.85**
	Skill utilization	0.77	3	N/A	N/A	0.42**
	Autonomy	0.71	3	N/A	N/A	0.35**
	Participation	0.77	3	N/A	N/A	0.57**
Criterion-related	Organizational commitment	0.85	1	0.51**	0.41**	N/A
		0.82	2			
	Job satisfaction	0.77	1	0.47**	0.41**	0.50**
		0.81	2			
		0.87	3			
	Role clarity	0.71	1	0.28**	N/A	0.38**
		0.82	3			
	Role conflict			-0.39**	N/A	-0.32**
	Fairness	0.86	1	0.73**	N/A	0.67**
		0.88	3			
Turnover intentions	0.87	3	N/A	N/A	-0.44**	
Widening of nomological net	Stress	N/A	1	-0.21**	-0.17**	N/A
			2			
	Bullying	N/A	3	-0.29**	N/A	-0.15**
	Age discrimination	0.87	1	-0.44**	-0.26**	N/A
0.71		2				
Negative affectivity	0.86	3	N/A	N/A	-0.23**	
Discriminant	Tenure	N/A	1	0.06	N/A	0.02
			3			
	How old do you feel?	N/A	2	N/A	-0.01	N/A

Note: Correlations marked with two asterisks (**) were significant at $p < 0.01$.

Criterion-related validity was assessed by correlating LMX with positive and negative indicators of work and social work environment (Hypotheses 2a-2f). Results showed moderate to strong positive correlations ($r = 0.28-0.73$) between LMX and organizational commitment (H2a supported), job satisfaction (H2b supported), role clarity (H2c supported), perception of fairness (H2e supported), and intentions to leave (H2f supported). For role conflict, a negative relationship with LMX was found, supporting Hypothesis 2d. All the correlations were significant and in the directions that were hypothesized, indicating that the LMX-7 scale (Graen & Uhl-Bien, 1995) demonstrated construct and criterion-related validity in these three Norwegian samples.

Relationships between LMX and new constructs were tested to add to the *nomological net of LMX* (H3a-H3d). Respondents who reported low-quality LMX also reported significantly higher levels of age discrimination, bullying, stress, and negative affectivity,



supporting Hypotheses 3a-3d ($r = -0.15$ to -0.44) All the expected correlations were significant and in the directions that were set *a priori*.

The aim of Hypotheses H4a and H4b was testing for discriminant validity, for example, the absence of correlation between measures of unrelated measures was done with one indicator per study. We supported these hypotheses, indicating discriminant validity in these three Norwegian samples.

Discussion

This study provides evidence for the validity of the LMX-7 scale in a Norwegian context, while also expanding the nomological net of the LMX-7. The Norwegian version of LMX-7 seems to be a satisfactory instrument for measuring LMX relationships in a wide range of industries according to the following five criteria: (a) acceptable reliability, as measured by Cronbach's alpha coefficient, (b) having a one-factor solution with high factor loadings and high explained variance, (c) showing acceptable construct validity when applying measures such as support from leader and human resource primacy, mutual relationship between employee and leader, and communication and fairness, (d) showing acceptable criterion-related validity when applying job satisfaction, organizational commitment, role clarity, and social support, and e) showing discriminant validity when applying tenure and felt age. The expected relationships between LMX and theoretical, as well as empirical, measures were significant and in the hypothesized directions.

The LMX scale also seems to be gender neutral with respect to factor structure. There was, however, a small, significant difference between genders with respect to mean values of LMX. Female bus drivers reported lower LMX than their male colleagues. The difference among teachers showed slightly higher LMX among females, but the difference was not significant. This needs further investigation. The labor markets in the Nordic countries are very gender segregated in the way that there is a gender minority group in most occupations or workplaces. A question that should be answered in a follow-up study is: Is it so that the members of the minority group develop lower-quality relationships with their leaders?

