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Knowledge donating and knowledge collecting: The moderating roles of social and economic LMX

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Abstract

Purpose: This study investigated whether the relationship between employees' knowledge-donating and managers' knowledge-collecting is moderated by social leader-member exchange (SLMX) and economic leader-member exchange (ELMX).

Design/methodology/approach: Data were obtained from 227 employee-leader dyads from four Norwegian organizations. Hierarchical moderated regression was used to test the hypotheses.

Findings: Even though we observed a positive relationship between employees' knowledge-donating and managers' knowledge-collecting, the moderation analysis revealed a positive relationship only for high levels of SLMX relationships.

Research limitations: The data were cross-sectional, thus prohibiting causal inferences.

Practical implications: SLMX relationships may be particularly important for the facilitation of knowledge exchange. Managers may draw on this finding to develop their relationships with employees by means of relationship-oriented behaviors.

Originality/value: Given the importance of knowledge-sharing processes, a better understanding of the conditions under which knowledge-donating related to knowledge-collecting is particularly important. The present study advances knowledge on SLMX and ELMX relationships by demonstrating how SLMX moderates the association between knowledge-donating and knowledge-collecting.

Keywords: Knowledge-donating, Knowledge-collecting, Leader-Member Exchange (LMX), Social exchange, Dyadic relationships.

Introduction

Knowledge-sharing, or the process of mutually exchanging knowledge and together creating new knowledge (de Vries *et al.*, 2006), is recognized as a source of competitive advantage (Grant, 1996, Riege, 2005) and innovativeness (Collins and Smith, 2006, van Wijk *et al.*, 2008). For knowledge-sharing and knowledge-combination to be effective, both the donating and collecting of knowledge are central (de Vries *et al.*, 2006). Thus, we distinguish between knowledge-donating (communicating knowledge to others) and knowledge-collecting [actively consulting others for their intellectual capital] (de Vries *et al.*, 2006). The successful exchange of knowledge between the donor and the collector is the fundamental means through which employees may contribute to knowledge dispersion, and, in turn, productivity and performance at the team and organizational levels of analysis. In particular, research reviewed by Wang and Noe (2010, p. 115) reveals positive associations between knowledge-sharing and knowledge-combination and important organizational outcomes, such as reduced production costs, faster completion of new product development projects, team performance, firm innovation capabilities, and firm performance.

Despite the obvious advantages associated with knowledge-sharing and knowledge-combination, many organizations fail in exploiting their competitive advantage to their full extent (Wang and Noe, 2010). Consequently, we need to increase our understanding of how organizational and interpersonal contexts influence knowledge-sharing in order to increase the potential for organizations to compete more effectively. Among the proposed sources of influence, the role of leadership has been set forth as a relevant, yet understudied phenomenon (Carmeli *et al.*, 2011, Wang and Noe, 2010).

While there are several theories on leadership that can assist in increasing our understanding of knowledge-sharing processes such, as transformational leadership (Bass and Avolio, 1990, Gang *et al.*, 2011) or ethical leadership (Brown *et al.*, 2005), we investigate qualities of the exchange relationship between leaders and their members, better known as leader-member exchange [LMX] (Gerstner and Day, 1997). Our rationale for applying the theoretical lens of LMX is that it allows us to investigate how different relationships that vary in both quantity *and* quality influence the relationship between knowledge-donating and knowledge-collecting. By focusing on the dyadic relationship between employees and managers as well as drawing on social exchange theory, we propose that qualities of the relationship are crucial for knowledge-sharing and knowledge-combination. In particular, we suggest that the strength of the association between knowledge-donating and knowledge-collecting depends on the degree to which the employee experiences a social or an economic exchange relationship with his/her immediate manager.

Recently, Kuvaas *et al.* (2012b) developed a two-dimensional model of LMX consisting of SLMX and economic leader-member exchange (ELMX). These two dimensions were considered by Kuvaas *et al.* (2012b) as “relationships with different qualities rather than different levels of quality” (p. 757). Because social and economic exchange relationships represent qualitatively different forms of relationships (Shore *et al.*, 2006) they may influence the association between employee knowledge-donating and manager knowledge-collecting. The establishment of trust and justice perceptions is crucial for knowledge-sharing and knowledge-combination (Wang and Noe, 2010), and the quality of the relationship between employees and managers is a salient predictor of employees’ perception of both being trusted (Salamon and

Robinson, 2008) and being treated in a just way (Colquitt *et al.*, 2001). Accordingly, investigating different qualities of the relationship between employees and managers by way of SLMX and ELMX may contribute to the knowledge-sharing literature by testing the influence of relationships with different qualities on the process of donating and collecting knowledge. This adds to other relevant theories, such as transformational leadership (Bass and Avolio, 1990, Gang *et al.*, 2011) and ethical leadership (Brown *et al.*, 2005) because they echo similar processes theoretically (i.e. trust, long-term commitment, and individual consideration) and share considerable observed variance with (S)LMX with respect to knowledge-sharing processes (Carmeli *et al.*, 2011) but not to the same extent with ELMX, conceptually speaking.

