



How leaders stimulate employee learning: A leader–member exchange approach

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This study investigated how leader–member exchange (LMX), goal setting, and feedback are related to employee engagement in learning activities. Two different mechanisms were proposed: a mediating mechanism holding that LMX elicits specific leader behaviours (i.e., goal setting and feedback) which would mediate the LMX–learning relationship, and a moderating mechanism, holding that LMX would strengthen the effect of these leader behaviours. A sample of 1,112 employees from 7 organizations completed questionnaires that measured LMX, goal specificity, feedback, and self-reports of employee engagement in learning activities. The 233 direct leaders of these employees completed questionnaires that measured goal difficulty and leader ratings of employee engagement in learning activities. Multi-level analysis showed that goal difficulty and goal specificity mediated the relationship between LMX and employee engagement in learning activities, and that LMX moderated the relationship of goal difficulty with employee engagement in learning activities. With these findings, the present study contributes to the literatures on LMX, goal setting, and employee development.

Employee engagement in learning activities is becoming increasingly important for organizational effectiveness and for employee success in today's rapidly changing workplace. Engagement in learning activities refers to employees' discretionary behaviours in ongoing learning activities to master new knowledge, skills, and abilities (Bezuijen, van den Berg, van Dam, & Thierry, 2009). These activities can take different forms such as training assignments on and off the job, challenging and novel tasks, special projects, and job transitions (McCauley & Hezlett, 2001). Employee learning is generally considered an essential prerequisite for organizational adaptability and competitiveness (Maurer, Pierce, & Shore, 2002). Despite the importance of employee learning, little is known about how leaders encourage employees to engage in learning activities, and researchers have not delineated the specific behaviours and mechanisms through which such learning occurs (Vera & Crossan, 2004).

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The objective of the present study was to address this issue by applying leader-member exchange (LMX) theory to employee learning. According to LMX theory, leaders form unique relationships with each of their subordinates so that high LMX relationships are characterized by high levels of mutual support, trust, and loyalty (Graen & Uhl-Bien, 1995; Sparrowe & Liden, 1997). LMX has been associated with important outcomes such as job performance, job satisfaction, and retention (Gerstner & Day, 1997). Although the relevance of LMX for employee learning has been suggested in the literature (e.g., Dragoni, 2005), studies examining this relationship are scarce.

The present research contributes to the literature in three ways. First, we provide insight into two different yet related mechanisms through which leaders encourage employee learning: a mediating and a moderating mechanism. We argue that the LMX relationship elicits specific leader behaviours that mediate the relationship between LMX and employee learning. Theoretical and empirical evidence suggests that leaders are likely to use goal setting and feedback to encourage employee learning (e.g., Lam, Huang, & Snape, 2007). We also argue that LMX acts as a moderator in that it increases the effectiveness of these leader behaviours. Whereas a moderating effect of LMX has been suggested in the literature (Driver, 2002), only a few studies have actually investigated this effect (Scandura & Graen, 1984; Sparrowe, Soetjijto, & Kraimer, 2006).

The second contribution of this study concerns how LMX and goal-setting theories can be integrated with one another. Whereas these theories have been studied independently in the past, we propose that LMX is an important antecedent of goal setting, that is, the extent to which leaders engage in goal setting depends on the quality of the LMX relationship. Moreover, by investigating the effects of learning goals, as opposed to performance goals, the present study aims to extend previous research about learning goals, a topic that has received attention only recently (e.g., Seijts, Latham, Tasa, & Latham, 2004).

Finally, the present study contributes to the employee development literature by using a broad approach to employee learning and by focusing on a broader arrangement of learning activities beyond just traditional, formal developmental activities (McCauley & Hezlett, 2001; Noe, Wilk, Mullen, & Wanek, 1997). This broader approach to employee learning is in accordance with the literature on 'the learning organization' (e.g., Senge, 2006) and 'organizational learning' (e.g., Argyris & Schon, 1978), which emphasizes the need for a multitude of learning activities in order to create a culture of continuous personal development. Despite the recent emphasis on a broader learning perspective, research using this perspective is scarce and questions remain as to how learning at work may be enhanced (Sonnetag, Niessen, & Ohly, 2004). The present study provides insight into how leaders stimulate employee learning and under what conditions this may be most effective.

Employee engagement in learning activities

Employee engagement in learning activities has become an increasingly important topic in recent years. Demands made on employees to upgrade their job skills and knowledge are increasing continuously because organizations are faced with markets that are global, competitive, and technologically based (Maurer & Tarulli, 1994). Therefore, employees who actively engage in learning activities are one of the most important sources of competitive advantage for organizations (Senge, 2006; Vera & Crossan, 2004).

Like organizations, leaders, and employees each benefit from employee engagement in learning activities. Leaders benefit when they encourage employees to undertake

tasks that lead to learning because doing so helps attain strategic team goals (Jansen, Vera, & Crossan, 2009). Moreover, employee learning is associated with improved job performance (Arthur, Bennett, Edens, & Bell, 2003), and the acquisition of new skills that serve as antecedents of job performance (Aguinis & Kraiger, 2009). Learning is also crucial for employees because they need to stay current in a labour market that no longer guarantees long-term employment and job security (Arthur & Rousseau, 1996). Moreover, continuous learning is an important part of many jobs because job requirements are undergoing constant change (Sonnentag *et al.*, 2004). In addition to being a necessity, engagement in learning activities can be challenging and fun, and research has associated employee learning with positive work attitudes such as job satisfaction, organizational commitment, and retention (Mikkelsen, Saksvik, Eriksen, & Ursin, 1999).

