AWAKENING EMPLOYEE CREATIVITY
IN ORGANIZATIONS

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Chapter 1

Chapter 1 Introduction

In the dynamically changing world, organizations are increasingly relying on employee creativity. By promoting employees to generate creative ideas and products for the market, organizations can achieve innovation and maintain competitive advantages (Shalley, Zhou, & Oldham, 2004; Woodman, Sawyer, & Griffin, 1993; Zhou & Hoever, 2014). Considering the critical importance of creativity, practitioners are searching for ways to facilitate employees’ creative performance. However, existing knowledge on creativity predictors and drivers remains incomplete. To help organizations effectively manage employees’ creativity, this dissertation aims to elucidate what predictors from organizations and employees themselves can align to engender creative results.

1.1 Research Background

1.1.1 Lessons from prior research

Previous scholars have investigated predictors that contribute to high level of employee creativity. In this regard, they have found that both organizations and employees can exert a significant influence in awakening employees to produce creative outcomes. Specifically, a stream of research has shown that employees’ own characteristics can help them to devise creative ideas. Theoretically, individual characteristics, such as problem-solving abilities, creative personalities, and broad interests and knowledge, may internally signal employees’ potentials for creativity, because such characteristics highly indicate how individuals think about themselves in generating creative outcomes. For example, some psychological attributes (e.g., intrinsic motivation, self-efficacy, and identity) may activate employees’ cognition and confidence in approaching problem solving and engaging in creative endeavors (e.g., Zhang & Bartol, 2010). Concurrently, some studies have centered on identifying organizational factors as predictors of employee creativity, as certain working conditions may encourage creativity (Woodman et al., 1993). In this regard, previous research has provided accumulative evidence indicating that a variety of relevant contextual variables enhance employee creativity. Specifically, organizations can appoint a supervisor to effectively lead followers to make new changes, build a team so that members can interact to achieve creative goals by sharing information and knowledge, and provide employees with well-designed tasks to allow them to try new solutions flexibly and persistently.
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Although scholars acknowledge the independent influences of organizations and employees above, research suggests that simultaneously considering their effects may provide a better understanding of how to promote creativity (Shalley et al., 2004; Zhou & Hoever, 2014). Indeed, when creativity occurs in organizations, the critical organizational context may shape employees’ creativity directly or indirectly through several mechanisms (Zhou & Hoever, 2014). Specifically, some research based on the perspective of the social psychology of creativity highlights that specific contextual factors may indirectly affect creativity by influencing certain creativity-relevant components. Basically, given that personal factors are subject to the effects of the working environment, research suggests that if the context exerts a favorable influence on employees’ intrinsic motivation and abilities, these high-level employee attributes are more likely to stimulate employees’ creative performance (Amabile, 1996). Within this line of research, accumulative empirical studies have investigated the underlying mediators and concluded that psychological mechanisms (e.g., harmonious passion and positive affect) transfer the impact of context to employee creativity. Empirically, transformational leaders exert a positive influence on employee creativity by fostering employees’ creative self-efficacy (Gong et al., 2009).

Another line of research, based on the traditional theory of interactional psychology (Schneider, 1982), claims an interactional perspective (Woodman et al., 1993) where contextual and personal factors interact with each other in predicting employee creativity. That is, the context determines the effectiveness of individual attributes in influencing creative outcomes. For illustration, because the context provides critical conditions for individuals to utilize their desirable personal characteristics in order to pursue creativity, considering the accentuating or attenuating influence of the context may engender a more complete understanding of how personal factors influence employee creativity (van Knippenberg & Hirst, 2015; Zhou & Hoever, 2014). For example, as previous research suggests that a positive relation exists between creative self-efficacy and employee creativity, Richter, Hirst, van Knippenberg, and Baer (2012) found that the positive effects can be strengthened by the team context (e.g., informational resources) (Richter et al., 2012).

1.1.2 Research problem and questions

However, thus far, how such factors can be aligned to awaken employee creativity has not been thoroughly investigated. Specifically, given the mixed findings on the influences of several factors on creativity (e.g., transformational leadership), it is suggested to investigate through what explanatory mechanisms
and under what boundary conditions personal or contextual predictors may contribute to employees’ creative outcomes. Specifically, to maximize employee creativity, research should examine how contextual factors may interact with personal factors to provide the best explanation for employees’ creative performance (van Knippenberg & Hirst, 2015). Meanwhile, to look inside the black-box of the context-creativity relationship, researchers are encouraged to explore the intervening mechanisms through which the context may lead to creativity, as well as the interactions of personal and contextual factors in this regard (Zhou & Hoever, 2014). These unclear issues constrain scholars’ understanding of the effects of organizations and individuals in creativity and practitioners’ ability to effectively manage creativity in organizations. Thus, to further address these issues, more examinations should be conducted to determine key personal and contextual variables for employee creativity that have not been documented in the creativity literature, especially those that may generate additional positive effects on creativity. Although creativity research has been developed over the last decade to identify a wider range of predictors from both the context and individuals, it has focused on specific facets (e.g., Anderson, Potočnik, & Zhou, 2014) and thus failed to advance our knowledge on the connections between various predictors and creative results.

Overall, aiming to provide more insights into these important yet unclear research problems, in this dissertation, I focus on identifying the factors from both organizations and employees that simultaneously trigger employee creativity. Specifically, I propose several main topics that are relevant for explaining the complex influences on employee creativity: 1) How human resources (HR) can awaken employee creativity? 2) How employees themselves can awaken their own creativity? 3) How leaders can awaken employee creativity? 4) How job designs can awaken employee creativity? 5) How employee creativity can be awakened in teams? These questions are investigated in the four studies of this dissertation. Notably, for each questions, I aim to not only reflect on each main aspect of awakened initiatives from organizations and employees but also illuminate the interdependence of this aspect with other initiatives. The following sections elaborate on the main topics of research (1.2), research contributions (1.3), thesis outline and research approach (1.4), and thesis research output (1.5).
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1.2 The Main Topics of Research

Throughout this dissertation, I use the widely accepted definition of creativity: employee creativity refers to individuals generating novel and useful ideas, products, and processes (e.g., Amabile, 1996; Anderson et al., 2014; Woodman et al., 1993), and team creativity refers to team members jointly developing and producing ideas, products, and processes with novelty and usefulness. As the first step of innovation, creativity can occur at the level of the individual and at the level of the work team, but it will invariably result in identifiable benefits at one or more of these levels of analysis. Although there are several definitions of creativity in existing research from various research field (e.g., Runco & Jaeger, 2012), the definition we used specifically reflects the primary purpose of this dissertation—extending our understanding of employee creativity in the organizational settings. That is, this definition specifically focuses on creative outcomes in organizations including creative solutions to business problems, creative business strategies, or creative changes in job processes (e.g., Shalley & Gilson, 2004; Zhou & Shalley, 2003). Thus, from a standpoint of organizational management and research, we follow previous relevant studies in organizational behavior research to use the definition above. Moreover, employee innovative work behavior (IWB) refers to a series of individual activities aimed at the generation, promotion, and realization of ideas for new technologies, processes, techniques, or products (Janssen, 2000; Janssen & Van Yperen, 2004; Yuan & Woodman, 2010).

1.2.1 Awakening employee creativity from an HR perspective

Given that employees are the major assets for organizational innovation, scholars have recently suggested that human resource management (HRM) can facilitate creativity (Agarwal & Farndale, 2017; Chang, Jia, Takeuchi, & Cai, 2014). Specifically, to foster employee creative performance, which is an important aspect of employee outcomes (e.g., Jiang, Wang, & Zhao, 2012), researchers suggest that HRM practices may enhance employees’ ability, motivation and opportunity to participate in creative work processes (Farr & Tran, 2008; Mumford, 2000), such as selection, training, structuring work activities, devising rewards, promotion, setting creative goals and expectations, and organizing teams (Jiang et al., 2012; Martinaityte, Sacramento, & Aryee, 2016). These HRM practices have been found to overlap with creativity predictors in organizational behavior research. For example, creativity researchers have found that job autonomy is an antecedent of employee
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creativity, while HRM scholars have shown that providing more autonomy to employees may promote their (creative) performance.

Although existing theoretical arguments suggest that a strong connection exists between HRM and employ creativity, few studies in the creativity research field have investigated the role of HRM (Jiang et al., 2012). To address this important yet relatively limited research issue, I draw on the Ability-Motivation-Opportunity (AMO) model—a basic HRM theory—to address the narrow view of interactions in the existing creativity literature. Specifically, the AMO model provides new lens of HRM to address the questions for which research thus far has generated limited conclusions regarding the combinational effects of the context in boosting the ability of personal predictors to generate higher levels of creativity. First, as argued above, creativity predictors can be categorized into HR practices within AMO model, as increasing employees’ creative performance is an important result of HRM. If this logic is extended, creativity antecedents represent the implementation of ability-, motivation-, and opportunity-enhancing HRM practices (Appelbaum, 2000; Boselie, Dietz, & Boon, 2005; Jiang, Lepak, Hu, & Baer, 2012; Paauwe, 2009). Specifically, ability-enhancing practices refer to practices aiming to increase employees’ ability and attributes, including selecting employees with certain personal characteristics (e.g., creative self-efficacy and creative personality); motivation-enhancing practices refer to practices aiming to foster employees’ motivation in work engagements, including rewards, leadership or supervisory behaviors, and goals and expectations; and opportunity-enhancing practices refer to practices aiming to provide opportunities for employees to participate into work processes, including job design, team work, and organizational climate and culture.

I propose that the AMO model in the HRM literature can explain the interactions in creativity. The basic assumption in the AMO model is that bundles of HR practices from the above three dimensions exert complementary or synergistic influences on employee performance (Subramony, 2009). This assumption aligns with the interactionist model in the creativity literature (Farr & Tran, 2008). That is, the independence of practices signals the interplay among creativity predictors (Woodman et al., 1993; Zhou & Hoever, 2014). For example, To, Fisher, Ashkanasy, and Rowe (2012) found that employees’ positive mood interacts with supervisory support in facilitating a higher level of creativity. Notably, this type of interaction considers two main practices: employees’ positive mood represents an ability-enhancing practice, and supervisory support represents a motivation-enhancing practice. In the same vein,
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Zhou, Hirst, and Shipton (2012) found that employees’ regulatory focus, leaders’ intellectual stimulation, and opportunities for participation together generate a significant interactive effect in eliciting the highest level of employee creativity. This type of interaction notably involves three main practices: employees’ regulatory focus represents an ability-enhancing practice, leaders’ intellectual stimulation represents a motivation-enhancing practice, and participation represents an opportunity-enhancing practice.

1.2.2 Employees awakening their own creativity

A branch of research focuses on what kind of personal characteristics may facilitate employee creativity (for reviews, see Anderson et al., 2014; Shalley et al., 2004), such as creative personality, cognitive style, and positive or negative affect (e.g., George & Zhou, 2007; Wolfradt & Pretz, 2001; Zhou, 2003). These favorable personal predictors may determine the extent to which employees recognize problems and search for new knowledge in pursuing creative ideas and solutions. Significantly, most studies adopt a psychological perspective (Klijn & Tomic, 2010). Specifically, researchers acknowledge that personal psychological attributes generate an internal motivation to stimulate employees’ creative engagements, such as intrinsic motivation and self-efficacy. Moreover, individuals’ psychological traits are subject to influences from the organizational environment (Amabile & Pillemer, 2012), which signals the theoretical importance on considering how organizational predictors may exert an influence on employees’ psychological capital (PsyCap) for creativity. However, existing research has integrated only the role of personal psychological attributes to a limited extent: 1) Although scholars acknowledge the potential benefits of positive psychology on creative outcomes (e.g., Sweetman, Luthans, Avey, & Luthans, 2011), surprisingly little is known about how to maximize the effects of PsyCap—a typical positive psychological factor for creativity (Rego, Sousa, & Marques, 2012). 2) Despite the positive impacts of creative self-efficacy—an important aspect of PsyCap—on employee creative performance (e.g., Tierney & Farmer, 2002, 2011), the mixed results on whether creative self-efficacy transfers the influence of the context (e.g., leadership) to creativity call for more examinations of creative self-efficacy as a mediator (Liu, Jiang, Shalley, Keem, & Zhou, 2016). 3) Similarly, the inconsistent results on traditional psychological factors (e.g., intrinsic motivation) in creativity research call for further explorations of other motivational mechanisms that link the context to creativity (Amabile & Pratt, 2016; Liu, Chen, & Yao, 2011). Thus, I follow two main theoretical frameworks in creativity literature to address these research gaps by
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illustrating the influences of various personal psychology (i.e., PsyCap, creative self-efficacy, and meaningful work) and organizational factors simultaneously.