An SLMX relationship is characterized by a long-term orientation, where the exchanges between managers and employees are ongoing, are based on feelings of diffuse obligation, and are less in need of an immediate “pay-off” (Blau, 1964, Buch *et al.*, In press, Cropanzano and Mitchell, 2005, Cropanzano *et al.*, 2001, Shore *et al.*, 2006, Walumbwa *et al.*, 2011). The emphasis is on the socio-emotional aspects of exchanges, such as give-and-take and being taken care of, and the exchange partners trust that the other partner will reciprocate. Under such conditions, employees’ prosocial motivation to donate knowledge will probably be considered as in-role behavior rather than extra-role behavior. This, in turn, should make the knowledge donated more genuine and trusting and thereby increase managers’ actual knowledge-collecting.

An ELMX relationship, however, has a more marketplace, transactional, and contractual character, and it does not imply long-term or open-ended and diffuse obligations between the manager and the employee (Kuvaas *et al.*, 2012b). Rather, the exchanges rest on downward influence, formal status differences, and discrete agreements, and they demand repayment within

a particular time period (Kuvaas *et al.*, 2012b). Furthermore, employees' motivation to donate knowledge in ELMX relationships would probably be more instrumental, and knowledge-sharing will more likely be considered as extra-role behavior that needs to be rewarded. This, in turn, should increase managers' instrumental motivation to collect knowledge and result in more reluctant and selective knowledge-collecting. As a consequence, higher levels of ELMX may weaken the relationship between employees' knowledge-donating and managers' knowledge-collecting, making employees' knowledge-donating less relevant in explaining managers' knowledge-collecting.

We set out to contribute to the knowledge-sharing literature in two specific ways. First, we investigate whether the relationship between the extent to which employees donate knowledge to their immediate manager and the level of knowledge-collecting by the manager depends on the nature of the leader-member-exchange relationships (i.e. SLMX and ELMX) as perceived by the employees (see Figure 1). Second, although one could expect a positive relationship between employees' knowledge-donating and managers' knowledge-collecting, we are not aware of quantitative field studies investigating such a relationship using different data sources. A significant limitation of most prior quantitative studies of knowledge-sharing is the reliance of self-reported data in the form of intention to share knowledge or self-reported knowledge-sharing behaviors (Wang and Noe, 2010). Because the results from such studies may be limited by alternative explanations for the significant findings, such as common method bias (Podsakoff *et al.*, 2003) and social desirability effects (Wang and Noe, 2010), research is needed where the independent and dependent variables are assessed independently.

Insert Figure 1 about here

Theory and hypotheses

As emphasized by van den Hooff and de Leeuw van Weenen (2004), it is important to distinguish between knowledge-donating on the one hand and knowledge-collecting on the other. Knowledge-sharing and knowledge-combination involve two actions: the sender's transmission and the recipient's absorption/use of the knowledge (Foss *et al.*, 2009). In what follows, we first argue that there will be a positive relationship between employees' knowledge-donating and managers' knowledge-collecting, as managers are more likely to collect knowledge from employees when they themselves are the recipients of employees' knowledge-donation. Then, we argue that the relationship between what employees donate to their immediate manager and the degree to which the manager actually collects knowledge from the employees in response is contingent on the type and level of LMX relationships.

Employees' donation of knowledge requires that the employees actively communicate knowledge to the immediate manager. Still, it is likely that when employees are, in fact, willing to actively donate knowledge to their immediate manager, it will be easier for the immediate manager to actually collect knowledge from them. Furthermore, employees who explicitly communicate their knowledge to their immediate manager (knowledge-donating) may be more likely to be recognized for their efforts and intellectual capacities. This should, in turn, make the immediate manager more inclined to consult these employees in order to learn what they know (knowledge-collecting). Furthermore, van den Hooff and de Leeuw van Weenen (2004, p. 22) argued that "having a good picture of one's own information needs [...] can positively influence

collecting knowledge.” In this respect, employees’ knowledge-donating may inform the immediate manager of his or her information needs, which, in turn, should influence the immediate manager’s knowledge-collecting. Finally, because both knowledge-donating and knowledge-collecting represent active processes that are visible to the other party (de Vries *et al.*, 2006), we should expect a positive relationship between the two based on the norm of reciprocity (Gouldner, 1960)—that is, the active donating by employees should make the immediate manager more inclined and obligated to actively collect what is donated. Thus, we hypothesize that the extent to which employees donate knowledge to their immediate manager relates positively to the extent to which their immediate manager collects knowledge from the employees:

Hypothesis 1: There is a positive relationship between employees’ knowledge-donating and managers’ knowledge-collecting.