There are many different ways for employees to engage in learning activities. Whereas organizations focused on formal training programmes in the past, they recognize now that valuable learning takes place within the daily work situation (Poell, van Dam, & van den Berg, 2004). Much employee learning is believed to occur through assignments that go beyond usual job responsibilities such as new and challenging tasks, job transitions, task-force assignments, temporary attachments to other work units, and project work (Birdi, Allan, & Warr, 1997; Maurer *et al.*, 2002). Instead of viewing learning as an occasional training need, employee learning is viewed as a continuous process, that may also focus on future assignments and career development (McCauley & Hezlett, 2001; Noe *et al.*, 1997).

Because much learning occurs within the daily work situation, leaders are generally considered to be an important force behind employee engagement in learning activities (Sonnentag *et al.*, 2004). There is clear evidence that support from the leader enhances participation in learning activities (Birdi *et al.*, 1997; Colquitt, LePine, & Noe, 2000). Noe and Wilk (1993) found that employee perceptions of their supervisor's support for development activity influenced employee engagement in learning activities. Similarly, Colquitt *et al.*'s (2000) meta-analytic study showed that employee motivation to learn was related to their leader's supportive behaviours. Despite this evidence, surprisingly few studies have examined the underlying process between leaders and employees that results in employee learning. The present study focused on the LMX relationship to explain how leader behaviour and employee learning are related.

Leader-member exchange and employee engagement in learning activities

LMX theory posits that leaders and members engage in a role development process during which differentiated role definitions develop between a leader and an individual employee (Graen & Cashman, 1975). Whereas low-quality relationships involve rudimentary exchanges that typify the basic employment contract, high-quality relationships are characterized by mutual trust, respect, and loyalty between leader and employee. Based on the concepts of social exchange (Blau, 1964) and reciprocity (Gouldner, 1960), LMX theory posits that the exchange relationship creates a feeling of obligation in members to reciprocate high-quality relationships (Graen & Uhl-Bien, 1995). As such, high-LMX employees are sometimes referred to as 'trusted assistants' who are committed to the leader and who enhance their leader's effectiveness (Liden, Sparrowe, & Wayne, 1997). Research has demonstrated that LMX is related to important employee and organizational outcomes such as job performance, organizational citizenship behaviour, job satisfaction, organizational commitment, retention, and

openness to organizational change (e.g., Gerstner & Day, 1997; Hofmann, Morgeson, & Gerras, 2003; van Dam, Oreg, & Schyns, 2008).

It is generally expected that high-LMX employees engage in more learning activities than do low-LMX employees (e.g., Driver, 2002; Maurer *et al.*, 2002; Paparoidamis, 2005). Empirical evidence has indicated that employees in high-quality LMX relationships, in contrast to those in low-quality LMX relationships, receive greater opportunities for personal growth and more challenging work assignments (Graen & Scandura, 1987; Liden *et al.*, 1997), are provided with higher levels of support (Kraimer, Wayne, & Jaworski, 2001), and progress more rapidly in their careers (Scandura & Schriesheim, 1994; Wayne, Liden, Kraimer, & Graf, 1999). The quality of the leader-member relationship has also been found to affect employee learning goal orientation (Janssen & Van Yperen, 2004).

However, few studies have focused on the specific mechanisms and behaviours through which LMX impacts employee learning. We argue that two mechanisms within the LMX relationship might be at work. The first mechanism, which is related to the role-making process, refers to a mediation effect of leader behaviours and holds that leaders will more actively stimulate and challenge high-LMX, compared to low-LMX employees, to engage in learning activities. The second mechanism, which is related to the norm of reciprocity, refers to a moderating effect and holds that high-LMX employees will respond more strongly, than will low-LMX employees, to their leader's goal setting and feedback behaviours because they want to reciprocate the leader's efforts and expectations. These two mechanisms are discussed more extensively below. The research model is presented in Figure 1.

Goal setting and feedback as mediating leader behaviours

Setting goals and providing feedback are two of the behaviours that leaders can use to encourage high-LMX employees to learn because these behaviours facilitate the role-making process of the exchange relationship (Graen & Scandura, 1987; Graen & Uhl-Bien, 1995). We argue that leaders will test their expectations of employees by setting challenging goals. Each time a goal has been attained, leaders' trust, respect, and expectations will increase and the quality of the LMX relationship will improve. It is likely that this role-making process extends to learning goals. That is, in high-LMX conditions, leaders not only set more challenging performance goals, they set more challenging learning goals as well. In turn, employees who pursue these learning goals update their knowledge and skills (Lam *et al.*, 2007) and maintain their roles as trusted assistants.

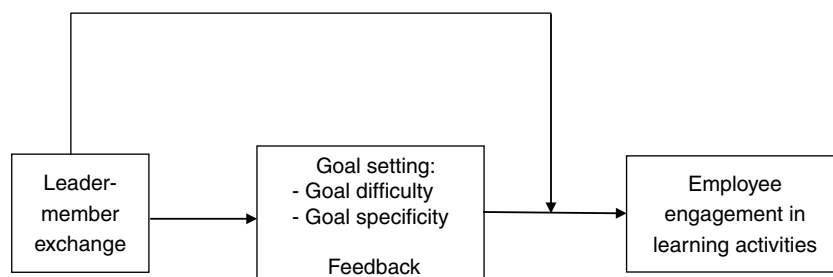


Figure 1. The research model.

Similarly, the exchange relationship might affect goal specificity and feedback. Research has shown that leaders communicate more frequently with high-LMX employees than with low-LMX employees (Kacmar, Witt, Zivnuska, & Gully, 2003), and that employees more often seek feedback from a leader which they believe (Fedor, Rensvold, & Adams, 1992; Vancouver & Morrison, 1995), trust, and respect (Ashford & Cummings, 1985; Lam *et al.*, 2007; VandeWalle, Ganesan, Challagalla, & Brown, 2000). Leaders and employees will exchange information with one another about the employee's learning activities and goals, and progress towards these goals. Through this information exchange, high-LMX employees will receive greater clarity about their goals and more feedback, compared to low-LMX employees. Leader feedback supports goal-setting efforts because employees need feedback to adjust the level or direction of their efforts to match what the goal requires (Locke & Latham, 2002). In sum, leaders will set more difficult and more specific learning goals, and provide more feedback in high-LMX conditions compared to low-LMX conditions.

