LEADER-MEMBER EXCHANGE AND INNOVATIVE WORK BEHAVIOR: 
THE ROLE OF INTRINSIC MOTIVATION, PSYCHOLOGICAL 
EMPOWERMENT, AND CREATIVE PROCESS ENGAGEMENT

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ABSTRACT: This study examines how leader-member exchange relates to subordinate’s innovative work behavior through intrinsic motivation, psychological empowerment, and creative process engagement. On the basis of an interactional approach, this study hypothesized that (a) there is an interaction between leader-member exchange, intrinsic motivation, and psychological empowerment that affects innovative work behavior, such that leader-member exchange has the strongest positive relationship with innovative work behavior when subordinates have high levels of intrinsic motivation and psychological empowerment; and (b) creative process engagement mediates the effect that this three-way interaction between leader-member exchange, intrinsic motivation, and psychological empowerment has on innovative work behavior. Data were collected from 337 employees and their immediate supervisors (137) from automotive industry. First, subordinates completed measures of their leader-member exchange, intrinsic motivation, and psychological empowerment. Then, the supervisors of these employees assessed their subordinates’ innovative work behavior. The results supported the hypotheses. We found that leader-member exchange, intrinsic motivation and psychological empowerment interacted to affect employee innovative work behavior in such a way that when intrinsic motivation and psychological empowerment were both high, leader-member exchange had the strongest positive relationship with innovative work behavior and creative process engagement mediated this relationship. This study is the first of its kind to empirically examine the interactional perspective of leader-member exchange on innovative work behavior through psychological empowerment, intrinsic motivation, and creative process engagement. Theoretical and practical implications and future area of research are discussed at the end.

JEL CLASSIFICATIONS: O30, O31

KEYWORDS: Leader-member exchange; intrinsic motivation; psychological empowerment; creative process engagement; automotive industry; and innovative work behavior


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1. Introduction

Organizations cannot survive without a focus on continuous innovation (Slåtten, Svensson & Sværi, 2011). In order to achieve sustained competitive advantage, organizations should engage their employees into innovative work behaviors (Martins & Terblanche, 2003). It is thus important to understand the antecedents and complex mechanisms driving innovative work behaviors in organizations (Yidong & Xinxin, 2013). Effective leadership acts as a
catalyst to foster employee’s creative outcomes. Previous literature has identified various leadership theories that can foster innovation process but far less attention has been given to leader-member exchange, despite theoretical reasoning (Schermuly, Meyer & Dämmer, 2013).

Given the importance of employees’ innovative behavior, several researchers have examined whether it is possible to (positively) influence it through the supervisor-subordinate relationship. LMX theory focuses on the dyadic interaction quality between supervisors and employees (Graen & Uhl-Bien, 1995). According to LMX theory, the supervisor and the employee are in a continuous social exchange process. This paper specifically examines whether leader-member exchange, intrinsic motivation, and psychological empowerment are linked to employees’ innovative work behavior.

To effectively foster innovative work behavior in organizational setting, the supervisors have to be informed through research evidence as to how individual differences affect employee reactions to leader-member exchange (Schermuly, Meyer & Dämmer, 2013). Schriesheim, Castro and Cogliser (1999) propose that the outcome of leader-member exchange may not be as positive as intended for all employees. One possible difference that may stand out in this regard is levels of intrinsic motivation, for the reason that they are essentially related to both innovative work behavior and leader-member exchange. This study undertakes the complex interaction mechanism between leader-member exchange, creative process engagement, intrinsic motivation, and psychological empowerment. Our results reveal an interesting phenomenon—leader-member exchange may be especially effective at fostering innovative work behavior of those employees who have high levels of both intrinsic motivation and psychological empowerment. The burgeoning interest in understanding how leader-member exchange leads to an increase in employees’ innovative work behavior through interaction effects is the purpose of this study.

In building a model linking leader-member exchange and innovative work behavior, we further drew on the psychological empowerment literature and the innovation process literature to posit three intervening mechanisms with high potential to help explain linkages between leader-member exchange and innovative work behavior: intrinsic motivation, psychological empowerment, and creative process engagement. Thomas and Velthouse (1990) defined psychological empowerment as gestalt of four types of feelings: meaning, competence, self-determination, and impact. Schermuly, Meyer and Dämmer (2013) indicate that leader-member exchange has significant and positive relations with both psychological empowerment and innovative work behavior. Thus, leader-member exchange builds a work environment in which employees feel motivated, competent and self-managed to experience psychological empowerment (Aryee & Chen, 2006; Kim & George, 2005).

