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경영학석사학위논문

Boundary Spanning Leadership  
and Employee Creative Performance:  
Exploring Psychological Mechanisms  
and Boundary Conditions

상사의 경계 연결 리더십이  
구성원의 창의적 성과에 미치는 영향

2018년 2월

서울대학교 대학원

경영학과 경영학 전공

윤 서 인

Abstract

# Boundary Spanning Leadership and Employee Creative Performance: Exploring Psychological Mechanisms and Boundary Conditions

Yoon, Seoin

Department of Business Administration

The Graduate School

Seoul National University

In today's fast-changing business environments, organizational innovation and survival are largely contingent upon managing external relationships within and across organizational boundaries. In face of the challenges such as the increasing complexity of tasks, flatter organizational structures, or global competition, leaders as a representative of organizations are thus required to encourage the effective knowledge transfer and creation by bridging diverse and disconnected parties in external areas to achieve competitive advantage. Recognizing the significance of boundary spanning leadership in contemporary organizations, this research aims to advance the current understanding of boundary spanning leadership. First of all, the study

investigates how and why boundary-spanning leaders exert influences on employee creative performance. Second, this study examines the psychological mechanisms through which boundary spanning leadership enhances employee creative performance. Specifically, the study suggests employees' creative self-efficacy and psychological safety as critical psychological processes for creative performance. Third, taking the contingency perspective of boundary spanning and the interaction framework of leadership, the present study explores two situational factors that can maximize the potential effects of boundary spanning leadership on two psychological mediators. The study proposes empowering leadership as leaders' internally oriented behaviors and coworker knowledge sharing as a coworker influence factor.

The current study tested hypotheses using data from 158 subordinate-supervisor dyads. Data were collected through surveys distributed to employees and their direct supervisors from various companies in South Korea. The results revealed that boundary spanning leadership had a marginally significant positive effect on employee creative performance. In addition, boundary spanning leadership was positively related to creative self-efficacy and psychological safety, respectively. The results also demonstrated that both creative self-efficacy and psychological safety mediate the relationship between boundary spanning leadership and employee creative performance. Furthermore, coworker knowledge sharing was found to moderate the effect of boundary spanning leadership on creative self-efficacy. Specifically, the positive relationship between boundary spanning leadership

and creative self-efficacy was strengthened when coworker knowledge sharing was high rather than when it was low. However, contrary to prediction, the results did not support the moderating effect of coworker knowledge sharing on the relationship between boundary spanning leadership and psychological safety. Also, the interaction effects of boundary spanning leadership and empowering leadership on creative self-efficacy and on psychological safety were not significant.

This study contributes to the extant literature in several important ways. First, the study enriches boundary spanning research by demonstrating the effectiveness of leaders' boundary spanning behaviors in enhancing employee creative performance through improved creative self-efficacy and psychological safety. Moreover, the current study highlights the necessity to examine contingency of boundary spanning work by leaders. Second, this study adds to leadership literature by extending a leader's role from managing internal relationships with employees to managing external relationships with external players within or across organizational boundaries. In addition, the findings of this study provide insights into the interactional perspective of leadership by revealing a role of coworker knowledge sharing as a contingent factor that maximizes the effectiveness of boundary spanning leadership. Despite the unsupported results, the study sheds a new light on the synergy among diverse leadership behaviors by suggesting the interaction effect of boundary spanning leadership and empowering leadership. Lastly, the study contributes to creativity literature by understanding that leader influence (i.e., boundary spanning activities), employees' psychological states (i.e., creative

self-efficacy and psychological safety), and coworker influence (i.e., coworker knowledge sharing) play critical roles in determining employee creative performance.

Despite some limitations, the present study substantially advances the current understanding of boundary spanning leadership by addressing why, how, and under what circumstances boundary spanning leaders improve employee creative performance. This study reveals that boundary spanning leaders enhance employees' creative performance by increasing their creative self-efficacy and psychological safety, both are critical psychological conditions for creative performance. Further, when coworkers actively share knowledge one another, the positive effect of boundary spanning leadership on employees' creative self-efficacy is strengthened. This study hopes to stimulate future research to explore boundary spanning leadership.

**Keywords:** Boundary spanning leadership, Employee creative performance, Creative self-efficacy, Psychological safety, Empowering leadership, Coworker knowledge sharing

**Student number:** 2015-20632

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## I. INTRODUCTION

In today's fast-changing business environments, it is hard to achieve innovation and survival solely by managing internal dynamics within organizations (Ancona & Caldwell, 1992; Joshi, Pandey, & Han, 2009; Marrone, Tesluk, & Carson, 2007). As organizational structures become flatter and tasks become more knowledge-intensive, it is critical to encourage the effective knowledge transfer and creation within and across organizational boundaries to resolve challenges in tasks (Faraj & Yan, 2009; Marrone, 2010). Indeed, interdependent and coordinated effort among organizational members across different parts of organizations and even across different organizations has become an inevitable part of organizational life (Ramarajan, Bezrukova, Jehn, & Euwema, 2011). In these interdependent contexts, organizations require leaders to serve as "a linking pin" (Likert, 1967) or "a nerve center" (Mintzberg, 1973) by establishing and managing external linkages and thus achieve continuous innovation and success (Ancona & Caldwell, 1992; Brion, Chauvet, Chollet, & Mothe, 2012; Druskat & Wheeler, 2003). Hence, successful leaders play a boundary spanning role by bridging diverse and disconnected parties in external areas to lead organizations' competitive advantage.

Despite the significance of boundary spanner leaders in contemporary business organizations, the current understanding of boundary spanning leader behaviors remains considerably limited in several aspects.

First of all, although there has been a rich discussion on boundary spanning activities, most prior studies have focused exclusively on team boundary spanning in the contexts of R&D or project teams (e.g., Marrone, 2010), largely overlooking the unique dynamics associated with leaders' boundary spanning behaviors in a more generalized organizational context. Importantly, a handful of research has noted that boundary spanning work by leaders are more effective than that by team members (Hirst & Mann, 2004) since leaders with extensive work experience and competence are better able to reach important external actors, promote task contents, and influence resource flow necessary for successful problem solving (Elkins & Keller, 2003; Brion et al., 2012; Tushman & Scalan, 1981a, 1981b). Therefore, considering the significance of leader boundary spanning, the present research was designed to advance knowledge of boundary spanning leadership by examining the relationship between boundary spanning leadership and employee creative performance at the micro level and in more general organizational contexts.

Second, no prior research to date has unlocked the black box between boundary spanning behaviors and creative performance. Although several studies paid attention to boundary spanning functions by leaders in R&D teams (see Elkins & Keller, 2003), they have left the question of the psychological mechanisms of boundary spanning leadership on creative performance unanswered. Also, many studies on team boundary spanning have yet to uncover how and why boundary spanning activities by team members promote teams' innovative performance as well (see Marrone,

2010). Thus, given that leaders affect employees' creative performance by shaping their psychological states, which are necessary conditions for creativity (Zhang & Bartol 2010; Carmeli, Reiter-Palmon, & Ziv 2010), this study puts another emphasis on unveiling the psychological processes through which boundary-spanning leaders enhance employee creative performance to fill the gap in the literature. Specifically, the study builds upon Kahn's (1990) psychological engagement theory to suggest two psychological states linking boundary spanning leadership and creative performance. Kahn (1990) suggested psychological availability and psychological safety as critical psychological conditions for employees' involvement. Drawing on the theory, this research suggests creative self-efficacy and psychological safety as two psychological conditions for employee creative performance. By testing the mediating effects of creative self-efficacy and psychological safety, this study aims to underline the role of boundary spanning leadership in affecting employees' psychological states and their creative performance.

Lastly, although there have been considerable calls in the literature for future research exploring contingency of boundary spanning behaviors (Choi, 2002; Marrone, 2010; Faraj & Yan, 2009), prior research has not much addressed under what conditions the impact of boundary spanning behaviors can be strengthened. Particularly, considering the inconsistent findings regarding the influences of boundary spanning work (e.g., Faraj & Yan, 2009), it is more likely that the positive effects of leader boundary spanning on

employee outcomes are contingent upon certain situational contexts. Hence, the last goal of the current paper is to identify the contextual moderators that can maximize the effects of boundary spanning leadership on two psychological outcomes to make more comprehensive understanding. In addition to the contingency perspective of boundary spanning literature (e.g., Faraj & Yan, 2009; Choi, 2002; Joshi et al., 2009), the study follows the interactional framework of leadership (Yukl, 2002; Hughes, Ginnett, & Curphy, 2002; Yun, Cox, & Sims Jr, 2006) that the effectiveness of leadership can vary depending on situational conditions such as other leadership influences or coworker influences. Taking both perspectives, the study posits that leaders' internally oriented behaviors and coworker behaviors may affect the impacts of boundary spanning leadership on employee outcomes. Specifically, this paper selects empowering leadership and coworker knowledge sharing as potential contingent factors that can create the synergy effects with boundary spanning leadership in enhancing two psychological conditions for creative performance.

In sum, this research aims to advance the current understanding of boundary spanning leadership by testing a comprehensive model as shown in Figure 1. Specifically, the study has three purposes. First of all, the study investigates why and how boundary-spanning leaders exert influences on employee creative performance. Second, this study examines the psychological mechanisms through which boundary spanning leadership enhances employee creative performance. Specifically, the study suggests

employees' creative self-efficacy and psychological safety as critical psychological processes for creative performance. Third, taking the contingency perspective of boundary spanning and the interaction framework of leadership, the present study explores two situational factors that can maximize the potential effects of boundary spanning leadership on two psychological mediators. The study proposes empowering leadership as leaders' internally oriented behaviors and coworker knowledge sharing as a coworker influence, all of which may bolster the potential effects of boundary spanning leadership.

## **II. THEORETICAL BACKGROUND**

### **1. Boundary Spanning Leadership**

The construct of boundary spanning behavior has been introduced in social psychology literature that attempted to extend the internal focus of traditional team research by highlighting external activities of teams (Katz & Kahn, 1978; Gladstein, 1984). Recognizing the importance of team boundary management, Ancona and Caldwell (1988, 1990, 1992) identified four types of teams' external activities by conducting extensive interviews and surveys on new product development teams; 1) ambassador activities include promoting teams, secure resources, or protect the teams from interference, 2) task coordinator activities involve discussing, obtaining feedback or negotiating with others to provide access to the workflow structure, 3) scouting activities refers to behaviors such as scanning for ideas and information, 4) guard activities describe activities aimed at avoiding releasing information. The research also showed that these external activities which teams engage in make a significant difference in team performance.

Since Ancona and Caldwell's (1992) pioneering work, most of the studies on boundary spanning have examined the effectiveness of team boundary spanning in the context of R&D teams, as indicated in Table 1. For instance, Marrone et al. (2007) in their multilevel study of MBA students found the effective role of team boundary spanning in assuaging boundary spanning members' role overload and improving team performance and

viability, as well as individual and team level predictors of members' boundary spanning behaviors (i.e., boundary spanning role, boundary spanning self-efficacy, team external focus, and consensus on external focus). In addition, adopting a holistic and open system approach, Faraj and Yan (2009) suggested a model of team boundary work wherein boundary spanning, buffering, and, importantly, reinforcement (i.e., inward-facing boundary work to maintain team identity and demarcate clear boundaries) affect team performance and team psychological safety. Besides adding a new type of boundary work, the study provided evidence for boundary conditions of boundary works by finding that both relationships (except boundary spanning) are moderated by task uncertainty and resource scarcity. Other studies on R&D teams have also substantiated the effects of boundary spanning on team performance (Oh, Chung, & Labianca, 2004), knowledge transfer (Tsai & Ghoshal, 1998) and team learning (Edmondson, 2003).

Meanwhile, a handful of studies have also focused on individual boundary spanning by investigating its antecedents or consequences as seen in Table 1. A recent study (Liu, Jiang, Chen, Pan, & Lin, 2016) found that employee boundary spanning behavior increase task performance via informal leader emergence and low group power distance strengthened the mediated effect of boundary spanning on performance. Interestingly, some studies reported negative consequences of employee boundary spanning behavior. Marrone et al. (2007) suggested engaging in boundary spanning activity increase member's role overload, which would threaten team viability.

Ramarajan et al. (2011) found that the negative spillover effects of boundary spanning on employee work attitudes. Specifically, employees' frequent boundary spanning contact with outside members caused work- or culture-specific problems and thus decreased confidence in mission and job attractiveness. These studies suggest that boundary management activities may be better performed by someone who is in an advantageous position for performing external activities.