In turn, goal setting and feedback will stimulate employees to engage in learning activities (e.g., Maurer, Weiss, & Barbeite, 2003; Noe *et al.*, 1997). Goal setting has proven to be an effective motivational technique for enhancing employee performance (Locke & Latham, 2002). Strong support has been found for the theory's postulates that difficult goals lead to higher levels of performance than do easy goals, and that specific goals produce a higher level of output than do vague or 'do your best' goals (e.g., Latham, Locke, & Fassin, 2002; Locke & Latham, 1990). Whereas goal difficulty has been found to affect persistence, goal specificity has been shown to direct attention and effort towards goal-relevant activities (Locke & Latham, 2002). The goal-behaviour relationship is strongest when people are committed to their goal (Klein, Wesson, Hollenbeck, & Alge, 1999). Meta-analyses reveal that goal difficulty and goal specificity have shown effect sizes ranging from .42 to .80 for various behaviours (Locke & Latham, 1990).

Evidence indicates that goal setting is also applicable to employee learning, and that setting learning goals is effective (e.g., Payne, Youngcourt, & Beaubien, 2007; Seijts *et al.*, 2004). Seijts *et al.* (2004) found that setting specific learning goals resulted in more positive outcomes than setting vague learning goals. Moreover, extant evidence indicates that the pursuit of learning goals is positively related to learning, feedback seeking behaviour, and performance (Payne *et al.*, 2007). Consequently, it is likely that leaders who set difficult learning goals and specific learning goals will encourage employees to engage in learning activities (e.g., Maurer *et al.*, 2003; Noe *et al.*, 1997).

Like goal setting, feedback can help employees to learn and enhance their work performance (Goodman, Wood, & Hendrickx, 2004; Kluger & DeNisi, 1996). Feedback interventions that direct attention to appropriate task behaviour have been found to lead to more rapid learning, decreased errors during training, and improved performance (Goodman *et al.*, 2004; Kluger & DeNisi, 1996). This type of feedback provides recipients with information about their work behaviour and performance, and suggests how they can make improvements (Ashford & Cummings, 1985; Chen, Lam, & Zhong, 2007). Feedback may further affect learning by enhancing the relative exposure of recipients to instances of good versus bad performance, thus increasing the number of learning opportunities (Goodman *et al.*, 2004).

In conclusion, we argue that members in higher-quality LMX relationships will engage in learning activities more often than members in lower-quality LMX relationships because their leaders provide them with more difficult and more specific

learning goals, and with more feedback. These leader behaviours are thought to mediate the relationship between LMX and employee learning.

Hypothesis 1: Goal difficulty mediates the relationship between LMX and employee engagement in learning activities.

Hypothesis 2: Goal specificity mediates the relationship between LMX and employee engagement in learning activities.

Hypothesis 3: Feedback mediates the relationship between LMX and employee engagement in learning activities.

LMX as a moderating condition

We also posit, in addition to the aforementioned mediation effect, that LMX moderates the relationships of goal difficulty, goal specificity, and feedback, respectively, with employee engagement in learning activities. A high-LMX relationship is an optimal condition for social exchange and reciprocity. In such a relationship, the communication is much more intense (Kacmar *et al.*, 2003), and characterized by mutual interest (Uhl-Bien & Maslyn, 2003) and feedback seeking (VandeWalle, Ganesan, Challagalla, & Brown, 2000). We argue that these LMX-relationship characteristics affect employees' responses to leader behaviours (cf. Maurer *et al.*, 2002).

Although very few studies have investigated the moderating effect of LMX on the effectiveness of leader behaviours (e.g., Scandura & Graen, 1984; Sparrowe *et al.*, 2006), several arguments support this assumption. First, high-LMX employees will try harder to fulfil the leader's role expectations as expressed in their leader's goal setting and feedback, because they can benefit more from the relationship than low-LMX employees (Lam *et al.*, 2007; Maslyn & Uhl-Bien, 2001). Second, previous studies have found that feedback is more easily accepted within a high-trust relationship (Chen *et al.*, 2007). Third, a high-quality LMX relationship enhances goal commitment (Klein *et al.*, 1999), which in turn strengthens the relationship between goal setting and performance (Locke & Latham, 1990). Finally, being a trusted assistant might increase high-LMX employees' self-expectations to act successfully on the feedback provided by the leader, which will have a positive effect on their learning behaviors (Bandura, 1997).

The reverse can be argued for low-LMX conditions. In negative reciprocal relationships, self-interest instead of mutual interest (Uhl-Bien & Maslyn, 2003), and resistance to leader influence (Tepper, Duffy, & Shaw, 2001) are more common. As a consequence, leaders' behaviours will not be as effective as in high-LMX relationships. That is, upon feedback and goal setting, low-LMX members will not feel a strong inclination to invest in the relationship, or pay back the leader by engaging in learning activities. Because trust is low, employees in low LMX-relationships will not readily accept the leader's feedback and goals. Finally, being on the outside circle might have a negative effect on employees' self-expectations and, therefore, will not stimulate low-LMX members to engage in challenging learning opportunities.

Hypothesis 4: LMX moderates the relationship between goal difficulty and employee engagement in learning activities, such that this relationship is more positive under high-quality LMX conditions than under low-quality LMX conditions.

Hypothesis 5: LMX moderates the relationship between goal specificity and employee engagement in learning activities, such that this relationship is more positive under high-quality LMX conditions than under low-quality LMX conditions.