Overall, the purpose of this study was to examine how the complex interplay between leader-member exchange, intrinsic motivation, psychological empowerment, and creative process engagement explain employees’ innovative work behavior. Following the interactional approach of innovative work behavior (Rank, Pace, & Frese, 2004), this study proposed that leader-member exchange would have the strongest positive relationship with employees’ innovative work behavior when they are intrinsically motivated and psychologically empowered. The current study also revealed the psychological mechanism
underlying the hypothesized interaction effects and further proposed that creative process engagement, which refers to employee involvement in creativity-relevant cognitive methods or processes (Reiter-Palmon & Illies, 2004), would mediate this relationship. Zhang and Bartol (2010) propose that intrinsic motivation and psychological empowerment are necessary but not sufficient conditions for creative outcomes and hence engaging in creative activities has an equal, if not more important, role in promoting employee creativity.

By focusing on the interactions between leader-member exchange, intrinsic motivation, and psychological empowerment and the effect of these interactions on innovative work behavior, this study aims to make three significant contributions to the literature. First, this study extends previous research (such as Afsar, Badir, & Saeed, 2014) by examining the effect of leader-member exchange on innovative work behavior as the criterion variable. Zhang and Bartol (2010) found that intrinsic motivation facilitates the positive effect of empowering leadership in nurturing creativity of employees with high levels of psychological empowerment and suggested that leader-member exchange could also have the same effect. Second, by divulging the intricate synergy between leader-member exchange, intrinsic motivation, and psychological empowerment to nurture the initiation and implementation of creative outcomes, this study extends the interactional perspective of innovative work behavior beyond a simple person-by-context interaction. The current study evinces the mechanism as to how a focal employee views the instigator of a contextual influence (e.g., intrinsic motivation) may intensify the effect of that contextual factor (e.g., leader-member exchange) on the innovative work behavior of employee, subject to individual attributes such as levels of psychological empowerment. Third, the interactional perspective of innovative work behavior currently lacks the investigation of a psychological mechanism that might explain why a particular subordinate-supervisor interaction occurs (e.g., Settoon, Bennett & Liden, 1996). This study investigates the effect of creative process engagement as a mediating mechanism for innovative work behavior which may contribute to the development of the interactional perspective of innovative work behavior.

2. Theoretical framework

From the literature reviewed thus far, we have found that leader-member exchange relationship promotes the innovative work behavior of their followers but the posited relationship is further explained by intervening variables. The mixed effects of leader-member exchange on creative outcomes of followers motivate us to further probe into this relationship and by examining potential interaction mechanisms, we may better understand why expected influences on innovative work behavior have been observed in some studies but not in others.

Ahearne, Mathieu and Rapp (2005) suggest that for individuals who are resistant towards new ideas, conservative in their thoughts, and show low levels of propensity, inclination, or readiness towards idea generation or idea implementation, this individualized consideration may be particularly effective. Extrapolating this insight to innovativeness, we propose that leader-member exchange may be especially beneficial in fostering innovative work behavior among individuals who are not inclined towards generating and implementing ideas in the
organizations. By further delving into the mechanism through which leader-member exchange affects innovative work behavior, a plausible argument is that the employees who are not predisposed to be creative can display innovative work behavior under leader-member exchange if they are intrinsically motivated to do so (Zhang & Bartol, 2010). The main purpose of this study is to resolve this debate by exploring how intrinsic motivation and psychological empowerment jointly moderate the effect of leader-member exchange on innovative work behavior.

**Three-way interaction effects on innovative work behavior**

Several theorists have suggested that the interactional perspective of contextual factors such as leader-member exchange is likely to have a greater effect when the employees’ internal characteristics mean that they desire such external input (Schermuly, Meyer & Dämmer, 2013; Volmer, Spurk & Niessen, 2012). Characteristics of employees such as needs for affiliation, emulation and social approval, a supportive work group, relational self-conception, and sensitivity to the supervisors’ expectations, establish the effectiveness of supervisory behavior. Atwater and Carmeli (2009) found that employees who are considerate of the supervisors’ needs and actively accept their influence are strongly affected by supervisors’ behaviors as compared to employees who do not show such attributes. In order for creative ideas to take place and be implemented, support for employees by their leaders is essential (Zhang & Bartol, 2010). Consistent with this theory, research on leader-member exchange also suggests that it has different effects on job related behaviors of different employees due to diversity in how they perceive and react to situations (e.g., Atwater & Carmeli, 2009; Schermuly, Meyer & Dämmer, 2013), while there has been little research into one of the most critical job behaviors in today’s highly competitive world i.e. innovative work behavior.