Similar to previous studies (i.e., Martin et al., 2005), indicators of positive psychosocial work environment, namely satisfaction and commitment, correlated strongly with high LMX. In exploring potential new negative relationships between leader-member relationships and work-environment indicators, this study adds to the literature by showing that the perception of negative work-environment indicators seems to be more apparent among subordinates with low-quality relationships to their leader, as they report higher levels of stress, bullying, age discrimination, and negative affect.

Hence, this study adds to the existing knowledge on LMX theory by showing that employees having a low-quality relationship with their immediate leader are more likely to recognize a range of negative aspects in the work environment. They experience more stress, more bullying, and more discrimination in combination with far less fairness. Hence, this indicates that subordinates in a low LMX relationship not only lack the positive outcomes associated with a high LMX but also risk suffering mistreatment by superiors, either directly by being exposed to destructive behavior from the superior or indirectly by not being protected when a target of co-worker or customer aggression.

We argue that to explore this notion further, future studies should include large out-group samples that do not have a close relationship with their leader, as postulated by the LMX theory. Yet, longitudinal studies are needed to study the development of low-quality relationships, as such information would have implications for leadership training.

In summary, the results of the present study clearly underscore the fruitfulness and necessity of employing a ‘relational perspective’ on leadership issues. This is in accordance with recent meta-analytic research showing relation-oriented leadership behavior to be the strongest predictor of important attitudinal and behavioral outcomes among employees. In addition to the validation of LMX, the added value of this paper is its focus on negative effects related to low LMX, thus making the scale useful when addressing both constructive and destructive sides of leadership.

Strengths and limitations

The present study has some notable strength, as it provides data from three highly diverse occupational settings, supporting the generalizability of our findings. Furthermore, only well-validated scales have been used for the purpose of the validation. Moreover, the study employed a wide range of measures of important psychosocial aspects of work, and as all hypothesized relationships were supported by the findings, one can conclude that this Norwegian version of the LMX-7 scale is well ingrained with the most important outcomes one expects from today’s working life, except from productivity, which was not measured here. The validity of this conclusion is strengthened by the fact that those hypotheses were all derived from previous research and theory.

Although well-known response facilitation techniques were used (Rogelberg & Stanton, 2007), one of the limitations is that two of the three studies showed relatively low response rates. In studies 2 and 3, we know that the questionnaires were delivered to the target population; hence, the reason for not responding was employees’ reluctance to respond, as noted by Baruch and Holtom (2008). Despite thorough preparation, we were unable to achieve high response rates. In study 1 among teachers, more of Rogelberg and Stanton’s (2007) response facilitation techniques could have been used if the teachers’ union had followed up more closely in administering the survey. Due to member anonymity, we were not allowed to contact respondents directly. All three surveys might have benefitted from the use of electronic questionnaires (Baruch & Holtom, 2008). Although surveys completed in person on a drop-in basis have the highest response rates, these may require more resources to complete. Phone-based data collection would also be an option in future studies. According to the meta-analyses of survey response-rate trends in organizational research performed by Baruch and Holtom (2008), there were no significant differences in response rates for studies applying response facilitation techniques, such as incentives or reminders for studies conducted at the individual level.

The results from the studies with low response rates correspond well with the results from study 3, which obtained a higher response rate. Nonresponse analyses would be particularly useful in studies 1 and 2 (Baruch & Holtom, 2008; Rogelberg & Stanton, 2007); however, those were unavailable for these studies. The low response rates could have affected the distribution and range of frequencies but probably had less effect on



the correlation patterns. Factor analyses are robust across gender-split samples. This is an indication of the robustness of the observed findings (Rogelberg & Stanton, 2007).

Another notable limitation is the use of cross-sectional data, which may be seen as sufficient for exploring and expanding the nomological net of the concept of LMX but as insufficient for pinpointing the causal direction between LMX and its hypothesized outcomes. Future studies should, therefore, employ prospective designs. We should look more closely at the possible detrimental effects of having a low-quality relationship with one's immediate superior. The present study provides strong support for the belief that the present LMX scale is a sound and valid instrument to be used in such future studies.