Hypothesis 6: LMX moderates the relationship between feedback and employee engagement in learning activities, such that this relationship is more positive under high-quality LMX conditions than under low-quality LMX conditions.

Method

Sample and procedure

A total of 1,112 employees and 233 leaders from 7 organizations in The Netherlands participated in the present study. Different types of work were represented: health care ($N = 302$), police ($N = 188$), penitentiary ($N = 156$), social services ($N = 102$), security services ($N = 94$), high-tech ($N = 208$), and vocational training ($N = 62$). Employees performed various job duties within these sectors such as those of nurse, physician, police officer, security guard, counsellor, office worker, social worker, day care worker, R&D specialist, factory worker, and teacher.

One questionnaire was developed for employees and a separate questionnaire was developed for leaders (see Appendix). The employee questionnaire included a self-assessment of their engagement in learning activities, LMX, goal specificity, and feedback from their leader. The leader questionnaire constituted leader ratings of employee engagement in learning activities, and goal difficulty. A total of 3,295 questionnaires were sent to employees, of which 1,546 (47%) were returned. The leaders of these employees were approached after the employee questionnaires were returned and were asked to complete the leader questionnaire. Of the 1,546 employee questionnaires, 1,112 (34%) could be matched to their leaders' questionnaires. Chi-square tests for non-response bias indicated that there were no differences between employee respondents and non-respondents for age, gender, and years of education. Leaders rated about 5 employees ($M = 4.8$) on average, with the range being from a low of 1 to a high of 15 employees.

The employees ranged in age from 17 to 65 years ($M = 40.5$, $SD = 9.5$) and had an average of 14.9 years ($SD = 2.3$) of education. Of the employees, 47% were male. Employees worked 2.4 years ($SD = 2.2$) for the same leader on average.

Measures

Employee engagement in learning activities

An eight-item scale that addressed a range of relevant learning activities was developed based on work from previous studies (Birdi *et al.*, 1997; Maurer & Tarulli, 1994; Maurer *et al.*, 2003; Noe & Wilk, 1993). Respondents were asked to indicate on a five-point scale from 1 (*never*) to 5 (*very often*) how frequently the employees performed the behaviours described in the items. Employees provided self-report of their behaviours whereas leaders provided ratings of their employees' behaviours. Cronbach's alpha was .85 and .91 for the employee and leader scales, respectively.

Because these scales were developed for this study, they were tested first in a pilot study using four organizations: an electricity company ($N = 350$), an information technology service organization ($N = 91$), a tax office ($N = 207$), and a purchase organization ($N = 135$). Exploratory factor analysis (principal axis factoring and oblimin rotation) supported the measurement model and indicated that the scale for employee engagement in learning activities measured a distinct construct. Cronbach's alpha was .78 and .88 for employee and leader perceptions of learning activities, respectively.

Moreover, in this sample, the scales were significantly related to self-efficacy, willingness to engage in learning activities, and personal initiative.

LMX relationship

Graen and Uhl-Bien's (1995) seven-item LMX scale was used to measure employee perceptions of the LMX relationship. Responses were made on a five-point Likert scale that ranged from 1 (*not good*) to 5 (*very good*). Cronbach's alpha was .92.

Goal difficulty¹

A six-item scale (Bezuijen *et al.*, 2009) was used to measure learning goal difficulty. The goals referred to activities that involved learning such as extending knowledge and skills. Leaders, and not employees, were asked to rate the difficulty of the goals that were set for each employee, because studies have shown that employee perceptions of goal difficulty are confounded with self-efficacy beliefs (Latham & Locke, 1991; Locke & Latham, 1990). Leaders indicated goal difficulty on a five-point Likert scale that ranged from 1 (*very easy goals*) to 5 (*very difficult goals*). Cronbach's alpha was .87.

Goal specificity

We used Bezuijen *et al.*'s (2009) six-item scale to measure learning goal specificity. The items addressed the same learning goals as the items of the goal difficulty scale. Employees responded to the items on a five-point Likert scale that ranged from 1 (*very vague goals*) to 5 (*very specific goals*). Cronbach's alpha was .93.

Feedback

Leader feedback concerning employee learning was measured with Bezuijen *et al.* (2009) four-item scale. This measure was based on Kluger and DeNisi's (1996) concept of task-detail feedback and focused on learning processes concerning the task. Employees rated their leader's feedback on a five-point Likert scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha was .87.

Control variables

Gender, age, and years of education were included as control variables because they have been associated with learning activities (Maurer *et al.*, 2003). We also controlled for the organization in which the employees worked by introducing dummy variables for each of the organizations. Organizational membership indeed affected the extent to which employees engaged in learning activities. Employees who worked in the social service organizations, or for the vocational training school, showed the least amount of learning, and those who worked for the police showed the most. Because organizational

¹ Because scales for learning goal difficulty, learning goal specificity, and learning feedback did not exist, we developed new scales for these variables which can be found in Bezuijen *et al.* (2009). Whereas we needed a scale that would measure learning goals as set by the leader, goal setting, goal difficulty, and goal specificity have been manipulated in most previous studies. Similarly, feedback studies usually focus on feedback seeking behavior, or on feedback provided in experimental settings. As far as we know, the extent to which leaders provide feedback on learning issues has not been measured before.

membership did not affect the regression coefficients of the variables in the model, the dummy variables were not included in the tables.

Factor analyses

Exploratory and confirmatory factor analyses were used to test whether the scales measured distinct constructs. The exploratory factor analyses consisted of principal axis factoring with oblimin rotation. The analyses were conducted twice. Model A used employee self-report ratings of employee engagement in learning activities, whereas Model B used leader ratings of employee engagement in learning activities. The expected five-factor model appeared which explained 64 and 67% of the variance for Models A and B, respectively.