Innovative work behavior encompasses both idea generation as well as implementation. Thus, employees need support to implement their ideas (Singh & Sakar, 2012). A high leader-member exchange relationship means that subordinates perceive their immediate supervisors as supportive, caring, trust-worthy, and loyal (Walumbwa et al., 2011). Research shows that when LXM is high, employees get greater levels of emotional support, respect, and work-related information (Sparrowe & Liden, 1997). Consistent with social exchange theory, employees in return reciprocate through higher engagement, effort, in-role performance, and positive work outcomes (Chen, Lam, & Zhong, 2007; DeConinck, 2011). Employees engaging in innovative work behavior are expected to spend more time on non-routine tasks in order to think out of the box and propose novel and practical ideas to improve existing organizational processes, and they want freedom and less restricted environment to flourish their creative abilities. A high quality leader-member exchange relationship ensures these characteristics. Scott and Bruce (1994) suggest that individuals usually generalize their perceptions about immediate supervisors to the organizational level where they tend to reciprocate with higher levels of discretionary behaviors and innovativeness due to the fact that supervisors are equally interested in innovations.

As time spent with supervisors in case of a high exchange relationship increases, it is probable that subordinates would get more opportunities to discuss new ideas, acquire
knowledge of the current situations, get frequent and instant feedback, and gain from supervisors’ knowledge and expertise. Receiving more emotional support, trust, and information about overall organizations’ processes, problems, and future strategic directions can enhance innovative work behavior because information sharing can initiate new ideas and emotional support and trust can foster implementation of the ideas. Furthermore, when relationship is strong, employees do not feel afraid to speak and generate ideas as they know that if the ideas become successful, they will get the recognition, and in case the ideas fail, he blame will not come on them. Innovative work behaviors are complicated in a sense that the element of risk is always higher. In such situations, support from supervisors becomes pivotal. The responsibility of an individual is not restricted to just the initiation of the idea but also to implement it. When an idea is commercialized, usually the co-workers resist it because of the fear of unknown and change is always suspected at the individual level. Therefore, supervisors motivate others to support the one who initiated the idea in order to commercialize it and make it a part of the organizational existing systems.

An employee’s innovative work behavior implies going beyond the scope of basic job requirements and responsibilities. Unlike regular work performance, innovative work behavior involves the initiation, realization, and commercialization of useful, novel, and creative ideas and solutions. The dynamic nature of the work activities in innovative work behavior involves complicated non-standardized and non-routine tasks (Zhang & Bartol, 2010). The rapid changes in technology, high level of competition to innovate regularly and frequently, shortened product life cycles, and greater pressure on organizations to respond quickly and creatively to frequent technical problems have made the structured procedures and systems ineffective.

Employees therefore, need to be able to perform tasks that go beyond the established routines for a team, group, or organization. They may search out new technologies, suggest new ways to achieve objectives, apply new work methods, and investigate and secure resources to implement new ideas (De Jong & Den Hartog, 2010). Therefore, innovative work behavior is inherently oriented around uncertainty, indistinctness, and ambiguity. There is no guarantee that the new transformation, novel ideas, and creative solutions would deliver what they are expected to achieve (Scott & Bruce, 1994).

Psychological empowerment makes employees to see themselves as competent, capable, and proficient to initiate changes, influence work roles, shape empowerment work contexts according to their own preferences, and extract meaning from their activities by acting independently. Employees who feel high level of psychological empowerment engage in proactive behavior more often due to independence in decision making (Thomas & Velthouse, 1990). Forrester (2000) suggest that employees become less productive and are unable to utilize full creative potential due to existing traditional organizational practices which render feelings of powerlessness. Thus, feelings of powerlessness lead to operational ineffectiveness and inhibit employee creativity. Seibert, Wang and Courtright (2011) recommended that leaders should try to energize psychological dimensions of empowerment and inculcate feeling of free will among their followers to translate organizational vision and mission into their daily routine tasks and job contexts.
Supervisors have a large impact on the cognitions and feelings of their subordinates. They shape their subordinates’ perceptions of their work role and experiences in the workplace (Liden, Sparrow, & Wayne, 1997). We thus argue in the following that positive leader-member exchanges bring about positive effects on innovative behavior, because they lead to higher levels of psychological empowerment. Psychological empowerment refers to a cognitive orientation toward an employee’s own work role (Thomas & Velthouse, 1990). A meta-analytic review (Seibert et al., 2011) shows that positive forms of leadership are an important contextual antecedent of psychological empowerment. If supervisors are friendly, caring, and loyal and show professional respect, emotional support, and sincerity for the capabilities of their employees, the employee’s feelings of competence should be enhanced. For example, Schyns et al. (2005) found a positive relationship between occupational self-efficacy, which is conceptually similar to the competence facet of psychological empowerment, and LMX.