Knowledge-sharing extends beyond the mere distribution of information, representation of tasks, and procedural knowledge to include alterations in cognitions and actions of both parties. As pointed out by Foss, Minbaeva, Pedersen, and Reinholt (2009, p. 873), knowledge sharing is “...a relational act based on a sender-receiver relationship that incorporates communicating one’s knowledge to others as well as receiving others’ knowledge.” Accordingly, given the duality of the knowledge-sharing process, the mutual exchange of knowledge may be contingent upon the qualities of the relationship between employees in general and between employees and their immediate manager in particular. Managers in organizations are in a position

to enforce a context of cooperation and to exert power and influence to excel knowledge-sharing (Carmeli *et al.*, 2011). Thus, the nature of the relationship between the employee and the immediate manager may influence the knowledge-sharing process. While other leadership behaviors in the form of transformational leadership have been found to precede knowledge-sharing and knowledge-combination (Carmeli *et al.*, 2011), we focus on the role of LMX in the present study. Although traditional leadership theories “seek to explain leadership as a function of personal characteristics of the leader, features of the situation, or an interaction between the two” (Gerstner and Day, 1997, p.827), LMX distinguishes itself via its focus on the dyadic relationship between a manager and an employee (Gerstner and Day, 1997). Our rationale for applying the theoretical lens of LMX is thus that it allows us to investigate how different relationships that vary in both quantity *and* quality influence the relationship between knowledge-donating and knowledge-collecting.

One of the major theoretical underpinnings of LMX is social exchange theory (Wayne *et al.*, 1997). According to social exchange theory, LMX influences individual outcomes in beneficial ways through the formation of social exchange relationships between managers and their employees (Walumbwa *et al.*, 2011). To date, however, LMX research has focused on the social exchange relationship by and large and has not included the separate dimension of the economic exchange relationship developed and measured by Shore *et al.* (2006). Recently, however, Kuvaas *et al.* (2012b) contributed to the LMX literature by developing and measuring the transactional exchange dimension of dyadic leader-member exchange in the form of ELMX.

Based on social exchange theory and at the core of LMX theory is the notion that high-quality, or SLMX relationships, will motivate an employee to internalize the group’s and the

manager's goals, as the employee experiences fair treatment, being taken care of, and being trusted. In turn, such treatment should foster prosocial motivation in the process of mutually exchanging knowledge. Among the few available studies on LMX and knowledge-sharing, Carmeli *et al.* (2011) found that LMX served as an antecedent for relational identification, which, in turn, predicted organizational identification and employee knowledge-sharing. Still, even though LMX relationships may indirectly (or directly) influence the mutual exchange of knowledge (Carmeli *et al.*, 2011), such relationships may also represent a contingency on the relationship between employees' donation of knowledge and the immediate manager's collecting of knowledge.

According to Kuvaas *et al.* (2012b), SLMX and ELMX relationships represent relationships with different qualities. SLMX aligns well with the traditional measurements and descriptions of high-quality LMX in the form of trust and long-term, diffuse future obligations with a focus on socio-emotional outcomes. Accordingly, and on the basis of available research findings (e.g. Carmeli *et al.*, 2011), SLMX should have a positive influence on the interpersonal knowledge-sharing process. The higher the level of SLMX, the more likely it is that the immediate manager will seek to learn (collect) from employees in response to their communicated (donated) knowledge. First, when managers perceive the knowledge-sharing behavior as genuine, open, trusting, and as something the employee appears to consider as a regular part of the job (i.e. in-role behavior) with "no strings attached," s(he) would probably value the knowledge itself more highly and collect more of the donated knowledge. Second, knowledge is often understood as highly personal and is not easily expressed (Foss *et al.*, 2009). Thus, the relational act of responding by seeking to collect more knowledge is more likely to

occur in response to employees' knowledge-donating when the employee-manager relationship is characterized by higher levels of social exchange. Conversely, lower levels of SLMX may reflect a condition under which the immediate manager is more reluctant to respond to knowledge-donating with knowledge-collecting because (s)he may not value the information and may not want to invest further in the relationship by forming mutual obligations. Accordingly, we hypothesize:

Hypothesis 2: The relationship between employees' knowledge donating and managers' knowledge collecting is moderated by SLMX—the higher the SLMX relationship, the more positive the relationship.

