

When Leader-member exchanges make workers happy and innovative: do efforts and rewards act as mediators?

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Abstract

Today innovation is considered to be essential for organizational development, and organizations depend increasingly on employees' efforts to innovate. Drawing on the eudemonic theory of well-being based on the idea of optimal functioning, we look at whether rewards and efforts act as mediators between leader-member exchange (LMX) and two dependent variables: well-being at work and innovative work behaviors (IWB). We examine how LMX is linked to IWB and well-being at work, and we test the mediating effects of workload and rewards in these links. A sample of 179 French workers responded to an online questionnaire. The results indicated that LMX was significantly linked to IWB and psychological well-being at work. The study also found an indirect effect of work rewards between LMX and psychological well-being at work. This mediating role was not found in the relationship between LMX and IWB.

Keywords: innovative work behaviors; well-being at work; LMX; effort; reward

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Introduction

The working world has always been a world in which innovation plays a primary role (Battistelli et al., 2013; Kanter, 1988; Zawislak et al., 2012). Indeed, being able to find “the” idea that will allow one's organization to get ahead of its competitors has always been a goal among entrepreneurs. However, recent technological advances and market liberalization have made the need for innovation even more important (Bobillier Chaumon, 2021). Attempts to innovate, and therefore changes within companies, are thus becoming more frequent and present in the minds of employees.

In the theoretical framework of social exchange (Blau, 1964; Chernyak-Hai & Rabenu, 2018), and taking into account the different forms of perceived in-company exchanges, it seems crucial to gain an understanding of how leader-member exchanges affect well-being and innovation. Our study strives to understand the conditions under which LMX functions as an essential determinant of IWB and well-being at work.

This study focuses on how LMX is linked to innovative work behaviors (IWB) and well-being at work. Our first objective was to test the links hypothesized to be affected by important intermediary mechanisms such as the perception of workload (extrinsic efforts) and resources (rewards). While many studies have shown the effect of work overload on psychological health at work (Bakker et al., 2003) and burnout (Bakker et al., 2004), few have focused on rewards. Our second objective was therefore to fill in this gap by measuring how efforts (workload) and rewards mediate these variables.

Innovative Work Behaviors

West and Farr (1990) considered innovation as the introduction and implementation of innovative ideas and processes. Innovation is a complex process, insofar as it originates from individuals but is built within a group, ultimately benefiting that group or a larger group (Anderson et al., 2004; Battistelli et al., 2013).

According to Janssen (2000), innovation occurs in three phases. First, the generation of a new idea is the product of new and useful ideas coming from an individual or a small group (Amabile et al., 1996). Second, the idea-implementation phase refers to setting forth, defending, and implementing the idea. According to Anderson et al. (2004, 2014), innovation differs from creativity because creativity corresponds only to the generation of an idea, without its practical realization whereas in Janssen's (2000) definition, innovative behavior at work corresponds to the generation, introduction and intentional application of an idea, the third phase, to a work role, group, or organization.

The emergence of innovation at work depends on individual factors (La Torre et al., 2012), but also on organizational factors (Dornelas Muzi et al., 2020; La Torre et al., 2012; West & Farr, 1990; Zawislak et al., 2012). According to Zawislak et al. (2012), innovation capability is formed by four key capabilities (technology development, operations, management and transaction). The study by Lopes Henriques et al. (2019) showed that caring climate facilitates an innovation supportive environment. However, it is often a team run by a leader that is the basis of an innovation (King & Anderson, 1995). Innovation, then, requires support, encouragement, and a conducive climate (Kanter, 1988).

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Innovative Work Behaviors and Leader-Member Exchange

Generally speaking, support from the hierarchy is a vector that favors innovative behavior. For example, Schroeder et al. (1989) showed that support from supervisors is particularly important for implementing innovations at work. The leaders have a critical role that explains organizational performance. According to Kyoung-Joo and Eun-Young (2018, p. 105), “effective leadership has a significant effect on performance because it provides direction in accordance with changes, facilitates organizational cohesiveness, personal development, and high employee satisfaction, and... innovation and creativity”. Leadership has a very strong impact on the generation, promotion, and implementation of innovative ideas (Montani et al., 2013; Odoardi et al., 2015). The scientific literature on the effects of different types of leadership on innovative behavior points out the effects of innovation leadership (Dornelas Muzi et al., 2020; Montani et al., 2018), participative leadership (Odoardi et al., 2015; Odoardi et al., 2019), and empowerment leadership (Zhu et al., 2019). First, innovation leadership favors IWB (Dornelas Muzi et al., 2020; Montani et al., 2018). Dornelas Muzi et al. (2020) showed that well-being played a mediating role between an innovation climate in a team, innovation leadership, and IWB. Second, employees who feel empowered offer the benefit of being more creative and innovative (Lopes Henriques et al., 2019; Rao Jada et al., 2019; Zang & Bartol, 2010; Zhu et al., 2019). For example, empowering leadership has been shown to improve innovative behavior by increasing the individual’s psychological empowerment (Zhu et al., 2019). Other studies have shown that empowerment is an intermediate variable between LMX and IWT.

Graen and Uhl-Bien (1991) identified three stages of LMX development. Stage 1 assesses workers’ skills, establishes transactions, and expands the employees’ roles and responsibilities. Stage 2, based on knowledge, allows for mutual trust. Stage 3 is characterized by association, where the LMX relationship is said to be of high quality and the hierarchical relationship fades.

Transformational leadership is more operational in the last stage, where the worker accepts responsibility, has strong motivation leading to the surpassing of his/her own objectives, and can become innovative. Transformational leadership facilitates the development of norms and values, which help team collaborators optimize their skills and abilities to innovate. For example, transformational leadership was positively related to IWB when empowerment was high (Pieterse et al., 2010). Despite its appeal, the downside of participative leadership is that it is costly and depends on the organizational climate and the leadership of top management. One disadvantage of empowerment leadership is that it can increase employee stress, and although mistakes or errors can be made, they will be poorly tolerated in the face of performance constraints.

For these reasons, LMX seems to be more suited to a group of employees, while attention is paid to the satisfaction of needs. LMX modifies the human relationships and the social collaboration between a

leader (often the leader of a work team) and subordinates (who are part of the said work team) in a company (Dansereau et al., 1975; Graen & Uhl-Bien, 1995). LMX reflects the direct and interpersonal exchange between a leader and a member (Graen & Uhl-Bien, 1995). It characterizes “the intensity of the relationship between a leader and an employee” (Graen & Scandura, 1987).

Numerous studies (Janssen, 2000; Khalili, 2018; Pohl & Binard, 2014; Schermuly et al., 2013; Scott & Bruce, 1994a) have shown that LMX and innovative behaviors are positively related. This link can be explained firstly by the closeness between members and the leader, which makes them want to make an effort to be more efficient and inventive at work, and secondly, by the trust established between them, which allows members to become more creative.