Employees in high LMX-relationships perceive their jobs as more meaningful and enjoy more challenging work tasks (Aryee & Chen, 2006). The supervisors are inclined to share their knowledge, expertise, and competencies along with decision-making authority with subordinates and the relationship becomes more trustful. Dulebohn et al. (2012) found that LXM paves way to frequent and abundant flow of information from the supervisors toward subordinates which provide employees opportunities to carry out more challenging tasks. Such supervisors also exercise lower levels of micromanagement and delegate authority to followers to make decisions hence enhancing their perceptions about impact and self-efficacy of the tasks performed. This is in accordance with Liden, Wayne and Sparrowe (2000) findings that confirmed the positive effect of LXM on an employee’s perceptions of impact and self-determination.

A meta-analysis by Seibert et al. (2011) suggest that psychological empowerment is an important antecedent for work outcomes such as organizational commitment, organizational citizenship behavior, job satisfaction, turnover intentions, work stress, contextual performance, in-role performance, and workplace innovation. Impact and self-determination can not only help to implement new ideas but also help to create ideas in the first place, because impactful and self-determined employees experience the freedom to test new ideas. Aryee and Chen (2006) proposed that self-efficacy and confidence on one’s competence leads to creativity. Moreover, job meaningfulness enhances an employee’s intrinsic motivation to engage in innovative endeavors.

Theoretical arguments have suggested that feelings of empowerment among employees engender innovative work behavior by positively affecting an employee’s intrinsic motivation (Scott & Bruce, 1994), but empirical evidence of such an effect has been lacking (De Jong & Den Hartog, 2010). Intrinsic motivation is the extent to which an individual experiences enjoyment and interest when performing a work task, without being controlled by external contingencies, such as rewards and punishments (Gagné, Senecal & Koestner, 1997). Zhang and Bartol (2010) suggest that intrinsic motivation is a critical condition when considering the interactive perspective of innovative work behavior, especially for employees who have high perceptions of psychological empowerment.

Lack of psychological empowerment refers to the propensity of employees to avoid being creative (Zhang & Bartol, 2010). Employees with such feelings try to follow rules,
regulations, organizational policies, and do not try out new solutions to organizational problems due to lack of confidence. Liden, Wayne and Sparrowe (2000) suggest that intrinsic motivation is a critical condition when considering the interactional perspective of innovative work behavior, specially for employees who feel high on psychological empowerment.

Innovative behaviors are complicated as they include multiplicity of possible solutions, making unexpected combinations, identifying connections among remote associates, recognizing the right problem, readiness to be daring, reapplying techniques and revising solutions, amassing existing resources, building social support in favor of the solution, and convincing all the stakeholders about the usefulness of the new solution (De Jong & Den Hartog, 2007). As such, innovative work behavior requires effort, enthusiasm, resources, propensity to take risks, persistence and ways to handle uncertainty, throughout the process. Individuals may experience anxiety and ambiguity about whether their ideas are worth pursuing, feasible, and in line with organizational goals and objectives. The success of an idea also depends on how effectively it is implemented by others, and an idea initiator is always uncertain about the commitment of others towards his/her idea implementation.

A high level of leader-member exchange relationship removes bureaucratic constraints and help employees to explore new opportunities with a better focus on important organizational issues and processes which would lead to value addition and goal alignment instead of initiating random, non-practical, and ineffective ideas. Employees are able to better understand organization’s circumstances by means of their psychological empowerment under these supportive conditions, emanating ideas that are truly novel, practical, and useful.

Intrinsic motivation refers to interest, pleasure, fascination, and satisfaction that employee derives while engaging in an activity or task (Gagné, Senecal & Koestner, 1997). The relationship between autonomy and intrinsic motivation has been demonstrated by using self-determination theory as a framework (Ryan & Deci, 2000). Thomas and Velthouse (1990) posited that psychological empowerment is “presumed to be a proximal cause of intrinsic task motivation and satisfaction”. Employees need to feel psychologically empowered to maintain their intrinsic motivations.

Conversely, lack of intrinsic motivation inhibits creative ideas. Employees do not initiate ideas if they fear that they would be held responsible in case ideas are unable to meet objectives (Ryan & Deci, 2000). With low level of psychological empowerment, the detrimental effect on crafting new solutions is likely to be exacerbated because people buy into their leaders first and then into their visions, meaning that despite demonstrating leader-member exchange characteristics, if people are not intrinsically motivated and inspired to carry out innovative tasks, they would respond negatively to leader-member exchange.