The first framework is the interactionist perspective, which considers how contextual variables interplay with personal characteristics in affecting organizational creativity (Woodman et al., 1993; Zhou & Hoever, 2014). Most creativity research stresses how contextual predictors accentuate or attenuate the effects of personal psychological factors on creativity (van Knippenberg & Hirst, 2015). Evidently, this line of research indicates that leadership issues and job characteristics (as important aspects of the context) positively moderate the person-creativity relationship (e.g., Shalley, Gilson, & Blum, 2009; Zhou et al., 2012). The main reason is that leaders and enriched jobs in favor of creativity match employees’ creative personal attributes, which may enhance the likelihood that employees utilize their personal advantages for creative achievements. This reasoning is consistent with the trait activation theory (Tett, Simonet, Walser, & Brown, 2013), which suggests that the strength of the match between the context and personal traits may foster their potential benefits for (creative) outcomes (van Knippenberg & Hirst, 2015). That is, supervisor behaviors and task characteristics with creativity-promoting orientations underlie the strength of the context, which may positively shape the psychological attributes associated with creativity. Thus, I extend this line of research by highlighting that leaders and job design may bring out the benefits of employees PsyCap, which is essential for better employee (creative) results (e.g., Anderson et al., 2014; Zhou & Hoever, 2014).

The second framework is the componential theory (developed into the dynamic componential model of creativity and innovation) (Amabile & Pratt, 2016) which suggests that contextual variables may predict creativity and innovation outcomes through a primary motivational mechanism (e.g., by influencing personal motivations) (Amabile, 1996). Although personal intrinsic motivation conceptually acts as an essential mediator in transferring the impact of the context to creativity, the inconsistent results have forced scholars to explore other manifestations of personal motivations. In this regard, empirical studies have explored and identified alternative mediating mechanisms that account for creativity (e.g., harmonious passion) (e.g., Liu et al., 2011). Following this line of research, my research attention focuses on two main concepts: creative self-efficacy and employees’ perception of meaningful work. Since the above arguments emphasize the positive psychology, which includes an important aspect (i.e., self-efficacy), I draw on social cognitive theory (Bandura, 1991) to
identify creative self-efficacy as the psychological mechanism underlying creativity (Gong, Huang, & Farh, 2009; Liu et al., 2016). That is, leadership (e.g., entrepreneurial leadership) may boost employees’ creative self-efficacy and thus further foster their creative performance. Furthermore, given that failures are inevitable during the creative process, employees who experience work as meaningful may increase their contributions to valuable activities (e.g., innovation) (Cohen-Meitar, Carmeli, & Waldman, 2009). Based on the dynamic componential model of creativity and innovation (Amabile & Pratt, 2016), leadership focused on triggering innovation and creativity (e.g., servant leadership) (van Dierendonck & Rook, 2010) may promote employees’ perception of meaningful work, which would in turn lead to a high level of innovative and creative results.

1.2.3 Leaders awakening employee creativity

As proximal contextual factors, leadership or supervisory factors, such as transformational leadership, authentic leadership, and supervisor behavior (e.g., Gong et al., 2009; Rego et al., 2012), have been fundamentally and significantly indicated in many studies to influence creativity (Anderson et al., 2014; Shalley et al., 2004). Generally, as HR has been mentioned to awaken creativity, leaders may motivate employees to engage in creative activities by fostering their psychological states (e.g., Zhang & Bartol, 2010) and by providing a context where employees can receive encouragement and support in generating creative ideas (e.g., Amabile, 1996). However, evidence thus far shows that traditional leadership styles offer a weak explanation for creativity in the literature. For example, the influence of transformational leadership—a typical traditional leadership style—on creativity is mixed in existing research (Hammond, Neff, Farr, Schwall, & Zhao, 2011; Rosing, Frese, & Bausch, 2011), and it is empirically redundant (Van Knippenberg & Sitkin, 2013). Thus, this major problem regarding the incompatibility of leadership and creativity engenders an emergent research topic: how creativity-oriented leadership or supervisory behavior, specifically, influences creativity (Anderson et al., 2014; Mainemelis, Kark, & Epitropaki, 2015). To address this research gap, scholars have called for research on a broad range of different leadership styles or supervisory behaviors. Therefore, I follow previous research suggestions and propose three important leadership and supervisory factors—entrepreneurial leadership, servant leadership, and supervisor support for creativity—to explain their influences in the creativity research field. All these factors are claimed to theoretically contribute to creativity, but little empirical research has examined them in detail.
Entrepreneurial leaders’ characteristics of risk taking and proactivity overlap with employees’ creative attributes, and leaders’ behaviors in setting innovation goals and building team members foster subordinates’ creative endeavors. Specifically, facing an uncertain environment with heightened competition, entrepreneurial leaders can help employees reach their potential to challenge risks—for instance, through fostering creative self-efficacy—to effectively realize creative and innovative achievements (Gupta, MacMillan, & Surie, 2004). Thus, entrepreneurial leaders boost employees’ creative self-efficacy by setting creative goals and stimulating their cognitive thinking to realize these goals (Gupta et al., 2004), and in this way, they contribute to high level of creativity because creative efficacy provides an unshakable sense of persistence in creative investments (Tierney & Farmer, 2002, 2011). Furthermore, servant leadership is characterized as a follower-oriented type of leadership (Avolio, Walumbwa, & Weber, 2009; Walumbwa, Hartnell, & Oke, 2010; Yoshida, Sendjaya, Hirst, & Cooper, 2014) that is highly required for an organization’s long-term success in today’s competitive business world (Panaccio, Henderson, Liden, Wayne, & Cao, 2015). By displaying a series of behaviors to give priority to subordinates, servant leaders develop subordinates’ potential and self-motivation to increase innovative engagements and outcomes (Liden, Wayne, Liao, & Meuser, 2014; Van Dierendonck, 2011). Servant leaders’ behaviors may build followers’ sense that their (innovative) work is meaningful, with significance for the entire organization (Nord, Brief, Atieh, & Doherty, 1990). Consequently, employees are motivated to put more effort into challenges related to innovation (Cohen-Meitar et al., 2009). Regarding to the more creative-specific supervision, the concept of supervisor supports for creativity highlights leaders’ behaviors specifically aimed at fostering employee creativity (Baer & Oldham, 2006). These behaviors primarily enable employees to have a sense of valued creativity in organizations, and they receive encouragement and assistance in coping with risks and difficulties. These beneficial stimulators create a desirable environment where employees adequately utilize their personal psychological strengths to achieve creative results.

1.2.4 **Awakening employee creativity through job design**

Early research suggests that organizations designing workplace jobs may directly influence employee creative performance (Oldham & Cummings, 1996; Tierney & Farmer, 2002). Basically, well-designed tasks—which are significant and identifiable and provide autonomy, feedback, and opportunities to use employees’ skills (Hackman & Oldham, 1976)—stimulate employees’
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“excitement about their work activities and their interest in completing these activities, and this excitement should foster creativity” (Shalley et al., 2004, p. 938). Recent studies have treated job characteristics as a boundary condition where creativity can be enhanced by certain predictors (e.g., Shalley et al., 2009), since variations in creativity are mainly dependent on whether employees’ tasks have a creativity requirement (Shalley, Gilson, & Blum, 2000). For example, when employees are assigned with autonomous tasks, they are more likely to be responsible for their creative work because they feel more freedom to determine the methods and spaces for accomplishing tasks (Coelho & Augusto, 2010). Moreover, since job characteristics exert a potential influence on the relationship between leaders and employees (Volmer, Spurk, & Niessen, 2012), they may act as decisive factors in establishing or amplifying how employees perceive the influences from leaders (Wang & Cheng, 2010). However, the scant number of empirical examinations in this line of research limits our comprehensive understanding of the influence of job design on creativity. Consequently, following the reasoning above, I primarily provide a comprehensive picture on the moderation effects of job characteristics (i.e., task significance, skill variety, task identification, feedback, and job autonomy) on employee creative or innovative results.

The person-in-situation perspective provides a basic lens for considering how job characteristics and individual traits generate interactive influences on individual outcomes (van Knippenberg & Hirst, 2015). Inherently, it indicates that environmental factors (e.g., job characteristics) determine the extent to which employees’ psychological attributes translate into behavior and performance (van Knippenberg, 2012). Job characteristics can create a beneficial environment that cues a (creative) expectation to stimulate employees to consistently use their desirable psychological traits for (creative) achievements (Coelho & Augusto, 2010). Given the benefits of employees’ psychological traits, creativity-promoting job characteristics may accentuate the process where individuals draw on their psychological traits to produce creativity in the face of challenges (Kim et al., 2010; Shalley et al., 2009).

To further understand the influence of job characteristics on creativity, we integrate the arguments on leadership issues above to clarify whether the effectiveness of leadership influences may be determined by job design. This theoretical argument corresponds to the situational leadership theory (Podsakoff & MacKenzie, 1997), which suggests that the influences of leadership or supervisory behavior depend on other factors related to the working environment
(Wang & Cheng, 2010). That is, considering the task context in which leadership or supervisory behavior occurs may address the incomplete or inaccurate conclusions on whether leadership affects employee creativity (Avey, Palanski, & Walumbwa, 2011). Theoretically, employees’ perceptions of the working context (e.g., job characteristics) and of supervisors may interrelate (Salancik & Pfeffer, 1978). Consequently, when leaders display behaviors or leadership styles that foster employee creativity, this influence may be activated to a higher level by job characteristics.

### 1.2.5 Awakening employee creativity in teams

Organizations are turning to design team-based work systems to allow more employees to work together towards creative achievements (Pirola-Merlo & Mann, 2004). Given that creativity cannot occur in isolation, teams act as a major component of the working context that influences employees’ creative endeavors (Hirst, Van Knippenberg, Chen, & Sacramento, 2011; Hirst, Van Knippenberg, & Zhou, 2009). Specifically, team characteristics (e.g., team learning behavior, team diversity, and team goal orientation) shape employee creativity in teams, since the interactions within teams potentially affect team members’ cognitive resources for identifying problems, processing information, and devising creative solutions (Gong, Kim, Lee, & Zhu, 2013). However, empirical studies on the potential benefits of teams on creativity remain limited (Chen, Farh, Campbell-Bush, Wu, & Wu, 2013; Taggar, 2002). The deep knowledge about how team characteristics trigger employee creativity has significant implications for organizations ability to manage teams and employee creativity (Zhou & Shalley, 2008). Therefore, I aim to enrich this line of research by investigating the influences on employee creativity from a team level.

To determine the top-down effects of team factors on employee creativity, most researchers rely on the process perspective in the creativity literature (Hülsheger, Anderson, & Salgado, 2009). Primarily, processes in team are characterized as the interaction of employees’ cognitive resources to produce creative ideas (Shin, Kim, Lee, & Bian, 2012). Within the team context, employees who share information and exchange knowledge may develop a strong belief that their teams have the creative capability (i.e., creative team efficacy) to initiate creative activities (Bandura, 1986). In addition, creative team efficacy, which shares similarities with employees’ creative self-efficacy (Bandura, 2000), may have motivational effects on employees’ creative endeavors. The motivational influence lies in the fact that employees are likely to build a sense that achieving shared goals in teams is valuable and encouraged (Liu et al., 2016). Specifically,
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when the team has strong confidence (i.e., efficacy) in generating creative solutions, a desirable context where team members can reduce the psychological risks associated with creative endeavors can be created.

1.3 Research Contributions

In addressing these research topics, I make several important contributions to existing creativity research. First, by discovering new contextual and personal factors (e.g., entrepreneurial leadership and meaningful work) and showing their contributions to creative outcomes, I integrate theories related to these factors and creativity theory to provide a comprehensive picture of various predictors of creativity. Such an investigation answers scholars’ call for research analyzing a broad range of unexplored creativity predictors. In addition, by reexamining the effects of several factors (e.g., creative self-efficacy, supervisor support for creativity) under continued debate in creativity research, this thesis provides new evidence to establish their influences on creativity. Hence, I add more consistent findings to creativity research. Overall, this thesis then refines the scholarly understanding on the role of various contextual and individual predictors of creativity.