First, members’ perception of a high quality relationship and good exchanges with their manager is thought to encourage them to innovate (Li et al., 2014; Schermuly et al., 2013). Team members are better able to experience a trusting and constructive relationship with an enterprising and inclusive leader, which facilitates the process of innovation. More specifically, transformational leadership, which characterizes the last stage of LMX increases IWB because it develops motivation, interpersonal support, and idea-related support (Jausi & Dionne, 2003). Javed et al. (2018) showed that LMX played a partial indirect role between inclusive leadership and IWB. The results obtained by Schuh et al. (2017) showed that workers who have high-quality LMX relationships obtain more positive performance appraisals if they engage in IWB. These authors found that an interactive relationship was mediated by the leader’s perception of innovative employee efforts. Second, a high quality LMX relationship engenders mutual trust between the leader and his/her collaborators. This trust is affected by the team leader and the hierarchy (Rousseau & Aubé, 2014). Within-group, trust is positively related to IWB by team members (Wong et al., 2009). The above studies lead to the following hypothesis:

Hypothesis 1. LMX is related to innovative work behaviors.

Well-Being at Work and Leader-Member Exchange

The eudemonic approach is based on the pleasure one gets from taking on challenges, exceeding one’s limits, and living in accordance with one’s values (Dagenais-Desmarais, 2010; Deci & Ryan, 2008). Several studies (Dagenais-Desmarais & Savoie, 2012; Linley et al., 2009) have shown that psychological well-being and psychological well-being at work are two distinct variables. LMX is correlated with many positive variables (Epitropaki & Martin, 2005) such as employees’ organizational commitment, job satisfaction, and well-being at work (Dose et al., 2019; Dose et al., 2021). And LMX is known to be one of the factors of well-being (Atkinson et al., 2016; Dose et al., 2019; Dose et al., 2021; Sparr & Sonnentag, 2008). Accordingly, we set forth the following hypothesis:

Hypothesis 2. LMX is related to psychological well-being at work.

Innovative Work Behaviors and Workload

In the Effort/Reward Imbalance Model, an imbalance between the efforts requested from the individual (demands) and the rewards obtained decreases well-being (Niedhammer & Siegrist, 1998; Siegrist, 1996). According to Boudrias et al. (2011, p. 380), job demands refer “to aspects of the work context that tax employees’ personal capacities, which are further associated with certain psychological and/or physiological costs”. Bakker et al. (2003) consider that job demands cover quantitative efforts (e.g., workload) and qualitative efforts (e.g., task complexity). An overly heavy workload affects psychological well-being at work (e.g., Desrumaux et al., 2011). Thus, job demands can correspond to two types of effort (Niedhammer et al., 2000; Siegrist, 1996). Extrinsic efforts include environmental parasites at work (interruption by colleagues, worries with the equipment, etc.), and intrinsic efforts refer to a worker’s internal motivations that will lead him/her to do his/her work. Rewards can be material (salary, etc.), social (esteem of peers and superiors), or career-related (promotion). Suseno et al. (2019) found that task characteristics (i.e., task and skill variety, task significance, task identity, autonomy, and task feedback) were positively related to IWB. Amabile et al. (1996) showed that an excessive workload was negatively correlated with IWB, and explained this result in terms of the lack of time generated by the workload.

However, other authors (e.g., Scott & Bruce, 1994ab) have found mitigated or the opposite results. West (2002) suggested that external demands inhibit team creativity but promote implementation. Brown and Eisenhardt (1995) showed that, in the case of a heavy workload, autonomy allowed individuals to devote time to innovative behavior. Wu et al. (2014) found that job autonomy and time pressure were positively associated with peer-rated innovation behavior. Battistelli et al. (2013) found that some job factors at the source of IWB were work-related, namely task-related factors (demands, work objectives, etc.) and factors related to the work itself (complexity, autonomy, variety, etc.).

Well-Being, LMX, and Workload with Rewards as Mediators

Effort–reward imbalance (ERI) theory and social exchange theory (Blau, 1964; Chernyak-Hai & Rabenu, 2018) insist on the concepts of balance and reciprocity between efforts or demands and rewards. Balance and reciprocity promote positive health and well-being (Siegrist, 1996). By contrast, an excessive workload and lack of rewards are deleterious and undermine employee well-being (Niedhammer & Siegrist, 1998; Siegrist, 1996; Siegrist et al., 2004). These variables may therefore play a central role as mediators between leadership and IWB.

First of all, LMX is negatively linked to workload and efforts. Nelson et al. (1998) showed that leader-member-exchange quality was negatively related to demands or efforts such as role conflict, role ambiguity, and low job scope. Nevertheless, theoretical arguments also support the idea that high efforts or demands can be positively related to LMX. Transformational leadership, which is operating during the

last stage of LMX, may be highly demanding and make employees work harder and longer, and put more energy into their work “above and beyond the call of duty” (Bass, 1990).

The opposite effect showing positive outcomes of LMX is more frequent, however. LMX is positively linked to satisfaction (Dumdum et al., 2002; Furunes et al., 2015) and effort (Cortese et al., 2010; Furunes et al., 2015; Hammond et al., 2011). Furunes et al.’s (2015) results indicated that LMX was positively linked to job satisfaction, and role clarity. Cortese et al. (2010) validated a model showing that supportive management, as a mediator, reduced perceived job demands while increasing job satisfaction. Finally, workers who receive positive feedback about their work will be more inclined to innovation because it motivates them to actualize and obtain new knowledge and abilities to improve their work process, their productions, or the results of their work (Hammond et al., 2011).

Secondly, some studies have indicated negative links between workload and IWB (Amabile et al., 1996; Wu et al., 2014). A few studies have shown that workload can stimulate creativity. Shao et al.’s (2019) study based on data from 252 employee-supervisor dyads, for example, found that by way of employees’ creative self-efficacy, paradoxical leader behavior was most effective in developing employee innovation when both workload and work complexity were high. However, the links between workload and IWB seem to depend on the kind of demands. Fay et al. (2019) showed in their study that role ambiguity and compromise were negatively related innovation whereas efforts were positively related to innovation implementation.

To the best of our knowledge, no previous studies have examined the role of effort and how it might affect the relationship between LMX and IWB. To this end, we aim to explain previous inconsistencies in the literature between effort and LMX, and to understand its role as a mediator. These considerations led us to propose the following mediation hypothesis:

Hypothesis 3. Extrinsic efforts play a mediating role between LMX and innovative work behaviors.