As mentioned previously, intrinsic motivation is critical for employees to display innovative work behavior, and research has shown significant and positive relationship between intrinsic motivation and employee creativity (Zhang & Bartol, 2010). According to De Groot and Steg (2009), innovative work behavior results from multiple motivations among which intrinsic motivation is the most important. People are willing to engage in discretionary,
volunteer, non-obligatory, citizenship, and non-conformance behaviors only if they are motivated intrinsically that these behaviors are important to their personal self-concepts as well as collective good. Hence, intrinsic motivation enables employees to search for new, novel, and useful ways of doing things.

In a nutshell, consistent with the interactional perspective of innovation process (e.g., Rank, Pace, & Frese, 2004), we propose that when employees have high levels of intrinsic motivation and psychological empowerment, leader-member exchange may become useful in fostering innovative work behavior of such employees. Fundamentally, we suggest that innovative work behavior is the outcome of a three-way interaction involving leader-member exchange, intrinsic motivation and psychological empowerment. Based on above arguments, we propose:

**Hypothesis 1.** Leader-member exchange, intrinsic motivation and psychological empowerment interact to affect employee innovative work behavior in such a way that when intrinsic motivation and psychological empowerment are both high, leader-member exchange has the strongest positive relationship with innovative work behavior.

Researchers must identify mediating mechanisms to develop the interactional perspective of innovative work behavior (Rank, Pace, & Frese, 2004). Previous literature confirms the mediating effect of motivational cognitive states like flexible role orientation, supervisor support, and role breadth self-efficacy on the relationship between leadership styles and creativity (Lee, 2008). This research may advance previous literature by explaining further the effect of creative process engagement on the relationship between leader-member exchange, intrinsic motivation and psychological empowerment by testing these relationships empirically. This study proposes that creative process engagement is a psychological mechanism that may transmit the effects of our hypothesized three-way interaction on innovative work behavior.

**FIGURE 1. THE HYPOTHESES MODEL**
Innovative work behavior cannot be predicted because the intended benefits are new and there is no surety of results (De Jong & Den Hartog, 2010). Hence, employees with low levels of psychological empowerment because of their inclination to avoid risky situations may not believe that they have the ability to display innovative work behavior at workplace (Seibert et al., 2011). Nevertheless, intrinsic motivation helps to shape followers’ creative process engagement (Ryan & Deci, 2000), specifically for those who prefer clarity and seek out supervisor guidance.

When supervisors display leader-member exchange, such as giving individual consideration, stimulating intellectually, inspiring motivation, and providing freedom, the ambiguity, anxiety, fear, frustration, and uncertainty linked with innovative work behavior is reduced. As a result, these employees may put more efforts in understanding a problem from multiple perspectives and searching for maximum number of possible potential solutions. Employee engages in more rigorous understanding of a problem and searches for new solutions when his/her confidence to try out new things is reinforced with feeling of empowerment and intrinsic motivation (Schermuly, Meyer & Dämmer, 2013). If creative process engagement is not fully executed (e.g., a problem is poorly identified or understood, not all relevant information is gathered and analyzed, or too few alternative ideas are initiated), the quality of the creative output and innovative behaviors would suffer (Zhang & Bartol, 2010).

When employees have low levels of psychological empowerment and intrinsic motivation, the effect of leader-member exchange on the creative process engagement of such employees may be limited. Even if their supervisors have good relationships with subordinates, they feel that their job requirements are not meaningful and personally important and they cannot shape desired outcomes through their behaviors. This lack of psychological empowerment impedes their ability to take risks (Seibert et al., 2011), explore new cognitive pathways (Thomas & Velthouse, 1990), be playful with ideas successfully, and carry out innovative work behavior. Therefore, they are likely to experience low levels of creative process engagement.