The confirmatory analysis was also conducted twice. Chi-square difference tests were performed to investigate the assumption that five variables would account for the relationships between the responses (Anderson & Gerbing, 1988). The results of the confirmatory factor analyses are presented in Table 1.

The fit indices of the confirmatory factor analyses suggested that the alternative one-factor and three-factor models did not fit the data well, whereas the five-factor model fit the data reasonably well (Model A: $\chi^2(421, N = 1, 112) = 2, 033.4$, SRMR = .05, CFI = .93, RMSEA = .06; Model B: $\chi^2(421, N = 1, 112) = 2, 212.1$, SRMR = .04, CFI = .93, RMSEA = .06). When the five-factor model was compared to the three-factor model, the resulting difference in chi-square ($\Delta\chi^2(7, N = 1, 112) = 3, 366.5$, $\Delta df = 7$, $p < .001$) was highly significant, suggesting that the hypothesized five-factor model fit the data better than the three-factor model. All items loaded significantly on the intended factor, with factor loadings ranging from $\beta = 0.48$ to 0.92 for Model A, and $\beta = 0.58$ to 0.92 for Model B. In sum, the exploratory and confirmatory factor analyses each supported the hypothesized measurement model.

Analyses

The data were hierarchically nested, with the individual leader-employee relationship at the first-level, and with the group (of employees who worked under the same leader) at the second level. Nested data may create problems in standard regression procedures because the standard assumption of independent and identically distributed observations is generally not valid. To control for interdependence among variables that concern employees who work under the same leader, a two-level (i.e., multi-level) hierarchical regression analysis with full maximum likelihood estimation was conducted using the procedure described by Hox (2002). We used the HLM program version 5.04. The intercept-only model was assessed to determine the intra-class correlations (ICC) in the first step of this procedure. The ICC indicates how much of the total variance in the dependent variable, that is explained by the two levels, is accounted for by the second level (which is the group in this instance). The findings showed that $ICC(1) = .26$, $\chi^2(230, N = 1, 112) = 580.49$, $p < .001$ for employee self-reports of employee learning, and $ICC(1) = .24$, $\chi^2(230, N = 1, 112) = 569.69$, $p < .000$ for leader ratings of employee learning. These findings indicated that working under the same leader affected employee engagement in learning activities to a considerable extent; therefore multi-level analysis was the appropriate technique for analysing our data.

We examined whether Baron and Kenny's (1986) three conditions for mediation were met when testing the mediating effect of leader behaviour in our model (see also

Table 1. Results of confirmatory factor analyses

Model	Factor	SRMR	TLI	CFI	RMSEA	df	χ^2	$\Delta\chi^2$	p
One-factor	All variables	.14 (.19)	.43 (.37)	.47 (.41)	.15 (.17)	431 (431)	9,670.0 (11,107.7)		
	Employee engagement in learning activities	.11 (.15)	.70 (.71)	.72 (.73)	.11 (.12)	428 (428)	6,303.5 (6,871.9)	3,366.5 (4,235.8)	***
Three-factor	Feedback, goal difficulty, goal specificity								
	LMX								
Five-factor	Employee engagement in learning activities	.05 (.04)	.92 (.92)	.92 (.93)	.06 (.06)	421 (421)	2,033.4 (2,212.1)	2,902.2 (3,284.7)	***
	LMX								
	Feedback								
	Goal difficulty								
	Goal specificity								

Note. The outcomes for Model B are reported in parentheses; *** $p < .001$.

Mathieu & Taylor, 2006). Baron and Kenny note that: (a) a significant relationship should exist between the independent variable and the dependent variable; (b) a significant relationship should exist between the independent variable and the mediator; and (c) a significant relationship should exist between the mediator and the dependent variable while holding the independent variable constant. In the case of a fully mediating effect, the independent variable will have no significant relationship with the dependent variable when the mediator is added to the analysis. Sobel's (1982) test for mediation was used to establish the significance of the indirect effect of the independent variable on the dependent variable.

Results

The means, standard deviations, and intercorrelations of all variables are presented in Table 2. The correlation of .40 between leader ratings and employee self-reports of employee engagement in learning activities indicated that leaders and employees agreed moderately about employee learning behaviour. Moderate correlations between self-ratings and leader ratings are common as can be seen in the average intercorrelation of .35 that has been reported in the meta-analysis by Harris and Schaubroeck (1988).

The results of the multi-level regression models are presented in Table 3. The first step of the analyses revealed that gender, age, and education were significantly correlated with employee engagement in learning activities, with male, younger, and higher-educated employees reporting more learning activities.

As Table 3 shows, the first condition for mediation was met. There were significant, positive relationships between LMX and both employee and leader ratings of engagement in learning activities when gender, age, and education were controlled.

To examine the second condition for mediation, we investigated whether relationships existed between LMX and the mediating variables. Multiple regression analyses, in which the control variables were included, showed significant relationships with LMX for all three mediators, namely, goal difficulty ($\beta = 0.14, p < .001$), goal specificity ($\beta = 0.51, p < .001$), and feedback ($\beta = 0.58, p < .001$). Therefore, the second condition for mediation was met as well.

To examine the third condition for mediation, the relationships of goal difficulty, goal specificity, and feedback, respectively, with engagement in learning activities were examined while holding LMX constant. As shown in Table 3 (step 2), goal difficulty was positively related to engagement in learning activities. Sobel's (1982) test for mediation showed that this mediation effect was significant. The z values of the indirect effect of LMX through goal difficulty on engagement in learning activities was 5.52 ($p < .001$) for employee self-report ratings and 4.63 ($p < .001$) for leader ratings. Therefore, Hypothesis 1 was supported.