Indeed, a growing number of researchers have emphasized the importance of boundary spanning role played by leaders rather than by team members. Scholars (Tushman & Scanlan, 1981; Yukl, 1989) maintained that within- and across organizational boundaries can be spanned effectively only when boundary spanners have the task-relevant knowledge, expertise, and experience enough to understand contextual information of both internal and external areas and to communicate with both sides of boundaries. Being placed in an advantageous position, supervisors are more likely to have access to significant others outside of organizations as well as in different units, usually not available at employees (Brion et al., 2012; Galbraith, 1973). In addition, as they have a unique and up-to-date understanding regarding tasks, leaders with the guaranteed legitimacy are better able to influence strategic negotiation and resource flow among external stakeholders (Brion et al., 2012). Indeed, Hirst and Mann (2004) in their study of R&D project team using different stakeholders' ratings of performance revealed that boundary spanning is most effective when performed by leaders, not teams.

In fact, many scholars have recognized leader boundary spanning as one of the significant functions of effective leadership and managerial behavior (Likert, 1967; Graen & Ginsburgh, 1977). Given that leadership is defined as the process of influencing “others” to accomplish organizational goals (Yukl, 2002), managing outsiders and exerting outward influences come under important responsibilities of leaders. In support of this view, Mintzberg’s (1973) taxonomy of 10 managerial roles (e.g., a liaison, spokesperson, or disseminator) captures boundary spanning activities that establish a web of relationships with important outsiders, transmit information and obtain resources from external areas. Yukl (2002) also identified boundary spanning role as one of four major roles of a leader. Nevertheless, only a few empirical studies of R&D teams or project team have investigated the positive impacts of leader boundary spanning on team outcomes (see Elkins & Keller, 2003 for a review). Here, we posit that most employees in organizations under today’s dynamic contexts must interact with one another and that boundary spanning function is taking place everywhere, not limited to project teams. Thus, the present study examines the role of a boundary spanning leaders in determining employee creativity in general organizational contexts in order to make a complete understanding of boundary spanning leadership.

**Table 1. Prior studies on boundary spanning behaviors**

<b>Study</b>	<b>Independent Variable</b>	<b>Mediator</b>	<b>Moderator</b>	<b>Dependent Variable</b>
<i>Team Boundary Spanning</i>				
Ancona & Caldwell (1992)	Boundary spanning activity (ambassador, task coordinator, scouting)		Internal process (task and cohesive)	Team performance
Bartel (2001)	Boundary spanning contextual cues (community outreach)	Collective self-esteem and organizational identification		Cooperation, work-related effort, and participation
Marrone et al. (2007)	Boundary spanning role, boundary spanning self-efficacy, and team external focus		Team boundary spanning	Role overload, team performance, and team viability
Faraj & Yan (2009)	Boundary work (spanning, buffering, and reinforcing)	Psychological safety	Task uncertainty, resource scarcity	Team performance
Cross, Yan, & Louis (2008)	Boundary spanning, buffering, bringing up boundaries	-	-	-
Richter, West, Van Dick, & Dawson (2006)	Boundary spanners' group identification	-	Organizational identification, intergroup contact	Intergroup conflict, productivity

<b><i>Employee Boundary Spanning</i></b>				
Teigland & Wasko (2003)	External information trading	Internal information trading	-	Individual creativity, general performance
Perrone, Zaheer, & McEvily (2003)	Boundary spanner's role autonomy	-	Trust in organization	Trust in boundary spanner
Cross & Cummings (2004)	Number of ties inside/outside organization, position in the information awareness network, physical barriers, hierarchy	-	-	Individual performance
Ahearne, Bhattacharya, & Gruen (2005)	Perceived salesperson characteristics	-	Customer's organizational identification	Customer's in-/extra- role behavior
Ramarajan et al. (2011)	Frequency of boundary spanning contact	Work- and culture-specific problems	-	Confidence in mission, job attractiveness
Liu et al. (2016)	Boundary spanning behavior	Informal leader emergence	Group power distance	Task performance

<i>Leader Boundary Spanning</i>				
Katz & Tushman (1981)	Boundary spanning team leader	-	-	Technical performance, promotion
Katz & Tushman (1983)	Boundary spanning supervision (external communication, gatekeepers, internal liaisons)	-	Age, project characteristics	Employee turnover, promotion
Druskat & Wheeler (2003)	Leader's boundary spanning strategies	-	-	Team effectiveness
Hirst & Mann (2004)	Leader role performance (boundary spanning)	Team processes (team boundary spanning, communication, safety)	-	Project team performance
Brion et al. (2012)	Leader's personal network	Boundary spanning	-	NPD knowledge acquisition, financial success

## **2. Employee Creative Performance**

Over the last three decades, research has defined creativity as the generation of “novel and useful” ideas about products, services, processes or procedures (Amabile, 1996; Oldham & Cummings, 1996; Zhou & Shalley, 2003; Shalley, 1991). The novelty of ideas can be assessed on a continuum such that some ideas are relatively new and unique compared to others. In addition, the usefulness of ideas refers to whether new suggestions have the potential for values to the organization. As such, creative suggestions can range from minor and incremental adaptations in the current practices to major and radical change in practices or product developments (Mumford & Gustafson, 1988). Given its definition, creativity differs from innovation that represents the implementation of creative ideas. As the first step toward innovation, which leads to organizational success and survival (West & Farr, 1990), employee creativity is crucial “in any job and at any level of the organization” (Shalley, Zhou, & Oldham, 2004, p.934; Shalley & Gilson, 2004; Madjar, Oldham, & Pratt, 2002).

Research on employee creativity has begun with Amabile’s (1983, 1988, 1996) works that proposed a componential theory of creativity which specifies three major components of creative performance (i.e., domain-relevant expertise, creativity-relevant skills, and task motivation). Woodman, Sawyer, and Griffin (1993) also suggested the interactionist perspective of creativity that individual creativity is a consequence of the interaction of

personal and contextual factors. Ford (1996)'s individual creative action model asserts that an individual's determination to exhibit creative or habitual action in multiple social domains is a joint function of sense-making, motivation, and knowledge and skills. Building on these three major theories of creativity, a decent number of empirical research to date has examined varied factors that facilitate or inhibit employee's creative performance in terms of individual differences (e.g., intrinsic motivation, creative personality), job characteristics (e.g., job complexity, autonomy), social influences (e.g., supervisor support, justice), and the complex interactions among them (see Anderson, Potočnik, & Zhou, 2014 for a review).

Particularly, many scholars have emphasized the importance of "creative situation" that is conducive to individual creativity (e.g., Chang, Jia, Takeuchi, & Cai, 2014; Sternberg & Lubart, 1996). That is, an employee's creative performance does not take place in a vacuum but necessitates a supportive environment that encourages and fosters the development of creative ideas (Shalley & Gilson, 2004). Even though an employee's inherent characteristics such as proactive personality or openness to experience may affect creativity (Gong, Cheung, Wang, & Huang, 2012; Feist, 1998), the context in which an employee works is also critical for the occurrence of creativity. In this regard, a growing stream of research has underscored the role of leaders (or supervisors) in creating the environment where employee creativity can be nurtured. For instance, Amabile, Schatzel, Moneta, and Kramer (2004) noted:

Of all of the forces that impinge on people's daily experience of the work environment in these organizations, one of the most immediate and potent is likely to be the leadership of these teams—those “local leaders” who direct and evaluate their work, facilitate or impede their access to resources and information, and in a myriad of other ways touch their engagement with tasks and with other people. (p.6)

Recognizing the importance of leadership in creativity, a number of empirical studies examined the role of leader influence as a significant situational context in predicting creativity as shown in Table 2 (Mumford, Scott, & Gaddis, 2002). For example, several studies have investigated as a strong determinant of employee creativity (e.g. Cheung & Wong, 2011; Jaussi & Dionne, 2009). The positive effect of transformational leadership has been found to be mediated by creative self-efficacy (Gong, Huang, & Farh, 2009), self-concordant goals (Bono & Judge, 2003), intrinsic motivation (Shin & Zhou, 2003), or innovation climate (Jaiswal & Dhar, 2015). A recent study (Pieterse, Van Knippenberg, Schippers, & Stam, 2010) revealed that leaders' transformational behaviors have a positive influence on innovative behavior only when followers' psychological empowerment is high. Others also found the moderating role of transformational leadership in enhancing employee creativity (Hirst, Van Dick, & Van Knippenberg, 2009; Shin, Kim, Lee, & Bian, 2012). In addition, Zhang and Bartol (2010) examined the role of empowering leadership and found that supervisory empowerment behaviors increase creativity via psychological empowerment, which, in turn, engenders

intrinsic motivation, and creative process engagement. Empowering leadership has also been found to strengthen the indirect impact of customer empowering behavior on employee service creativity via state promotion focus (Dong, Liao, Chuang, Zhou, & Campbell, 2015). Leader-member exchange (LMX) also demonstrated its positive effect on employee creativity through employee self-efficacy that is attenuated when LMX differentiation within teams is high (Liao, Liu, & Loi, 2010). Previous studies further have found the positive role of supervisory support (Madjar et al., 2002), supervisory expectations for creativity (Tierney & Farmer, 2004; Carmeli & Schaubroeck, 2007), benevolent leadership (Wang & Cheng, 2010), or inclusive leadership (Carmeli et al., 2010) in predicting employee creative performance.

Furthermore, studies have also focused on several types of leader behaviors that hinder employee's creative behavior. For instance, when supervisors closely monitor employees and try to control the way the employees think or behavior, the employee are less likely to display creativity (Oldham & Cummings, 1996; Zhou, 2003). Taking the interactional perspective, George and Zhou (2001) examined the role of supervisors' close monitoring behavior that interacts with unsupportive coworker factors (e.g. inaccurate communication) to impair employee creative behavior. Moreover, abusive supervision has also been investigated as an undesirable context that inhibits the occurrence of creativity (Liu, Liao, & Loi, 2012). However, in a study of Korean sample characterized by high power distance and

performance-orientation, Lee, Yun and Srivastava (2013) found the curvilinear relationship between a supervisor's abusive behavior and employee creative performance. That is, employees exhibited more creativity when abusive supervision is at a moderate level that represents the optimal activation for creativity compared to at very low or very high levels.

In addition to internally oriented leader behaviors aforementioned, we add to the existing literature by focusing on how leaders' external activities, namely boundary spanning leadership, can foster employee creativity. In the following sections, we discuss the construct of boundary spanning and the importance of the role of leaders played in boundary management so as to nurture employee creativity in creative situations and achieve an organizational competitive advantage.

**Table 2. Prior empirical studies on leader influence on creativity**

<b>Leader influence</b>	<b>Study</b>	<b>Independent Variable</b>	<b>Other Variables</b>	<b>Creativity Variable</b>
Transformational leadership	Gong et al. (2009)	Transformational leadership, LGO	Self-efficacy (med)	Creativity
	Hirst et al. (2009)	Team identification	Creative effort (med), inspirational motivation, leader's team prototypicality (mod)	Creative performance
	Pieterse et al. (2010)	Transformational leadership, transactional leadership	Psychological empowerment (mod)	Innovative behavior
	Cheung & Wong (2011)	Transformational leadership	Leader task and relations support (mod)	Creativity
	Shin et al. (2012)	Cognitive team diversity	Creative self-efficacy, transformational leadership (mod)	Creativity
	Mittal & Dhar (2015)	Transformational leadership	Creative self-efficacy (med), knowledge sharing (mod)	Creativity

Empowering leadership	Zhang & Bartol (2010)	Empowering leadership	Leader encouragement of creativity, empowerment role identity (mod), psychological empowerment, intrinsic motivation, creative process engagement (med)	Creativity
	Dong et al. (2015)	Customer empowering behavior	Supervisory empowering leadership (mod), state promotion focus (med)	Service creativity
Supervisory expectations for creativity	Tierney & Farmer (2004)	Supervisor expectations for creativity	Creativity-supportive behavior, employee view of creativity expectations, creative self-efficacy (med)	Creativity
	Carmeli & Schaubroeck (2007)	Expectations for creativity of supervisors, customers, and family	Self-expectations for creativity	Creative work involvement
Supervisory support	Madjar et al. (2002)	Support for creativity from supervisors and coworkers, from friends and family members	Positive/negative mood (med), creative personality (mod)	Creative performance

Supervisory benevolence	Wang & Cheng (2010)	Benevolent leadership (leader benevolence)	Creative role identity, job autonomy (mod)	Creativity
Inclusive leadership	Carmeli et al. (2010)	Inclusive leadership	Psychological safety (med)	Involvement in creative work
Leader-member exchange (LMX)	Liao et al. (2010)	Leader-member exchange, team-member exchange	Self-efficacy (med) LMX differentiation, TMX differentiation (mod)	Creativity
Abusive supervision	Liu et al. (2012)	Abusive supervision by both department and team leaders	attribution (performance promotion, injury initiation motives) (mod)	Creativity
	Lee et al. (2013)	Abusive supervision (curvilinear)	-	Creativity
Close monitoring	George & Zhou (2001)	Openness to experience/conscientiousness	Supervisory close monitoring (mod) inaccurate communication, unhelpful coworkers, negative work environment (mod)	Creative behavior
	Zhou (2003)	Close monitoring, developmental feedback	Creative coworkers/creative personality (mod)	Creativity

### **3. The Psychological Mechanisms of Boundary Spanning Leadership**

The study answers through which psychological mechanisms boundary spanning leadership affects employee creative performance. In doing so, this study builds upon Kahn's (1990) work that delineates psychological conditions for employee engagement. Kahn (1990, p. 703) suggested that "organization members seemed to unconsciously ask themselves three questions in each situation and to personally engage or disengage depending on the answers. The questions were (1) How meaningful is it for me to bring myself into this performance? (2) How safe is it to do so? and (3) How available am I to do so?" That is, an individual needs three psychological conditions to fully engage in a certain task or performance: psychological meaningfulness, "a sense of return on investments of self in role performances"; psychological availability, "a sense of possessing the physical, emotional, and psychological resources necessary for investing self in role performances"; psychological safety, "a sense of being able to show and employ self without fear of negative consequences to self-image, status, or career" (p. 705).