Association of high expectations motivates individuals to initiate positive changes and engage in achievement-oriented behaviors (Howell & Hall-Merenda, 1999). Thus, supportive leaders inspire and intrinsically motivate employees to solve current problems, challenge status-quo, propose out of the box solution for existing issues, handle complicated, risky and uncertain situations, accomplish difficult, ill-defined, and ill-organized objectives, and develop themselves to a higher level of competence. Moreover, Amabile et al. (2004) argued that when employees are intrinsically involved in their work, they are more likely to devote all of their attention to the identification of problems, self-regulate and display persistence in carrying out creative processes. Howell and Hall-Merenda (1999) explained that some employees want to take on more and more challenges, seek new roles and responsibilities, feel empowerment as consistent with their desires and role perceptions, think and act proactively, and envisage empowerment in a positive way. Such individuals according to role identity theory (Farmer, Tierney & Kung-McIntyre, 2003) feel a stronger sense of integration within their role identity sets and are likely to experience higher level of psychological empowerment under leader-member exchange context. Creative process engagement helps employees to engage in creative activities and remain committed.
throughout the creative process until novel, feasible, practical, and useful ideas are realized (Lim & Choi, 2009; Tierney & Farmer, 2002). Based on the above arguments, we hypothesize:

3. Method

This study was conducted in automotive industry in Pakistan. Automotive industry in Pakistan is one of the fastest growing industries and level of rivalry and competitiveness among automobile manufacturers are continually increasing. Innovation is a key determinant of success for automobile manufacturers in Pakistan. It is the employees and not the organizations that innovate. Therefore, the current study selected employees working in Pakistan’s automotive industry to better understand the link between leader-member exchange and innovative work behaviors. Our sample comprised of the employees and their respective supervisors. We distributed surveys to 494 employees recording their opinions about leader-member exchange, intrinsic motivation, psychological empowerment, and creative process engagement. A total of 362 usable surveys were received (73% response rate). A separate rating survey was distributed to each of the 146 relevant supervisors, asking them to evaluate their subordinates’ innovative work behavior. In total, 337 matching usable surveys (a supervisor rated an employee who had also turned in a survey) were returned. On average, each supervisor rated the innovative work behaviors of almost three employees. The average age of the employees was 32.3 years with a standard deviation of 2.84 whereas the average age of supervisor was 36.8 years. The average tenure of employees with the organization was 4.9 years with a standard deviation of 2.54 years. Approximately 36 percent of the sample consisted of females.

Measures

All items were measured on a five-point Likert scales ranging from 1 “strongly disagree” to 5 “strongly agree”.

Leader-member exchange. To measure LXM, Graen and Uhl-Bien’s scale (1995) was used. A sample item is “my supervisor would be personally inclined to use his or her power to help me solve problems in my work”.

Innovative work behavior. The 10-item scale measuring innovative work behavior (e.g., “The employee pays attention to issues that are no part of his daily work.”) used the studies by De Jong and Den Hartog (2010).

Psychological empowerment. The 12-item Empowerment at Work Scale, developed by Spreitzer (1995), using the four cognitive aspects of empowerment (meaning, competence, self-determination, and impact) was used in this study. Sample item: ‘I have considerable opportunity for independence and freedom in how I do my job’.

Intrinsic Motivation: Employee intrinsic motivation was measured with three items adapted from the work of Tierney, Farmer, and Graen (1999).
Creative process engagement. The 11-item creative process engagement scale, developed by Zhang and Bartol (2010), was used in this study. A representative item was: “I spend considerable time sifting through information that helps to generate new ideas.”

Control variables

Based on previous research, we controlled for several relevant demographic factors to better estimate the effect sizes of the hypothesized variables. In all our analyses, we included age (years); organization tenure (years in the organization); gender (1 = male, 0 = female); and educational level (Aryee & Chen, 2006; Kim & George, 2005; Scott & Bruce, 1994).

4. Results

Table 1 presents descriptive statistics, correlations, means, and scale reliabilities. To examine the discriminant validity of our measures, confirmatory factor analyses was conducted. The test result of adaptability showed that the four-factor model (leader-member exchange, intrinsic motivation, psychological empowerment, and creative process engagement) fits the data well ($\chi^2 (363) = 712.48, p<0.01; \chi^2/df= 1.96; \text{NNFI} = 0.93; \text{CFI} = 0.92; \text{and RMSEA} = 0.06$), as compared to other models. We also computed the inter-class correlation coefficient (ICC) due to the fact that supervisors evaluated innovative work behavior of more than one employee (subordinate). There was no systematic difference in supervisors’ ratings of innovative work behavior ($F = 2.38, p > .10; \text{ICC (1)} = 0.061$).

<table>
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<tr>
<th>VARIABLES</th>
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<td>1 Innovative work behavior</td>
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<td>2 Leader-member exchange</td>
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<td>.72</td>
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<td>3 Intrinsic motivation</td>
<td>3.39 (.39)</td>
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<td>.28*</td>
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<td>4 Psychological empowerment</td>
<td>4.12 (.42)</td>
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<td>.33**</td>
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<td>5 Creative process engagement</td>
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<td>6 Age</td>
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<td>7 Gender</td>
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<td>8 Education level</td>
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<td>9 Job tenure</td>
<td>4.9 (2.5)</td>
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Note: *p<.05; **p<.01; ***p<.001.