Similarly, goal specificity was significantly and positively related to employee engagement in learning activities. Sobel's (1982) test for mediation showed that this mediation effect was significant. The z values of the indirect effect of LMX through goal specificity on learning was 8.78 ($p < .001$) for employee self-ratings and 2.26 ($p < .05$) for leader ratings. Consequently, Hypothesis 2 was supported as well. Although Sobel's test showed that the relationship between LMX and learning significantly declined in strength, this relationship remained significant, indicating that goal difficulty and goal specificity only partially mediated this relationship.

Contrary to expectations, feedback was negatively related to employee engagement in learning activities. Therefore, Hypothesis 3 was rejected. It should be noted, however,

Table 2. Means, standard deviations, intercorrelations, and reliabilities (in parentheses) of measures

	M	SD	1	2	3	4	5	6	7	8	9
1. Gender ^a	0.47	0.50	—								
2. Age	40.46	9.47	-.04	—							
3. Years of education	14.94	2.28	-.04	-.04	—						
4. Leader-member exchange	3.35	0.82	-.06*	-.04	-.01	(.92)					
5. Goal difficulty	2.57	0.81	.00	-.12***	.12***	.15***	(.87)				
6. Goal specificity	2.78	1.06	-.11***	-.09**	.01	.51***	.22***	(.93)			
7. Feedback	3.06	0.89	.03	-.13***	-.15***	.59***	.11***	.57***	(.87)		
8. Employee engagement in learning activities (employee self-reports)	2.84	0.65	-.14***	-.25***	.14***	.23***	.23***	.38***	.17***	(.85)	
9. Employee engagement in learning activities (leader ratings)	2.76	0.78	-.08**	-.24***	.11***	.22***	.61***	.23***	.11***	.40***	(.91)

Note. N = 1,112 supervisor-subordinate dyads. For $r \geq .06$, $p < .05$; for $r \geq .08$, $p < .01$; for $r \geq .10$, $p < .001$; * $p < .05$; ** $p < .01$; *** $p < .001$.

^aFemale = 1; male = 0.

Table 3. Multi-level model with dependent variable employee engagement in learning activities

Variable	Employee engagement in learning activities (employee self-reports)				Employee engagement in learning activities (leader ratings)			
	B	SE	β		B	SE	β	
<i>Step 1</i>								
Gender ^a	-0.15	.04	-0.12	***	-0.06	.05	-0.04	
Age	-0.02	.00	-0.22	***	-0.02	.00	-0.23	***
Education	0.04	.01	0.12	***	0.04	.01	0.12	***
LMX	0.17	.03	0.22	***	0.19	.03	0.20	***
Deviance				1,960.0				2,360.8
Pseudo R ²				.10				.12
<i>Step 2</i>								
Gender ^a	-0.13	.04	-0.10	***	-0.05	.04	-0.03	
Age	-0.01	.00	-0.18	***	-0.01	.00	-0.15	***
Education	0.03	.01	0.10	***	0.02	.01	0.06	*
LMX	0.06	.03	0.07	*	0.13	.03	0.14	***
Goal difficulty	0.12	.02	0.14	***	0.55	.03	0.57	***
Goal specificity	0.20	.02	0.33	***	0.05	.02	0.07	*
Feedback	-0.05	.03	-0.07	*	-0.08	.03	-0.09	**
Deviance				1,820.4				1,876.1
Δχ ²			(df = 3)	139.6***			(df = 3)	463.9***
Pseudo R ²				.21				.42
<i>Step 3</i>								
Gender ^a	-0.14	.04	-0.10	***	-0.06	.04	-0.04	
Age	-0.01	.00	-0.19	***	-0.01	.00	-0.16	***
Education	0.03	.01	0.10	***	0.02	.01	0.06	**
LMX	0.08	.03	0.11	**	0.14	.03	0.15	***
Goal difficulty	0.11	.02	0.14	***	0.55	.03	0.57	***
Goal specificity	0.20	.02	0.33	***	0.05	.02	0.07	**
Feedback	-0.06	.03	-0.08	*	-0.08	.03	-0.09	***
LMX × goal difficulty	0.06	.02	0.06	**	0.09	.03	0.08	**
LMX × goal specificity	0.01	.03	0.01		-0.03	.03	-0.04	
LMX × feedback	0.08	.03	0.11	**	0.06	.03	0.07	*
Deviance				1,792.4				1,859.4
Δχ ²			(df = 3)	28.0***			(df = 3)	16.7**
Pseudo R ²				.23				.44

Note. ^aFemale = 1; male = 0; *p < .05; **p < .01; ***p < .001.

that whereas the regression coefficients were negative, the zero-order correlations between feedback and both measures of learning were positive. These different outcomes might indicate the presence of a confounding or suppressing variable, or a spurious correlation.

With respect to the moderating effects of LMX (see Table 3, step 3), the results for both self-report and leader ratings showed significant interactions for goal difficulty and feedback, respectively. Accordingly, Hypotheses 4 and 6 were supported. The interaction of employee learning and goal specificity was not significant for either of the ratings, therefore Hypothesis 5 was rejected.