Studies investigating the relationship between workload and well-being at work indicate a negative relationship between these two variables. Bakker et al. (2003) showed in their energy-driven process that job demands were the best predictors of health problems, which in turn, were related to sick leave. Some studies have found direct relationship between workload and psychological well-being at work (e.g., Desrumaux et al., 2015) while others have found an indirect effect (Boudrias et al., 2011; Xanthopoulou et al., 2007). For example, using structural equation model, Boudrias et al. (2011) validated a chain of multiple mediators: higher personal resources led to lower perceived demands, which led to a higher perceived supportive environment which increase satisfaction of needs, causing higher psychological well-being. Based on these studies, we propose the following mediation hypothesis:

Hypothesis 4. Extrinsic efforts play a mediating role between LMX and psychological well-being.

LMX as a resource may extend the pool of resources available to employees. In the Hildenbrand et al. (2018) study, for example, the role of transformational leadership was shown to reduce employee burnout. Janssen (2000) measured job demands, perceptions of effort-reward fairness, and innovative work behavior among 170 Dutch non-management employees in industry and found a positive relationship between job demands and IWB when employees perceived effort-reward fairness rather than reward unfairness. He noted that rewards played a key role in IWB. Li et al.'s (2014) results showed that leader-member-exchange affected innovative behavior, and that psychological contract-fulfillment played a full mediating role in that relationship. A study by Schermuly et al. (2013) on a sample of 225 employees tested with control of temporal stability of innovative behavior and confirmed full mediation of LMX on innovation behavior via psychological empowerment. By analogy, rewards may play an indirect role between LMX and innovative behavior, which would instantiate the following hypothesis:

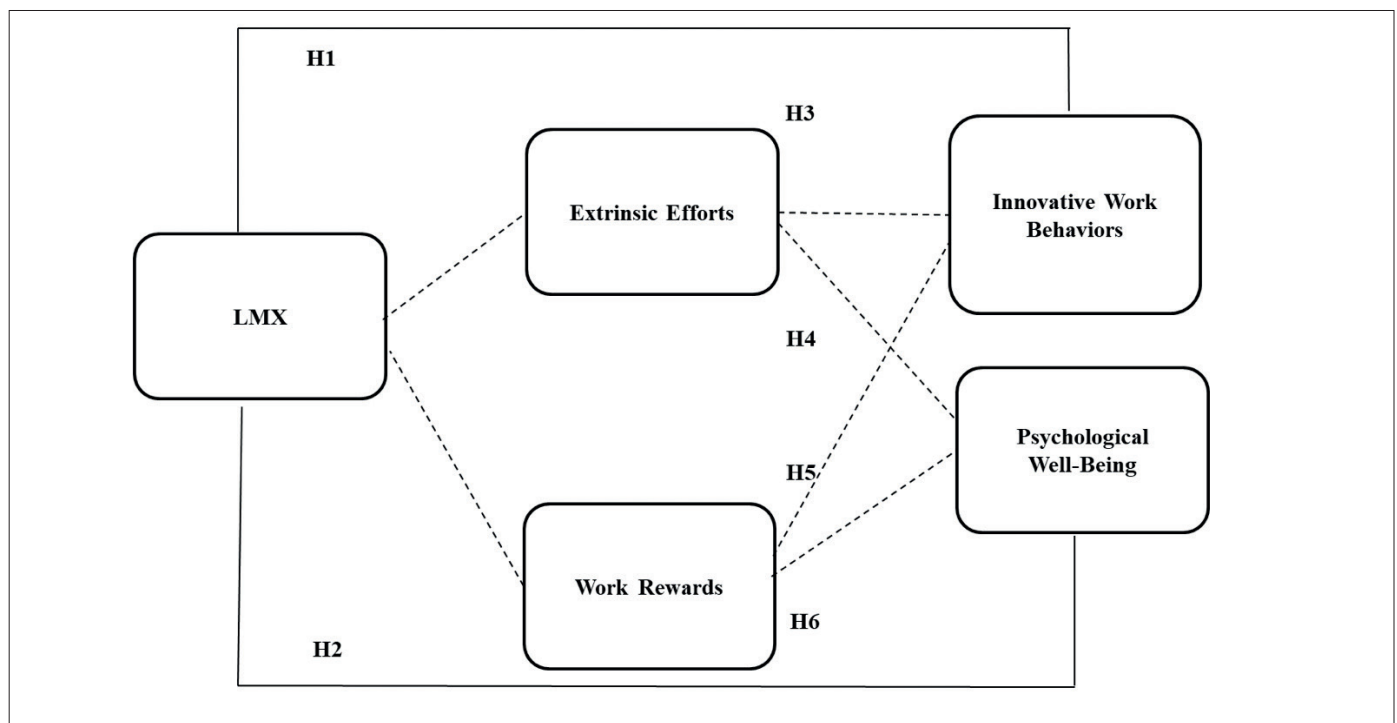
Hypothesis 5. Work rewards play a mediating role between LMX and innovative work behaviors.

Some resources play a mediating role in the relationships between LMX and health outcomes. For example, some studies have shown that need satisfaction played an indirect role between LMX and well-being (Dose et al., 2019; Molix & Nichols, 2013). Another study by Molix and Nichols (2013) showed that psychological needs played a mediating role between esteem and hedonic well-being, and eudemonic well-being. A study by Dose et al. (2021) with 235 school counselors (psychologists) showed that satisfaction of the psychological need for autonomy played an indirect role between LMX and well-being. Need satisfaction can be compared to an intrinsic reward since the employee receives a positive return on work (in terms of satisfaction). By analogy, rewards may play an indirect role between LMX and well-being, which supports the following hypothesis:

Hypothesis 6. Work rewards play an indirect role between LMX and psychological well-being.

All the hypotheses are summarized in the hypothetical model (Figure 1).

Figure 1: Conceptual Model



Note. LMX : Leader-Member Exchanges

In sum, the contributions of this paper are numerous. Our study adds to the literature on innovation by extending our current knowledge of the role played by leader-member exchange, in connection with efforts and rewards, in enhancing innovation and well-being. First, the study gives some keys to understand how leader member exchanges (LMX) can be a lever of innovation and of good psychological health. Second, the study examines the roles of rewards and workload as possible mediators between leader-member exchange (LMX) and

two dependent variables: well-being at work and innovative work behaviors (IWB). Such relationships had never been studied to our knowledge. Third, the study aims to fill the literature gap on the roles of efforts and rewards in predicting innovative behavior and well-being. The final originality of the study is to validate a mediating role of rewards between LMX and psychological well-being at work that had not yet been established to our knowledge.

Method

Procedure

The participants were recruited on the LinkedIn website from November 2018 to July 2019. Participation was voluntary. Data were collected via an online questionnaire sent to French workers in the industrial sector and distributed by e-mail. A total of 2955 e-mails were sent out targeting industrial-sector occupations (e.g., production agent, maintenance technician, supervisor, line operator, quality controller, etc.). The web survey remained accessible for nine months. All the data were collected at the same time before being examined.