The current study posits that creative performance, or the exhibition of creativity, reflects one's engagement in creative work roles since every employee is required to question the status quo and explore novel ways to complete tasks successfully, regardless of his or her job, position, or organization. Given that boundary spanning activity itself is irrelevant to the

increase of returns on creative performance, the study focuses on psychological availability and psychological safety. Considering that breaking the status quo and suggesting unfamiliar approach involves costs and risks, one's feeling of capability and safety to make a suggestion are essential. Hence, the study proposes creative self-efficacy and psychological safety that reflect psychological availability and psychological safety in Kahn's framework, respectively. Specifically, the study expects that boundary-spanning leaders will enhance creative performance by affecting critical psychological conditions of employees, namely creative self-efficacy and psychological safety.

### **3.1 Creative Self-efficacy**

Self-efficacy refers to "an individual's belief in one's capability to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Even though the concept of self-efficacy taps one's self-judgment of capacity in general contexts, some scholars noted the role of self-efficacy as a key motivational factor in leading individual creative action (e.g., Bandura, 1997; Ford, 1996, Bandura & Locke, 2003). Recognizing its relevance to creativity, Tierney and Farmer (2002) applied self-efficacy theory to employee creative performance and conceptualized creative self-efficacy as "the belief one has the ability to produce creative outcomes" (p. 1138). Creative self-efficacy can be distinguished from general

self-efficacy or job self-efficacy in terms of content and degree of specificity (Tierney & Farmer, 2002). In contrast to general self-efficacy (i.e. overall belief in one's capability across domains) and job self-efficacy (i.e. the view of one's own capacity to conduct the overall job), a sense of creative self-efficacy indicates a more specific self-view of creativity capacity to generate new and useful ideas in a specific domain. Creative self-efficacy was found to predict creativity beyond the impacts of job self-efficacy (Tierney & Farmer, 2002).

The conceptual extension of self-efficacy for creativity has greatly contributed to creativity literature by explicitly discovering a more relevant psychological catalyst of individual creative performance. Indeed, the positive effect of creative self-efficacy on creativity has been found among both employees (e.g., Tierney & Farmer, 2004) and teams (Shin & Zhou, 2007) and across various contexts including education, operations, information technology, financial and insurance services, research and development (Gong et al., 2009; Carmeli & Schaubroeck, 2007; Choi, 2004; Mittal & Dhar, 2015; Beghetto, 2006). Thus, many studies have attempted to explore individual and contextual factors that can cultivate creative self-efficacy in order to facilitate employees' creative performance. In an attempt to uncover determinants of creative self-efficacy, Tierney and Farmer (2002) examined two personal sources of creative efficacy, that is job knowledge (operationalized by job tenure and education level) and job self-efficacy, and found the positive associations with creative performance. In a study of the

insurance company in Taiwan (Gong et al., 2009), employee learning goal orientation predicted creative self-efficacy, which, in turn, lead to employee creativity. Choi (2004) found that an individual's creative ability is positively associated with creative self-efficacy whereas cautious personality is negatively related to creative self-efficacy.

Furthermore, given that social contexts also play a pivotal role in shaping employees' efficacy perceptions (Gist & Mitchell, 1992; Bandura, 1986), some researchers paid attention to contextual factors that increase creative self-efficacy (e.g., Mittal & Dhar, 2015). What is notable is that among various contextual variables, leadership or leader behaviors have received a great deal of attention as a potential factor that creates a desirable context in which employees feel confident that they can be creative in their performance. For instance, a research on Pygmalion process for creativity (Tierney & Farmer, 2004) found that supervisors enhance employees' creative self-efficacy by displaying high expectations for creativity and creativity-supportive behaviors. Transformational leadership has been found to boost employees' creative performance by augmenting their creative efficacy perceptions (Gong et al., 2009; Mittal & Dhar, 2015). Tierney and Farmer (2002) also revealed that supervisor support (i.e., role modeling and verbal persuasion) increase creative performance via self-efficacy for creativity. These studies of the mediating role of creative self-efficacy in the relationship between leader influences and creativity indicated that leaders play an important role in encouraging employees' creative performance

especially by affecting their beliefs in creativity capacity. Along with the previous studies, the current paper examines how boundary spanning leaders exert their influences on employees' creative behaviors by focusing on the role of creative self-efficacy.

### **3.2 Psychological Safety**

The early history of psychological safety research began in the 1960s by organizational scholars who focused on organizational change (Edmondson & Lei, 2014). Schein and Bennis (1965) first highlighted the role of psychological safety that gives individuals the feeling of security and capability to change behaviors in the face of organizational change. Schein (1985, 1993) later suggested that with a sense of psychological safety, individuals are able to overcome anxiety and take advantage of new ideas and information to contribute to collective goals rather than self-goals. After a short hiatus, Kahn's (1990) study of personal engagement demonstrated the importance of psychological safety and revitalized research on this construct. A series of qualitative studies in his research indicated that an individual's personal engagement is possible when "he or she feels able to show and employ his or herself without fear of negative consequences to self-image, status, or career" (Kahn, 1990, p.708). That is, employees who feel comfortable and safe exhibiting their opinions and thoughts freely are likely to suggest new ideas and share divergent viewpoints. Employees'

psychological safety, therefore, has been found to be associated with engagement in quality improvement work (Nembhard & Edmondson, 2006), creative work involvement (Kark & Carmeli, 2009), voice behavior (Liang et al., 2012), knowledge sharing (Siemsen, Roth, Balasubramanian, & Anand, 2009) and learning behavior (Carmeli & Gittel, 2009).

Recognizing its significance as a significant motivator that predicts desirable work outcomes in the workplace, much research has attempted to discover antecedents of psychological safety. As for individual characteristics, Gong et al. (2012) suggested that employee proactivity leads to higher exchange information, which, in turn, increases trusting relationship that offers psychological safety for creative endeavors. In addition, Edmondson and Lei (2014) found that individuals with higher neuroticism perceived lower psychological safety. As for organizational factors, prior studies have focused on organizational factors such as commitment-based HR practices (Collins & Smith, 2006) and social capital (Carmeli, 2007). Importantly, several studies have highlighted the role of supervisors in determining employees' experience of psychological safety and subsequent their work behaviors. For instance, Detert and Burris (2007) found that transformational leadership increased psychological safety, which, in turn, promotes voice behavior. In a multilevel research of financial institution in the United States (Walumbwa & Schaubroeck, 2009), psychological safety partially mediated the influence of ethical leadership on voice behavior. Moreover, inclusive leadership has been found to foster employee involvement in creative tasks

(Carmeli et al., 2010) and engagement in quality improvement work (Nembhard & Edmondson, 2006) via the increased level of psychological safety. A study on team boundary work in software development teams (Faraj & Yan, 2009) revealed that team boundary spanning, buffering and reinforcement activities contribute to psychological safety and team performance, but the mediating effects of psychological safety were not supported.

Along with this line of research, the present paper focuses on how supervisors create a safe and comfortable work environment in which employees willingly take a risk and make a creative suggestion without fears of negative consequences and help them bring up creative ideas. It is notable that I conceptualize the construct of psychological safety at the individual level. Although prior research on psychological safety has been largely conducted at the group level (Edmondson & Lei, 2014), I suggest that the individual is the appropriate level of analysis at which to examine a variance in psychological safety between supervisor-subordinate dyads. Given that very few studies at the individual level have investigated the role of employee psychological safety in the relationship between leadership behaviors and creativity, it would be more fruitful to enrich the literature by examining how psychological safety explains the effect of boundary spanning leader behavior on employee creative performance at the individual level.

### **III. HYPOTHESES DEVELOPMENT**

#### **1. Boundary Spanning Leadership and Employee Creative Performance**

The study suggests that boundary spanning leaders make “creative situations” in which employees are better able to make a creative performance by connecting the employees with novel and helpful job resources from external areas. Boundary spanning leaders scan for useful information across organizational boundaries to facilitate task accomplishment. So, they maintain close linkages with external actors who possess important skills to secure those resources. Boundary spanners also promote their task activities and objectives to the key external players and achieve legitimacy (Marrone et al., 2007; Brion et al., 2012; Aldrich & Herker, 1977). When boundary spanning leaders actively connect with various ties within organizations, focal employees can obtain valuable job resources that represent a plenty of opportunities to make the creative performance. Specifically, employees under boundary spanning leaders can get assistance and guidance for their work from critical external constituencies (Scott, 2000) and attain useful feedbacks and know-hows to solve task problems from those who have better and novel insights (Baldwin, Bedell, & Johnson, 1997). Then, employees are able to use wide categories, view problems from different perspectives, and establish connections between what they already know and the new area of knowledge. Equipped with a deeper understanding of their tasks and richer

knowledge base, employees can better break their cognitive sets and deviate normal performance scripts, thereby exhibiting their creative potentials. Taken together, we hypothesize the following:

**Hypothesis 1.** Boundary spanning leadership is positively related to employee creative performance.

## **2. The Mediating Roles of Employee Creative Self-efficacy and Psychological Safety**

### **2.1 Creative Self-efficacy**

In addition to their direct influence in terms of job resources from external areas, boundary spanning leaders affect employee creative performance through indirect psychological mechanisms. This study suggests that boundary spanning leadership increases employees' beliefs in creative success, which is a critical psychological condition for creative performance. It is important for an employee to have a sense of confidence in his or her own ability and status in order to fully engage in work (Kahn, 1990). That is, creative performance necessitates one's sense of capabilities to be creative in his or her work. Creative self-efficacy is based on employee's knowledge and skills that enable creative performance (Gong et al., 2009). Tierney and Farmer (2002) also showed that job-related knowledge and cognitive enhancements such as the use of divergent problem-solving skills or diverse perspectives is critical to building a sense of creative self-efficacy.

Boundary spanning leaders increase employees' creative self-efficacy, the confidence to be creative in their work roles. Leaders who take on a boundary spanning role provide informational support by acquiring valued resources (e.g., feedback, advice and knowledge) from important outsiders, all of which are less accessible to employees. Benefitting from boundary spanning leaders' initiative, employees can perceive themselves to be better prepared and equipped with improved task expertise and creativity skills. Therefore, employees whose supervisors proactively span boundaries within or across organizations are likely to make a positive self-evaluation, especially in terms of creative capability, on the basis of their broadened and enlarged resource reservoirs. Taken all together, I suggest a relationship between boundary spanning leadership and creative self-efficacy.