We looked at the combined effects of the main variables and the interaction terms to learn more about the interaction effects. The relationship between goal difficulty and

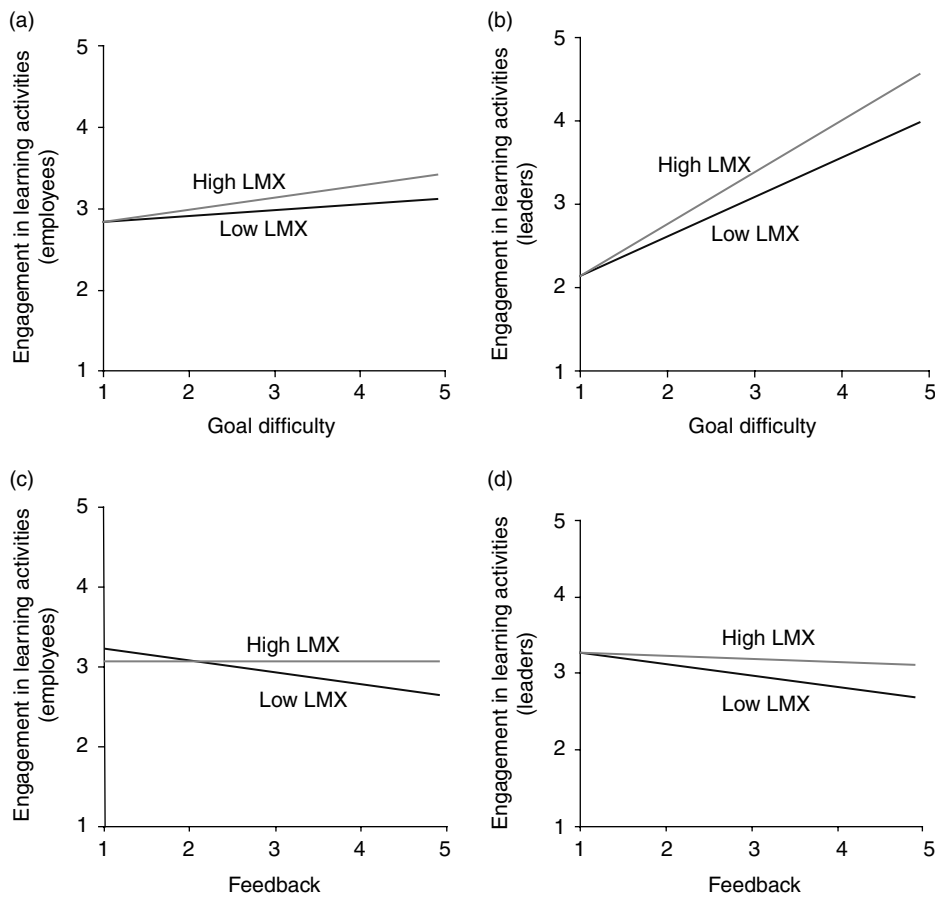


Figure 2. Interactions between LMX and goal difficulty and feedback on employee engagement in learning activities as perceived by employees and leaders. *Note.* The regression lines are drawn from one standard deviation below the mean of the moderator (LMX) to one standard deviation above.

employee engagement in learning activities was stronger in high-LMX than in low-LMX conditions (see Figure 2). This relationship varied from $B = 0.06$ at one standard deviation below the mean value of LMX, to $B = 0.16$ at one standard deviation above the mean value of LMX for employee self-reports, and from $B = 0.49$ to 0.60 for leader ratings (see Figure 2). The relationship between feedback and employee engagement in learning activities varied from $B = -0.13$ at one standard deviation below the mean value of LMX, to $B = 0.01$ at one standard deviation above the mean value of LMX for employee self-reports, and from $B = -0.13$ to -0.02 for leader ratings.

Because the ICC values were sizable, *post hoc* analyses were conducted to test whether employee engagement in learning activities was related to group-level characteristics. The findings showed that, at the group level, employee engagement in learning activities was unrelated to LMX, specific goals, difficult goals, and feedback. Also, the LMX group-level variable did not moderate the relationships of specific goals, difficult goals, and feedback with employee engagement in learning activities. The *post hoc* analyses were run using employee self-reports as well as leader ratings of employee engagement in learning activities; however, source of data had no effect on the outcomes.

Discussion

The findings provide evidence for two different mechanisms involving LMX, namely, a mediating effect as well as a moderating effect. The first mechanism refers to how the leader behaviours of goal difficulty and goal specificity mediate the relationship between LMX and employee learning. Leaders set more difficult, and more specific learning goals for high-LMX members than they did for low-LMX members. By setting such goals, leaders encourage high-LMX employees to develop themselves and to live up to their leader's expectations. However, goal setting did not account completely for the relationship between LMX and employee learning, and it is possible that other leader behaviours such as modelling (Bandura, 1997) or providing learning opportunities (Noe & Wilk, 1993), served as mediators as well. Alternatively, the direct relationship between LMX and learning might indicate that high-LMX employees engage in learning activities more frequently to show their loyalty and earn their leaders' trust.² Future research is needed to address additional potential mediators and consider alternative explanations.

The second mechanism concerns the moderating effect of the LMX relationship on employee responses to leader behaviours. As predicted, LMX quality strengthened the effect of setting difficult goals. Compared to employees in low-quality relationships, employees in high-quality LMX relationships appeared more eager to succeed with difficult learning goals by engaging in learning activities. This finding supports Maurer *et al.*'s (2002) proposition that LMX may be an important condition for the effectiveness of leadership behaviours. LMX did not act as a moderator for goal specificity, however. Setting specific goals appeared an effective tool for encouraging learning activities regardless of the exchange relationship. These differential findings for goal difficulty and goal specificity might be explained by the fact that performing difficult tasks, more so than performing specific tasks, requires greater goal commitment (Locke & Latham, 1990), which is enhanced by a high-quality LMX relationship (Klein *et al.*, 1999).

Feedback was similarly expected to mediate the relationship between LMX and learning behaviour, and the findings indeed showed that leaders provided more feedback to members in high-quality LMX relationships. In contrast to our prediction, however, the relationship between feedback and engagement in learning activities was negative, suggesting that employees engage less frequently in learning activities upon receiving their leader's feedback. Negative effects of feedback are not uncommon. A meta-analytic study by Kluger and DeNisi (1996) revealed that feedback had a negative outcome in 38% of the studies. As Kluger and DeNisi note, feedback might hamper subsequent behaviour when it has a negative impact on the receiver's self-efficacy. In the present study, the zero-order correlation between feedback and learning was significant and positive; therefore, the negative regression coefficient might be a statistical artifact caused by a spurious relationship or it might indicate the presence of a suppressor (Bollen, 1989).