In contrast with SLMX relationships, ELMX relationships do not imply long-term, open-ended, diffuse obligations (Kuvaas *et al.*, 2012b). Instead, ELMX relationships have a more contractual character where the exchanges are more *quid pro quo* and rest upon discrete agreements (Kuvaas *et al.*, 2012b) as well as calculus-based trust (Uhl-Bien *et al.*, 2000). Consequently, in ELMX relationships, knowledge is probably only donated to the extent that the parties trust that they will get something specific in return. Accordingly, when employees choose to donate knowledge to their immediate manager, it may be out of contractual obligations or out of a more calculated, or instrumental, expectation that it will somehow directly “pay off” for them. Thus, where managers in SLMX relationships in all probability perceive employees' knowledge-donating as prosocial, managers in ELMX relationships may perceive employees' knowledge-donating as instrumental and calculative and, in turn, view the knowledge as less

valuable and may be less willing to respond by consulting the employees to learn what they actually know. Even though employees' knowledge-donating may inform the immediate manager of his or her information needs, the lack of commitment to specific exchange partners associated with economic exchange perceptions (Kuvaas *et al.*, 2012a) may lead them to instead respond by consulting employees with whom they have a stronger SLMX relationship. One of the main premises of LMX theory is that the immediate manager only develops SLMX relationships with a chosen few and develops transactional, or economic exchange relationships, with the rest (e.g. Graen and Uhl-Bien, 1995, Wayne *et al.*, 2009). Furthermore, when an employee in an ELMX relationship donates knowledge to his or her immediate manager, the immediate manager should be less inclined to respond with knowledge-collecting, as this would also imply a willingness to stay indebted to the employee. While a willingness to stay indebted is considered an important element in the development of social exchange relationships (Coyle-Shapiro and Conway, 2004), it is limited in more economic leader-member relationships.

Finally, as a result of the contractual and impersonal nature of ELMX relationships, employees' knowledge-donating should be less welcomed by managers in such relationships. Many of the benefits related to employees' knowledge-donating may be perceived as too diffuse, long-term, or socio-emotional. Employees' knowledge-donating may therefore be disregarded by the immediate manager in a strong ELMX relationship because it does not serve to fulfill any contractual-type obligations. As such, higher levels of ELMX may represent a boundary condition for the mutual exchange of knowledge. Indirect research evidence to support our arguments are provided by Foss *et al.* (2009), who did not find any relationship between external motivation to share knowledge (e.g. sharing knowledge because it may help to get promoted) and

knowledge-receiving (e.g. the extent to which knowledge from a colleague is actually used). Even though they did not investigate ELMX relationships, their findings imply that donating knowledge for instrumental reasons (as is probable in ELMX relationships) should not increase the recipients' knowledge-collecting. Accordingly, we hypothesize:

Hypothesis 3: The relationship between employees' knowledge-donating and managers' knowledge-collecting is moderated by ELMX—the stronger the ELMX relationship, the less positive the relationship.

Method

Sample and procedure

During the spring of 2011, we distributed a web-based survey to a total of 613 employees from four organizations located in Norway. These organizations were selected because they emphasize the importance of knowledge-sharing in order to improve their work processes and outcomes. In order to reduce the presence of response distortion (Chan, 2009), the participants were informed that no information would be reported back to the organizations that could identify them. At the same time, the immediate manager of each employee was asked to rate the extent to which s(he) collected knowledge from each of his/her employees. These responses were then matched with the results from the employee survey. In order to increase the response rate, we sent a reminder to those who had not responded after one week. This resulted in a total of 227 complete dyads, which corresponded with a response rate of 37 percent. With respect to gender, 60 percent of the

employees were women, and 40 percent were men, whereas 67 percent of the managers were women, and 33 percent were men.

Measures

All of the items were measured on a seven-point Likert scale ranging from one (strongly disagree) to seven (strongly agree) unless otherwise noted. The items are included in the Appendix.

Employee Knowledge Donating. Employees' knowledge-donating was measured via a four-item scale derived from de Vries *et al.* (2006), albeit it was adapted to refer specifically to the immediate manager in the present study so as to explicitly capture the dyadic exchange of knowledge between the employee and the immediate manager. Thus, instead of asking employees to report the extent to which they donate knowledge to *colleagues*, we asked employees to report the extent to which they donate knowledge to their *immediate manager*. Example items include: "I regularly inform my immediate manager of what I am working on" and "I share information that I have acquired with my immediate manager." The internal consistency (Cronbach's alpha) for this scale was .78.

Managers' Knowledge Collecting. For the measurement of managers' knowledge-collecting, we adapted a four-item scale from de Vries, *et al.* (2006) where the immediate managers were asked to report the extent to which they collect knowledge from each of their employees. The logic behind this scale is that once the immediate manager "asks" for knowledge, (s)he is collecting knowledge (Van Den Hooff and Van Weenen, 2004). Example items include:

“When he/she is good at something, I ask him/her to teach me” and “When I need certain knowledge, I ask him/her about it.” The internal consistency for this scale was .86.