Second, this thesis helps enrich the paucity of studies investigating the mechanisms by which the context boosts employee creativity. Based on the newly identified and reexamined variables above, I test the influences of leadership styles (i.e., entrepreneurial leadership and servant leadership) on creativity from a mediator-based perspective. Relying on motivational mechanisms, I specifically open the black-box of leadership-creativity associations by establishing key employee psychological characteristics (i.e., creative self-efficacy and meaningful work) to extend the incomplete understanding of the motivational processes that link leadership and creativity. Furthermore, by considering the multilevel nature of the mechanisms, I add empirical evidence to the limited stream of studies by testing whether a motivational factor at the team level (i.e., team creative efficacy) may transfer the effect of leadership to creativity in the workplace. In this way, this thesis offers significant insights on multilevel phenomenon in the creativity literature—advancing a more complete account of drivers of creativity across levels.

Finally, from an interactional perspective, I provide a new lens to understand in depth the complex interplay between personal and contextual factors driving
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creativity with two different studies. Specifically, a conceptual framework analyzes different interactions where various contextual factors may separately or jointly accentuate the positive effects of personal factors on creativity, which is fully supported by an empirical study. Moreover, this thesis goes beyond the mediation and moderation effects in creativity research by studying the conditional indirect effects, which extends theoretical arguments regarding whether task characteristics determine the effect of leadership styles on follower outcomes.

1.4 Thesis Outline and Research Approach

Integrating the theoretical arguments above, the current thesis separately addresses the specific research topics in four following chapters. Specifically, with regard to the first topic, Chapter 2 integrates the AMO model into creativity literature to illustrate the interactions of creativity predictors. The results highlight that employees themselves, leaders and job characteristics within organizations can simultaneously foster employee creativity, which provides guidelines for the following studies. The second topic is addressed in Chapters 3, 4, and 5. In three studies, I examine the influences of several employee psychological characteristics on creativity (PsyCap in Chapter 3, creative self-efficacy in Chapter 4, and meaningful work in Chapter 5). To address the three topics on leadership issues, I use Chapters 3, 4, and 5 to examine the ability of different leadership styles or supervisor behaviors to foster employee creativity and innovation (supervisor support for creativity in Chapter 3, entrepreneurial leadership in Chapter 4, and servant leadership in Chapter 5). Chapters 3 and 5 mainly address topic four by examining the moderation effects of job characteristics. Finally, Chapter 4 tests whether team factors (i.e., creative team efficacy) contribute to employee creativity, which provides evidence to address the last topic.

Chapter 2 provides a conceptual framework that organizes the employee creativity literature focusing on an interactional perspective. To illustrate the important but less investigated topic, I draw on the AMO model to argue that the creativity variables with different functions can interplay in different ways to predict employee creativity. I first categorize these variables into ability-, motivation-, and opportunity-enhancing practices, according to their different practical functions. Then, I provide two main types of interactions—the combination type and multiplicative type—to theoretically explain how
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motivation- and opportunity-enhancing practices separately and jointly accentuate the main influences of ability-enhancing practices on creativity.

Chapter 3 builds on the trait activation theory to illustrate how different contextual factors separately and jointly facilitate the influence of positive psychological attributes on employee creativity. Specifically, it aims to explore the how supervisor support for creativity (a contextual predictor) and job characteristics (a working predictor) moderate the positive relationship between PsyCap and individual creative performance. Although existing research has acknowledged the benefits of PsyCap on creative outcomes, knowledge on the conditions under which this relationship is possible remains quite limited. To address this important research gap, I conduct a quantitative study on a Chinese sample ($N = 356$) from multiple industries. Consistent with the existing finding that PsyCap predicts employee creativity, the results show that both supervisor support for creativity and job characteristics positively moderate the PsyCap-creativity linkage. Moreover, PsyCap is most effective at enhancing creativity when both SSC and job characteristics are high.

Chapter 4 takes a multilevel perspective to examine the relationship between entrepreneurial leadership, creative efficacy beliefs, and creativity at both the team and individual level. Based on the assumption that entrepreneurial leadership facilitates employee and team performance, I extend the motivational perspective in creativity research to propose that creative efficacy beliefs are an important motivational force that mediates the entrepreneurial leadership-creativity relationship. Specifically, based on a survey of 237 employees in 43 teams from Chinese companies, the results show that creative self-efficacy mediates the association between entrepreneurial leadership and employee creativity and that team creative efficacy not only mediates the association between entrepreneurial leadership and team creativity but also exerts cross-level influences in predicting employee creativity and mediates the association between entrepreneurial leadership and employee creativity.

Chapter 5 examines the relationship between servant leadership and employee innovative behavior from a process perspective. Drawing on the dynamic componential model of creativity and innovation, I develop a theoretical model examining meaningful work as a mediator and job autonomy as a moderator in the relationship between servant leadership and employee IWB. Using a sample of 288 employees from three high-tech firms in China, I found that servant leadership positively influences individuals’ perception of meaningful work, which in turn fosters employee IWB. Furthermore, the results show that this
mediating relationship is conditional on the moderator of job autonomy for the path from servant leadership to meaningful work.

Chapter 6 presents the overall conclusions, where key findings are summarized, theoretical and practical implementations are discussed, and future research avenues are proposed.

1.5 Thesis Research Output

Table 1. 1 provides the overview of the studies in this thesis.
# Chapter 1

## Table 1.1 Overview of the Studies in Chapter 2-5

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Research design</th>
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<th>Employee themselves</th>
<th>Leadership issues</th>
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<th>Teams properties</th>
<th>Conference presentation</th>
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<tr>
<td>2</td>
<td>Maximizing Employees Creativity: Uncovering Interactional Effects of Abilities, Motivations, and Opportunities</td>
<td>Qualitative</td>
<td>Ability-, motivation- and opportunity enhancing practices</td>
<td></td>
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<td></td>
<td></td>
<td>Accepted for presentation at the Biennial International Conference of The Dutch HRM Network (2017)</td>
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<td>3</td>
<td>Extending the Understanding of the Relationship Between Psychological Capital and Employee Creativity: Examining the Effects of Supervisor Support for Creativity and Job Characteristics</td>
<td>Cross-sectional, employees from multiple industries in China (N = 356)</td>
<td>PsyCap</td>
<td>Supervisor support for creativity</td>
<td>Job characteristics</td>
<td></td>
<td></td>
<td>Presented at the 20th Anniversary Conference DRUID (2016)</td>
<td>Revise and resubmit at the Creativity and Innovation Management</td>
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## Chapter 1

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<th>Chapter</th>
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<td>4</td>
<td>Does Entrepreneurial Leadership Foster Creativity among Employees and Teams? The Mediating Role of Creative Efficacy Beliefs</td>
<td>Cross-sectional, employees (N = 237) and leaders (N = 43) from eight Chinese companies</td>
<td>Creative self-efficacy</td>
<td>Entrepreneurial leadership</td>
<td>Team creative efficacy</td>
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<tr>
<td>5</td>
<td>Servant Leadership Promoting Innovative Work Behavior in Chinese High-tech Firms: The Role of Meaningful Work and Job Autonomy</td>
<td>Cross-sectional, employees from three Chinese high-tech companies (N = 288)</td>
<td>Servant leadership</td>
<td>Job Autonomy</td>
<td></td>
<td>Accepted for presentation at the Biennial International Conference of The Dutch HRM Network (2017)</td>
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Chapter 2 Maximizing Employees Creativity: Uncovering Interactional Effects of Abilities, Motivations, and Opportunities

Abstract

Researchers increasingly note that employees’ creativity is the result of the interplay between various factors in an organizational context and employees’ individual characteristics. However, few studies have thus far addressed the effects of contextual factors on the link between individual predictors and employees’ creativity. In this paper, we argue that one reason for this is a lack of clear theory and frameworks that capture interactional effects on creativity. To address this gap, we propose using the ability-motivation-opportunity (AMO) theory to conceptualize the different interactions that are able to maximize employee creativity. We use the AMO theory to first conceptualize ability-enhancing practices as personal predictors, and motivation- and opportunity-enhancing practices as contextual predictors. Next, we depict combination and multiplicative models that can explain how motivation- and opportunity-enhancing practices separately and jointly accentuate the main influences of ability-enhancing practices on creativity. Based on the extant research, we show that the combination model can explain higher levels of creativity and the multiplicative model is able to explain the highest level of creativity.

Keywords: Creativity, Interactions, HRM, AMO theory, Future research

2.1 Introduction

In the dynamically changing business world, employees’ creativity plays an important role in defining organizational success (Shalley & Gilson, 2004; Woodman, Sawyer, & Griffin, 1993; Zhou & Shalley, 2011). Therefore, both practitioners and scholars are unsurprisingly engaged in searching for predictors of employees’ creativity (for a review see Anderson, Potočnik, & Zhou, 2014). In this regard, one of the main discoveries thus far is that the effects of employees’ personal characteristics on creativity are influenced by contextual factors (e.g., Richter, Hirst, van Knippenberg, & Baer, 2012; Zhou & Hoever, 2014). However, very few empirical studies have addressed the interactional effects of personal and contextual factors on creativity, thus providing a limited perspective on how “the impact of situation influences… (can be) better understood as contingent on individual characteristics” (van Knippenberg and Hirst 2015, p 225). One reason for this lack of studies is the absence of a clear theory and frameworks that capture interactional effects on creativity (Zhou & Hoever, 2014).

To better understand how an interaction between individual and organizational factors can lead to employees’ creativity, we propose drawing on the AMO theory (ability-motivation-opportunity theory) (Appelbaum, 2000). The AMO theory proposes that employees’ performance in organizations is guided by the presence of the three work systems: ability-, motivation-, and opportunity-enhancing practices. In the absence of any of these work systems in organizations, employees exhibit low performance. Given that creativity is increasingly an indicator of the employees’ performance, we also propose that the consideration of all three work systems is fundamental to explaining employee creativity (c.f. Siemsen, Roth, & Balasubramanian, 2008). Our suggestion is in line with the interactionist perspective increasingly entering the creativity literature debates (Shalley, Zhou, & Oldham, 2004; Zhou & Hoever, 2014). We propose that the AMO theory can help to categorize contextual and personal variables into three dimensions (i.e., ability-, motivation-, and opportunity-enhancing practices) and help to develop combination and multiplicative models explaining employee creativity.

According to the multiple configurations of bundles in the AMO literature, there are two main models of interactions: the combination model (i.e., motivational- or opportunity-enhancing practices separately activate the positive influences of ability-enhancing practices on creative performance) and the multiplicative...
model (i.e., motivational- or opportunity-enhancing practices jointly activate the positive influences of ability-enhancing practices on creative performance) (Bos-Nehles, Van Riemsdijk, & Kees Looise, 2013). Acknowledging the ability-enhancing practices as a prerequisite for performance, existing research suggests that the combination model indicates a higher level of performance and the multiplicative model indicates the highest level of performance (e.g., Bello-Pintado, 2015; Gould-Williams & Gatenby, 2010; Kim, Pathak, & Werner, 2015). Thus, our conceptual framework, which has two main interactive models, complements the interactional perspective of creativity by clarifying how personal predictors (i.e., ability-enhancing practices) leading to the higher or highest level of employee creativity can be explained by different manners of interplay among contextual predictors (i.e., motivation- and opportunity-enhancing practices).

In the following sections, we begin with a definition of creativity and a theoretical lens to integrate our creativity literature and the AMO theory. Thereafter, we introduce a categorizations of creativity antecedents into the AMO model (i.e., ability-, motivation-, and opportunity-enhancing practices) to describe their direct effects on creativity under different functions. Next, we explain how the two alternative models (i.e., the combinative model and the multiplicative model) can help to address the interactions in creativity. We end by discussing theoretical implications and future research avenues before offering practical implementations and limitations.