A final limitation of this study is the fact that the study employed same-source and same-method data, allowing response styles, moods, and personal characteristics to influence the individual responses to the questionnaire. To overcome same-source bias, future research should apply different data collection strategies for the predictor and the outcome variables, for instance by computerizing the testing procedure for the LMX and responding to traditional questionnaires in a face-to-face interview situation. Even better, future research should investigate the relationship between LMX and outcomes employing hard data such as objective and registered turnover or registered absenteeism. In addition, panel or prospective study designs should be recommended to insert time lags between the data collections and possibilities for test-retest measures for variables that might be expected to be stable over time.

Conclusion and practical implications

Concerning the development of productive and psycho-socially rewarding dyadic exchange relationships, managers are challenged to make every employee perceive that they are important and respected members of the team. This is important in order to maintain trust, respect, and loyalty in organizations (Yukl, 2006). As shown in the present study, having a high-quality LMX relationship is associated with a range of positive correlates and outcomes, whereas a low-quality relationship is characterized by high scores on a range of negative outcomes, including feelings of being bullied. Hence, organizations should be more aware of the potential negative outcomes associated with such low-quality leader–follower relationships. For the purpose of conducting research in this field and for the applied purpose of surveying the quality of these relationships in organizations, the present study has shown that the seven-item scale tested here is an easy to use, psychometrically sound instrument with substantial evidence on its validity in a Nordic context.

References

- Baruch, Y., & Holtom, B. C. (2008) 'Survey response rate levels and trends in organizational research', *Human Relations* 61(8): 1139–1160.
- Bernerth, J. B., Armenakis, A. A., Feild, H. S., Giles, W. F., & Walker, H. J. (2007) 'Leader-member social exchange (LMXS): development and validation of a scale', *Journal of Organizational Behavior*, 28: 979–1003.
- Borchgrevink, C. P., Cichy, R. F., & Mykletun, R. J. (2001) 'Leader-Member Exchange: Testing the Measurement Model and Testing a Structural Equation Model in the Context of Internal Marketing', *Journal of Hospitality & Leisure Marketing*, 8: 63–92.