On the online questionnaire, there could be no missing answers because to move on to the next question, participants had to have checked off an answer to the current question. They gave their written consent to participate at the beginning of the questionnaire. An informed consent form specified the objectives of this study, the type of participation, a guarantee of anonymity, the right to withdraw, confidentiality management, and the monitoring of data and publications.

Participants

One hundred and seventy-nine workers answered a questionnaire. The final sample included, 53 women and 125 men (1 unspecified). Among the participants, 15 (8%) had a trade-school education, 66 (37%) had a secondary-school education, 94 (52%) had a high-school education, and 4 did not answer this question. Among the participants, 78 (44%) were blue-collar workers, 71 (40%) were supervisors, and 26 (15%) were managers (1 unspecified). Among the participants, 125 (70%) had permanent positions, 29 (16%) had fixed-term contracts, and 24 (13%) had temporary contracts (1 unspecified).

Measures

The self-reported questionnaire consisted of seven scales with all items having 6-point Likert scales ranging from 1 (*strongly disagree*) to 6 (*strongly agree*) followed by sociodemographic questions. The materials were administered in French.

Innovative work behavior. Janssen’s (2000) scale was composed of nine items, based on Scott and Bruce’s (1994b) scale, measuring the three phases of innovative behavior. Each of these phases has three items. Idea generation, (e.g., *I am able to imagine original solutions to problems in my work*); idea promotion, (e.g., *I generate enthusiasm for innovative ideas among members of the organization*); idea realization, (e.g., *I am able to transform innovative ideas into useful applications*). The unidimensionality of the scale has been tested and confirmed by a number of research studies (e.g., Battistelli, et al., 2013). Cronbach’s alpha was 91.

Psychological well-being at work scale. This scale by Dagenais-Desmarais and Savoie (2012) in French version was composed of 25 items divided into 5 dimensions: interpersonal adequacy at work, fulfillment at work, feeling of competence at work, willingness to commit to work, sense of well-being at work, and perceived recognition at work (e.g., *I feel that my work is recognized*). Cronbach’s alpha was .92.

Leader member-exchange. Graen and Uhl-Bien’s LMX scale (1995) included 7 items; (e.g., *My superior recognizes my potential*). Cronbach’s alpha was .94.

Effort and reward. This was assessed using a subscale of Siegrist’s (1996) effort-reward imbalance measure. The long version of Siegrist’s questionnaire had 46 items, while the short version had 23. This scale was adapted and validated in French by Niedhammer et al. (2000). It had three sub-dimensions: extrinsic effort (6 items), rewards (11 items), and intrinsic effort (29 items). We used only the first two dimensions: extrinsic effort and rewards.

Extrinsic effort. Extrinsic effort was measured using a sub-scale of Siegrist (1996). It consisted of six items. Five of which were effort items (e.g., *I am constantly pressed for time because of a heavy workload*); and one item measured physical load. Cronbach’s alpha was .74.

Work Rewards. Siegrist (1996) subscale included six items which measured esteem, respect, consideration... (e.g., *Given all my efforts, I receive the respect and esteem I deserve for my work, and one item for compensation*). Cronbach’s alpha was .82.

Results

SPSS-25 software was used to calculate reliability, correlations, and mediation, thanks to the Process macro.

Preliminary analysis

Cronbach’s Alphas of the scales indicated satisfactory inter-item consistency, greater than $\alpha = 0.74$. All means are greater than 3 and the highest mean corresponds to extrinsic efforts ($M = 4.09$; $SD = 1.53$). LMX were positively correlated with IWB ($r = .18$, $p < .05$). Psychological well-being at work was positively correlated with LMX ($r = .40$; $p < .01$). Extrinsic effort was not significantly correlated with LMX. Work rewards were correlated with LMX ($r = .70$, $p < .01$). Because of the insignificant correlations, we will test the mediating effect of work rewards in the relationship between LMX and well-being, and in the relationship between LMX and IWB.

Table 1
Means, Standard Deviations, and Correlations between the Study Variables

| | M/6 | ET | 1 | 2 | 3 | 4 | 5 |
|----------------------------|------|------|-------|-------|-------|-------|-------|
| 1. Leader member exchanges | 4.05 | 1.21 | (.94) | | | | |
| 2. IWB | 4.08 | 0.86 | .18* | (.91) | | | |
| 3. Well-Being | 3.94 | 0.82 | .40** | .34** | (.92) | | |
| 4. Efforts | 4.09 | 1.53 | .07 | .34** | .20** | (.74) | |
| 5. Rewards | 3.46 | 1.49 | .70** | .19* | .49** | -.03 | (.82) |

Note. $N = 179$; $M =$ Mean; $SD =$ standard deviation; IWB: innovative work behavior; alphas are in brackets in the diagonal ** $p < .01$; * $p < .05$

Mediation Analysis

Hayes and Preacher's (2014) SPSS macro was used for testing direct and indirect links based on regression and non-parametric boots-

trapping. The bootstrapping method is robust against potential biases resulting from non-normal data distributions (Preacher & Hayes, 2008).

Table 2

Mediation Results with Well-Being and Innovative Work Behaviors as the Dependent Variables

| Independent variable (IV) | Mediating variable (MV) | Dependent variable (DV) | Total effect (link C) | Effect of IV on MV (link A) | Effect of MV on DV (link B) | Direct effect (link C') | Indirect effect | CI LL UL |
|---------------------------|-------------------------|-------------------------|-----------------------|-----------------------------|-----------------------------|-------------------------|-----------------|----------|
| LMX | Rewards | Well-Being | .27*** | .57*** | .08*** | .07 | .20 | .11 .29 |
| LMX | Rewards | IWB | .17* | .57*** | .11 | .06 | .06 | -.05 .18 |