2.2 Theoretical Lens

2.2.1 Definition of Creativity

Creativity has been a topic of interest for both scholars and practitioners for more than 35 years (Amabile & Pillemmer, 2012). It can be defined as the production of novel and useful products in any domain (Amabile, 1996). Creativity can be observed at the individual, team, and organizational levels (Anderson et al., 2014). Thus, to be creative, team or individual ideas should be both novel and useful; they should also have potential value for organizational development (George, 2007). Thus, creativity can involve both minor incremental adaptations and radical breakthroughs (Madjar, Greenberg, & Chen, 2011; Mumford & Gustafson, 1988).
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Creativity is fundamentally different from innovation (e.g., Anderson et al., 2014). Innovation refers to the “development and implementation of new ideas by people who over time engage with others within an institutional context” (Van de Ven, 1986). Individual or team creativity is the first step towards innovation (e.g., Shalley, Zhou & Oldham, 2004). Therefore, both management scholars and practitioners are seeking management tools and approaches to facilitate employees’ creativity (e.g., Binyamin & Carmeli, 2010).

2.2.2 AMO Theory Relevance to Creativity Research

The AMO theory is one of the most established (HR) management theories concerning the facilitation of employees’ performance. The theory suggests that people perform well when they have the skills, knowledge and abilities to perform (A = abilities); when they are motivated to perform (M = motivation); and when they are provided with opportunities and support from an organization to perform (O = opportunity) (Appelbaum, 2000; Subramony, 2009). This equation is: \( P = f (\text{Ability, Motivation, Opportunity}) \). That is, organizations can provide various HR practices to increase these three dimensions to encourage employees’ high performance: ability practices, motivation practices, and opportunity practices. Specifically, regarding ability practices, rigorous selection and extensive training ensure that employees have the appropriate abilities to improve performance. Regarding motivation practices, performance appraisal, incentives and rewards, promotion, and relationships with supervisors motivate employees to enhance working behaviors. With respect to opportunity practices, flexible job design, teamwork, employee participation, organizational climate and culture for supports, and information sharing empower employees to perform better (Appelbaum, 2000; Boselie, Dietz, & Boon, 2005; Jiang, Lepak, Hu, & Baer, 2012). The relevance of the AMO theory and creativity could be explained in the following two ways.

First, as discussed at the outset, HR practices within the AMO theory can be applied to represent the creativity predictors. Therefore, we propose that ability practices are personal creativity factors and that motivation and opportunity practices are contextual creativity factors. In particular, ability practices (e.g., training and recruitment) enable employees’ natural capacities (e.g., skills, experience, and attitudes) relevant to performing tasks (Boon, Belschak, Den Hartog, & Pijnenburg, 2014; Minbaeva, 2013), which emphasizes improving employees’ personal attributes (Kim et al., 2015). This points to the practical implementations of creativity research, enabling organizations to select and train employees with personal characteristics crucial for creativity (e.g., creative self-
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efficacy and creative personality). Motivation practices include organizational incentives (e.g., pay and performance appraisal), which extrinsically motivate employees. These practices are relevant to certain contextual creativity factors (e.g., rewards and goal setting). Opportunity practices, which are based on organizational support theory (Boon et al., 2014), job design theories (Hackman & Oldham, 1975), and the empowerment literature (Kroon, Van De Voorde, & Timmers, 2013), signal favorable employee involvement practices for employees’ performance (e.g., teamworking, job design, and organizational (climates for) supports). These practices have all been examined in the creativity literature as contextual factors.

Second, as discussed at the outset, the AMO theory suggests that interactive relationships among ability, motivation, and opportunity practices can generate a positive synergistic effect on performance (Bayo-Moriones & Galdon-Sanchez, 2010; Jiang et al., 2012; Knies & Leisink, 2014; Kroon et al., 2013). That is, employees will perform creatively when they have the abilities and desirable attributes, are motivated adequately, and can fully participate in the work process (Boselie, 2010; Boxall & Purcell, 2003; Chang, Jia, Takeuchi, & Cai, 2014; Jiang, Wang, & Zhao, 2012). Specifically, in the combination model, motivation- or opportunity-enhancing practices in combination with ability practices contribute to a higher level of creativity, while in the multiplicative model, practices of the three dimensions are presented simultaneously with motivation- and opportunity-enhancing practices jointly supporting and reinforcing ability-enhancing practices to achieve the highest level of creativity.

We take the personality of openness—a personal predictor in the creativity literature that can be ascribed to an ability-enhancing practice according to our categorizations above—as an example to illustrate the two main interactive models. Based on the positive direct effect of employees’ openness on their creativity (e.g., Dollinger, Urban, & James, 2004; Silvia, Nusbaum, Berg, Martin, & O’Connor, 2009), scholars found that diversity in the team (ascribed to an opportunity-enhancing practice because it provides more opportunities for employees to access new information) actives the influences of openness towards a higher level of creativity (Baer, 2010). Furthermore, research indicates that when feedback (ascribed to a motivation-enhancing practice because it stimulates employees’ motivations) and a heuristic task (ascribed to an opportunity-enhancing practice because it provides opportunities for employee engagements) both exist, employees with openness will achieve the highest level of creativity (Zhou & Oldham, 2001).
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The following sections mainly reflect the two points above to analyze the interactionist perspective in creativity within the AMO theory. We first provide the application of the AMO theory by reviewing extant empirical studies on antecedents of creativity and by organizing findings following the AMO theory. That is, based on the different functions of creativity predictors, we classify the findings into three dimensions (i.e., ability-, motivation-, and opportunity-enhancing practices). Next, we draw on the basic types of HR practices bundles to provide a framework using two models to review how these HR practices/creativity predictors bundle/interact with each other towards a higher level of employee creativity.

2.3 Application of the AMO Theory

Given the connection between practices in the AMO theory and predictors in the creativity literature, our analysis establishes categorizations of the creativity predictors. Reviewing the existing empirical creativity studies, we summarize the creativity predictors (i.e., personal and contextual factors) and classify them into the three dimensions of the AMO model. In particular, the personal factors of employee creativity can be categorized into ability-enhancing practices, while the contextual factors can be categorized into two dimensions—motivation- and opportunity-enhancing practices—according to the factors’ different HRM functions (more theoretical explanations on the categorizations will be provided below).

There are several significant issues regarding the classification scheme. First, although the AMO theory suggests that employee selection and training are two main aspects of ability-enhancing practices (Appelbaum, 2000; Boxall & Purcell, 2003; Jiang et al., 2012; Lepak, Liao, Chung, & Harden, 2006), few creativity studies address these two facets. To detail the categorizations of the ability dimension, we suggest personal characteristics in creativity literature as ability-enhancing practices. The main reason for this categorization lies in its specific practical implementation: personal factors reflect HRM issues concerning organizations selecting candidates with these personal characteristics and providing specific training to promote these personal characteristics to encourage greater creativity. For instance, several scholars (e.g., Hirst, Van Knippenberg, Chen, & Sacramento, 2011; Hirst, Van Knippenberg, & Zhou, 2009) examined the positive impact of learning goal orientation on creativity and suggested that selecting learning-oriented candidates was more likely to boost creative performance.
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In addition, categorizing creativity determinants as ability-, motivation- or opportunity-enhancing practices is not always clear-cut because they are multidisciplinary determinants conceptualized in different research situations (Guest, Conway, & Dewe, 2004). For example, although some researchers claim that job design motivates employees towards creativity (Ohly & Fritz, 2010), we follow HRM scholars in classifying job design as a typical practice of opportunity enhancement (Appelbaum, 2000) because a well-designed job focuses on the opportunities surrounding people who enable or constrain their own motivations towards creativity (Blumberg & Pringle, 1982). Additionally, scholars show that organizations can guarantee employees the enjoyment of autonomous jobs to broaden their opportunities for participation (Bello-Pintado, 2015; Boselie et al., 2005; Knies & Leisink, 2014; Kroon et al., 2013), which in turn increases employees’ creative performance (Coelho & Augusto, 2010). In this research, we primarily focus on the theoretical definitions and functions in the AMO literature (Appelbaum, 2000) to categorize the three dimensions of creativity factors.

2.3.1 Creative Predictors: Ability-enhancing Practices

Ability in the AMO theory stresses the role of HRM in designing selection and training procedures to obtain talent with personal characteristics that encourage performance (Appelbaum, 2000; Boselie et al., 2005). As mentioned above, ability-enhancing practices emphasize that employees with certain personal attributes may facilitate creative outcomes, such as a creative personality, self-efficacy and intrinsic motivation. We follow existing reviews (e.g., Anderson et al., 2014; Zhou & Shalley, 2011) to divide ability-oriented personal factors into four aspects: personality/cognition, personal motivations\(^2\), affect/mood, and others. The following review of the different types of creativity also refers to these four aspects.

**Personality/cognition.** Most research has demonstrated that employees with certain dispositional differences, such as creative personality, Big Five personality traits, and divergent cognitions, may produce more creativity (e.g., Wolfradt & Pretz, 2001; Zhou, 2003). A theoretical explanation within this domain is that these personalities encompass the general tendency to seek

\(^2\) Personal motivations are different from motivation-enhancing practices below. Motivation-enhancing practices suggest that contextual factors motivate employees; and the personal motivation in ability-enhancing practices concerns internalized personal characteristics.
challenges and produce creative ideas. For example, Baer (2010) found a positive relationship between openness to experience and creativity. Moreover, emerging research has recently captured the benefits of proactive personality and behaviors on creativity because proactivity initiates changes that stimulate individuals in gaining knowledge and achieving creative goals (Kim, Hon, & Lee, 2010). Regarding the benefits of cognitions, Tierney, Farmer, and Graen (1999) highlighted the importance of cognitive style by illustrating the positive influences of innovative cognitions on creativity.

**Personal motivation.** A few studies based on Amabile’s (1996) componential theory examine the beneficial role of *intrinsic motivation* (defined as individual engagement for interests and internal satisfaction) in predicting creativity (Shin & Zhou, 2003). Several related constructs, such as intrinsic interest and prosocial motivation likewise have positive associations with creativity (Grant & Berry, 2011). When employees feel excitement and are fully engaged in tasks, they tend to explore creative ideas and methods (Oldham & Cummings, 1996). In addition, in *goal orientations* studies (Hirst et al., 2011; Hirst, Van Knippenberg, et al., 2009; To, Fisher, Ashkanasy, & Rowe, 2012), Gong, Huang, and Farh (2009) found that learning orientation is associated with creativity because it encourages individual development and competence towards creative achievements. In addition, most current research is examining creative self-efficacy as a significant predictor of creativity (for a review, see Liu, Jiang, Shalley, Keem, & Zhou, 2016). A prominent contribution to the association between creative self-efficacy and creativity is found in Tierney & Farmer (2002) and Tierney and Farmer (2011). They found that creative self-efficacy significantly fosters individuals’ creative actions by “generating strong creative aspiration levels” (Tierney & Farmer, 2002, p.1141). In addition, some self-centered predictors can also act as motivational drivers for creativity, which emphasizes introspection of confidence (Hirst, Van Dick, & Van Knippenberg, 2009). For example, Jaussi, Randel, and Dionne (2007) suggest that a creative personal identity predicts creativity because this self-definition helps individuals realize and utilize their unique internal properties (e.g., intelligence) to engage more extensively in creativity.

**Affect/mood.** Some research investigates the link between emotional phenomena, such as *affects, mood, and emotion*, and employee creativity because these attributes are directly related to people’s actions on the job (Amabile, Barsade, Mueller, & Staw, 2005). Specifically, emotions exert significant effects on processing information (Baas, De Dreu, & Nijstad, 2008), which builds and
broadens individuals’ cognitions and resources (De Dreu, Baas, & Nijstad, 2008). For example, Bledow, Rosing, and Frese (2013) found that a shifting experience of affects (the initial experience of both positive and negative affect followed by a decreasing negative affect and an increasing positive affect over a short time frame) was associated with individual creativity.

*Others.* A few interesting studies examine the influences of other personal determinants, such as perspective taking, autonomy orientation, focus of attention, creative ability, and beliefs (e.g., Choi, Anderson, & Veillette, 2009; Chua, 2013; Madjar & Ortiz-Walters, 2008; Van Dyne, Jehn, & Cummings, 2002). For example, Yu and Frenkel (2013) found that an employee’s sense of obligation to act appropriately is a superior predictor of creativity.