Moderating Variables. Kuvaas *et al.* (2012b) first developed separate measures of social and economic leader-member exchange on the basis of Shore *et al.*'s (2006) measures of organizational social and economic exchange. However, because some of the items either cross-loaded or displayed weak factor loadings, Kuvaas *et al.* (2012b) encouraged a development of the scales in future research. Almost in parallel, Buch *et al.* (2011) performed an additional validation study in which they developed additional items on the basis of social exchange theory (Blau, 1964) in order to better capture all of the aspects of SLMX and ELMX relationships. In the present study, we utilize the scales from Buch *et al.* (2011), albeit with a couple of minor changes to the wording of some ELMX items in order to improve their readability (see the Appendix for details). A sample item for the measurement of ELMX is “I watch very carefully what I get from my immediate supervisor, relative to what I contribute,” whereas a sample item for the measurement of SLMX is “My relationship with my immediate manager is about mutual sacrifice; sometimes I give more than I receive and sometimes I receive more than I give.”

Control Variables. In order to rule out the possibility that pre-existing differences such as demographics accounted for the observed relationships, we sought to strengthen the internal validity of our results via the inclusion of several exogenous variables. More specifically, we controlled for the demographic variables of *age*, *gender*, and *dyad tenure* because they all have been associated with knowledge-sharing (Constant *et al.*, 1994, de Vries *et al.*, 2006, Ojha, 2005) and because we wanted to rule out the opportunity for similarity and attraction effects (i.e. age and gender) to influence our results (Fiske and Taylor, 1991).

Analyses

The data were analyzed in several steps. First, in order to ensure that our scales demonstrated satisfactory levels of convergent and discriminant validity (Conway and Lance, 2010, Farrell, 2010), we conducted a factor analysis (principal component analysis with promax rotation) on all multiple scale items in order to determine item retention. We applied relatively stringent rules of thumb and retained only items with a loading of around .50 or higher on the target construct (Nunnally and Bernstein, 2007), a cross loading of less than .35 (Kiffin-Petersen and Cordery, 2003), and a differential of .20 or higher between factors (Van Dyne *et al.*, 1994).

In order to test the hypotheses, we used hierarchical moderated regression (Cohen *et al.*, 2003). Before multiplying the variables with one another, we centered them, as interaction terms often create multicollinearity problems as a result of their correlations with main effects. To probe the form of interactions, we followed recommended practice (Cohen *et al.*, 2003) and first plotted low versus high scores on employees' knowledge-donating along with the moderators (one standard deviation below and above the means using unstandardized scores). Finally, we conducted tests in order to determine whether the slopes were statistically significantly different from zero and from each other.

Results

The exploratory principal component analysis revealed that three of the ELMX items and one of the SLMX items failed to meet our inclusion criteria. In order to increase the discriminant and convergent validity of our measures (Conway and Lance, 2010), these items were removed before computing the final scales by averaging the remaining items. The final scales

demonstrated high internal consistency, with reliability estimates ranging from .78 to .89. The bivariate correlations, means, standard deviations, and reliability estimates are reported in Table 1.

Insert Table 1 about here

Prior to conducting the analyses, we inspected pairwise and multiple variable collinearity by means of the collinearity diagnostics in SPSS. The lowest tolerance value obtained was .60, which is well beyond the common cut-off threshold value of .10 (e.g., Hair *et al.*, 2006). The results from the regression analyses are presented in Table 2.

Insert Table 2 about here

With respect to the direct relationship, the immediate manager's knowledge-collecting was significantly predicted by the employee's knowledge-donating ($\beta = .23, p < .001$), thereby providing support for Hypothesis 1. Furthermore, in support of Hypothesis 2, the statistically significant interaction term shows that the relationship between the employee's knowledge-donating and the immediate manager's knowledge-collecting is moderated by SLMX. The results displayed in Figure 2 suggest a positive relationship between the employee's knowledge-donating and the immediate manager's knowledge-collecting only for employees who are high in SLMX ($b_{low} = .10, ns.$ vs. $b_{high} = .29, p < .001$). Moreover, they suggest significantly different slopes for high versus low levels of SLMX ($t = 1.83, p < 0.05$). Because the interaction term between

employees' knowledge-donating and ELMX was not statistically significant, we received no support for Hypothesis 3.

Insert Figure 2 about here

Discussion

This study contributes to our understanding of knowledge-sharing by investigating the relationship between employees' knowledge-donating and managers' knowledge-collecting in a field setting. Extending previous findings from predominantly self-reported measures of knowledge-sharing (Wang and Noe, 2010) to include measures from two independent raters, we observed in support of our first hypothesis a positive relationship between the employee's knowledge-donating and the immediate manager's knowledge-collecting across 227 employee-leader dyads. This observation contributes to the notion that knowledge sharing is "...a relational act based on a sender-receiver relationship that incorporates communicating one's knowledge to others as well as receiving others' knowledge" (Foss *et al.*, 2009, p. 873),