- Brayfield, A. H., & Rothe, H. F. (1951) 'An index of job satisfaction', *Journal of Applied Psychology*, 35: 307–311.
- Coprano, R., & Mitchell, M. S. (2005) 'Social Exchange Theory: An Interdisciplinary Review', *Journal of Management*, 31(6): 874–900.
- Dallner, M., Elo, A.-L., Gamberale, F., Hottinen, V., Knardahl, S., Lindström, K., ... Ørhede, E. (2000) *Validation of the General Nordic Questionnaire (QPSNordic) for Psychological and Social Factors at Work*. Copenhagen: Nordic Council of Ministers.
- DeVellis, R. F. (2012) *Scale development: Theory and applications* (Third Edition ed.). Los Angeles: SAGE.
- Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2012) 'A meta-analysis of antecedents and consequences of leader-member exchange: Integrating the past with an eye to the future', *Journal of Management*, 38: 1715–1759.
- Einarsen, S., & Skogstad, A. (1996) 'Bullying at work: Epidemiological findings in public and private organizations', *European Journal of Work and Organizational Psychology*, 5: 185–201.
- Furunes, T., & Mykletun, R. J. (2010) 'Age discrimination in the workplace: Validation of the Nordic Age Discrimination Scale (NADS)', *Scandinavian Journal of Psychology*, 51(1): 23–30.
- Gerstner, C. R., & Day, D. D. (1997) 'A meta-analytic review of leader-member exchange theory: Constructs and issues', *Journal of Applied Psychology*, 82(6): 827–844.
- Glasø, L., & Einarsen, S. (2006) 'Experienced affects in leader-subordinate relationships', *Scandinavian Journal of Psychology*, 22(1): 49–73.
- 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(2): 219–247.
- Greguras, G. J., & Ford, J. M. (2006) 'An examination of the multidimensionality of supervisor and subordinate perceptions of leader-member exchange', *Journal Of Occupational and organisational psychology*, 79(3): 433–465.
- Griffeth, R. W., & Hom, P. W. (2001) *Retaining Valued Employees*. Thousand Oaks, CA: Sage.
- Grimsmo, A. (2003). *Levekårsundersøkelsen 2003 [Annual Study of Life Conditions 2003]*. Oslo: SSB.
- Hanse, J. J., Harlin, U., Jarebrant, C., Ulin, K., & Winkle, J. (2014). Leader-Member Exchange and Psychological Factors at Work Among Healthcare Professionals. *Nursing and Care*, 3(5).
- Harvey, P., Martinko, M. J., & Douglas, S. C. (2006) 'Causal reasoning in dysfunctional leader-member interactions', *Journal of Managerial Psychology*, 21(8): 747–762.
- Hersey, P., & Blanchard, K. (1984) *Managing Organizational Behavior*. NJ: Prentice-Hall.
- Hooper, D. T., & Martin, R. (2008) 'Beyond personal leader-member-exchange (LMX) quality: The effects of perceived LMX variability on employee reactions', *The Leadership Quarterly*, 19: 20–30.
- Kant, L., Skogstad, A., Torsheim, T., & Einarsen, S. (2013) 'Beware the angry leader: Trait anger and trait anxiety as predictors of petty tyranny', *The Leadership Quarterly*, 24(1): 106–124.
- Kuvaas, B., Buch, R., Dysvik, A., & Haerem, T. (2012) 'Economic and social leader-member exchange relationships and follower performance', *The Leadership Quarterly*, 23: 756–765.
- Leponiemi, J. T. (2007) 'Majority leaders and minority members. Towards a research agenda', *The international Journal of Diversity in Organisations*, 7(1): 39–48.
- Liden, R. C., & Maslyn, J. (1998) 'Multidimensionality of Leader-Member Exchange: An Empirical Assessment through Scale Development', *Journal of Management*, 24(1): 43–72.
- Lindström, K., Björklund, C., Mykletun, R. J., Furunes, T., Gard, G., & Pahkin, K. (2008) *Nordic Questionnaire for Monitoring the Age Diverse Workforce: Review report of QPSNordic-ADW* (pp. 49). Copenhagen: Nordic Council of Ministers.