### 2.3.2 Creative Predictors: Motivation-enhancing Practices

In the AMO theory, motivation focuses on organizational compensation and incentives to extrinsically motivate employees to use their skills, knowledge and enthusiasm for job performance (Appelbaum, 2000; Jiang et al., 2012). Typical practices include developmental performance management, incentives and rewards, promotion and career development, and job security (Jiang et al., 2012). These practices express organizational respect to the workforce and motivate them towards the desired job performance (Appelbaum, 2000). Moreover, Appelbaum (2000) stressed the importance of developing mutual trust relationships and supervisory behaviors among motivation-enhancing practices because these issues act as encouragement for individual engagements. In our review, we suggest that goals and some leadership issues are also motivation-oriented practices. As an effective motivational technique, goal setting in particular provides clear targets and directs individual attention towards task achievements (Madjar & Shalley, 2008). Leadership styles and behaviors, such as supervisory motivation promotion (Zhou & Shalley, 2011), directly guide employees towards creative outcomes through encouraging and modeling (Shalley & Gilson, 2004; Zhou & George, 2003). Notably, given the different functions of leadership styles, we suggest empowerment leadership as an opportunity-enhancing practice because it focuses on providing employees opportunities for authorization that encourages effective outcomes (e.g., Alge, Ballinger, Tangirala, & Oakley, 2006; Zhang & Bartol, 2010).

*Rewards.* Reward is one of the positive and common motivation-enhancing practices in the HR literature (Appelbaum, 2000; Jiang et al., 2012). Research on the influences of extrinsic rewards on creativity holds two opposing ideas (Malik
From the cognitive perspective, the negative effects of rewards on creativity originates from the assumption that rewards—as an extrinsic motivation—constrain individual cognitions and reduce self-interest to undermine creativity. From the behavioral perspective, researchers claim that rewards fulfill employees’ need for competence, which connects their efforts to creativity (e.g., Eisenberger & Aselage, 2009; Shin & Zhou, 2003). In the HRM context, rewards as an important aspect of payment systems signal that what behaviors and outcomes are expected in an organization, thereby incentivizing employees’ good performance (e.g., creativity).

**Leadership and supervisory behaviors.** Most research has examined the role of various leadership styles and supervisory behaviors (Amabile et al., 1996; George & Zhou, 2001; Oldham & Cummings, 1996; Tierney & Farmer, 2002, 2004) because of their informational signals as motivational stimulation (Amabile, 1996). These styles include transformational leadership, aversive leadership, and benevolent leadership (Choi et al., 2009; Khazanchi & Masterson, 2011; Liao, Liu, & Loi, 2010; Tierney et al., 1999; Wang & Cheng, 2010). As a reflection of leadership, leader behaviors, such as supervisor support (for creativity) and unconventional behaviors, also impact followers’ creativity (e.g., Hirst, Van Knippenberg, et al., 2009; Jaussi & Dionne, 2003; Liu, Liao, & Loi, 2012; Ohly, Sonnentag, & Pluntke, 2006; Shavinina, 2003; Tierney & Farmer, 2002, 2004; To et al., 2012; Zhou, 2003; Zhou, Hirst, & Shipton, 2012). Furthermore, leader-member relationships, especially leader-member exchange (LMX), trust, and justice, relate to creative performance (George & Zhou, 2007; Gong, Cheung, Wang, & Huang, 2012; Gong, Kim, Lee, & Zhu, 2013; Khazanchi & Masterson, 2011).

**Goals and expectations.** One of the most salient factors for creativity is goal setting, which motivates employees by impacting self-regulatory mechanisms (Shalley, 1995). Goal setting clarifies targets and requirements by which individuals can judge their behaviors and then direct their attentions to facilitate creativity (Csikszentmihayli, 1990). Shalley’s (1991) study highlights that creative and productive goals are facilitative to creativity. Research also noted that work expectations lead to creativity by shaping employees’ responses in order to realize the potential consequences.
2.3.3 Creative Predictors: Opportunity-enhancing Practices

Organizing work processes that ensure employees have opportunities to display their skills and motivations is the main task of opportunity-enhancing practices (Appelbaum, 2000). The basic assumption regarding the positive link between opportunity-enhancing predictors and creativity is that when organizational structure provides wider participation for employees (e.g., horizontal organization), they are able to regulate their behaviors on creative tasks (Hirst et al., 2011). First, well-designed tasks (e.g., job autonomy) nurture employees’ problem-solving responsibilities towards creativity (e.g., Oldham & Cummings, 1996; Shalley, Gilson, & Blum, 2009). Second, workers need more support from organizations (De Stobbeleir, Ashford, & Buyens, 2011; Shalley et al., 2009; Yu & Frenkel, 2013; Zhou & Oldham, 2001), reflected by organizational climate and culture (e.g., resources, supports for creativity) (Wang & Rode, 2010). In the HR literature, this refers to the individuals’ recognition of the attributes of an organization (e.g., practices, polices and procedure) (Lepak et al., 2006). This line of research indicates the importance of building a work environment in which employees have the opportunity to interact and work in organizations, which includes opportunity-enhancing practices. In addition, relevant teamworking attributes offer a desirable platform for employees to access to new ideas and perspectives on creativity (e.g., Hirst, Van Dick, et al., 2009). Finally, some research drawing upon social network theories addresses the influences of structural properties, which reflect social relationships between individuals and organizations or environments (Perry-Smith & Shalley, 2003).

Job/task design. The importance of job design lies in supplying chances for individuals to use their personal abilities and knowledge towards creative activities (Oldham & Cummings, 1996). Regarding to job autonomy, research by Liu, Chen, and Yao (2011) examined the role of autonomy in directly promoting creativity. Considering the benefits of feedback on creativity (Shalley, 1995), Zhou (1998) found that employee creativity could be generated by receiving positive feedback delivered in an informational style. Moreover, other aspects of work design, such as time/performance pressure, task structure and routinization, have also been found to influence creativity (Baer & Oldham, 2006; Binnewies & Wörnlein, 2011; Choi et al., 2009; Eisenberger & Aselage, 2009; Ohly & Fritz, 2010; Sagiv, Arieli, Goldenberg, & Goldschmidt, 2010; Shalley et al., 2009; Tierney & Farmer, 2002).

Organizational climate and culture. A considerable number of studies have made substantial progress in understanding how organizational climate and
culture, especially the organizational supports that guarantee employees’ perceptions of organizational assistance and encouragement, exert influences on employees’ creativity (De Stobbeleir et al., 2011; Shin & Zhou, 2003). For example, De Stobbeleir et al. (2011) tested the perception that organizational support for creativity had a positive effect on creativity.

**Teamworking.** Since creativity requires a platform to exchange and obtain information (Shalley, 1995), individual creativity also benefitted from teamwork, reflected as presence of coworker (behaviors), information sharing/exchange, team/organizational diversity, and team learning behaviors (Alge et al., 2006; Choi et al., 2009; Gong et al., 2012; Gong et al., 2013; Hirst, Van Knippenberg, et al., 2009; Liao et al., 2010; Madjar et al., 2011; Richter et al., 2012; Shalley, 1995; Shalley & Perry-Smith, 2001; Shung J Shin, Kim, Lee, & Bian, 2012; Zhou, 2003). For example, Khazanchi and Masterson (2011) found a positive association between information sharing and creativity. Some research has also provided evidence that can be used to understand the role of coworkers, which acts as modeling and provides new sources of information to aid creativity. For example, the study by Zhou (2003) revealed the positive relation between coworkers’ external network and employee creativity.

**Social network.** Social network indicates an individual’s access and control of social networks in and out of organizations (Burt, Kilduff, & Tasselli, 2013). The context of social relationships is explained as the influence of the relationships between employees and their surroundings on creative outcomes (Perry-Smith & Shalley, 2003). This attribute reflects organizational opportunities for employees’ task engagement (Appelbaum, 2000). Specifically, in the creativity field, network ties and network structure and position are major dimensions (for a review, see Perry-Smith & Shalley, 2003). For example, Sosa (2011) examined network interactions and structures to demonstrate that the strength of a dyadic relationship (to the extent that it captures the work-related closeness of the interacting actors) positively stimulated creativity.

### 2.4 New Typology of Interactions

As we mentioned in the introduction, creativity scholars agree on the interactions predicting employee creativity, but less studies exist addressing how the different types of interactions may predict the different levels of creative performance (Zhou & Hoever, 2014). The lack of clarity with respect to this research issue substantially limits our understanding of certain mixed findings in
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creativity research, and it fails to guide practitioners in effectively managing employee creativity towards a higher and even the highest level. For example, Wang and Rode (2010) found that only when employees’ identification with leaders, transformational leadership, and innovation climate are all high, will creativity significantly reach the highest level. To clarify these essential problems, our analysis in this section, which is based on the above categorizations of creativity predictors, includes a new framework to display the variety of interactions in the creativity literature. Scholars in the AMO theory research field have suggested two main configurations of bundles of practices towards (creative) performance—the combination model, and the multiplicative model (Blumberg & Pringle, 1982; Bos-Nehles et al., 2013; Cummings & Schwab, 1973). In other words, the practices are interdependently aligned to generate performance in the two main models. Following this line of research, we provide a new framework including the two main models to explain how the ability, motivation, and opportunity predictors interact in different manners to predict employee creativity. Notably, given our basic assumption that contextual factors moderate the relationship between personal factors and creativity, the influences of ability predictors on creativity can be accentuated by motivational and opportunity practices separately and jointly. Figure 2.1 represents the framework that includes the two main interactive models.

2.4.1 The Combination Model

The combination model, referring to $P = f[A(1+M+O)]$, suggests that ability is a prerequisite for performance and that motivation and opportunity can separately help in the presence of sufficient ability (Bos-Nehles et al., 2013). That is, the motivation- or opportunity-oriented creativity predictors accentuate the effects of ability-oriented predictors on creative performance. Acknowledging that employees with abilities (e.g., creative personality, and positive mood) can effectively contribute to creative performance, organizations should make appropriate use of employees’ personal gifts by displaying two dimensions of practices. The first is motivation-enhancing predictors, which motivate employees and may generate additive effects to employee creativity, while the second is opportunity practices, which provide opportunities to engage in creative endeavors and may facilitate employees incorporating their skills and abilities. Thus, in this section, we organize creativity research to propose two types of combination models to reflect the interactive influences in creativity literature—interactive effects of ability and motivation ($A \times M$) and of ability
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and opportunity \( (A \times O) \) (depicted as Combination Model (a) and (b) in Figure 2.1).

![Diagram of Conceptual Framework of Interactions in Creativity Literature]

Figure 2.1 Conceptual Framework of Interactions in Creativity Literature

\[ P = f (A \times M) \]. Tierney et al. (1999) studied the relation between cognitive style and employee creativity by considering the moderating role of LMX. Cognitive adaptors performed more creatively when they were working within a high-quality LMX dyad rather than a low-quality dyad. Moreover, Qu, Janssen, and Shi (2015) found an interactive relation between relational identity and leader creativity expectations, showing that the employee identification would yield a significant increase of creativity when leaders provided expectations of creativity. Looking at the effects of mood, scholars (George & Zhou, 2002; George and Zhou (2007) found that a negative mood was significantly and positively associated with creativity when perceived recognition and rewards for creative performance and clarity of feelings were high (George & Zhou, 2002) or when
interactional justice or trust relationships were high (George & Zhou, 2007). Some studies have explored the associations between other ability-enhancing predictors and creativity. Chen, Shih, and Yeh (2011) stated that the positive influence of individual initiative and skill variety on creativity were stronger when employees were provided with adequate creative resources. In three studies, Aleksic, Cerne, Dysvik, and Skerlavaj (2016) found that clear goals positively moderated the relation between personal preference for creativity and creativity.

\[ P = f (A \times O) \]. Considerable research has examined the effect of work characteristics (i.e., opportunity-enhancing predictors) on the relations between personality, cognitions and creativity (e.g., Raja & Johns, 2010; Sagiv et al., 2010). For example, Zhou & Oldham (2001) focused on creative personality interactions with expected developmental assessment strategies and found that individuals with creative personalities were more creative when they expected a self-administered assessment (i.e., an opportunity to make an assessment of their own work). To establish the underlying relation between goal orientation and creativity, Hirst and colleagues conducted two studies to display the moderation of different opportunity-enhancing predictors (Hirst et al., 2011; Hirst, Van Knippenberg, et al., 2009). They found that employees’ learning orientation contributed to higher levels of creativity when team learning behavior was high (Hirst, Van Knippenberg, et al., 2009) and when centralization was low (Hirst et al., 2011). Regarding this identity, Yoshida, Sendjaya, Hirst, and Cooper (2014) found a positive moderation effect of organizational innovative climate on employees’ identification and creativity. Researchers provided evidence addressing the way that the task attributes activate the linkage between mood and creativity (e.g., Kaufmann & Vosburg, 2002). For example, Binnewies and Wörnlein (2011) examined the effect of job control, showing that high level of job control amplified the desirable influence of positive affect on creativity. A few studies examined the effects of voice behaviors on creativity and found that the positive effect of employees’ voice behavior on creativity was stronger when they worked in a more innovative climate (Chen & Hou, 2016).