**Hypothesis 2.** Boundary spanning leadership is positively related to creative self-efficacy.

Creative performance, the behavioral manifestation of creativity potential (Choi, 2004), not only requires a great deal of time and effort but also often results in failure and rejection (Amabile, 1988). Thus, employees must be confident in their ability to be creative in their tasks so as to engage in creative activities (Ford, 1996). That is, it is important for employees to have sources of perseverance to sustain their creative endeavors in the face of challenges and obstacles (Bandura, 1997). One's belief in own capability to

successfully produce creative outcomes provides internal force to persevere creative efforts. Employees with a sense of creative self-efficacy tend to initiate creative action and enjoy creativity process in the challenging situations (Bandura, 1997). As such, such employees who believe they are capable of generating creative ideas have found to report a high level of creative performance (Tierney & Farmer, 2004, 2011; Redmond, Mumford, & Teach, 1993).

Creativity-specific efficacy that is developed by boundary spanning leaders may explain why leaders' boundary spanning activities promote creative performance. Employees whose leaders actively build interactions with the external environments are likely to experience a higher level of creative efficacy, which, in turn, leads to creative performance since such confidence in the ability to be creative motivates the engagement in demanding and risky creative activities. Recent research has noted that leader behaviors predict employees' creative performance via augmented efficacy perception for creativity (e.g., Gong et al., 2009). Taken the above discussions, this paper expects that boundary spanning leader behavior is likely to boost the creative performance of followers through its influence on creative self-efficacy.

**Hypothesis 3.** Creative self-efficacy mediates the relationship between boundary spanning leadership and employee creative performance.

## **2.2 Psychological safety**

In addition to cognitive benefits, I suggest that boundary spanning leadership may also build up psychological safety, which is defined as one's perception of the consequences of taking interpersonal risks in his or her work environment (Edmondson, 1999, 2004). Employees who perceive a high level of psychological safety feel comfortable and able to be themselves without fear of others' negative response (Edmondson, 1999). When employees feel safe to show and employ themselves without concerns about negative consequences, they can fully engage in their work roles (Kahn, 1990). Individuals attend to those around them to get information cues about behavioral expectations and adapt their attitudes and behaviors to those expectations. Among various actors in the immediate work environment, employees are "highly attuned to the behavior of leaders and examine leader actions for information about what is expected and acceptable in team interactions" (cited by Nembhard & Edmondson, 2006, p. 947; Tyler & Lind, 1992).

The study suggests that boundary spanning leaders make the secure and safe situation for employees to develop a sense of psychological safety and thus generate creative ideas. Boundary spanning leaders reach out and build interactions with external stakeholders to detect internal and external demands, acquire needed resources to successfully respond to the demands, and promote team's project and objectives (Faraj & Yan, 2009; Ancona &

Caldwell, 1992). Observing a series of boundary spanning activities, employees think that leaders proactively attempt to induce a lively discussion and cooperation among varied actors who possess different perspectives and knowledge in order to achieve task objectives creatively. Thus, external activities by leaders are likely to convey signals of organization's orientation toward creativity (Amabile, 1988) and leader's expectations for creative actions (Tierney & Farmer, 2004). In this context, employees may perceive that it is safe and welcomed to question the status quo, ask questions, share their thoughts, and bring up new ideas. Prior research has indicated that leaders' behaviors that invite and appreciate others' contribution by overcoming communication boundaries convey cues for psychological safety (e.g., Edmondson, 1996, 2003). In line with prior research, the study expects that the following:

**Hypothesis 4.** Boundary spanning leadership is positively related to psychological safety.

Psychological safety can add to the explanations for why boundary spanning leaders increase employees' creative performance. Since creativity, the production of novel and useful ideas often requires breaking the current practices, denying the norm, and challenging the status quo, it inevitably entails interpersonal risks (George & Zhou, 2007). For these reasons, individuals may not be willing to take risks of failure, disapproval, and being

branded as deviants by others (Carmeli et al., 2010). However, when employees feel safe psychologically, they are not constrained by the threat or fears of undesirable interpersonal consequences and thus are willing to manifest their creativity in their work (Carmeli et al., 2010; Kark & Carmeli, 2009). Given all, employees interpret boundary spanning leaders as delivering cues for the psychologically safe working environment in which creative activities are not threatening but acceptable, thereby producing a creative performance. That is, boundary spanning leaders foster employee's creative performance by cultivating their psychological safety. Along with studies on the mediating role of psychological safety in the relationship between leader influences and creative behaviors (e.g., Nembhard & Edmondson, 2006), this research predicts the following:

**Hypothesis 5.** Psychological safety mediates the relationship between boundary spanning leadership and employee creative performance.

### **3. The Moderating Role of Empowering Leadership and Coworker Knowledge Sharing**

#### **3.1 Empowering Leadership**

Diverse taxonomies of leadership roles developed by many scholars imply that leaders perform a variety of important role behaviors in organizations. For instance, leaders need to motivate followers, develop their abilities, and communicate directions and visions to them while interacting with external stakeholders, negotiating resources, and scanning opportunities in external areas (Yukl, 2002). That is, leaders are responsible for managing both internal interactions with employees and external linkages with outsiders. As Choi noted that “internal and external activities may maintain synergistic relationships through mutual reinforcement and differentiated roles that each type of activity plays” (2002, p. 189), leaders can achieve the most effectiveness when performing certain leader behaviors that support the desirable effect of boundary spanning activity (Elkins & Keller, 2003). Indeed, several studies on boundary spanning role noted the necessity of supportive internal process to make boundary spanning work more effective (e.g., Tushman & Scanlan, 1982). Hence, taking contingency perspective of boundary spanning (Faraj & Yan, 2009; Choi, 2002; Joshi et al., 2009) and interactional perspective of leadership (Yukl, 2002), the present study investigates how leaders’ internally oriented leadership behavior can boost the effect of boundary spanning leadership on creative self-efficacy and psychological safety.

Empowering leadership refers to the behaviors of a leader that encompass sharing power and allocating responsibilities to an employee. The key elements of empowering leadership behavior are to share power with employees and to develop their self-leadership skills by offering support and encouraging participation in decision making (Lorinkova, Pearsall, & Sims, 2013; Pearce & Sims Jr., 2002). Empowering leaders stimulate employees' independent action, their self-development, and teamwork. They also express confidence and trust in employees and their performance, provide autonomy from bureaucratic constraints (Ahearne, Mathieu, & Rapp, 2005; Arnold, Arad, Rhoades, & Drasgow, 2000). Tons of previous studies on empowering leadership highlight the positive effects of empowering leadership on employee outcomes, including learning opportunities, follower need for autonomy, self-leadership, creative process engagement, and creative performance (Yun, Faraj, & Sims Jr., 2005; Yun et al., 2006; Tekleab, Sims, Yun, Tesluk & Cox, 2008; Zhang & Bartol, 2010).

The study suggests that empowering leadership behavior would maximize the positive effect of boundary spanning leadership on employee creative self-efficacy and psychological safety. When boundary spanning leaders also give plenty of opportunities to participate in critical decision making and allow autonomy in their works, employees who are provided with valued job resources from key actors across many organizations can expand their knowledge and develop new skills by fully leveraging the helpful resources from external areas, thereby developing a higher sense of creative

self-efficacy. Also, if boundary spanning leaders provide their employees with critical external job resources and the freedom to be flexible in tasks, the employee are more likely to perceive that it is acceptable and even encouraged to take and initiative to challenge the old work processes and come up with creative suggestions, thereby having a higher level of psychological safety. As such, empowering leadership will strengthen the desirable effects of boundary spanning leadership on both employee creative self-efficacy and psychological safety. Take all together, the study hypothesizes the followings:

**Hypothesis 6a.** Empowering leadership moderates the relationship between boundary spanning leadership and creative self-efficacy.

**Hypothesis 6b.** Empowering leadership moderates the relationship between boundary spanning leadership and psychological safety.

### **3.2 Coworker Knowledge Sharing**

The influence of boundary spanning leadership can vary depending on whether and how coworkers contribute to making creative and supportive situations, in which employees have a high level of creative self-efficacy and psychological safety. Previous literature has emphasized the significance of supportive coworker behaviors as a critical contextual factor fostering creative contexts (Zhou & Shalley, 2003; Hon, Bloom, & Crant, 2014; Madjar, 2005). Hon and the colleagues (2014) suggested coworker help and support can play a pivotal role in mitigating employees' resistance to change by giving

social and instrumental safety signals. In addition, Hargadon and Bechky (2006) suggested two types of coworker support—help seeking and help giving—can allow employees who are resistant to change to perceive encouragement and recovery efforts after failures. Moreover, studies indicated that supportive coworker behaviors strengthen the effect of leader behavior on creative outcomes (e.g., George & Zhou, 2001; Zhou, 2003). In line of prior research, the current study focuses on a specific form of supportive coworker influence that can accentuate the effect of boundary spanning leadership on employee psychological conditions for creative performance, namely coworker knowledge sharing.

Coworker knowledge sharing refers to the degree to which coworkers' information, knowledge, and expertise are shared with other employees (Srivastava, Bartol, & Locke, 2006). As tasks become more interdependent and organizational structures become flatter, it is increasingly important for coworkers to provide work-related resources by sharing their task-relevant skills and expertise in order to facilitate knowledge exchange and creative work process (Chiaburu & Harrison, 2008; Kim & Yun, 2015). When coworkers provide opportunities to acquire necessary job resources and better understand tasks and challenges, the utilization of existing job resources, including knowledge, information, skills, advice, and expertise, can be realized (Kim & Yun, 2015). Therefore, knowledge sharing interaction with coworkers is the process where organizational members mutually exchange their knowledge and jointly create new and novel knowledge (Van den Hooff

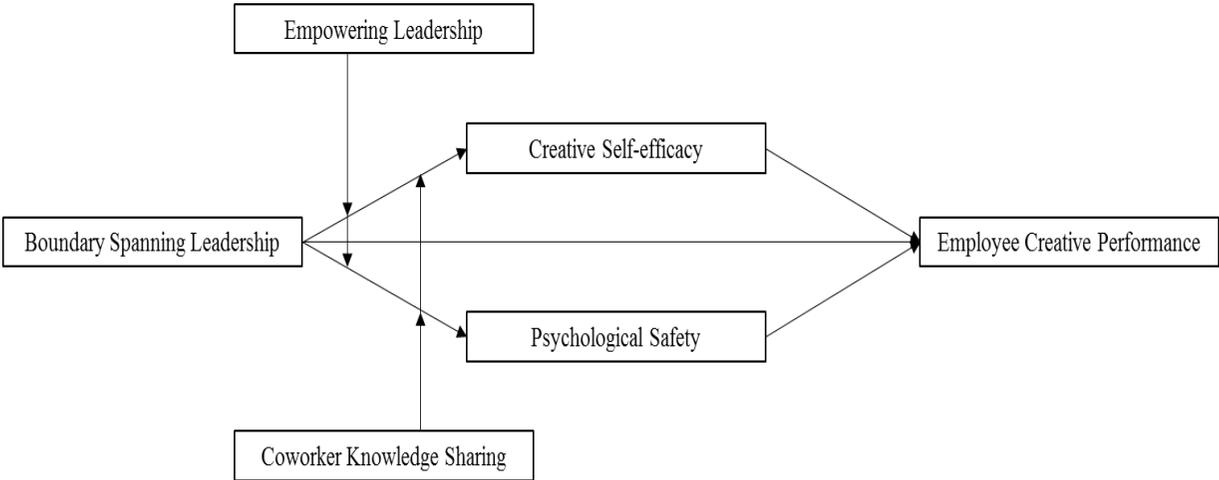
& De Ridder, 2004; Mittal & Dhar, 2015).

The study suggests that coworker knowledge sharing would boost the positive effect of boundary spanning leadership on employee creative self-efficacy and psychological safety. When coworkers provide desirable knowledge resources, employees whose leaders provide unfamiliar but necessary job resources from other areas can better understand how to utilize those resources and adjust to their problem-solving effectively. In this supportive context, the employee can think that they have instrumental support which they can rely on during creative efforts and thus better make creative performance (George, 2007; Zhou & Shalley, 2003; Hon et al., 2014). Thus, employees are more likely to have a confidence in their creative work. Moreover, when boundary spanning leaders proactively acquire assistance and help and seek new opportunities outside of organizations, and, at the same time, coworkers share valuable knowledge and expertise rather than hoard them, employees may perceive that it is desirable and encouraged to engage in creative efforts without facing the risks and uncertainty. As such, coworker knowledge sharing will increase the effects of boundary spanning leadership on both employee creative self-efficacy and psychological safety. Take all together, the study expects the followings:

**Hypothesis 7a.** Coworker knowledge sharing moderates the relationship between boundary spanning leadership and creative self-efficacy.

**Hypothesis 7b.** Coworker knowledge sharing moderates the relationship between boundary spanning leadership and psychological safety.