- Martin, R., Thomas, G., Charles, K., Epitropaki, O., & McNamara, R. (2005) 'The role of leader-member exchanges in mediating the relationship between locus of control and work reactions', *Journal of Occupational and Organizational Psychology*, 78: 141–147.
- Morrow, P. C., Suzuki, Y., Crum, M. R., Ruben, R., & Pautsch, G. (2005) 'The role of leader-member exchange in high turnover work environments', *Journal of Managerial Psychology*, 20(8): 681–694.
- Nunnally, J. C., & Bernstein, I. H. (1994) *Psychometric Theory* (3rd ed.). New York: McGraw Hill.
- Olsson, L., Hemlin, S., & Pousette, A. (2012). A multi-level analysis of leader-member exchange and creative performance in research groups. *The Leadership Quarterly*, 23(3): 604–619.
- Pahkin, K. (2008) Piloting the new QPSNordic-ADW Questionnaire. In K. Lindström, C. Björklund, G. Gaard, T. Furunes & K. Pahkin (Eds.), *Nordic Questionnaire for Monitoring the Age Diverse Workforce. Review Report of QPS Nordic-ADW* (Vol. TemaNord 2008: 505). Copenhagen: Nordic Council of Ministers.
- Rizzo, J. R., House, R. J., & Lirtsmann, S. I. (1970) 'Role conflict and ambiguity in complex organizations', *Administrative Science Quarterly*, 15: 150–574.
- Rockstuhl, T., Dulebohn, J. H., Ang, S., & Shore, L. M. (2012) 'Leader-member exchange (LMX) and culture: A meta-analysis of correlates of LMX across 23 countries', *Journal of Applied Psychology*, 97(6): 1097–1130.
- Rogelberg, S. G., & Stanton, J. M. (2007) 'Introduction: Understanding and dealing with organizational survey nonresponse', *Organizational Research Methods*, 10(2), 195–209.
- Schriesheim, C. A., Castro, S. L., & Coglister, C. C. (1999) 'Leader-Member Exchange (LMX) Research: A Comprehensive Review of Theory, Measurement and Data-Analytic Practices', *Leadership Quarterly*, 10(1): 63–113.
- 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): 1–29.
- Sjøberg, A., & Sverke, M. (2000) 'The interactive effect of job involvement and organizational commitment on job turnover revisited: A note on the mediating role of turnover intention', *Scandinavian Journal of Psychology*, 41(3): 247–252.
- Van Droogenbroeck, F., Spruyt, B. & Vanroelen, C. (2014) 'Burnout among senior teachers: Investigating the role of workload and interpersonal relationships at work', *Teaching and Teaching Education*, 43: 99–109.
- Van Veldhoven, M., & Meijman, T. F. (1994) *Vragenlijst Beleving en Beoordeling van de Arbeid* [Questionnaire experience and evaluation of work]. Amsterdam: NIA.
- Varma, A., Srinivas, E. S., & Stroth, L. K. (2005) 'A Comparative Study of the Impact of Leader-Member-Exchange in US and Indian Samples', *Cross Cultural Management*, 12(1): 84–95.
- Vasset, F., Marnburg, E., & Furunes, T. (2012). Dyadic relationships and exchanges in performance appraisals. *Vård i Norden*, 32(1): 4–9.
- Wat, D., & Shaffer, M. A. (2005) 'Equity and relationship quality influences on organizational citizenship behaviours: The mediation role of trust in the supervisor and empowerment', *Personnel Review*, 34(4): 406–422.
- Watson, D., Clark, L.A., & Tellegen, A. (1988) 'Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales', *Journal of Personality and Social Psychology*, 54(6): 1063–1070.
- Wännström, I., Peterson, U., Åsberg, M., Nygren, Å., & Gustavsson, J. P. (2009) 'Psychometric properties of scales in the general nordic questionnaire for psychological and social factors at work (QPS Nordic): Confirmatory factor analysis and prediction of certified long-term sickness absence', *Scandinavian Journal of Psychology*, 50(1): 231–244.
- Yukl, G. (2006) *Leadership in Organizations* (6th ed.). Upper Saddle River: Pearson Prentice Hall.

Appendix

The Norwegian Version of the LMX-7

I de følgende spørsmål ber vi deg vurdere ditt forhold til din leder	Slett ikke	I liten grad	I noen grad	I stor grad	I svært stor grad
Vet du vanligvis hvor tilfreds din nærmeste leder er med arbeidet du utfører?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvor godt forstår din nærmeste leder problem og behov du støter på i ditt arbeid?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvor godt kjenner din nærmeste leder din kapasitet og dine evner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I hvilken grad ville din nærmeste leder bruke sin innflytelse for å hjelpe deg med vansker i ditt arbeid?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I hvilken grad ville din nærmeste leder stille opp for deg hvis det gikk på hans/hennes egen bekostning?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vennligst ta standpunkt til følgende påstand:	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
Jeg har så mye tillit til min nærmeste leder at jeg vil forsvare hans/hennes avgjørelser når han/hun ikke er til stede?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Ekstremt lite effektivt	Lite effektivt	Av og til effektivt	Vanligvis effektivt	Ekstremt effektivt
Hvordan vil du karakterisere ditt forhold til din nærmeste leder med tanke på effektivitet i samarbeidet dere imellom?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>