This set of studies reflects the different functions of motivation- and opportunity-oriented factors in activating the relationships between ability-oriented predictors and employee creativity. Generally, the results of creativity seem to be more substantial when motivation- or opportunity-enhancing practices are involved in the central influences of ability-enhancing practices on creativity. Take identification as an example. Two studies from Qu et al. (2015)
and Yoshida et al. (2014) examined the moderating effects of leader creativity expectations and support for innovation, respectively. Their findings showed the significant enhancement of motivation- and opportunity-oriented variables with more variance in creativity explained by the variables of leader creativity expectations ($R^2 = .15$) and support for innovation (Pseudo $R^2 = .05$). Moreover, unlike personality attributes with stable natures, some psychological characteristics (e.g., cognitive styles, and affects) among ability-oriented factors are more subject to variation. Thus, the benefits of their potential positive influences on creativity should be contingent upon augmented or substituted effects from motivation- or opportunity-oriented practices. This idea aligns with the contextual perspective of mood-creativity relations (Davis, 2009), which states that the creativity advantages of positive or negative moods should be considered in the task environment where designing tasks varies in time plans and information orientations.

2.4.2 The Multiplicative Model

Since ability, motivation, and opportunity predictors are likely to codetermine (creative) performance, scholars used a multiplicative model to analyze how the three dimensions of predictors jointly contribute to predicting the highest level of creativity. Specifically, the multiplicative model illustrates the traditional argument in the AMO theory that ability, motivation and opportunity operate together in a complementary or interactive manner: $P = f(A \times M \times O)$ (Guest et al., 2004; Huselid, 1995). This could include exerting a larger effect or compensating for disadvantageous influences of other factors. Considering the enhancements of several motivation and opportunity predictors separately on the above ability-creativity relation (i.e., the combination model), the multiplicative model emphasizes the awareness of a joint effect of predictors from the ability, motivation and opportunity dimensions simultaneously. The multiplicative model provides a more comprehensive picture of interplay in creativity because scholars found that performance would reach its highest level when organizations invested simultaneously in enhancing employees’ ability, motivation, and opportunity. Considering the significance of, but mixed results on, how to boost employee creativity to the highest level (for a review, see Anderson et al., 2014), the multiplicative model provides a useful and practical perspective for creativity scholars to consider the three factors simultaneously with each factor supporting the other two and operating as synergistic bundles towards the highest level of creativity (Kim et al., 2015). Among the selected
articles, moderation accounts for the three-way interactions. This model is depicted as Multiplicative Model in Figure 2.1.

Baer, Oldham, and Cummings (2003) found that extrinsic rewards, together with working on complex jobs, exerted significant positive moderation effects in stimulating employees to produce creativity using an adaptive cognitive style. Kim et al. (2010) studied the potential positive role of a proactive personality and demonstrated that a significantly high level of creativity occurred when proactive employees received supervisor support for creativity and a high job creativity requirement.

Considering the advantages of personal motivation in predicting creative performance, some studies examined the conditions under which these motivations could be the most explanatory for employee creativity (e.g., Shalley et al., 2009; Zhou et al., 2012). For example, Zhou (2003) examined the joint effect of supervisor developmental feedback and the presence of creative coworkers on the creative personality-creativity association. Conducting two studies confirmed that employees with less creative personalities may exhibit creativity when creative coworkers were present and supervisors provided developmental feedback. Moreover, De Clercq, Mohammad Rahman, and Belausteguigoitia (2015) found that the joint effects of learning orientation, high goal congruence, and low task conflict would contribute to the highest level of creativity.

With regard to the multiplicative effects, including other aspects of ability-enhancing predictors, Zhang and Zhou (2014) conducted two studies on an interaction between uncertainty avoidance, trust, and empowering leadership that affected creativity such that the highest creativity could be achieved when the employees had high levels of uncertainty avoidance, trusted their supervisors, and had leaders who displayed empowering leadership. In addition, Zhou, Shin, and Cannella Jr (2008) proposed a three-way interaction among employees’ perception, supervisor support for creativity, and access to resources that demonstrated that opportunity perception had the strongest positive relationship with their self-perceived creativity when supervisor support for creativity and access to resources were both high.

The empirical evidence seems to suggest that the multiplicative model of interactions predicts the highest level of employee creativity. For example, since researchers have found that openness to experiences is important to creativity, studies have provided more evidence that openness can be activated by
motivation- and opportunity-enhancing practices simultaneously. A study by George and Zhou (2001) showed that openness to experience would result in high levels of creative behavior if feedback valences were positive and job holders were presented with a heuristic task that allowed them to be creative for jobs with unclear ends (changed $R^2 = .04$) and jobs with unclear means (changed $R^2 = .04$). Moreover, the findings for some potential negative ability-oriented variables may even predict creativity when suitable motivation and opportunity practices are properly combined. Baer et al. (2003) explored the interaction between personal cognitive styles, rewards, and job complexity and how they together affected differences in creativity. Employees with adaptive cognition exhibited higher creativity when they worked on simple jobs and received increased rewards. The results highlight that creative potentials are not uniform and could be affected by contextual motivations as well as opportunity benefits. Together with the findings in the combination model (e.g., George and Zhou, 2007), some evidence from potential negative predictors, such as rewards, may also act as an enhancement for generating creative outcomes in specific circumstances. One of the prominent preconditions is the task characteristics that provide employee benefits on a good “person-job match” (Byron & Khazanchi, 2012).

Taken together, the arguments of the two main interactions above are highly consistent with the basic assumption in the AMO theory that ability, motivation and opportunity practices are synergistic bundles supporting performance (e.g., Appelbaum, 2000; Bos-Nehles et al., 2013). That is, as different operating functions, the three dimensions of the creativity predictors (i.e., ability-, motivation-, and opportunity-enhancing creativity factors) interact with each other—one of them supports the other two. For example, the combination model generates a higher level of creativity than the main effects of ability predictors on creativity, and the multiplicative model contributes the highest level of creativity. The extent to which ability-oriented predictors facilitate creative performance depends on the bundles of motivation- and opportunity-oriented factors, as weakness in any of the three may reduce creativity. A specific configuration (i.e., motivation- and opportunity-enhancing variables together bring out the creative potential of the ability-enhancing variables to achieve the highest level of creativity) indicates that “Changing one leg without careful consideration of the other two is typically a mistake” (Gerhart, 2007, p 325).
2.5 Discussion

Given the importance of the undeveloped interactional perspective in creativity, we think that it is time to sketch a comprehensive picture of creativity at the individual level. Drawing on the AMO theory, we provide a refinement of the categorization of creativity predictors into three dimensions (i.e., ability-, motivation- and opportunity-enhancing practices). Based on the basic assumption that person-creativity relations can be augmented by contexts using different functions, we present two main models of interactions (i.e., a combination model, and a multiplicative model). Our conceptualization helps enrich the limited interactional research by shedding light on the various functions of creativity predictors and extending the understanding of the different types of interactions in the creativity literature. Our hope is that our efforts will help move research on this complex interactional perspective in new and exciting directions as well as offer practical implementations.

Multiple contextual factors exist in organizations, and they function differently when predicting employee creativity. Therefore, reviewing and identifying these variables is a worthy focus of our research attention and effort before clarifying their interactions with personal factors, which helps academicians, practitioners and researchers understand the influences of predictors in detail. Specifically, motivation-oriented factors act as motivational stimulation that externally boosts employees’ utilization of their abilities, skills and personal attributes in order to engage in creative endeavors. This idea complements the basic motivational mechanism indicating that contextual factors stimulate employees’ internal motivations to produce creativity (Amabile, 1993; Liu et al., 2016) by explaining that the motivational factors in organizations enable the expression of ability-oriented facilitators. In the same vein, opportunity-oriented factors that emphasize providing avenues for employees’ creative expression highlight the adequate opportunities to perform creatively. Theoretically, when organizational inputs (e.g., providing opportunities) target employees’ personal development, employees are likely to reciprocate in terms of desirable outcomes, such as engaging in creative endeavors while utilizing personal advantages (Gouldner, 1960; Jiang et al., 2012).

By framing the two main models of interactions in creativity literature, we structure the potential bundles of ability-, motivation-, and opportunity-enhancing predictors. This new perspective is partly consistent with the extensive literature on person-environment fit theory, which argues that
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individuals’ performance and behaviors are the result of the adjustment between employees and their work environments (Kristof-Brown, Zimmerman, & Johnson, 2005; van Knippenberg & Hirst, 2015). Specifically, the compatibility between personal and environmental attributes suggests that contextual components of creativity with different effects (i.e., motivational or opportunity providing) may activate employees who can adapt themselves to creative achievements. Meanwhile, the results of our study align with the bundle perspective in the AMO theory indicating that the optimal choice of HRM practices produces various results. As ability practices are considered to exert a major positive effect on creativity, motivation and opportunity practices separately accentuate creativity to a higher level and jointly to the highest level. Clearly, these bundling or synergy effects of interplay provide explanations to scholars who argue that the interactional influences of personal-contextual characteristics on creativity are contingent on other contextual facilitators (Shalley & Gilson, 2004); that is, more is better for mutually reinforcing effects.

As we mentioned early in this research, we take an explicitly managerial perspective to assume that HRM practices are highly correlated with creativity predictors. Thus, our results also provide some practical contributions to organizations managing employee creativity. First, the three HRM dimensions (i.e., ability-, motivation, and opportunity-oriented practices) are definitely related to employee creative performance. This suggests that organizations should provide creativity-facilitative practices along the three dimensions. For example, organizations need to focus on selecting candidates with the proper personal characteristics (e.g., creative personalities and positive psychological attributes) and on designing innovative tasks. Second, the interactional approach that favors joint practices for the HRM department highlights that our choice of bundles of practices should include more from different functions and consider the principle of matching. For example, the effectiveness of specific HRM practices for employees with innovative cognitive styles indicates that organizations should provide nonrewarded and innovative tasks instead of extrinsic rewards and simple jobs. Third, given that some motivation- and opportunity-enhancing practices are displayed by leaders and teams, organizations should provide training for leaders and employees. Practically, the training for managers should contain setting goals, building trust and justice, and supporting employees’ creativity; for employees, it should contain sharing knowledge and information and developing leaning behaviors.
Some limitations exist in this research. First, some studies have investigated interactions that are primarily focused on two motivation- or opportunity-enhancing predictors moderating the ability-creativity link (e.g., Hirst, Van Knippenberg, et al., 2009; Richter et al., 2012), which generated a higher level of creativity. These examinations are not in opposition to our conceptual framework, as they also considered the distinct roles and functions of motivational or opportunity factors. Future work will need to follow our conceptualizations to create a comparison between these studies to deepen our knowledge concerning these complex and various interactions. Second, our work includes fewer interactions involving negative creative results (e.g., Hirst et al., 2011). For example, in George and Zhou’s (2002) study, a positive mood was found to be negatively related to creative performance when perceived recognition and rewards for creative performance and clarity of feelings were both high. In spite of our basic argument that favors the profitable interactions of predictors fostering creative results, it is valuable for future research to consider the dark side of predictors, especially the dark inside of organizational practices (Linstead, Maréchal, & Griffin, 2014). For example, the positive potential predictors may jointly result in a too-much-of-a-good-thing effect on creativity (Holten & Bøllingtoft, 2015). Third, some of the example articles above are organized across different levels of analysis, yet we pointed less to the recent growing research focused on a multilevel approach (e.g., Hirst, Van Knippenberg, et al., 2009). Although our framework can be applied to multilevel or cross-level studies, it would be beneficial for future research to understand how the various influences of motivation- and opportunity-oriented variables from different levels interact with individual-level ability-oriented variables to allow employees to perform more creatively.
Chapter 3 Extending the Understanding of the Relationship Between Psychological Capital and Employee Creativity: Examining the Effects of Supervisor Support for Creativity and Job Characteristics

Abstract

Although the positive effect of psychological capital (PsyCap) on employee performance is well documented, the conditions under which PsyCap exerts the most influence on creativity are not well understood, especially in the Chinese culture. Complementing and extending prior studies, we theorize and examine how two critical contextual moderators (supervisor support for creativity [SSC] and job characteristics) effectively activate PsyCap associated with workplace creativity. Drawing on an interactional perspective, we use trait activation theory to examine the effects of SSC and job characteristics on the relationship between PsyCap and individual creativity. Through rigorous testing of hypotheses (N = 356 individuals from multiple industries in China), our results demonstrate that both SSC and job characteristics positively moderate the PsyCap-creativity relationship. Additional analyses revealed that PsyCap is most effective at enhancing creativity when both SSC and job characteristics are high. Implications of these findings for theory, future research and practice are discussed.