More interestingly, however, and in line with our second hypothesis is the fact that the moderation analysis revealed a positive relationship only for high levels of SLMX relationships. Accordingly, in our sample, SLMX seems to represent a necessary condition for the process of knowledge exchange between the employee and his/her immediate manager. This observation underscores the importance of trusting, long-term relationships between employees and managers in order to facilitate reciprocal knowledge-sharing (Wang and Noe, 2010). Furthermore, this novel observation suggests that employees' knowledge-donating may be in vain if the leader-member relationship is not characterized by high levels of SLMX—that is, focus on socio-

emotional outcomes, mutual trust, and diffuse future long-term obligations (Kuvaas *et al.*, 2012b). Although tentative, this finding may also inform our understanding of the development of SLMX relationships. It is typically assumed that high-quality, or SLMX, relationships evolve in an incremental manner through reciprocal social exchanges (e.g. Graen and Uhl-Bien, 1995). Similarly, as Coyle-Shapiro and Shore (2007, p. 166-167) noted, “A social exchange relationship begins with one party bestowing a benefit to another.” If the recipient reciprocates the benefit (e.g. knowledge-donating), a series of benefits exchanges follow, which creates feelings of mutual obligation between the exchange parties. In our sample, however, the immediate manager seems unwilling to engage in further social exchanges (knowledge-collecting) in response to the employee’s knowledge-donating unless they have already developed a strong SLMX relationship. This finding may have implications for social exchange theory, as it suggests that managers’ willingness to develop a social exchange relationship with an employee is not merely influenced by the employee’s bestowment of a benefit. Accordingly, future research is needed to tease out how employees can influence the development of SLMX relationships.

With respect to our final hypothesis, an ELMX did not moderate the relationship between employee’s knowledge-donating and the immediate manager’s knowledge-collecting. Although suggestive, one possible explanation for this observation may relate to the nature of our sample. That is, because the participants in our study conduct more complex tasks at work, the potential influence of ELMX may have been undermined. In such contexts, it is probably challenging for employees to act in a calculative and/or instrumental way when assessing how knowledge-donating will be rewarded, and it is also challenging for managers to decide when to reward knowledge-donating. Another explanation is the possibility of a restriction of range with respect

to ELMX with a mean of 2.25 (compared to 5.31 for SLMX) and a standard deviation of 1.03. Accordingly, ELMX relationships in our sample may not have been strong enough or may have contained too little variation to influence the mutual exchange of knowledge. Future studies should therefore investigate whether ELMX relationships influence the association between employees' knowledge-donating and managers' knowledge-receiving for less complex tasks. Furthermore, studies are needed in samples where the ELMX relationships are more salient and where the sample contains more variation with respect to ELMX relationships. Finally, whereas SLMX relationships seem to increase the knowledge-sharing and knowledge-combination process, it may be that ELMX relationships increase the occurrence of knowledge-hiding, formally defined as an intentional attempt to conceal or to withhold knowledge that others have requested (Connelly *et al.*, 2012). Knowledge-hiding differs from a lack of knowledge-sharing because it also incorporates the intent to withhold knowledge that someone else has requested. Although speculative, it could be that the more transactional nature of the ELMX relationship could explain why employees deliberately choose to avoid donating knowledge in situations where the contractual character of the exchange is established and based on discrete agreements (Kuvaas *et al.*, 2012b) as well as calculus-based trust (Uhl-Bien *et al.*, 2000).

Limitations and future research

The results derived from our study should be interpreted in light of several limitations. First, the reliance on a cross-sectional design may limit the validity of our findings, as we cannot exclude the possible presence of reverse causality. An alternative explanation may be that managers' knowledge-collecting causes employees' knowledge-donating, as the employees may be more

willing to donate knowledge when convinced that doing so is useful (see Hall, 2001). In order to address this shortcoming, experimental studies are needed. Nevertheless, because knowledge-sharing scholars emphasize the ongoing and reciprocal process of sharing knowledge (e.g. Nonaka and Takeuchi, 1995, von Krogh *et al.*, 2001), the issue of causality should not represent a severe threat to the validity of our conclusions. Furthermore, whereas the perceptual variables (perceived knowledge-donating and knowledge-collecting along with perceived SLMX and ELMX) are clearly best represented by self-report data (Conway and Lance, 2010), we ensured that a measure of perceived knowledge-collecting was obtained from a different source than the employees themselves (i.e. their immediate manager (Kammeyer-Mueller *et al.*, 2010)). However, in attempting to alleviate problems associated with the reliance of self-report data, we also undertook procedural remedies, such as ensuring the anonymity of the respondents (Podsakoff *et al.*, 2003). In addition, common method variance poses a more serious threat to conclusions about main effects than to conclusions about moderated relationships such as those explored in the current study (e.g. De Dreu and Nauta, 2009, Harrison *et al.*, 1996). Still, future research should use a longitudinal research design so that the relationships between the study variables over time can be more firmly established. Another potential limitation with our study is that we only measured SLMX and ELMX as perceived by the employees. Given recent research that reported modest leader-member agreement with respect to the nature of the relationship (e.g. Gerstner and Day, 1997, Sin *et al.*, 2009), we could have observed different results if we had measured SLMX and ELMX from the managers' point of view. On the other hand, a recent study by Schriesheim, Wu, and Cooper (2011) suggests that the low convergence in descriptions of the relationship may simply be due to item wording effects on the LMX-7 scale. Because we use