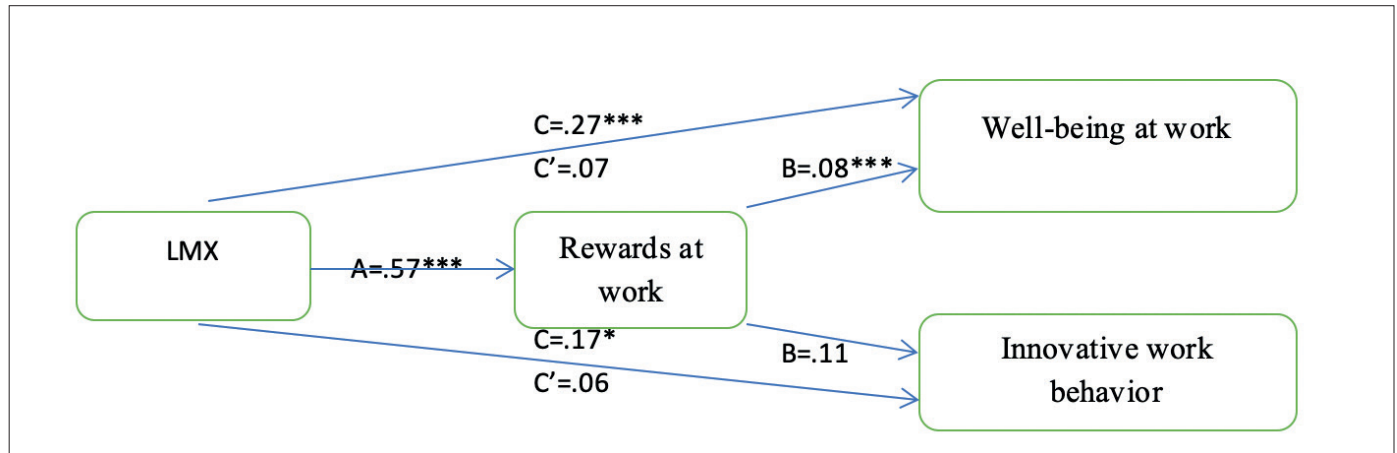
Note. N = 179; LMX: leader member exchange; IWB: innovative work behaviors; CI: confidence interval; LL: lower limit, UL: upper limit; Bootstrapping (N = 10,000: ^ap < .05); *p < .05, ** p < .01, *** p < .001.

According to the results (Table 2) illustrated in Figure 2, rewards have indirect effects in the relationship between LMX and well-being. Furthermore, the direct effect is not significant (C' = .07, ns). The effect of LMX on work rewards is significant (A = .57; p < .001), as is the

effect of work rewards on well-being (B = .08; p < .001). Rewards do not have an indirect effect in the relationship between LMX and innovative behaviors. The indirect effect is not significant. LMX has a significant effect on rewards (A = .57; p < .001).

Figure 2

Mediating effect of rewards (MV) in the relationship between LMX and psychological well-being at work (DV), and innovative work behavior (DV)



Discussion

This study examined the relationship between LMX, psychological well-being at work, and innovative behaviors. In addition, it measured the mediating effects of extrinsic effort and work rewards in the relationships between these variables. An essential criterion for well-being is exchange and appropriate supervision. Confirming Hypothesis 1, LMX was correlated with innovative behavior. These findings are consistent with many studies (Janssen, 2000; Khalili, 2018; Schuh et al., 2017; Pohl & Binard, 2014) that have found positive links between LMX and IWB.

In the line with Hypothesis 2, the results also confirm the positive relationships between LMX and psychological well-being. These results align with previous studies (Atkinson et al., 2016; Dose et al., 2019, 2021). Mediation analyses indicated that extrinsic effort did not play a mediating role between LMX and innovative work behavior, which refutes Hypothesis 3. Extrinsic effort also did not play a

mediating role in the relationship between LMX and psychological well-being, which does not support Hypothesis 4. Remember that in previous studies (Boudrias et al., 2014), the effect of job demands on PHW was directly linked to well-being, and need satisfaction played no mediating role.

Work rewards do not play a mediating role the relationship between LMX and IWB. Hypothesis 5 was not validated. Mediating effects between LMX and IWB through psychological-contract fulfillment (Li et al., 2014) and psychological empowerment (Schermully et al., 2013) have been found, but the results do not allow us to consider that rewards play a central explanatory role in generating IWB. As we noted in the literature on implementation, efforts need to be well-identified because traditional demands can increase IWB, insofar as conflicts (e.g., role ambiguity and professional compromise) can decrease IWB (Fay et al., 2019).

On the other hand, work rewards play a mediating role between LMX and psychological well-being at work, which validates Hypothesis 6. Previous studies had already shown that psychological-need satisfaction acts as a mediator between LMX and well-being (Molix & Nichols, 2013) and that the need for autonomy plays a psychological role between LMX and well-being (Dose et al., 2021). Dose et al.'s (2021) results among counselors showed that need satisfaction played a mediating role between LMX and well-being. The originality of the present study is that we found a mediating role of rewards that to our knowledge, had not yet been established. This result constitutes a novel contribution of this research. Finally, past research has largely disregarded the central role of efforts and rewards the extent to which in predicting how leader-member exchanges is conducive to innovative behavior and well-being. In sum, our study adds to the literature on innovation by extending our current knowledge of the role played by leader-member exchange, in connection with efforts and rewards, in enhancing innovation and well-being.

Limitations and Research Implications

First, our study used a cross-sectional questionnaire which does not measure causality. Another consequence is that self-report questionnaires are prone to bias, such as the Halo bias or “socially desirable responses”. Second, all of our information was obtained from the same source and questionnaire. These two facts may have increased the common variance (Lindell & Whitney, 2001; Podsakoff et al., 2003). However, according to Conway and Lance (2010), using the self-report method is justified in several cases, and the common method bias can be controlled by taking certain precautions. To remediate these problems, we chose validated scales and different theoretical concepts in order to avoid overlapping items. Third, additional measures (interviews or repeated measures) are needed, specifically concerning the relationships between employees and leaders. Fourth, future work should distinguish the three stages of innovation. More specifically, it would be interesting to distinguish idea generation and implementation. West (2002), for example, suggested that external demands may inhibit team creativity but promote implementation. Fifth, it is necessary to understand how and when rewards are likely to increase well-being and IWB. Sixth, efforts did not play a mediating role. Consequently – and in line with the literature (Fay et al., 2019) – we need to study the differential effects of work demands (i.e., workload, time pressure, role ambiguity, and professional compromise) on IWB. Fischer et al. (2017) emphasized the role of time effects in the leadership process. We need to develop a theoretical view on time effects by using repeated measures to meticulously test how LMX, rewards, and efforts are linked to IWB, and well-being at work. Transformational leadership and empowerment leadership are linked. The effects of empowerment leadership could also be explored in parallel with LMX. The impact of participative leadership also needs to be tested. Finally, the research literature has pointed out a few other antecedent variables of well-being and IWB, such as insecurity (Niesen et al., 2018). By taking into account the economic and health crisis, these other variables could be included in future studies.

Practical Implications

Our results highlight the importance of the resources and quality of leadership provided by the organization, and also the workers' perceptions. Research has shown that LMX can be learned, so training programs are useful because the development of leadership efforts increases LMX, which in turn increases IWB. The working world has been going through a complicated period for the last thirty years. Between repeated crises and worldwide epidemics, it is becoming more and more difficult for companies to survive. In this context, to maintain employee's well-being and innovation, leaders' support of employees in terms of promoting good health and innovation will have to pay particular attention to rewards.

Conclusion

This study was originally intended to focus on innovative behavior in companies. Our calculations were able to point out correlations between LMX and innovative behavior, but they did not succeed in demonstrating the presence of a mediation effect of workload or work rewards. On the other hand, work rewards played an indirect role in the relationship between LMX and well-being. This finding seems important because much of the data on workloads and rewards has not tested innovation. Furthermore, while the effect of work overload on psychological well-being at work has already been demonstrated (Bakker et al., 2003), our study filled a gap in the literature by showing that rewards play an important mediating role between work and well-being.