Keywords: PsyCap, creativity, job characteristics, supervisor support for creativity

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3.1 Introduction

Employee creativity, defined as the generation of novel and useful ideas, products and processes (Amabile, 1996; Woodman, Sawyer, & Griffin, 1993; Zhou & Hoever, 2014) has become critical to organizational performance and competitiveness (Mumford & Hunter, 2005). Whereas the extant research has examined a variety of factors that predict employee creativity in organizations (Shalley, Zhou, & Oldham, 2004; Zhou & Hoever, 2014), recent studies have signaled that employees’ psychological capital, hereafter PsyCap, has a strong potential to predict employee creativity (Avey, Richmond, & Nixon, 2012; Sweetman, Luthans, Avey, & Luthans, 2011). PsyCap refers to an individual’s positive psychological state of development in terms of using his/her motivational and cognitive resources to achieve a high level of performance (e.g., Luthans, Avolio, Avey, & Norman, 2007). Consistent with past research regarding motivational mechanisms in the creativity literature (e.g., Amabile, 1996; Zhou & Shalley, 2011), burgeoning research regarding the linkage between PsyCap and creativity deepens our understanding of how agentic psychological resources predict employee creativity (Avey et al., 2012). Recent studies have reconfirmed the link between PsyCap and employee creativity (Avey et al., 2012; Rego, Sousa, & Marques, 2012; Sweetman et al., 2011). However, this area is far from well understood in the research (e.g., Luthans, Avey, Clapp-Smith, & Li, 2008). Specifically, few studies have addressed a critical question regarding the conditions under which this relationship is possible. We consider this an important limitation of the extant studies, given the years of creativity research that have called for deep investigations to unpack the contextual influences on how individuals exhibit their psychological attributes to facilitate creativity (e.g., Shalley et al., 2004; Zhou & Hoever, 2014), particularly considering the cultural contexts in China (Anderson, Potočnik, & Zhou, 2014).

This paper aims to address this limitation. Specifically, building on trait activation theory (Tett and Burnett, 2003), we examine how desired organizational factors—such as supervisor support for creativity, hereafter SSC, and job characteristics—can influence the relationship between PsyCap and creativity. That is, personal traits are expressed as responses to trait-relevant situational cues (Tett & Guterman, 2000), and employees seek out and are satisfied with tasks, people, and job characteristics that provide them with opportunities for expressing an array of personality traits (Tett & Burnett, 2003). This interactional approach is consistent with the perspective of how personal-
contextual predictors interact with each other to enhance or inhibit creativity (Zhou & Hoever, 2014). In particular, previous research has suggested a comprehensive picture of employee (creative) performance, including all the characteristics of the workers, the working environment, and the job (c.f. Steers & Porter, 1991). For example, Shalley and coauthors (2009) found that growth need strength led to creativity when two situational factors—support contexts and job complexity—were high. Thus, we explore how SSC (an environmental factor) and job characteristics moderate PsyCap’s influence on creativity. Figure 3.1 depicts our research model.

Figure 3.1 The Research Model

Several studies support our interest in the effects of SSC and job characteristics on the PsyCap-creativity relationship. It is reasonable to expect SSC to exert influence in a personal relationships-oriented society (e.g., China) because Chinese employees who are loyal to their immediate supervisor are accustomed to having a strong tie with him/her (Chen, Tsui, & Farh, 2002; Cheng, Jiang, Cheng, Riley, & Jen, 2015). Indeed, research indicates that SSC can encourage employees to take an active role in their work and to act creatively (Kim, Hon, & Lee, 2010; Madjar, Oldham, & Pratt, 2002) because SSC highlights the value of creativity (Tierney & Farmer, 2004) and employees’ psychological attributes regarding creativity (Carmeli & Schaubroeck, 2007). Although SSC has been acknowledged as a predictor of creativity, we lack a comprehensive understanding of how it may moderate the predictor-creativity relationship (Carmeli, Reiter-Palmon, & Ziv, 2010; Tierney, Farmer, & Graen, 1999). For
example, recent studies have extended the earlier research to suggest that the more SSC subordinates receive, the more likely it is that their psychological resources will lead to creativity (Kim et al., 2010). In essence, we suggest that SSC may facilitate PsyCap’s contribution to creativity. Moreover, although past research highlighted the moderating effects of job characteristics on employee outcomes (Spector & Jex, 1991), the majority of the creativity literature has focused on individual-level dimensions of job characteristics (e.g., autonomy) without considering all the dimensions (e.g., Wang & Cheng, 2010). Indeed, job characteristics, as an overall construct, can trigger greater motivation for creativity among employees (Hackman & Oldham, 1976) because well-designed jobs enable employees to use their resources to pursue various creative ideas (Shalley & Gilson, 2004). However, the effects of job characteristics can be different depending on employees’ personal characteristics (Barrick, Mount, & Li, 2013; Hackman & Oldham, 1975), such as stronger effects for individuals with positive traits (Shalley & Gilson, 2004). Well-designed jobs also encourage greater creativity by exerting influence on workplace motivation and excitement (Chang, Jia, Takeuchi, & Cai, 2014; Shalley, Gilson, & Blum, 2009; Tierney & Farmer, 2004). Therefore, we expect SSC and job characteristics to moderate the PsyCap-creativity relationship.

This paper makes several important contributions. First, focusing on SSC and job characteristics in the PsyCap-creativity association, we extend the literature addressing the conditions under which employees are most creative (Newman, Ucbasaran, Zhu, & Hirst, 2014). We also respond to the calls for more interactional investigations of individual creativity (Zhou & Hoever, 2014). Additionally, we test our hypotheses with a Chinese sample, in which the roles of SSC and job characteristics are highly determinant of employee behaviors (e.g., Chen et al., 2002; Yan, Peng, & Francesco, 2011). This approach allows us to expand the understanding of creativity in an international context (Shalley et al., 2004; Zhang & Bartol, 2010) by examining whether predictors observed in the West (PsyCap, SSC, and job characteristics) exert a similar influence on creativity in China.

3.2 Theoretical Background

3.2.1 PsyCap and Creativity

PsyCap represents individuals’ positive psychological state (Luthans et al., 2007a; Luthan, Avey, Avolio, Norman, & Combs, 2006). This personal
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characteristic (Luthans, et al., 2007a) includes four main aspects: self-efficacy (refers to individuals’ confidence in successfully mobilizing their efforts to generate desired outcomes), hope (refers to individuals’ motivations and pathways to accomplish their tasks), optimism (refers to individuals’ expectancy and positive attribution towards positive outcomes) and resilience (refers to individuals’ abilities to bounce back from risks or failures and to adapt to dynamics and success) (Luthans et al., 2007a; Luthans, Youssef, & Avolio, 2007; Newman et al., 2014). PsyCap is positively associated with creativity (Huang & Luthans, 2015; Rego et al., 2012; Sweetman et al., 2011). Specifically, self-efficacious people have the ability to exploit resources to achieve certain goals (Luthans et al., 2006), and challenges are likely to stimulate these individuals to produce creative ideas (Rego et al., 2012). In turn, employees with hope attempt alternative methods to pursue creative goals and engage in creative endeavors (Sweetman et al., 2011). When facing difficulties, optimistic people tend to take advantage of opportunities while experiencing positive emotions (Luthans, et al., 2007a). Finally, adversities are inevitable in creative processes, but resilience ensures individuals’ psychological safety in overcoming challenges (Luthans, Luthans, & Luthans, 2004). Consequently, we follow the existing research and suggest that a core construct of PsyCap is positively related to employee creativity (Rego et al., 2012; Sweetman et al., 2011).

Although the extant literature has demonstrated a positive relationship between PsyCap and employee creativity (Rego et al., 2012; Sweetman et al., 2011), how various job- and management-related factors influence this relationship remains unclear (Newman et al., 2014). Drawing on trait activation theory (Tett & Burnett, 2003; Tett & Guterman, 2000), we suggest that it is important to explore the role of environmental predictors—SSC and job characteristics—in activating individual attributes (e.g., PsyCap) towards enhancing or inhibiting creativity. Trait activation theory suggests that how personal attributes impact performance may be contingent on situational cues (Tett & Burnett, 2003), which is consistent with person-context interactions in creativity research. For example, Hirst, Van Knippenberg and Zhou (2009) found that team learning behavior activates the relation between individuals’ goal orientation and creativity. Additionally, the relevance of a situation to personal attributes may alter the influence of personal characteristics on outcomes (Tett & Burnett, 2003). Specifically, research demonstrates that positive organizational factors (e.g., supportive context) strengthen the relation between individual characteristics and creativity (Shalley et al., 2009; Zhou, Hirst, & Shipton, 2012; Zhou & Hoever, 2014). These moderators are trait-relevant situational cues that
are favorable to creativity (Tett & Burnett, 2003). Finally, Tett et al. (2000; 2003) called for research regarding the combined effects of various contextual factors on the associations between personal factors and performance. Human resources management departments often employ several practices simultaneously; thus, the integrated effects of these practices may yield different outcomes. Consequently, in the following section, we examine the joint moderating effects of SSC and job characteristics on the association between PsyCap and creativity.

### 3.2.2 Moderating Role of SSC

As an interpersonal relationship, SSC refers to the extent to which supervisors encourage, care for and provide subordinates with assistance to generate creative outcomes (Madjar et al., 2002) and improve employee creativity (Amabile, 1996). Research has demonstrated that SSC provides encouragement and assistance to employees (Madjar et al., 2002; Tierney & Farmer, 2004) to increase initiative, such as idea generation (Oldham & Cummings, 1996). SSC also establishes the expectation that creativity is highly valued (Ohly, Sonnentag, & Pluntke, 2006) such that subordinates realizing the importance of creativity will engage in creative endeavors (Kim et al., 2010). Additionally, SSC is beneficial for PsyCap development (Avey, 2014). SSC contributes to employees’ self-efficacy by reinforcing training and encouraging success, increases employees’ hope by setting goals and helping employees meet goals, develops optimism through positive expectations from goal setting, and provides job resources and opportunities for growth and recovery from mistakes to shape resiliency.

Based on the interactive effects of leaders’ and employees’ personal characteristics on creativity (e.g., Tierney et al., 1999), we suggest that SSC is a moderator that works with PsyCap to foster creativity by motivating employees to direct their PsyCap towards creativity. Specifically, individuals’ psychological attributes (e.g., PsyCap) determine how they respond to work environments (Shalley et al., 2009). Thus, high PsyCap employees not only have a perception that utilizing positive psychological resources to attain creative results is favorable but also benefit from supervisors’ support to realize creative achievements with fewer risks and greater comfort (Shin, Kim, Lee, & Bian, 2012). Consequently, PsyCap influences achievement, growth initiates creative engagement, and SSC heightens this positive association as a situational moderator (e.g., Shalley & Gilson, 2004). Specifically, when people with high PsyCap perceive high SSC, they may feel encouraged and be less afraid of failure (Paterson, Luthans, & Jeung, 2014); thus, they may be more open to
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generating new ideas (To, Fisher, Ashkanasy, & Rowe, 2012). Therefore, subordinates’ PsyCap for creative work can be maximized by using SSC to encourage the subordinates’ cognitive appraisal of a situation (Glazer, 2006) towards creativity. Conversely, when high PsyCap subordinates perceive low SSC, they fail to experience an atmosphere of safety (Shalley & Gilson, 2004); hence, they engage less in creativity. Thus, we hypothesize:

**Hypothesis 1.** SSC moderates the relationship between PsyCap and creativity such that the relationship between PsyCap and creativity is stronger when SSC is higher.