To test the hypotheses, we used hierarchical moderated regression. We conducted collinearity diagnostics and mean-centred all interaction variables to reduce multicollinearity (Aiken & West, 1991). The hypothesized model had all VIF values well below 10, the average VIF value was 2.24, and the tolerance statistic well above 0.1, indicating that there is no multicollinearity within our data. Hypothesis 1 proposed that the relationship between leader-member exchange and innovative work behavior was moderated by intrinsic motivation and psychological empowerment in such a way that
leader-member exchange had the strongest positive relationship with innovative work behavior when intrinsic motivation and psychological empowerment were both high. According to Table 2, Hypothesis 1 was supported ($\beta = .36, p<0.05, \Delta R^2 = .04$, Model 7).

**Table 2. Results of Hierarchical Regression Analysis**

<table>
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<td>.33**</td>
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<tr>
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<td>F</td>
<td>3.89***</td>
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<td>4.12**</td>
<td>6.08**</td>
<td>6.03**</td>
<td>7.19***</td>
<td>5.01**</td>
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<td>$\Delta F$</td>
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<td>7.33**</td>
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Note: *-p<.05; **-p<.01; ***-p<.001.

A three-way interaction was plotted following Aiken and West (1991)’s procedure. Leader-member exchange had the strongest positive relationship with innovative work behavior when intrinsic motivation and psychological empowerment were both high, thus supporting Hypothesis 1.

Hypothesis 2 stated that creative process engagement mediated the effect of the previous three-way interaction on innovative work behavior. We used Muller, Judd, and Yzerbyt’s (2005) four conditions procedures to test the mediated moderation.

Table 2 shows that (1) the three-way interaction was significantly related to creative process engagement ($\beta = .44, p < .001, \Delta R^2 = .11$, Model 3); (2) the three-way interaction was also significantly related to innovative work behavior ($\beta = .36, p < .05, \Delta R^2 = .04$, Model 7); (3) creative process engagement was positively related to innovative work behavior, after controlling for the interactions among the mediator and moderators and other predictors ($\beta = .31, p < .01, \Delta R^2 = .06$, Model 8); and (4) the three-way interaction effect on innovative work behavior of employees became non-significant after entering the mediator and...
This study also used a method developed by Dawson and Richter (2006) to further examine interactions. This method estimates whether the ratio of the differences between a pair of slopes and its standard error differs from zero. Table 3 presents the simple slopes and slope difference tests related to Figure 2. The test results suggested that leader-member exchange fostered greater innovative work behavior when both intrinsic motivation and psychological empowerment were high (condition 1: t = 4.17; p < .01). Conversely, when employees lacked intrinsic motivation, and/or had lower levels of psychological empowerment (conditions 2, 3, and 4), leader-member exchange was actually statistically insignificant. Moreover, simple slope difference indicated that the interaction between leader-member exchange and intrinsic motivation was significant when psychological empowerment was high (Slopes 1 and 3; t = 3.25; p < .001), and the interaction between leader-member exchange and psychological empowerment was significant when intrinsic motivation levels were high (Slopes 1 and 2; t = 2.89; p < .05), further supporting Hypothesis 1.

A parametric bootstrapping procedure suggested by Preacher and Hayes (2008) was then used to test the significance of the indirect effect. We found that there was a positive indirect relationship between the three-way interaction and innovative work behavior through creative process engagement (indirect effect = .35, 95% biased-corrected bootstrap CI was [.015, .62]), hence supporting Hypothesis 2. This study then conducted a moderated path analysis (Edwards & Lambert, 2007), to better integrate the mediator and multiple moderators into our research model. The results showed that the indirect effect was significant (P_{YM}P_{MX} = 0.374, p < .01), when intrinsic motivation and psychological empowerment were both high. Furthermore, the differences in the indirect effect across condition 1 (high intrinsic motivation and high psychological empowerment) and condition 2 (low intrinsic motivation and high psychological empowerment), and across conditions 1 and 4 (low intrinsic motivation and low psychological empowerment) were significant.
(ΔP_{YM}P_{MX} = 0.127, 0.291, p < .01, p < .001, respectively), supporting our theory of mediated moderation.