References

- Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, 39(5), 1154–1184. <https://doi.org/10.2307/256995>
- Anderson, N. R., De Dreu, C. K., & Nijstad, B. A. (2004). The routinization of innovation research: A constructively critical review of the state-of-the-science. *Journal of Organizational Behavior*, 25(2), 147–173. <https://doi.org/10.1002/job.236>
- Anderson, N. R., Potočnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: a state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*, 40(5), 1297–1333. <https://doi.org/10.1177/0149206314527128>
- Atkinson, T. P., Hill, R. T., Matthews, R. A., & Morgenson, V. J. (2016). LMX, breach perceptions, work-family conflict, and well-being: A mediational model. *The Journal of Psychology*, 150, 132–149. <https://doi.org/10.1037/a0021727>
- Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003). Dual processes at work in a call center: An application of the Job Demands–Resources model. *European Journal of Work and Organizational Psychology*, 12(4), 393–417. <https://doi.org/10.1080/13594320344000165>

- Bakker, A. B., Demerouti, E., & Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management*, 43(1), 83–104. <https://doi.org/10.1002/hrm.20004>
- Battistelli, A. (2014). La recherche psychosociale sur le processus d'innovation individuelle et d'équipe: Un bilan des connaissances [Psychosocial research on the individual and team innovation process: A review of knowledge]. *Psychologie du Travail et des Organisations*, 20(4), 336–352. [https://doi.org/10.1016/S1420-2530\(16\)30021-8](https://doi.org/10.1016/S1420-2530(16)30021-8)
- Battistelli, A., Montani, F., & Odoardi, C. (2013). The impact of feedback from job and task autonomy in the relationship between dispositional resistance to change and innovative work behaviour. *European Journal of Work and Organizational Psychology*, 22(1), 26–41. <https://doi.org/10.1080/1359432X.2011.616653>
- Binard, C., & Pohl, S. (2014). L'auto efficacité créative, la flexibilité cognitive et le soutien à l'innovation comme antécédents du comportement innovant [Creative self-efficacy, cognitive flexibility, and innovation support as antecedents of innovative behavior]. *Psychologie du Travail et des Organisations*, 19(4), 420–435.
- Blau, P. M. (1964). *Exchange and power in social life*. John Wiley & Sons.
- Bobillier Chaumon, M. E. (2021). Digital transformations in the challenge of activity and work: Understanding and supporting technological changes. STE-Wiley.
- Boudrias, J. S., Desrumaux, P., Gaudreau, P., Nelson, K., Brunet, L., & Savoie, A. (2011). Modeling the experience of psychological health at work: The role of personal resources, social-organizational resources, and job demands. *International Journal of Stress Management*, 18(4), 372–395. <https://doi.org/10.1037/a0025353>
- Brown, S. L., & Eisenhardt, K. M. (1995). Product development: past research, present findings, and future directions. *Academy of Management Review*, 20, 343–378. <https://doi.org/10.2307/258850>
- Chernyak-Hai, L., & Rabenu, E. (2018). The new era workplace relationships: Is social exchange theory still relevant? *Industrial and Organizational Psychology*, 11(3), 456–481. <https://doi.org/10.1017/iop.2018.5>
- Conway J. M., & Lance, C. E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology*, 25, 325–334. <https://doi.org/10.1007/s10869-010-9181-6>
- Cortese, C. G., Colombo, L., & Ghislieri, C. (2010). Determinants of nurses job satisfaction: The role of work-family conflict, job demand, emotional charge and social support. *Journal of Nursing Management*, 18, 35–43. <http://doi.org/10.1111/j.1365-2834.2009.01064.x>
- Csikszentmihalyi, M. (1999). Implications of a systems perspective for the study of creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 313–335). Cambridge University Press.
- Dagenais-Desmarais, V., & Savoie, A. (2012). What is psychological well-being, really? A grassroots approach from organizational sciences. *Journal of Happiness Studies*, 13(4), 659–668. <http://doi.org/10.1007/s10902-011-9285-3>
- Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, 9(1), 1–11. <https://doi.org/10.1007/s10902-006-9018-1>
- Desrumaux, P., Lapointe, D., Ntsame Sima, M.N., Boudrias, J.-S., Savoie, A., & Brunet, L. (2015). The impact of job demands, climate, and optimism on well-being and distress at work: What are the mediating effects of basic psychological need satisfaction? *European Review of Applied Psychology*, 65, 179–188. <http://dx.doi.org/10.1016/j.erap.2015.06.003> 1162-9088
- Dornelas Muzi, M., Dose, E., & Desrumaux, P. (2020). Climat d'innovation, soutien du leader à l'innovation et rôle médiateur du bien-être au travail: Quels effets sur les comportements innovants au travail [Innovation climate, leader support for innovation and the mediating role of well-being at work: What effects on innovative behavior at work?] *Innovations. Revue d'Economie et de Management de l'Innovation / Innovations. Journal of Innovation Economics and Management*, 1, 183–208. http://www.cairn.info/load_pdf.php?ID_ARTICLE=INNO_PR2_0097
- Dose, E., Desrumaux, P., & Bernaud, J.-L. (2022). A model of the well-being among French school counselors: Effects of personal and psychosocial variables. *International Journal for Educational and Vocational Guidance*. <https://doi.org/10.1007/s10775-022-09522-6>
- Dose, E., Desrumaux, P., & Bernaud, J.-L., & Hellemans, C. (2019). What makes happy counselors? From self-esteem and leader-member exchange to well-being at work: The mediating role of need satisfaction. *Europe's Journal of Psychology*, 15(4), 823–842. <https://doi.org/10.5964/ejop.v15i4.1881>
- Dumdum, U. R., Lowe, K. B., & Avolio, B. J. (2002). Meta-analysis of transformational and transactional leadership correlates of effectiveness and satisfaction: An update and extension. In B. J. Avolio & F. J. Yammarino (Eds.), *Transformational and charismatic leadership: The road ahead* (pp. 35–65). JAI Press.
- Epitropaki, O., & Martin, R. (2005). From ideal to real: A longitudinal study of the role of implicit leadership theories on leader-member exchanges and employee outcomes. *Journal of Applied Psychology*, 90(4), 659–676. <https://doi.org/10.1037/0021-9010.90.4.659>
- Fay, D., Bagotyrriute, R., Urbach, T., West, M. A., & Dawson, J. (2019). Differential effects of workplace stressors on innovation: An integrated perspective of cybernetics and coping. *International Journal of Stress Management*, 26(1), 11–24. <https://doi.org/10.1037/str0000081>
- Furunes, T., Mykletun, R. J., Einarsen, S., & Glasø, L. (2015). Do low-quality leader-member relationships matter for subordinates? Evidence from three samples on the validity of the Norwegian LMX Scale. *Nordic Journal of Working Life Studies*, 5(2), 71–87. <https://doi.org/10.19154/njwls.v5i2.4794>