Although the lack of a mediating effect for feedback was unexpected, the findings do indicate that LMX moderated the relationship between feedback and learning activities (see Figure 2). The moderating effect is in line with the hypothesized beneficial effects of LMX, and suggests that LMX may neutralize a possible negative effect of feedback on learning activities. Future research is needed to delineate the relationship between feedback and learning activities more accurately.

²We would like to thank an anonymous reviewer for pointing this possibility out to us.

This study has some limitations that should be acknowledged. Although great effort was made to collect data from two separate sources, it is still possible to have common-method bias within a single source. However, it appears that common-method bias is not an important issue in our study given that the confirmatory factor analyses and regression analyses yielded similar results for leader and employee ratings of employee learning.

A second limitation concerns the cross-sectional design, which limits the degree to which we can make causal inferences. Longitudinal research is needed to address the issue of causality (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) because it provides additional opportunities to examine patterns of change and reciprocal relationships (Williams & Podsakoff, 1989).

This study has implications for practice. Leaders are expected to create learning organizations by stimulating employee learning (London & Smither, 1999; Senge, 2006). Our findings reveal that leaders are inclined to treat subordinates differently, and that they are more active and more effective in encouraging learning activities when they have trusting, respectful, and reciprocal exchange relationships with their members. Leaders should become aware of this tendency, and try to stimulate all employees to engage in learning activities, regardless of the exchange relationship. Furthermore, leaders can try to develop social bonds with more employees, and learn about the development needs and expectations of low-LMX employees as well. LMX training programmes are effective in helping leaders build better relationships with employees (Scandura & Graen, 1984). Moreover, simply putting more effort into the relationship by having regular contact with employees and showing interest, has also shown to be effective for improving the quality of LMX relationships (Maslyn & Uhl-Bien, 2001).

This study has implications for theory as well. First, this study contributes to the LMX literature by highlighting two mechanisms that underlie the relationship between LMX and employee learning, namely a mediating and a moderating mechanism. Although these mechanisms appear to work in different ways, they are inextricably part of the reciprocal and dynamic nature of the exchange relationship (Graen & Scandura, 1987). Leaders invest more in employees whom they value and trust by setting difficult and specific learning goals and providing feedback; in turn, high-LMX employees are more receptive to their leader's goal setting and feedback, and show more learning activities. Our findings are in accordance with the existence of a reciprocal interaction that may lead to an upward or downward spiral. Whether the relationship creates a trusted assistant, or escalates into a number of unhealthy conditions such as negative reciprocity (Uhl-Bien & Maslyn, 2003), supervisor-targeted aggression (Hershcovis *et al.*, 2007), or employee retaliation (Townsend, Phillips, & Elkins, 2000), may depend upon both the leader and the employee. Future research can address several important issues: whether the two mechanisms discovered in our research extend to other areas such as job performance, contextual behaviour, and work attitudes; whether additional leader behaviours can be found that may explain the relationships between LMX and employee engagement in learning activities; and finally, whether the different dimensions of LMX, as proposed by Liden and Maslyn (1998), relate to different leader behaviours and employee responses.

Second, the present study contributes to the goal-setting literature by investigating the role of goal setting within the LMX relationship. Our observation that leaders set more difficult and more specific goals for employees in high-LMX conditions confirms that goal setting is an important factor within the role-making process. Furthermore, our study supports recent claims that goal setting is a valuable tool for enhancing learning

(e.g., Goodman *et al.*, 2004; Seijts *et al.*, 2004; Wayne, Shore, & Liden, 1997). Our findings indicate that setting learning goals that are difficult and specific enhances the extent to which employees engage in learning activities. Future research might explore whether goal setting relates to work behaviours other than performance and learning such as initiative, altruism, organization citizenship behaviour, and innovative behaviour.

Finally, this study contributes to the employee development literature by using a broad approach to employee learning and by showing that leaders play an important role in developing a learning organization. Although some publications have emphasized the need for employees to take responsibility for their own development (e.g., Arthur & Rousseau, 1996), the present study shows that engagement in learning activities is more than an individual act. Employee learning is in fact fostered by the relationship that employees have with their leader and is a shared responsibility that involves the employee, the leader, and the organization as a whole. Organizations that strive for continuous learning should develop an organization-wide concern that acquiring and applying new skills and knowledge is important for all employees (London & Smither, 1999). Whereas employees are ultimately responsible for recognizing and realizing their own development needs, the organization in general, and the leader more specifically, need to provide the resources and support that enable employee learning.

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Appendix

Scale items

Employee engagement in learning activities

- I spend time following a course or educational program.
- I am working to extend my knowledge and skills.
- I perform learning tasks that are not part of my job.
- I spend time planning and realizing my career.
- I go to my supervisor to discuss how I can make progress.
- Within my task responsibilities, I actively look for methods to improve my work.
- Within my job, I look for activities from which I can learn.
- I continually learn new skills for my job.

Goal difficulty

- How difficult are the goals you have set with this specific employee?
- goals for performance levels in employee's current job.
 - goals for personal development.
 - goals for extension of knowledge and skills.
 - goals for participation in an educational program or course.
 - goals for the performance of learning tasks within the function.
 - goals for working towards another job.

Goal specificity

- Have you set clear goals, together with your supervisor, for . . .
- your performance levels in your current job?
 - your personal development?
 - your extension of knowledge and skills?
 - your participation in an educational program or course?
 - your performance of learning tasks within the function?
 - working towards another job.

Feedback

- My supervisor . . .
- informs me of how I should perform specific tasks if something goes wrong.
 - informs me of whether it will benefit my career to follow a specific course or training program.
 - informs me of how I should undertake new tasks.
 - informs me of which skills I can improve.

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