**Figure 1. Hypothesized Research Model**



## **IV. METHOD**

### **1. Sample and Procedure**

Survey data were collected from various firms located in South Korea. The industry sector of companies was mainly manufacturing, service, distribution, finance, construction, and IT services. I prepared separate questionnaires for an employee and his or her immediate supervisor and distributed them to 200 subordinate–supervisor dyads. Each survey packet includes a managerial survey and employee survey, with a cover letter and return envelope. All participants were asked to enclose their completed surveys in the given reply envelopes in order to guarantee the confidentiality and anonymity of their responses. In addition, I assigned an identification number to each questionnaire dyad so that each of responses from subordinates can be matched with those from their immediate supervisors.

From 200 subordinate-supervisor dyadic samples, 171 pairs were returned, giving a response rate of 85.8 %. After matching the subordinate surveys with managerial surveys using identification number and tenure with one another, several responses were not able to be used either because only one party of dyad answered the survey or because the responses were incomplete. Therefore, a total of 160 pairs were used for further analyses in this study. Of the subordinates, 59.3 % were male, and the average age of subordinates was 32.04 years (s.d. = 7.38 years). 88.7 percent of the subordinates held a bachelor or higher degree. Their average organizational

tenure was 3.15 years (s.d. = 3.68 years), and their average tenure with their supervisors was 2.28 years (s.d. = 2.88 years). For supervisors, 68.1 % were male, and they had an average age of 41.13 years (s.d. = 8.76). 92.5 % of the supervisors held a bachelor or higher degree. They had an average organizational tenure of 10.73 years (s.d. = 8.05). Various industry sectors were represented including 21.9 % from manufacturing, 20.0 % from service, 17.5 % from finance, 12.5 % from distribution, 6.3 % from IT and communication service, 5.6 % from construction, and 15% from others. Most of the employees held office type jobs such as 62.5 % from administrative operation (management), 10.6 % from professional works, and 7.5 % from research and development. Table 3 represents the description of the sample in the current study.

**Table 3. Sample Description**

Classification		Leader		Follower	
		Frequency	%	Frequency	%
Gender	Male	109	68.1	95	59.4
	Female	51	31.9	65	40.6
	Missing value	-	-	-	-
Age	20~30	15	9.4	95	59.4
	31~40	64	40	46	28.8
	41~50	61	38.1	12	7.5
	Over 51	20	12.5	5	3.1
	Missing value	-	-	2	1.3
Education	High school	4	2.5	8	5
	2-year college	8	5	10	6.3
	Bachelor degree	96	60	129	80.6
	Master degree or higher	52	32.5	13	8.1
	Missing value	-	-	-	-
Organizational Tenure	Less than 5 years	40	20.5	128	80
	5~10 years	50	31.3	21	13.1
	10~15 years	29	18.1	6	3.8
	More than 15 years	40	25	3	1.9
	Missing value	1	0.6	2	1.3
Tenure with subordinates (supervisors)	Less than 5 years	142 (88.8%)			
	5~10 years	8 (5%)			
	More than 10 years	5 (3.1%)			
	Missing value	5 (3.1%)			

## 2. Measures

Following the conventional method of back translation (Brislin, 1990), the English language questionnaires were translated into Korean by bilingual academics. The focal subordinates were asked to evaluate their supervisors' boundary spanning leadership behavior and empowering leadership behavior. They also assessed their own creative self-efficacy, psychological safety, and the level of coworker knowledge sharing. In order to reduce concerns for common method bias, their supervisors rated the subordinates' creative performance. All items were rated using a 7-point Likert scale (1 = strongly disagree and 7 = strongly agree) and had a high reliability. I averaged scores on each of the variables in order to compute the variables.

***Boundary spanning leadership*** Supervisor's boundary spanning leadership was measured by using the 6-item measure developed by Marrone and the colleagues (2007). I changed the subject from "this employee" to "my supervisor" in order to ask employees to rate the level of their supervisors' boundary spanning behaviors. Example items state "My supervisor persuades outsiders (e.g. faculty, client) to support team decisions" and "My supervisor acquires resources and access (e.g., access to information) for the team." The measure demonstrated a Cronbach alpha of .87.

***Creative self-efficacy*** Tierney and Farmer's (2002) three-item measure was used to rate employees' creative self-efficacy. Sample items included "I have confidence in my ability to solve problems creatively" and

“I feel that I am good at generating novel ideas.” The value of Cronbach alpha of this measure was .90.

***Psychological safety*** Subordinates’ psychological safety was assessed with a 7-item scale developed by Edmondson (1999). Sample items of employee perceptions of psychological safety are “It was safe to take a risk on my team” and “If I made a mistake in my team, it was often held against me (Reverse).” The alpha reliability for this scale was .80.

***Empowering leader behavior*** I used a 12-item scale developed by Ahearne and the colleagues (2005). Examples of the items are “My supervisor makes many decisions together with me” and “My manager allows me to do my job my way.” The measure showed Cronbach alpha of .95.

***Coworker knowledge sharing*** This study adapted seven items from Srivastava et al. (2006) to assess employees’ perceptions of coworker knowledge sharing. I changed the subject from “manager in our team” to “coworkers in our team” to capture the extent to which the focal employees’ coworkers share knowledge. Sample items read, “Coworkers in our team share their special knowledge and expertise with one another” and “coworkers in our team share lots of information with others.” The Cronbach’s alpha reliability for this measure was .96.

***Creative performance*** Supervisors were asked to assess the extent to which they agree or disagree with 13 items by George and Zhou (2001) to rate their subordinates’ creative performance. An example item stated, “This

employee comes up with creative solutions to problems.”

*Control variables* Several demographic characteristics of employees such as age, gender, and education level were controlled due to their potential effects on the main variables in this hypothesized model. Age was measured in years, and gender was measured as a dichotomous variable coded as 1 for male and 0 for female. Education level was measured as a continuous variable coded as 1 for high school graduates, 2 for two-year technical college graduates, 3 for Bachelor’s degrees, and 4 for those who have master’s degree or higher.

### **3. Analytical Procedures**

Before testing the hypotheses, the study conducted preliminary analyses: confirmatory factor analysis (CFA) and correlation analysis. First, CFA was conducted in order to investigate construct validity and compare alternative models. The study used three major model fit measures: Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Root-Mean Square Error of Approximation (RMSEA). When RMSEA value is less than or equal to .08, and TLI and CFI values are greater than .90, it can be concluded that the model has good fits (Hu & Bentler, 1999). In the correlation analysis, Cronbach’s alpha was used for all variables in order to demonstrate acceptable levels of inter-item consistency.

The study conducted hierarchical regression analyses with additional analytical methods to test the hypotheses. First of all, to minimize the spurious effects, this study included control variables such as employees' age, gender, education level in step 1. Next, in step 2, the study entered boundary spanning leadership to test the main effect of boundary spanning leadership on employee creative performance (Hypothesis 1). Second, in order to test the direct effect of boundary spanning leadership on creative self-efficacy (Hypothesis 2) and psychological safety (Hypothesis 4), I conducted multiple regression methods as the same as I did in the previous analysis testing.

To test the hypotheses of mediation effects (Hypothesis 3 and Hypothesis 5), this study employed two analytical methods to conduct mediation analyses, following recommendations by Preacher and Hayes (2004). First, the study followed Baron and Kenny's (1986) four-step procedure. Subsequently, the study tested the indirect effect of boundary spanning leadership on creative performance via both creative self-efficacy and psychological safety by using the bootstrapping procedure (across 1,000 samples) in SPSS macro developed by Preacher and Hayes (2004). This SPSS macro facilitates an estimation of indirect effect with a bootstrap approach by providing confidence intervals.

In order to test moderation effects of empowering leadership and coworker knowledge sharing on creative self-efficacy (Hypothesis 6a, 7a) and psychological safety (Hypothesis 6b, 7b), the study conducted multiple regression analyses. I first got independent and moderating variables (i.e.,

boundary spanning leadership, empowering leadership, coworker knowledge sharing) mean-centered in order to prevent potential multicollinearity problems (Aiken & West, 1991). To test the moderating role of empowering leadership and coworker knowledge sharing in the relationship between boundary spanning leadership and creative self-efficacy, the study entered control variables in step 1, boundary spanning leadership in step 2, and empowering leadership and coworker knowledge sharing in step 3. The study entered each interaction term (i.e., boundary spanning leadership \* empowering leadership, boundary spanning leadership \* coworker knowledge sharing) in step 4, and included both interaction terms step 5. The same procedure was repeated on psychological safety to test the moderating effects of empowering leadership and coworker knowledge sharing on the relationship between boundary spanning leadership and psychological safety. It is needed to have statistically increasing values in the variance explained (R<sup>2</sup>) with the addition of the interaction terms and the predicted patterns of consistent with our hypotheses to support the hypotheses.

## **V. RESULTS**

### **1. Preliminary Analyses**

#### **1.1 Confirmatory Factor Analysis**

The study conducted confirmatory factor analysis (CFA) to examine the construct validity of the variables used in this hypothesized model. The research model, including six variables (i.e., boundary spanning leadership, empowering leadership, coworker knowledge sharing, creative self-efficacy, psychological safety, creative performance) was compared with a series of competing models. In order to test whether two types of psychological mechanisms (creative self-efficacy and psychological safety) were distinct constructs, creative self-efficacy and psychological safety were combined in a five-factor model. Next, two moderating variables (empowering leadership and coworker knowledge sharing) were combined in a four-factor model. Followed by the four-factor model, two types of psychological mediators were combined with two moderating factors in a three-factor model, leaving boundary spanning leadership and creative performance as separate factors. In a two-factor model, all variables except for creative performance were combined. Lastly, all variables of boundary spanning leadership, creative self-efficacy, psychological safety, empowering leadership, coworker knowledge sharing, and creative performance were combined in a one-factor model.

As shown in Table 4, the study found that the six-factor model was significantly superior to the other alternative models. The fit indices for the hypothesized model were as follows:  $\chi^2 (1065) = 2264.66$ ,  $p \leq .001$ , comparative fit index (CFI) = .84, Tucker Lewis Index (TLI) = .82, and root mean square error of approximation (RMSEA) = .08. In conclusion, our research model demonstrated that all variables in the model are separate constructs.

## 1.2 Descriptive Statistics and Correlations

Table 5 indicates the means, standard deviations, and correlations of the variables. All variables had high reliabilities, with Cronbach's alpha coefficients of .80 or higher. The study found that the correlations among the variables were in the expected direction. First, as shown in Table 5, boundary spanning leadership was significantly and positively correlated with creative self-efficacy ( $r = .20$ ,  $p \leq .01$ ) and psychological safety ( $r = .58$ ,  $p \leq .001$ ). Boundary spanning leadership was marginally correlated with creative performance ( $r = .14$ ,  $p \leq .10$ ). Notably, it was significantly and strongly correlated with two moderating variables, empowering leadership ( $r = .74$ ,  $p \leq .001$ ) and coworker knowledge sharing ( $r = .52$ ,  $p \leq .001$ ). Second, creative self-efficacy ( $r = .34$ ,  $p \leq .001$ ) and psychological safety ( $r = .27$ ,  $p \leq .001$ ) was positively and significantly correlated with creative performance. Third, as noted in Table 5, empowering leadership was significantly and positively

correlated with creative performance ( $r = .23, p \leq .01$ ), creative self-efficacy ( $r = .24, p \leq .01$ ), and psychological safety ( $r = .60, p \leq .001$ ). In addition, coworker knowledge sharing was significantly and positively correlated with creative performance ( $r = .25, p \leq .001$ ), creative self-efficacy ( $r = .22, p \leq .01$ ), and psychological safety ( $r = .62, p \leq .001$ ).

**Table 4. Comparison of Measurement Models**

Model	Description	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA	$\Delta\chi^2$	$\Delta df$
Hypothesized model	Six-factor model <sup>a</sup>	2264.66	1065	.838	.821	.084		
Model 1	Five-factor model <sup>b</sup>	2551.50	1070	.800	.780	.093	286.84	5
Model 2	Four-factor model <sup>c</sup>	3526.69	1074	.669	.638	.120	975.19	4
Model 3	Three-factor model <sup>d</sup>	3605.52	1077	.659	.628	.122	78.83	3
Model 4	Two-factor model <sup>e</sup>	3741.86	1079	.641	.609	.125	136.34	2
Model 5	One-factor model <sup>f</sup>	5868.55	1080	.354	.297	.167	2126.69	1

*Note.* CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root-Mean-Square Error of Approximation; \*\*\*  $p \leq .001$ .