- Graen, G. B., & Scandura, T. A. (1987). Toward a psychology of dyadic organizing. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol 9, pp. 175–208). JAI Press.
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader–member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6, 219–247. [https://doi.org/10.1016/1048-9843\(95\)90036-5](https://doi.org/10.1016/1048-9843(95)90036-5)
- Hammond, M. M., Neff, N. L., Farr, J. L., Schwall, A. R., & Zhao, X. (2011). Predictors of individual-level innovation at work: A meta-analysis. *Psychology of Aesthetics, Creativity, and the Arts*, 5(1), 90–105.
- Hammond, M. M., Neff, N. L., Farr, J. L., Schwall, A. R., & Zhao, X. (2011). Predictors of individual-level innovation at work: A meta-analysis. *Psychology of Aesthetics, Creativity, and the Arts*, 5(1), 90–105. <https://doi.org/10.1037/a0018556>
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67, 451–470. <https://doi.org/10.1111/bmsp.12028>
- Hildenbrand, K., Sacramento, C. A., & Binnewies, C. (2018). Transformational leadership and burnout: The role of thriving and followers' openness to experience. *Journal of Occupational Health Psychology*, 23(1), 31–43. <https://doi.org/10.1037>
- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology*, 73(3), 287–302. <https://doi.org/10.1348/096317900167038>
- Jauss, K. S., & Dionne, S. D. (2003). Leading for creativity: The role of unconventional leader behavior. *The Leadership Quarterly*, 14(4-5), 475–498. [https://doi.org/10.1016/S1048-9843\(03\)00048-1](https://doi.org/10.1016/S1048-9843(03)00048-1)
- Javed, B., Khan, A. K., & Quratulain, S. (2018). Inclusive leadership and innovative work behavior: Examination of LMX perspective in small capitalized textile firms. *The Journal of Psychology*, 152(8), 594–612. <https://doi.org/10.1080/00223980.2018.1489767>
- Kanter, R. (1988). When a thousand flowers bloom: Structural, collective, and social conditions for innovation in organizations. In B. M. Staw, & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 10, pp. 169–211). JAI Press.
- Khalili, A. (2018). Creativity and innovation through LMX and personal initiative. *Journal of Organizational Change Management*, 31(2), 323–333. <https://doi.org/10.1108/JOCM-09-2016-0183>
- King, N. & Anderson, N. R. (1995). *Innovation and change in Organizations*. Routledge.
- Kyoung-Joo, L., & Eun-Young, K. (2018). A leadership competency model of science and technology parks: The case of Chungbuk Techno Park in Korea. *Journal of Technology Management and Innovation*, 13(4), 105–114. <https://doi.org/10.4067/S0718-27242018000400105>
- La Torre, D., Pohl, S., & Battistelli, A. (2012). La motivation et le climat: Antécédent du comportement innovatif au travail [Motivation and climate: Antecedent of innovative behavior at work]. In S. Pohl, P. Desrumaux, P., A.-M Vonthron (Eds.), *Jugement socio-professionnel, innovation et efficacité au travail* (pp. 137–144). L'Harmattan.
- Li, H., Feng, Z., Liu, C., & Cheng, D. (2014). The impact of relative leader-member exchange on employee's work behaviors as mediated by psychological contract fulfillment. *Social Behavior and Personality*, 42(1), 79–88. <https://doi.org/10.2224/sbp.2014.42.1.79>
- Linley, P. A., Maltby, J., Wood, A. M., Osborne, G., & Hurling, R. (2009). Measuring happiness: The higher order factor structure of subjective and psychological well-being measures. *Personality and Individual Differences*, 47(8), 878–884. <https://doi.org/10.1016/j.paid.2009.07.010>
- Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*, 86(1), 114–121. <https://doi.org/10.1037/0021-9010.86.1.114>
- Lopes Henriques, P., Curado, C., Mateus Jerónimo, H., & Martins, J. (2019). Facing the Dark Side: How Leadership Destroys Organisational Innovation. *Journal of technology Management & Innovation*, 14(1), 18–24. <https://dx.doi.org/10.4067/S0718-27242019000100018>
- Montani, F., Odoardi, C., & Battistelli, A. (2013). Leadership, pratiques de gestion des ressources humaines et comportement innovatif: Le rôle du climat de groupe pour l'innovation et de l'engagement affectif [Leadership, human resource management practices and innovative behavior: The role of group climate for innovation and affective commitment]. In R. Kouabenan, M. Dubois, M. E. Bobillier Chaumon, P. Sarnin, P., & J. Vacherand-Revel (Eds.), *Conditions de travail, implication et sécurité* (pp. 219–230). L'Harmattan.
- Montani, F., Battistelli, A. & Odoardi, C. (2018). Proactive goal generation and innovative work behavior: The moderating role of affective commitment, production ownership and leader support for innovation. *The Journal of Creative Behavior*, 51, 107–127. <https://doi.org/10.1002/jocb.89>
- Nelson, D., Basu, R., & Purdie, R. (1998). An examination of exchange quality and work stressors in leader–follower dyads. *International Journal of Stress Management*, 5(2), 103–112. <https://doi.org/10.1023/A:1022907831243>
- Niedhammer, I., & Siegrist, J. (1998). Facteurs psychosociaux au travail et maladies cardio-vasculaires: l'apport du modèle du déséquilibre «efforts/récompenses» [Psychosocial factors at work and cardiovascular disease: the contribution of the «effort/reward» imbalance model]. *Revue d'Epidémiologie et de Santé Publique*, 46(5), 398–410.