different scales to capture the social versus economic nature of the relationship in the present study, it could be that leader-member convergence would have been higher. Nevertheless, future research should measure SLMX and ELMX from both the employees' and the managers' point of view to see whether this will produce different results. The validity of our conclusions may be limited by the fact that we were unable to control for the nested nature of the data (due to a clerical error). For instance, it is possible that observations of managers' knowledge-collecting from each of the employees are not independent (of one another), as some managers may consistently collect more knowledge from *all of their employees* than other managers do. Thus, because the employees are nested within managers (employees from a particular group share the same immediate manager), multilevel modeling is preferred. On the other hand, given the dyadic nature of knowledge-sharing (e.g. Foss *et al.*, 2009), the shared context of some employees should be less likely to have influenced our results. Even so, future research should use hierarchical linear modeling (HLM) to account for the non-independence of the data (Rosen *et al.*, 2011). Finally, the generalizability of our findings may be restricted by the nature of our sample. As such, an interesting avenue for future research might be to investigate the generalizability of our findings across educational levels, occupations, and countries or cultures.

Implications for practice

Despite our study's limitations, the results may hold important implications for practice. The main take-away for managers and organizations is that we encourage the establishment and nurturing of long-term and trusting SLMX relationships in general and for the mutual exchange of knowledge in particular. The development of a long-term and trusting SLMX relationship

between managers and their employees can be aided by relationship-oriented behaviors, including delegating, supporting, consulting, and recognizing (Yukl *et al.*, 2009). It may also be aided by reduced status distinctions and by investment in commitment-based human resource (HR) practices. Examples of such practices may include the provision of employment security, selective hiring of new personnel, training and development, self-managed teams, decentralization of decision-making, and extensive sharing of financial and performance information throughout the organization (Pfeffer, 1998, Song *et al.*, 2009). Finally, one important foundation for the establishment of SLMX is maintaining perceptions of interpersonal and informal justice among employees (Walumbwa *et al.*, 2009). Therefore, the value for managers in considering employee perceptions of justice should not be underestimated.

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Appendix. Principal Component Analysis with Promax Rotation

Items	ELMX	SLMX	EPKS
ELMX3: I am only willing to exert extra effort for the benefit of my immediate supervisor if I believe it will increase my chances of achieving personal benefits such as more attractive work assignments of promotion.	<u>.80</u>		
ELMX5: I usually negotiate with my immediate supervisor how I will be rewarded for performing a give task.	<u>.77</u>		
ELMX1: I only want to do more for my immediate supervisor when I know in advance what I will get in return.	<u>.76</u>		
ELMX4: I watch very carefully what I get from my immediate supervisor, relative to what I contribute.	<u>.75</u>		
ELMX8: I watch carefully that I get something tangible in return for doing something extra for my immediate supervisor.	<u>.74</u>		
ELMX2: In order for me to feel certain that I will receive something in return for a favor, my supervisor and I have to specify the return in advance.	<u>.72</u>	-.32	
ELMX7: If I am going to exert extra effort for my immediate supervisor I weigh the advantages and disadvantages of doing so.	<u>.69</u>		
ELMX6: I rarely or never do a favor for my immediate supervisor without having a clear expectation that the favor will be returned in the course of a short time.	<u>.68</u>		-.34
ELMX9: If my immediate supervisor does something extra for me, I try to return the favor as soon as possible in order to restore the balance in our give and take relationship.	<u>.58</u>		
ELMX12: I do what my immediate supervisor asks of me, mainly because he or she is my formal boss	.49		-.36
SLMX2: I worry that all my efforts on behalf of my immediate manager will never be rewarded (Reverse scored)		<u>.89</u>	
SLMX3: My relationship with my immediate manager is about mutual sacrifice; sometimes I give more than I receive and sometimes I receive more than I give		<u>.77</u>	
SLMX5: My relationship with my immediate manager is based on mutual trust		<u>.76</u>	
SLMX1: I don't mind working hard today – I know I will eventually be rewarded by my immediate manager		<u>.76</u>	
SLMX4: Even though I may not always receive the recognition from my immediate manager I deserve, I know that he or she will take good care of me in the future		<u>.72</u>	