<sup>a</sup> Six factors: Boundary spanning leadership; Creative self-efficacy; Psychological safety; Empowering leadership; Coworker knowledge sharing; Creative performance.

<sup>b</sup> Five factors: Boundary spanning leadership; Creative self-efficacy and Psychological safety combined; Empowering leadership; Coworker knowledge sharing; Creative performance.

<sup>c</sup> Four factors: Boundary spanning leadership; Creative self-efficacy and Psychological safety combined; Empowering leadership and Coworker knowledge sharing combined; Creative performance.

<sup>d</sup> Three factors: Boundary spanning leadership; Creative self-efficacy, Psychological safety, Empowering leadership, and Coworker knowledge sharing combined; Creative performance.

<sup>e</sup> Two factors: Boundary spanning leadership, Creative self-efficacy, Psychological safety, Empowering leadership, and Coworker knowledge sharing combined; Creative performance.

<sup>f</sup> One factor: Boundary spanning leadership, Creative self-efficacy, Psychological safety, Empowering leadership, Coworker knowledge sharing, and Creative performance combined.

**Table 5. Descriptive Statistics and Correlations among Variables**

	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Age <sup>a</sup>	32.04	7.38									
2. Gender <sup>a</sup>	1.41	.49	-.09								
3. Education <sup>a</sup>	2.92	.58	-.28***	.09							
4. Boundary Spanning Leadership <sup>a</sup>	5.27	1.03	.08	-.07	.04	(.87)					
5. Creative Self-efficacy <sup>a</sup>	4.63	1.20	.06	-.21**	.01	.20**	(.90)				
6. Psychological Safety <sup>a</sup>	4.90	.92	.16*	-.08	.11	.58***	.27***	(.80)			
7. Empowering Leadership <sup>a</sup>	4.88	1.11	.22**	-.07	-.03	.74***	.24**	.60***	(.95)		
8. Coworker Knowledge Sharing <sup>a</sup>	5.00	1.12	.08	-.05	-.02	.52***	.22**	.62***	.53***	(.96)	
9. Creative Performance <sup>b</sup>	4.47	1.13	-.01	-.01	.06	.14	.34***	.27***	.23**	.25***	(.97)

*Note.* N=160. Reliabilities are on the diagonal in parentheses. <sup>a</sup> Self-rated. <sup>b</sup> Supervisor-rated. Gender (1 = male, 2 = female); \*  $p \leq .05$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$  (two-tailed).

## **2. Hypotheses Testing**

### **2.1 Direct Effects of Boundary Spanning Leadership**

Hypothesis 1 postulated that boundary spanning leadership is positively related to employee creative performance. As noted in Table 6, boundary spanning leadership was marginally related to creative performance ( $\beta = .14$ ,  $p \leq .10$ ). Thus, Hypothesis 1 was marginally supported. Furthermore, Hypothesis 2 predicted that boundary spanning leadership would be positively related to employee creative self-efficacy. Table 7 indicates that boundary spanning leadership is significantly and positively related to creative self-efficacy ( $\beta = .18$ ,  $p \leq .05$ ), thereby supporting Hypothesis 2. Moreover, Hypothesis 4 suggested that boundary spanning would be positively related to employee psychological safety. The results in Table 8 show that boundary spanning leadership had a significant and positive effect on psychological safety ( $\beta = .56$ ,  $p \leq .001$ ). Therefore, Hypothesis 4 was supported.

### **2.2 Mediating Effects of Creative Self-efficacy and Psychological Safety**

Hypothesis 3 and Hypothesis 5 suggested the mediating effect of creative self-efficacy and psychological safety on the relationship between boundary spanning leadership and creative performance. The study first conducted

hierarchical regression analyses by following Baron and Kenny's (1986) procedures to test the mediation effects. As for Hypothesis 3 suggesting the mediating role of creative self-efficacy, four conditions for the mediation effect were met as follows: 1) boundary spanning leadership had a significant relationship with creative self-efficacy (Table 7, Model 2;  $\beta = .18, p \leq .05$ ), 2) creative self-efficacy was significantly related to creative performance (Table 6, Model 3;  $\beta = .36, p \leq .001$ ), 3) the effect of creative self-efficacy on creative performance remained significant after controlling boundary spanning leadership (Table 6, Model 5;  $\beta = .31, p \leq .001$ ), and 4) the effect of boundary spanning leadership on creative performance became insignificant as creative self-efficacy was included in the regression (Table 6, Model 5;  $\beta = -.05, n.s.$ ). Accordingly, the results provide support for Hypothesis 3.

Furthermore, the study conducted the same regression analyses as did previously to test Hypothesis 5 predicting the mediating role of psychological safety in the relationship between boundary spanning leadership and creative performance. Four conditions for the mediation effect were also satisfied as follows: 1) boundary spanning leadership had a significant relationship with psychological safety (Table 8, Model 2;  $\beta = .56, p \leq .001$ ), 2) psychological safety was significantly related to creative performance (Table 6, Model 4;  $\beta = .28, p \leq .001$ ), 3) the effect of psychological safety on creative performance remained significant after controlling boundary spanning leadership (Table 6, Model 5;  $\beta = .23, p \leq .05$ ), and 4) the significance of the effect of boundary spanning leadership on creative performance was decreased as psychological

safety was included in the regression (Table 6, Model 5;  $\beta = -.05$ , *n.s.*). Therefore, the mediating role of psychological safety of Hypothesis 5 was supported.

Second, the study additionally conducted bootstrapping analyses using SPSS macro in order to examine the indirect effects of boundary spanning leadership via psychological mechanisms more robustly. As noted in Table 9, the indirect effect of boundary spanning leadership on creative performance via creative self-efficacy was significant (95% CI = [.004, .162]). In addition, the indirect effect of boundary spanning on creative performance through psychological safety was significant (95% CI = [.047, .259]). Hence, both Baron and Kenny's procedure and bootstrapping methods fully supported Hypothesis 3 and Hypothesis 5.

### **2.3 Moderating Effects of Empowering Leadership and Coworker Knowledge Sharing**

Hypothesis 6a and Hypothesis 6b proposed that empowering leadership would moderate the positive relationships between boundary spanning leadership and creative self-efficacy and psychological safety, respectively, such that the positive effects of boundary spanning leadership on creative self-efficacy and psychological safety would be strengthened when empowering leadership is high rather than low. The findings in Table 6 show the interaction term of leader boundary spanning behavior and empowering leadership on

creative self-efficacy was not significant ( $\beta = .14, n.s.$ ). In addition, Table 7 indicates that the interaction term of leader boundary spanning behavior and empowering leadership on psychological safety was not significant ( $\beta = -.08, n.s.$ ). Therefore, Hypothesis 6a and Hypothesis 6b were not supported.

Hypothesis 7a and Hypothesis 7b suggested that coworker knowledge sharing moderates the relationships between boundary spanning leadership and creative self-efficacy and psychological safety, respectively, such that the positive effects of boundary spanning leadership on creative self-efficacy and psychological safety would be strengthened when coworker knowledge sharing is high rather than low. The results in Table 6 show that the interaction term of leader boundary spanning behavior and coworker knowledge sharing on creative self-efficacy was significant ( $\beta = .17, p \leq .05$ ). The simple slope test using  $\pm 1$  standard deviation from the mean (Aiken & West, 1991) indicated that the positive effect of leader boundary spanning behavior on creative self-efficacy was significant when coworker knowledge sharing is high ( $b = .30, t = 2.24, p \leq .05$ ), but insignificant when coworker knowledge sharing is low ( $b = .01, t = 0.11, n.s.$ ). Figure 2 shows the plotted graph in the expected direction in the hypothesized model. Thus, hypothesis 7a received support (See Figure 2). As for the interaction effect of boundary spanning leadership and coworker knowledge sharing on psychological safety, Table 7 indicates that the interaction term of leader boundary spanning behavior and coworker knowledge sharing on psychological safety was not significant ( $\beta = -.07, n.s.$ ). Thus, Hypothesis 7b was not supported.

**Table 6. Multiple Regression Results for Mediation Effects**

	Creative Performance <sup>b</sup>				
	Model 1	Model 2	Model 3	Model 4	Model 5
<u>Step 1. Control variables</u>					
Age	.01	-.01	-.01	-.05	-.05
Gender	-.02	-.01	.06	.01	.07
Education	.07	.05	.05	.12	.02
<u>Step 2. Main effect</u>					
Boundary Spanning Leadership <sup>a</sup>		.14†			-.05
<u>Step 3. Main effect</u>					
Creative Self-efficacy <sup>a</sup>			.36***		.31***
Psychological Safety <sup>a</sup>				.28***	.23*
Overall <i>F</i>	.21	.87	5.42***	3.20*	4.87***
<i>R</i> <sup>2</sup>	.00	.02	.13	.08	.16
$\Delta F$	.21	2.85†	20.99***	12.14***	12.60***
$\Delta R^2$	.00	.02	.12	.08	.14

Note. N = 158. All variables were centered at their means. Figures indicate unstandardized regression coefficients.

<sup>a</sup> Self-rated. <sup>b</sup> Supervisor-rated. Gender (1 = male, 2 = female); †  $p \leq .10$ , \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$  (two-tailed).

**Table 7. Multiple Regression Results for Moderation Effects on Creative Self-efficacy**

	Creative Self-efficacy <sup>a</sup>					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<u>Step 1. Control variables</u>						
Age	.06	.04	.01*	.02	.04	.04
Gender	-.21**	-.20*	-.20*	-.20*	-.20*	-.20*
Education	.03	.02	.02	.02	.06	.05
<u>Step 2. Main effect</u>						
Boundary Spanning Leadership <sup>a</sup>		.18*	.00	.06	.04	.06
<u>Step 3. Main effect</u>						
Empowering Leadership <sup>a</sup>			.16	.16	.13	.14
Coworker Knowledge Sharing <sup>a</sup>			.11	.11	.17†	.16
<u>Step 4. Interaction effect</u>						
Boundary Spanning Leadership <sup>*</sup>				.14		.06
Empowering Leadership <sup>a</sup>						
Boundary Spanning Leadership <sup>*</sup>					.17*	.14
Coworker Knowledge Sharing <sup>a</sup>						
Overall <i>F</i>	2.67*	3.35*	2.97**	2.94**	3.19**	2.83**
<i>R</i> <sup>2</sup>	.05	.08	.11	.12	.13	.13
$\Delta F$	2.67*	5.18*	2.11	2.53	4.13*	1.96
$\Delta R^2$	.05	.03	.03	.02	.02	.01

Note. N = 158. All variables were centered at their means. Figures indicate unstandardized regression coefficients.

<sup>a</sup> Self-rated. <sup>b</sup> Supervisor-rated. Gender (1 = male, 2 = female); †  $p \leq .10$ , \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$  (two-tailed).

**Table 8. Multiple Regression Results for Moderation Effects on Psychological Safety**

	Psychological Safety <sup>a</sup>					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<u>Step 1. Control variables</u>						
Age	.20*	.15*	.10	.09	.09	.09
Gender	-.08	-.04	-.04	-.04	-.04	-.04
Education	.15†	.12†	.13*	.13*	.12†	.12*
<u>Step 2. Main effect</u>						
Boundary Spanning Leadership <sup>a</sup>		.56***	.17*	.15†	.17†	.15†
<u>Step 3. Main effect</u>						
Empowering Leadership <sup>a</sup>			.23*	.23*	.24**	.24**
Coworker Knowledge Sharing <sup>a</sup>			.39***	.39***	.37***	.38***
<u>Step 4. Interaction effect</u>						
Boundary Spanning Leadership <sup>*</sup>				-.08		-.05
Empowering Leadership <sup>a</sup>						
Boundary Spanning Leadership <sup>*</sup>					-.07	-.05
Coworker Knowledge Sharing <sup>a</sup>						
Overall <i>F</i>	2.89*	21.15***	26.60***	23.06***	23.04***	20.14***
<i>R</i> <sup>2</sup>	.05	.36	.52	.52	.52	.52
$\Delta F$	2.89*	71.92***	24.46***	1.38	1.32	.39
$\Delta R^2$	.05	.30	.16	.00	.00	.00

Note. N = 158. All variables were centered at their means. Figures indicate unstandardized regression coefficients.