- Niedhammer, I., Siegrist, J., Landre, M. F., Goldberg, M., & Leclerc, A. (2000). Etude des qualités psychométriques de la version française du modèle du déséquilibre efforts/récompenses [Studies of the psychometric qualities of the French version of the effort/reward imbalance model]. *Revue d'Épidémiologie et de Santé Publique*, 48(5), 419–438.
- Niesen, W., et al. (2018). Job insecurity and innovative work behaviour: A psychological contract perspective. *Psychologica Belgica*, 57(4), 174–189, <https://doi.org/10.5334/pb.381>
- Odoardi, C., Battistelli, A., Montani, F., & Peiró, J. M. (2019). Affective commitment, participative leadership, and employee innovation: A multilevel investigation. *Journal of Work and Organizational Psychology*, 35(2), 103–113. <https://doi.org/10.5093/jwop2019a12>
- Odoardi, C., Montani, F., Boudrias, J.-S., & Battistelli, A. (2015). Linking managerial practices and leadership style to innovative work behavior: The role of group and psychological processes. *Leadership & Organization Development Journal*, 36(5), 545–569. <https://doi.org/10.1108/LODJ-10-2013-0131>
- Pieterse, A. N., Van Knippenberg, D., Schippers, M., & Stam, D. (2010). Transformational and transactional leadership and innovative behavior: The moderating role of psychological empowerment. *Journal of Organizational Behavior*, 31(4), 609–623. <https://doi.org/10.1002/job.650>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Pohl, S., & Binard, C. (2014). La qualité de la relation leader/membre et les comportements innovants: Le rôle modérateur de la résistance au changement [The quality of the leader/member relationship and innovative behavior: The moderating role of resistance to change]. *Psychologie du Travail et des Organisations*, 20(4), 354–366. [https://doi.org/10.1016/S1420-2530\(16\)30022-X](https://doi.org/10.1016/S1420-2530(16)30022-X)
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891. <http://doi.org/10.3758/brm.40.3.879>
- Rao Jada, U., Mukhopadhyay, S., & Titiyal, R. (2019). Empowering leadership and innovative work behavior: a moderated mediation examination. *Journal of Knowledge Management*, 23(5), 915–930. <https://doi.org/10.1108/JKM-08-2018-0533>
- Rousseau, V., & Aubé, C. (2014). L'attitude défaitiste des responsables d'équipe: un frein à l'innovation? [The defeatist attitude of team leaders: a brake on innovation]. *Psychologie du Travail et des Organisations*, 20(4), 368–381.
- Scandura, T. A., Graen, G. B., & Novak, M. A. (1986). When managers decide not to decide autocratically: An investigation of leader-member exchange and decision influence. *Journal of Applied Psychology*, 71(4), 579–584. <https://doi.org/10.1037/0021-9010.71.4.579>
- Schermully, C. C., Meyer, B., & Dämmer, L. (2013). Leader-member exchange and innovative behavior: The mediating role of psychological empowerment. *Journal of Personnel Psychology*, 12(3), 132–142. <https://doi.org/10.1027/1866-5888/a000093>
- Schroeder, R. G., Van de Ven, A. H., Scudder, G. D., & Polley, D. (1989). The development of innovation ideas. In A. H. Van de Ven, H. L. Angle, & M. S. Poole (Eds.), *Research on the Management of Innovation: The Minnesota Studies* (pp. 107–134). Harper & Row.
- Schuh, S. C., Zhang, X., Morgeson, F. P., Tian, P., & van Dick, R. (2017). Are you really doing good things in your boss's eyes? Interactive effects of employee innovative work behavior and leader-member exchange on supervisory performance ratings. *Human Resource Management*, 57, 397–409. <https://doi.org/10.1002/hrm.21851>
- Scott, S. G., & Bruce, R. A. (1994a). Innovation and the LMX connection: Getting a foothold on relationships that work. *Potentials, IEEE*, 17(2), 10–11.
- Scott, S. G., & Bruce, R. A. (1994b). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37(3), 580–607. <https://doi.org/10.2307/256701>
- Shao, Y., Nijstad, B., & Täuber, S. (2019). Creativity under workload pressure and integrative complexity: The double-edged sword of paradoxical leadership. *Organizational Behavior and Human Decision Processes*, 155, 7–19. <https://doi.org/10.1016/j.obhdp.2019.01.008>
- Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology*, 1(1), 27–41. <https://doi.org/10.1037/1076-8998.1.1.27>
- Siegrist, J., Starke, D., Chandola, T., Godin, I., Marmot, M., Niedhammer, I., & Peter, R. (2004). The measurement of effort-reward imbalance at work: European comparisons. *Social Science and Medicine*, 58(8), 1483–1499. [https://doi.org/10.1016/s0277-9536\(03\)00351-4](https://doi.org/10.1016/s0277-9536(03)00351-4)
- Sparr, J. L., & Sonnentag, S. (2008). Fairness perceptions of supervisor feedback, LMX, and employee well-being at work. *European Journal of Work and Organizational Psychology*, 17(2), 198–225. <https://doi.org/10.1146/annurev-orgpsych-032414-111347>
- Suseno, Y., Standing, C., Gengatharen, D., & Nguyen, D. (2019). Innovative work behaviour in the public sector: The roles of task characteristics, social support, and proactivity. *Australian Journal of Public Administration*, 79(1), 1–19. <https://doi.org/10.1111/1467-8500.12378>

- West, M. A. (2002). Ideas are ten a penny: It's team implementation not idea generation that counts. *Applied Psychology: An International Review*, 51(3), 411–424. <https://doi.org/10.1111/1464-0597.01006>
- West, M. A., & Anderson, N. R. (1996). Innovation in top management teams. *Journal of Applied Psychology*, 81(6), 680–693. <https://doi.org/10.1037/0021-9010.81.6.680>
- West, M. A. & Farr, J. L. (1989). Innovation at work: Psychological perspectives. *Social Behaviour*, 4, 15–30. <https://eprints.lancs.ac.uk/id/eprint/63023>
- West, M. A., & Farr, J. L. (1990). Innovation at work. In M. A. West & J. L. Farr (Eds.), *Innovation and creativity at work: Psychological and organizational strategies* (pp.1–37). Wiley.
- Wong, A., Tjosvold, D., & Liu, C. (2009). Innovation by teams in Shanghai, China: Cooperative goals for group confidence and persistence. *British Journal of Management*, 20(2), 238–251. <https://doi.org/10.1111/j.1467-8551.2008.00563.x>
- Wu, C. H., Parker, S. K., & de Jong, J. (2014). Need for cognition as an antecedent of individual innovation behavior. *Journal of Management*, 40(6), 1511–1534. <https://doi.org/10.1177/0149206311429862>
- Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of personal resources in the job demands–resources model. *International Journal of Stress Management*, 14(2), 121–141. <https://doi.org/10.1037/1072-5245.14.2.121>
- Yammarino, F. J., & Dansereau, F. (2008). Multi-level nature of and multilevel approaches to leadership. *The Leadership Quarterly*, 19, 135–141. <https://doi.org/10.1016/j.leaqua.2008.01.001>
- Zang, X., Bartol, K. M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creativity process engagement. *Academic Management Journal*, 53(1), 107–128. <https://doi.org/10.5465/AMJ.2010.48037118>
- Zawislak, P. A., Alves, A. C., Tello-Gamarra, J., Barbieux, D., & Reichert, F. M. (2012). Innovation capability: From technology development to transaction capability. *Journal of Technology Management & Innovation*, 7(2), <http://dx.doi.org/10.4067/S0718-27242012000200002>
- Zhu, J., Yao, J. & Zhang, L. (2019). Linking empowering leadership to innovative behavior in professional learning communities: the role of psychological empowerment and team psychological safety. *Asia Pacific Education Review*, 20, 657–671. <https://doi.org/10.1007/s12564-019-09584-2>