SLMX6: My immediate manager has made a significant investment in me	<u>.65</u>				
EKD1: I regularly inform my immediate manager of what I am working on	<u>.80</u>				
EKD4: I consider it important that my immediate manager is aware of what I am working on	<u>.75</u>				.35
EKD3: I share information that I have acquired with my immediate manager	<u>.63</u>				
EKD2: When I have learned something new, I make sure my immediate manager learn about it too	<u>.54</u>				
ELMX10: If I increase my efforts for my immediate manager, it is because I want something specific in return					.87
ELMX11: When I repay my immediate supervisor for a favor, it is usually not because I feel grateful, or because I feel I should, but rather because it can have negative consequences for me if I fail to do so					.80
SLMX8: The things I do on the job today will benefit my standing with my store manager in the long run	.33				.68
SLMX7: I try to look out for the best interest of my store manager because I can rely on my store manager to take care of me	<u>.49</u>				.61
Eigenvalues	6.49	4.50	1.49	1.45	1.06
% of variance	27.04	18.74	6.19	6.04	4.43

Factor loadings less than .30 are not shown; **bold and underlined loadings included in the final scales**; ; ELMX = Economic Leader-Member Exchange; SLMX = Social Leader-Member Exchange; EKD = Employees' Knowledge Donating.

Table 1. Descriptive Statistics, Correlations, and Scale Reliabilities

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Employee Gender ^a	1.41	-	-								
2. Employee Age ^b	2.56	1.01	-.01	-							
3. Manager Gender ^a	1.32	-	.16*	.19**	-						
4. Manager Age ^b	2.73	0.86	-.01	.40***	.23**	-					
5. Dyad tenure ^c	1.62	0.72	-.17*	.30***	.20**	.33**	-				
6. Employees' Knowledge Donating (4)	5.12	1.12	.00	.15*	.13*	.06	.14*	(.78)			
7. Social Leader-Member Exchange (7)	5.31	1.12	.08	.12	.11	.12	.07	.57***	(.89)		
8. Economic Leader-Member Exchange (9)	2.25	1.03	.16*	-.20**	.03	-.15*	-.05	-.09	-.18**	(.88)	
9. Managers' Knowledge-Collecting (4)	5.82	0.96	.11	.08	-.11	.14*	.11	.19**	.11	-.09	(.86)

Note. Coefficient alphas are displayed on the diagonal. Number of items included in the final scales in parentheses. $N = 227$

* $p < .05$; ** $p < .01$; *** $p < .001$

^aGender; Women = 1, Men = 2

^bAge; coded from 1 (under 30 years) to 4 (over 50 years)

^cDyad tenure; coded from 1 (0-2 years) to 3 (more than 5 years)

Table 2. Regression Analyses

	Managers'			
	Knowledge Collecting			
	Step 1	Step 2	Step 3	Step 4
Employee Gender ^a	.16*	.16*	.17*	.19**
Employee Age ^b	.03	.01	.00	-.01
Manager Gender ^a	-.20**	-.22**	-.21*	-.21**
Manager Age ^b	.14	.14*	.14	.14
Dyad tenure ^c	.12	.10	.11	.10
Employees' Knowledge Donating (EKD)		.19**	.21*	.23**
Social Leader-Member Exchange (SLMX)			-.03	.01
Economic Leader-Member Exchange (ELMX)			-.08	-.06
EKD x SLMX				.15*
EKD x ELMX				.05
ΔR^2	.08	.03	.01	.01
R^2	.08	.11	.12	.13
F	3.56**	4.53***	3.56**	3.29**

$N=227$; Standardized regression coefficients are shown

* $p < .05$;

** $p < .01$;

*** $p < .001$

^aGender; Women = 1, Men = 2

^bAge; coded from 1 (under 30 years) to 4 (over 50 years)

^cDyad tenure; coded from 1 (0-2 years to 3 (more than 5 years)

Figure 1. Conceptual Model and Hypotheses

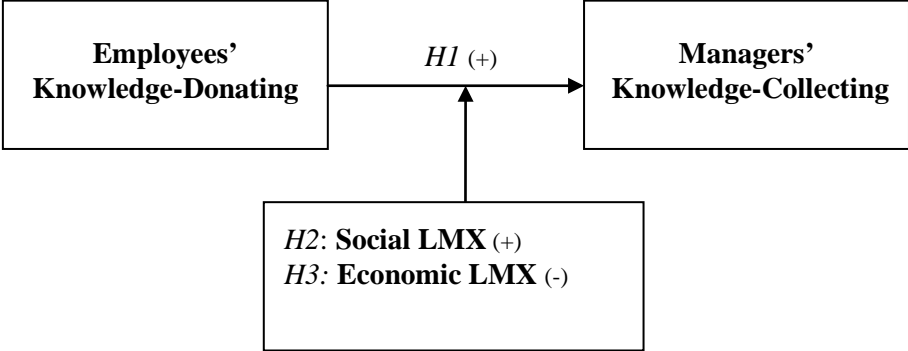


Figure 2. The Moderating Role of SLMX on the Relationship between Employees' Knowledge Donating and Managers' Knowledge Collecting