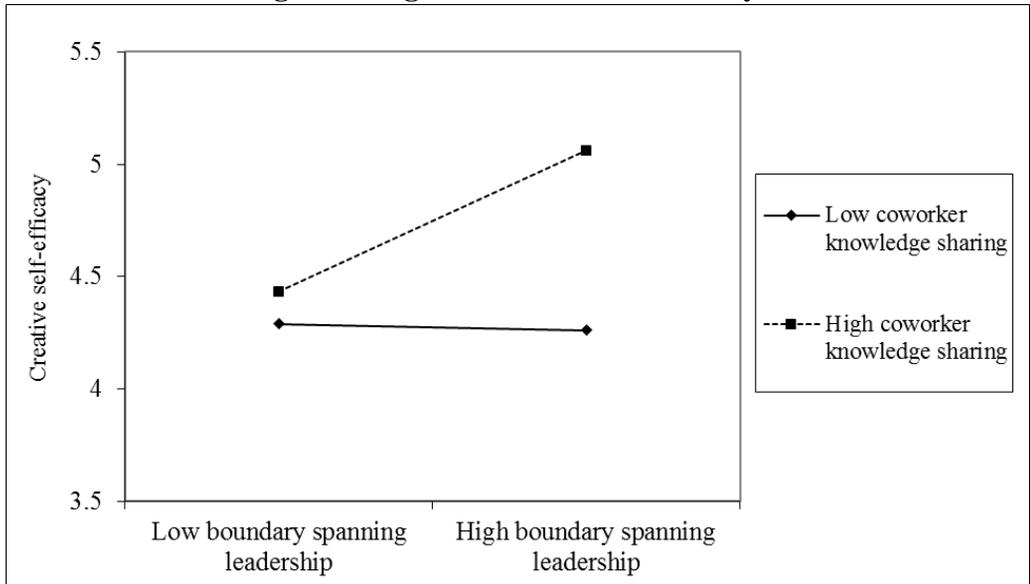
<sup>a</sup> Self-rated. <sup>b</sup> Supervisor-rated. Gender (1 = male, 2 = female); †  $p \leq .10$ , \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$  (two-tailed).

**Table 9. Results of Bootstrap for Indirect Effect through Creative Self-efficacy and Psychological Safety**

Mediating Variable	Bias-Corrected Confidence Intervals			
	Indirect Effect	SE (boot)	Lower CI	Upper CI
Creative Self-efficacy	.061	.038	.004	.162
Psychological Safety	.137	.054	.047	.259

*Note.*  $N = 157$ . Bootstrap sample size = 1,000. Control variables: age, gender, education

**Figure 2. Interaction Effect of Boundary Spanning Leadership and Coworker Knowledge Sharing on Creative Self-efficacy**



## **VI. DISCUSSION**

### **1. Summary of Major Findings**

The major purpose of this study was to examine the psychological mechanisms by which boundary spanning leadership enhances employee creative performance at the individual level and the boundary conditions of boundary spanning leadership. With a survey using the sample in South Korea, the results provided the following findings: First, this study examined the positive effect of boundary spanning leadership on employees' creative performance at the individual level. The findings found that boundary spanning leadership plays an important role in improving individual employee's creative performance. Second, the current paper delved into the psychological mechanisms through which boundary spanning role of leaders has an influence on creative performance. The study demonstrated the roles of employees' creative self-efficacy and psychological safety as significant mediators that can explain how boundary spanning leadership increases creative performance. Third, the study examined the boundary conditions of leader boundary spanning by focusing on the synergy with leader's internal behavior and coworker influence, which is empowering leadership and coworker knowledge sharing, respectively. However, the findings only revealed that the positive impact of leader boundary spanning role on employees' creative self-efficacy is strengthened when coworker knowledge sharing is high.

**Table 10. Summary of Results**

<b>No.</b>	<b>Hypothesis</b>	<b>Result</b>
Hypothesis 1	Boundary spanning leadership is positively related to employee creative performance.	Marginally support
Hypothesis 2	Boundary spanning leadership is positively related to creative self-efficacy.	Support
Hypothesis 3	Creative self-efficacy mediates the relationship between boundary spanning leadership and employee creative performance.	Support
Hypothesis 4	Boundary spanning leadership is positively related to psychological safety.	Support
Hypothesis 5	Psychological safety mediates the relationship between boundary spanning leadership and employee creative performance.	Support
Hypothesis 6a	Empowering leadership moderates the relationship between boundary spanning leadership and creative self-efficacy such that the positive relationship is strengthened when empowering leadership is high rather than low.	Not support
Hypothesis 6b	Empowering leadership moderates the relationship between boundary spanning leadership and psychological safety such that the positive relationship is strengthened when empowering leadership is high rather than low.	Not support
Hypothesis 7a	Coworker knowledge sharing moderates the relationship between boundary spanning leadership and creative self-efficacy such that the positive relationship is strengthened when coworker knowledge sharing is high rather than low.	Support
Hypothesis 7b	Coworker knowledge sharing moderates the relationship between boundary spanning leadership and psychological safety such that the positive relationship is strengthened when coworker knowledge sharing is high rather than low.	Not support

## **2. Theoretical Implications**

This research provides several contributions to the existing literature on boundary spanning. First, this study enriches boundary spanning research by demonstrating the effectiveness of leaders' boundary spanning role in terms of employee creative performance. Prior research has primarily focused on boundary spanning work played by research and development teams (Joshi et al., 2009; Marrone, 2010). Despite the benefits of team boundary spanning, some scholars emphasized the importance of leader boundary spanning by stating that leaders are better able to perform external activities due to their advantage in positions (Hirst & Mann, 2004; Katz & Tushman, 1983; Choi, 2002). In support of this perspective, this study showed that when leaders assume boundary spanning role employee creative performance increases via enhanced creative self-efficacy and psychological safety. In addition, given that the survey sample in this study involved diverse types of jobs besides position of research and development, this study demonstrates the effectiveness of boundary spanning leadership in a more generalized work context, thereby broadening the research scope on boundary spanning work. Future research may extend the literature by examining the positive impacts of boundary spanning leadership on other employee work behaviors such as knowledge sharing or employees' own boundary spanning behaviors.

Second, this study offers the first empirical evidence that boundary spanning leadership has a positive effect on employee creative performance

at the individual level. To date, most prior studies on boundary spanning work have examined its influences on team outcomes, such as creative performance and innovation, at the team level (e.g., Ancona & Caldwell, 1992; Hirst & Mann, 2004). Also, the results of previous research on the effect of boundary spanning on team creative performance has been inconsistent (e.g., Faraj & Yan, 2009), which warrants a more fine-grained investigation of the role of boundary spanning at the micro level (Marrone, 2004, 2010; Liu et al., 2016). Indeed, the current study found that boundary spanning leadership has a positive, but the marginally significant effect on employee creative performance. This finding suggests that the role of boundary spanning is complex, and, thus, it is necessary to investigate leaders' boundary spanning activities in more detailed fashion at the individual level, such as its psychological mechanisms or boundary conditions. In this regard, this study fills the research gap in the current literature on boundary spanning leadership. Given the previous findings of the relationship between boundary spanning activity and team performance, it would be valuable to examine the influence of boundary spanning leadership on employee task performance and its process at the micro level in order to make a complete understanding of boundary spanning role.

Third, this study unveils why and how boundary spanning leaders enhance employee creative performance. As mentioned above, a critical research gap in the boundary spanning literature is that we know little about how and why boundary spanning work affects creative performance.

Although Faraj and Yan (2009) suggested team members' psychological safety as an intermediating process through which team boundary spanning work influences team performance, they only found the direct effect of boundary spanning behavior on psychological safety. To advance our knowledge, drawing on Kahn's (1990) psychological conditions for personal engagement, this paper suggested creative self-efficacy (psychological availability) and psychological safety as important psychological mechanisms by which boundary spanning leadership enhances employee creative performance. The study is meaningful in that it is the first to uncover the black box between boundary spanning activity and creativity in terms of individual employees' psychological, motivational states. In future research, it will be fruitful to explore other potential pathways by which boundary spanning leaders exert their influence on employee outcomes. For instance, to make a robust explanation of the link between boundary spanning leadership and creativity, research can directly measure three components of creativity (i.e., task-relevant skills, creativity-relevant skills, and intrinsic motivation) as mediating mechanisms.

Fourth, this paper enriches the literature on boundary conditions of boundary spanning activities. Scholars (e.g., Marrone, 2010; Choi, 2002) have emphasized that the contingent factors of boundary spanning as a primary area for future research attention. For instance, highlighting the role of conditional situations, Faraj and Yan (2009) investigated the interaction effect of team boundary spanning and resource scarcity and uncertainty. They

found that when there is a high level of resource scarcity within teams, boundary spanning work of teams had a negative effect on team performance. Despite their contributions, the current understanding of boundary conditions of leader boundary spanning role is still limited. To fill this research gap, this study focused on interactions among critical actors within organizations—leaders' internally oriented leadership and coworker dynamics—as contextual moderators of boundary spanning leadership. The findings of this research suggested that the effect of boundary spanning leadership on employee's creative self-efficacy is contingent upon how coworkers exchange their own knowledge resource one another. Specifically, under active knowledge sharing between coworkers, the effect of boundary spanning leadership on creative self-efficacy is strengthened. These findings revealed that a synergy between leader and coworker influence is necessary to enhance one's belief in suggesting new and useful ideas and actual creative performance.

Contrary to the expectation, however, the results did not support the moderating effects of empowering leadership on both creative self-efficacy and psychological safety. Such results may be partly attributable to the fact that empowering leadership had an excessively high correlation with boundary spanning leadership (.74). Furthermore, empowering leadership and coworker knowledge sharing were found to be strong predictors of psychological safety ( $\beta=24$ , for empowering leadership;  $\beta=38$ , for coworker knowledge sharing), thereby explaining the rejected results of the moderating effects of the two situational factors on psychological safety. Considering that

the size of the coefficient of coworker knowledge sharing is much greater than empowering leadership and boundary spanning leadership, it can be assumed that the role of coworkers is more critical than that of leaders in determining employees' psychological safety perceptions. It would be fruitful to explore the relationship between coworker knowledge sharing and psychological safety in depth in future research.

Fifth, the study also extends leadership literature by focusing on a leader's externally focused behavior, boundary spanning leadership. A rich tradition of research on leadership has exclusively examined desirable or destructive leader behaviors, including transformational leadership, empowering leadership, directive leadership, servant leadership, abusive supervision, or close monitoring (Yukl, 2002). Despite the considerable contributions accumulated by tons of studies, a critical void in the literature is that most previous studies on leadership have concentrated on how leaders manage internal dynamics and relationships with their followers, rather than how they manage external relationships with critical outsiders. However, as previously mentioned, leadership, by its definition, must involve exerting influences on others, including people in various parts of organizations and even in other organizations (Yukl, 2002). Particularly, in today's uncertain, dynamic business environments, it is highly required for leaders to manage the external linkages to external environments to sustain a competitive edge. Thus, the present study contributes to the existing literature on leadership by exploring an overlooked yet important research area, that is, leaders'

externally focused behaviors. Future research on leadership needs to further investigate various potential organizational phenomenon regarding boundary spanning leadership.

Lastly, this research contributes to creativity literature by examining the role of boundary spanning leadership in predicting creative performance. On a related note, prior research on creativity has also focused on leaders' internally oriented behaviors that deal with managing followers within teams or organizations (e.g., transformational leadership, abusive supervision). Extending the scope of study on leadership in creativity, this research reveals that leaders' externally directed activities such as maintaining desirable relationships with external actors and attaining valued resources significantly predict important psychological conditions for creative performance, namely creative self-efficacy and psychological safety. In addition, the study also highlights the importance of coworker knowledge sharing that accentuates the positive effects of boundary spanning leader behaviors on creative self-efficacy. In short, the study enriches creativity literature by finding that leader influence (i.e., boundary spanning activities), employees' psychological states (i.e., creative self-efficacy and psychological safety), and coworker influence (i.e., coworker knowledge sharing) play critical roles in determining employee creative performance. A worthwhile avenue for future research would be to examine other contingencies of boundary spanning leader behaviors in creativity.

### **3. Limitation and Conclusion**

This research has several limitations. First, the inference of the causal relationship may be restricted due to our cross-sectional research design. That is, there is a possibility of reverse causality such that variables could predict each other in a recursive way. For instance, it can be argued that employees who report a high level of creative performance are likely to have a high level of creative self-efficacy and psychological safety. Subsequently, leaders may connect those confident and emotionally healthy employees more frequently to important stakeholders. Accordingly, future research should be conducted with a longitudinal design to verify the relationship between variables more precisely. Second, there is a potential for common method bias. Although we attempt to prevent the problem of common method bias by collecting the data from two different sources, future scholars need to design a study more carefully to avert the potential problem. Third, our sample of employees and their supervisors in various companies in South Korea can be limited in terms of the relevance to boundary spanning function and creative performance. The study intended to examine the role of boundary spanning leadership in creative performance in a more general context in order to expand prior research that mainly focuses on new product development team and generalize the effectiveness of boundary spanning work. However, more than half of our sample primarily consisted of administrative operation (management). It would be worthwhile to have more various job types in the sample.