**Table 4. Results of the Moderated Path Analysis**

<table>
<thead>
<tr>
<th>Moderator variable</th>
<th>Three-way interaction (XZZ)</th>
<th>Creative process engagement (M)</th>
<th>Innovative work behavior (Y)</th>
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<tbody>
<tr>
<td></td>
<td>Stage</td>
<td>Direct effects (P_{YX})</td>
<td>Indirect effect (P_{YM}P_{MX})</td>
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<tr>
<td></td>
<td>First</td>
<td>Second</td>
<td></td>
</tr>
<tr>
<td>1 (Simple paths for high IM, high PE)</td>
<td>.625*</td>
<td>.534*</td>
<td>.314</td>
</tr>
<tr>
<td>2 (Simple paths for high IM, low PE)</td>
<td>.439**</td>
<td>.542**</td>
<td>.129</td>
</tr>
<tr>
<td>3 (Simple paths for low IM, high PE)</td>
<td>.228</td>
<td>.527***</td>
<td>.158</td>
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<td>4 (Simple paths for low IM, low PE)</td>
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<td>.334</td>
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<td>Differences (1 and 2)</td>
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<td>Differences (1 and 3)</td>
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<td>Differences (1 and 4)</td>
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<td>Differences (2 and 3)</td>
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<td>-.041</td>
<td>-.041</td>
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<tr>
<td>Differences (2 and 4)</td>
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<td>.228</td>
<td>-.166</td>
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<tr>
<td>Differences (3 and 4)</td>
<td>.338</td>
<td>.284</td>
<td>-.125</td>
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</tbody>
</table>

**Note:** P_{MX} is path from three-way interaction to CPE; P_{YM} is path from CPE to innovative work behavior; P_{YX} is path from three way to innovative work behavior; *p < .05; **p < .01; ***p < .001

**Figure 2. Three-Way Interaction Effects on Innovative Work Behavior**
5. Discussion

This study investigated the complex effect that the interaction between leader-member exchange, psychological empowerment and intrinsic motivation has on employee’s innovative work behavior. We found that when psychological empowerment and intrinsic motivation were both high, leader-member exchange had the strongest positive relationship with innovative work behavior. Another important finding of the study was that creative process engagement mediated the three-way interaction’s effect on innovative work behavior. This study makes several distinct contributions. First, our overall contribution is that we have built and tested a conceptual model that uniquely integrates leader-member exchange theory with important innovation process theories.

Second, this was the first study to investigate the circumstances in which leader-member exchange can foster innovative work behavior among employees with high levels of intrinsic motivation. We found that leader-member exchange was most effective at increasing innovative work behavior for employees when they were intrinsically motivated to create and implement new ideas. However, leader-member exchange was shown not to be very effective for other combinations of psychological empowerment and intrinsic motivation e.g., when employees had high psychological empowerment and low levels of intrinsic motivation, or when they had low psychological empowerment and high levels of intrinsic motivation. Third, this paper contributes to the innovative work behavior literature by providing an in-depth understanding of the relationships of intrinsic motivation and psychological empowerment with innovative work behavior.

Our theoretical model also has important implications for managers. First of all, to engender innovative work behavior among employees, the leadership does matter. Second, the managers should understand that a leadership approach such as leader-member exchange that can lift the heart and engage the soul, instead of just being impeccably logical, is the way forward to trigger workplace innovation in organizations. The automotive business in Pakistan has shifted to motivating employees to think and plan new product designs, service innovation strategies, innovation in service products, architectural innovations, modifications of existing automobiles, and innovation in process and organization existing service. Leaders should dedicate more to leveling their employees’ intrinsic motivation by shifting their attention from the external rewards to the enjoyment, interest, and satisfaction derived by sharing knowledge and creating and implementing new ideas. Employees are driven to transform their workload-elicited arousal into innovative work behavior when they enjoy sharing knowledge and generating new ideas. Third, management should provide a flexible and participatory management system where employees feel psychologically empowered so that they do not feel afraid to speak and dissent with their supervisor. A working environment where employees express themselves, share best practices and good experiences, share mistakes, sensitive information, and problems at workplace with their supervisors are likely to display higher levels of innovative work behaviors. Fourth, for employees with low levels of intrinsic motivation, the managers should give even a higher priority to developing intrinsic motivation.
6. Limitations and directions for future research

The current study has some limitations. First, data were collected with self-reported from employees, raising the possibility of same-source bias. Since these constructs (leader-member exchange, intrinsic motivation, and psychological empowerment) address individuals’ internal states, we would argue that it is logical to collect the data from participants themselves. Second, future studies can also improve the explanatory power of the model proposed by adding further variables that could more comprehensively explain link between leader-member exchange and innovative work behavior. Third, we were still unable to establish causality, thus, future research could use a longitudinal design to replicate our results.

References