Despite the limitations, this research enriches the current understanding of boundary spanning leadership by examining its effect on employee creative performance, psychological mechanisms, and contextual moderators. This research revealed that leaders who manage external relationships inside or outside of organizations can enhance employees' creative performance via increased creative self-efficacy and psychological safety. Furthermore, coworker knowledge sharing played an important role in maximizing the effectiveness of boundary spanning leadership. I hope this study can motivate future scholars to further explore how boundary spanning leaders affect employees.

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## **SURVEY ITEMS (English)**

### **< *Employee Rating* >**

#### **Boundary spanning leadership**

1. My leader persuades outsiders (e.g., faculty, clients) to support team decisions
2. My leader talks up or promote the team to outsiders
3. My leader acquires resources and access (e.g., access to information, access to clients) for the team
4. My leader keeps the client informed of your group's activities
5. My leader proactively seeks the advice and support of your faculty advisor
6. My leader reach out to individuals outside of your team that can provide project-related expertise or ideas

#### **Empowering leadership**

1. My leader helps me understand how my objectives and goals relate to that of the company
2. My leader helps me understand the importance of my work to the overall effectiveness of the company
3. My leader helps me understand how my job fits into the bigger picture
4. My leader makes many decisions together with me
5. My leader often consults me on strategic decisions
6. My leader solicits my opinion on decisions that may affect me
7. My leader believes that I can handle demanding tasks
8. My leader believes in my ability to improve even when I make mistakes
9. My leader expresses confidence in my ability to perform at a high level
10. My leader allows me to do my job my way

11. My leader makes it more efficient for me to do my job by keeping the rules and regulations simple
12. My leader allows me to make important decisions quickly to satisfy customer needs

### **Creative self-efficacy**

1. I have confidence in my ability to solve problems creatively
2. I feel that I am good at generating novel ideas
3. I am good at elaborating or improving upon others' ideas

### **Psychological safety**

1. If you make a mistake on this team, it is often held against you ®
2. Members of this team are able to bring up problems and tough issues
3. People on this team sometimes reject others for being different ®
4. It is safe to take a risk on this team
5. It is difficult to ask other members of this team for help ®
6. No one on this team would deliberately act in a way that undermines my efforts
7. Working with members of this team, my unique skills and talents are valued and utilized

### **Coworker knowledge sharing**

1. Coworkers in our team share his/her special knowledge and expertise with others
2. If coworkers in our team have some special knowledge about how to perform the task, they are likely to tell others about it
3. Coworkers in our team exchange information, knowledge, and sharing of skills with others

4. Coworkers in our team freely provide others with hard-to-find knowledge or specialized skills
5. Coworkers in our team help others in developing relevant strategies
6. Coworkers in our team share lot of information with others
7. Coworkers in our team offer lots of suggestions to others

< *Leader Rating* >

**Creative performance**

1. This employee suggests new ways to achieve goals or objectives
2. This employee comes up with new and practical ideas to improve performance
3. This employee searches out new technologies, processes, techniques, and/or product ideas
4. This employee suggests new ways to increase quality
5. This employee is a good source of creative ideas
6. This employee is not afraid to take risks
7. This employee promotes and champions ideas to others
8. This employee exhibits creativity on the job when given the opportunity to
9. This employee develops adequate plans and schedules for the implementation of new ideas
10. This employee often has new and innovation ideas
11. This employee comes up with creative solutions to problems
12. This employee often has a fresh approach to problems
13. This employee suggests new ways of performing work tasks

## SURVEY ITEMS (Korean Translation)

### < 구성원용 >

#### 리더의 경계연결 행동

1. 나의 상사는 관련된 사람들에게 우리 팀/부서/부문의 결정을 지지하도록 설득한다
2. 나의 상사는 다른 사람들에게 우리 팀/부서/부문에 대해 좋게 이야기한다
3. 나의 상사는 우리 팀/부서/부문에 필요한 자원(예: 예산, 인력, 장비)을 확보한다
4. 나의 상사는 우리의 활동내용을 관련 팀/부서/부문에 알려준다
5. 나의 상사는 업무 관련 조언과 협조를 해줄 수 있는 다른 팀/부서/부문의 사람들을 적극적으로 찾는다
6. 나의 상사는 업무 관련 정보나 아이디어를 제공해줄 수 있는 다른 팀/부서/부문의 사람들과 접촉하고자 노력한다

#### 리더의 임파워링 행동

1. 나의 상사는 나의 목표와 회사의 목표가 어떻게 연관되어 있는지 이해할 수 있도록 도와준다
2. 나의 상사는 회사 성과에 있어 나의 일이 얼마나 중요한 역할을 하는지 이해할 수 있도록 도와준다
3. 나의 상사는 회사의 전체적인 방향 속에서 나의 일을 이해할 수 있도록 도와준다
4. 나의 상사는 다양한 의사결정에 나를 참여시킨다
5. 나의 상사는 전략적 의사결정을 할 때 나와 자주 의논한다
6. 나의 상사는 나에게 영향을 미치는 의사결정을 할 때 나의 의견을 구한다

7. 나의 상사는 내가 어려운 과업을 잘 수행할 수 있다고 믿는다
8. 나의 상사는 내가 실수를 할 때조차도 나의 능력이 나아질 수 있다고 믿는다
9. 나의 상사는 내가 어려운 업무도 수행할 수 있다고 확신을 보여준다
10. 나의 상사는 나의 직무를 내 방식대로 수행할 수 있도록 해준다
11. 나의 상사는 규칙과 규정들을 간소화하여 나의 업무가 보다 효율적으로 진행될 수 있도록 해준다
12. 나의 상사는 업무달성 (또는 고객만족)을 위하여 나에게 중요한 의사결정을 신속히 내릴 수 있도록 해준다

### 창의적 자기 효능감

1. 나는 창의적으로 문제를 해결하는 나의 능력에 자신감을 갖고 있다
2. 나는 새로운 아이디어를 내는데 자신이 있다
3. 나는 다른 사람의 아이디어를 발전시켜 개선하는 것을 잘한다

### 심리적 안정감

1. 내가 만약 조직 내에서 실수를 저지르면, 그것은 종종 나에게 불리하게 작용한다 ⑩
2. 우리 조직의 구성원들은 다루기 어렵거나 꺾끄러운 문제들을 제기할 수 있다
3. 우리 조직의 구성원들은 서로가 다르다는 이유로 상대방을 배척한다 ⑩
4. 나는 조직 내에서 위험을 감수할 수 있다
5. 우리 조직의 구성원들에게 도움을 요청하는 것이 어렵게 느껴진다 ⑩
6. 우리 조직 구성원들은 내 노력을 고의적으로 깎아 내리려는 행동을 하지 않는다
7. 우리 조직 내에서 나의 기술과 재능은 가치 있게 여겨지고 충분히 활용된다

## 동료의 지식공유

1. 나의 동료들은 자신이 가지고 있는 특수한 지식이나 노하우를 다른 사람들과 공유한다
2. 나의 동료들은 자신이 알고 있는 업무수행방법을 다른 사람들에게 기꺼이 알려준다
3. 나의 동료들은 정보, 지식, 또는 기술을 다른 사람들과 교환하고 공유한다
4. 나의 동료들은 찾기 힘든 지식이나 특수한 기술을 다른 사람들에게 자유롭게 제공한다
5. 나의 동료들은 업무 방식 또는 전략을 개발하는데 있어서 다른 사람들을 도와준다
6. 나의 동료들은 많은 정보를 다른 직원들과 공유한다
7. 나의 동료들은 다른 사람들에게 제안을 많이 한다

## < 리더용 >

### 창의적 성과

1. 이 직원은 목표 달성을 위한 새로운 방법을 제안한다
2. 이 직원은 성과향상을 위해 새롭고 실용적인 아이디어를 찾아낸다
3. 이 직원은 새로운 기술, 공정, 기술 및 제품 아이디어를 찾는다
4. 이 직원은 업무나 제품의 질(質) 향상을 위해 새로운 방법을 제시한다
5. 이 직원은 창의적인 아이디어의 원천이다
6. 이 직원은 위험을 감수하는 것을 두려워하지 않는다
7. 이 직원은 새로운 아이디어를 촉진하고 전파한다
8. 이 직원은 기회가 있을 때 마다 직무에 대한 창의성을 발휘한다
9. 이 직원은 새로운 아이디어의 구현을 위해 적절한 계획이나 일정을 고안한다

10. 이 직원은 종종 새롭고 혁신적인 아이디어를 가지고 있다
11. 이 직원은 문제해결을 위한 창의적인 방안을 고안한다
12. 이 직원은 종종 문제에 대해 기존에 없던 새로운 접근방식을 가지고 있다
13. 이 직원은 과업수행을 위한 새로운 방법을 제시한다

## 국문초록

상사의 경계연결리더십이 구성원의 창의적 성과에 미치는 영향

서울대학교 대학원

경영학과 경영학전공

윤서인

오늘날의 빠르게 변화하는 경영 환경에서, 조직의 혁신과 생존은 조직 내부 관리뿐만 아니라 조직 경계 외부관리를 필요로 한다. 지식 집약적인 직무를 수행해야 하고, 조직 구조가 수평적으로 변화하며, 글로벌 경쟁이 심화되는 추세 속에서, 리더는 조직의 대표자로서 외부 환경과의 긴밀한 상호작용을 통해 효과적으로 지식을 교환 및 전달하고 창의적 성과를 주도해야 한다. 이러한 경계연결 리더십의 필요성과 중요성이 커지고 있는 만큼, 본 논문은 리더의 경계연결 리더십이 구성원의 창의적 성과에 미치는 영향을 검증하는 것을 목적으로 한다. 구체적으로, 경계연결 리더십이 어떠한 심리적 메커니즘을 통해 구성원의 창의적 성과에 영향을 미치며, 이 관계를 조절하는 리더요인과 동료요인을 검증하는 것을 본 연구의 취지로 한다.

본 연구는 다음의 3가지 연구과제를 설정하였다. 첫째, 경계연결 리더십이 구성원의 창의적 성과에 미치는 주효과를 검증한다. 둘째, 경계연결 리더십과 구성원의 창의적 성과 간의 관계에 내재된 심리적 메커니즘을 밝힌다. 구체적으로, 경계연결 리더십이 창의적 자기 효능감과 심리적 안정감을 통해 창의적 성과에 영향을 미치는 효과를 검증한다. 셋째, 경계연결 리더십과 두 심리적 매개변인 간 관계에 영향을 미치는 상황요인을 검토하고자 한다. 리더의 외부 지향적 리더십 행동은 해당 리더의 조직 내부 지향적 리더십 행동과 조직 내 동료들의 행동에 따라 그 영향력이 강화될 수 있다. 이에 본 연구에서는 리더의 임파워링 리더십과 동료의 지식공유행동을 상황적 요인으로 채택하여 그 영향을 검토하고자 한다.

본 연구는 한국에 위치한 다양한 기업을 대상으로 설문조사를 실시하였으며, 설문은 구성원 및 그들의 직속상사로 구성된 200개의 쌍에게 배포되었으며, 최종적으로 158쌍의 자료가 분석에 사용되었다. 위계적 회귀분석을 실시한 결과, 경계완결 리더십은 구성원의 창의적 성과에 미미하지만 정적인 관계를 가졌다. 또한, 이러한 관계는 구성원의 창의적 자기 효능감과 심리적 안정감에 의해 매개되는 것으로 나타났다. 더불어, 동료의 지식공유만이 경계완결 리더십과 창의적 자기 효능감 간 관계를 조절하는 것으로 나타났다. 가설이 예측한대로, 동료의 지식공유 수준이 높을 때 경계완결 리더십과 창의적 자기 효능감 간의 정적 관계가 강화되는 것으로 나타났다.

이로써 본 연구는 경계완결 리더십이 구성원의 창의적 성과에 미치는 영향과 그 심리적 메커니즘을 실증적으로 검증함으로써 리더십, 경계완결행동, 그리고 창의성 연구분야에 이론적으로 기여한다.