### 3.2.3 Moderating Role of Job Characteristics

Hackham and Oldham (1975) suggested a Job Characteristic Model that reflects psychological influences on creativity (Oldham & Cummings, 1996). It contains five job-relevant dimensions: skill variety (refers to the degree of knowledge and skills that employees need to accomplish tasks), autonomy (refers to the freedom that employees have in choosing the methods, processes and resources to perform their work), identity (refers to the extent to which employees can complete their entire task), significance (refers to the importance of the task for others), and feedback (refers to employees receiving information related to their work performance). Job characteristics have motivational potential (Hackman & Oldham, 1976; Shalley & Gilson, 2004) to influence creativity by impacting psychological states (e.g., Oldham & Cummings, 1996). Specifically, according to person-situation interactional theory, individuals seek out situations on the basis of their personal predispositions (Diener, Larsen, & Emmons, 1984), and highly well-designed jobs (e.g., autonomy) are perceived to promote the development of PsyCap (Avey, 2014). Thus, building on past studies (Scott & Bruce, 1994), we expect that the PsyCap-creativity relationship is contingent on job characteristics.

As an important component of creativity (Amabile, 1996), *skill variety* effectively increases personal motivation and engagement (Humphrey, Nahrgang, & Morgeson, 2007). The experience of applying skills to problems enables employees to recombine knowledge to generate and implement new ideas (Noefer, Stegmaier, Molter, & Sonntag, 2009). When employees perceive their work as high in *task significance*, they may build a deep understanding of the impact and value of their job (Grant, 2008). Consequently, they endeavor to produce creative results (Oldham & Cummings, 1996). For example, task significance requires utilizing motivations and cognitions (Humphrey et al.,
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2007), which signifies to the workplace that employing PsyCap in creative actions is worthwhile. Autonomy is a strong predictor of creativity (Liu, Chen, & Yao, 2011; Zhou, 1998) because it offers freedom from control (Deci, Connell, & Ryan, 1989) and internalizes the enactment of creative behaviors (Gagné & Deci, 2005). Because PsyCap reinforces employees’ motivated efforts and perseverance (Luthans et al., 2007b), job autonomy allows them to fulfill the process of PsyCap facilitating creativity. By increasing feelings of completion and responsibility, task identity increases the meaningfulness of work (Griffin, Welsh, & Moorhead, 1981), which is associated with creativity (Oldham & Cummings, 1996; Shalley et al., 2004). Employees who perceive high task identity can apply their positive psychological resources towards creative activities (Loher, Noe, Moeller, & Fitzgerald, 1985). Finally, through task feedback, employees can monitor their activities and make changes and improvements (Zhou, 1998) by responding to work situations. In this manner, feedback reinforces employees’ utilization of their motivation and positive PsyCap. Thus, we hypothesize:

**Hypothesis 2.** Job characteristics moderate the relationship between PsyCap and creativity such that the relationship between PsyCap and creativity is stronger when job characteristics (autonomy, significance, identity, skill variety, and feedback) are higher.

3.2.4 Three-way Interaction Effects on Creativity

SSC and job characteristics both increase PsyCap and creativity and moderate the associations between PsyCap and work-related outcomes. However, no research has examined their joint influence, especially on the PsyCap-creativity relation. It is necessary to consider their combined influence because existing studies have found that the perceptions that employees receive from contextual factors (e.g., job characteristics) may be affected by the relationships they have (e.g., leader supervision) (Salancik & Pfeffer, 1978). For example, Smircich and Morgan (1982) found that leader behaviors influenced workplace appraisal of their (subordinates’) work. Therefore, we propose that employee creativity is a function of multiple factors, including PsyCap, SSC, and job characteristics.

More specifically, the combined effects of desired individual and different desired contextual predictors result in enhanced creativity (Zhou & Heover, 2014). For example, if a leader provides support for subordinates’ creative thoughts, employees with a high level of PsyCap who prefer growth, challenge and success may perceive that their efforts to be creative are valued and worthy;
thus, they may feel confident and encouraged to devote themselves to creativity and be less afraid to take risks. In this situation, when well-designed work is assigned to subordinates, they are also likely to feel more self-determination to accomplish meaningful tasks using creative methods through skill utilization. By contrast, when people with high PsyCap pursue creative goals and adjust to adversities, low SSC (e.g., unsupportive supervisors) and an unchallenging task (e.g., insignificant, fewer skills) with less authority may fail to continuously inspire their psychological response towards creative achievements.

Consequently, we propose a three-way interactive effect on creativity: PsyCap is more likely to facilitate employee creativity when a supervisor provides support for creativity and employees are assigned to well-designed jobs. Thus, we hypothesize:

**Hypothesis 3.** PsyCap, SSC, and job characteristics interact to affect creativity such that the highest level of creativity is expected when employee PsyCap, SSC, and job characteristics are all high.

### 3.3 Methods

#### 3.3.1 Sample and Procedures

A total of 356 employees from Eastern China who worked for different organizations (i.e., logistics companies, a design institute, and a training organization) completed the study questionnaire, which collected demographic information and included items measuring all the independent and dependent variables. Before initiating the data collection, we asked the managers and HR departments of the organizations to confirm that employee creativity is welcomed. The participants were informed that their responses would be used for research purposes only and kept strictly confidential. The survey was translated through the procedure of back-translation (Brislin, 1986). As in many other studies, the data for the independent and dependent variables came from a single source. Therefore, we separated the independent and dependent variables in our questionnaire to control for common method bias (CMB) (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

We distributed 490 questionnaires and received 379 completed surveys (77% response rate). The final sample included 356 employees who reported the industry in which they were working. The participants’ average age was 32.5 years. Table 3.1 presents the demographic data.
### Table 3. 1 Demographic Statistical Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>158</td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>198</td>
<td>55.6</td>
</tr>
<tr>
<td>Tenure (years)</td>
<td>&lt; 1</td>
<td>47</td>
<td>13.2</td>
</tr>
<tr>
<td></td>
<td>1-3</td>
<td>90</td>
<td>25.3</td>
</tr>
<tr>
<td></td>
<td>3-5</td>
<td>62</td>
<td>17.4</td>
</tr>
<tr>
<td></td>
<td>5-7</td>
<td>61</td>
<td>17.1</td>
</tr>
<tr>
<td></td>
<td>7-15</td>
<td>71</td>
<td>19.9</td>
</tr>
<tr>
<td></td>
<td>&gt; 15</td>
<td>25</td>
<td>7.0</td>
</tr>
<tr>
<td>Education</td>
<td>PhD</td>
<td>20</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>Master’s degree</td>
<td>103</td>
<td>28.9</td>
</tr>
<tr>
<td></td>
<td>Bachelor’s degree</td>
<td>85</td>
<td>23.9</td>
</tr>
<tr>
<td></td>
<td>Associate’s degree</td>
<td>64</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td>High school/technical school</td>
<td>63</td>
<td>17.7</td>
</tr>
<tr>
<td></td>
<td>Middle school</td>
<td>21</td>
<td>5.9</td>
</tr>
<tr>
<td>Job type</td>
<td>Managerial</td>
<td>21</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td>Administrative</td>
<td>70</td>
<td>19.7</td>
</tr>
<tr>
<td></td>
<td>Technical (e.g., R&amp;D)</td>
<td>104</td>
<td>29.2</td>
</tr>
<tr>
<td></td>
<td>Sales &amp; marketing</td>
<td>73</td>
<td>20.5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>88</td>
<td>24.7</td>
</tr>
<tr>
<td>Industry</td>
<td>Public administration</td>
<td>27</td>
<td>7.6</td>
</tr>
<tr>
<td></td>
<td>Technology</td>
<td>107</td>
<td>30.1</td>
</tr>
<tr>
<td></td>
<td>Transportation</td>
<td>66</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td>Manufacturing</td>
<td>55</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td>Education</td>
<td>74</td>
<td>20.8</td>
</tr>
<tr>
<td></td>
<td>Information and communication</td>
<td>27</td>
<td>7.6</td>
</tr>
</tbody>
</table>

**Job characteristics.** To measure the overall job characteristics construct, we followed previous research (Piccolo & Colquitt, 2006) and employed a revised version of the Job Diagnostic Survey (Hackman & Oldham, 1975) that includes 10 items ($\chi^2[35] = 47.36, p < .001, \text{CFI} = .99, \text{RMSEA} = .03$) from five dimensions—autonomy, task significance, identity, skill variety, and task feedback—to assess employees’ perceptions of their work on a 7-point scale from 1 = “very inaccurate” to 7 = “very accurate” (Idaszak & Drasgow, 1987). Sample items include the following: “The job requires me to use a number of complex or high-level skills” (skill variety); “The job provides me the chance to completely finish the pieces of work I begin” (identity); “This job is one where a lot of other people can be affected by how well the work gets done” (task significance); “The job permits me to decide on my own how to go about doing the work” (autonomy); and “After I finish the job, I know whether I performed well” (feedback).


**Chapter 3**

*Self-reported creativity.* Consistent with existing research that used self-reported creativity (e.g., Shalley et al., 2009), we used four items developed in the Chinese context (Farmer, Tierney, & Kung-Mcintyre, 2003). The employees assessed their own creativity from 1 = “strongly disagree” to 6 = “strongly agree”. A sample item is “I try new ideas or methods first”.

*Control variables.* We controlled for age (in years), gender, education, organization tenure, job type, and industry. Furthermore, as suggested by Shalley et al. (2009), we controlled employee’s intrinsic motivation to test whether it offers an alternative explanation to creativity. We used four items from Guay, Vallerand and Blanchard (2000) (e.g., “I feel good when doing this activity”), ranging from 1 = “very inaccurate” to 7 = “very accurate”.

Given that all the data were collected from a single source, we used a single test to conduct an explanatory factor analysis to identify the potential for CMB (Harman, 1976). The result—that one factor accounted for 38.79%, which is below the accepted threshold of 40%—suggests that CMB was unlikely to be a serious problem in this study.

### 3.4 Results

We performed confirmatory factor analysis on the four factors (separate factors for PsyCap, SSC, job characteristics, and creativity) using AMOS to establish the factors’ discriminant validity. The baseline model with four factors generally yielded a better fit to the data ($\chi^2[399] = 622.22$, CFI = .96, RMSEA = .04, TLI = .95, IFI = .96) than the alternative models, which all had poor fit indexes (see Table 3.2). The results lend further assurance of the robustness of our four-factor model. Moreover, we tested another alternative model that proposed that creativity leads to PsyCap. However, this model exhibited a poor data fit ($\chi^2[104] = 477.83$, CFI = .87, RMSEA = .10, TLI = .85, IFI = .87), which rules out viable alternative explanations for our hypothesized model of PsyCap generating creativity.

The means, standard deviation, and correlations of all the measures are presented in Table 3.3. To test the hypotheses, we used hierarchical multiple regression with creativity as the dependent variable, and the predictor variables were entered in the following steps: (1) the control variables, (2) the three main effects (PsyCap, SSC, and job characteristics), (3) the two-way interactions, and (4) the three-way interactions. The variables were mean-centered to calculate the
components of the interaction terms (Aiken, West, & Reno, 1991). Table 3.4 summarizes the results.

Although we did not hypothesize main effects, PsyCap was positively related to creativity ($\beta = .18$, $p < .05$, $\Delta R^2 = .09$) in Step 2. To test Hypotheses 1 and 2, which concerned SSC and job characteristics as moderators, we computed the product terms for the variables in our two-way interactions and entered them into the regression in Step 3 (PsyCap × SSC, PsyCap × job characteristics). The results revealed that the interaction terms of SSC and job characteristics were both positive and significant (both $\beta = .17$, $p < .01$ and $p < .05$, respectively, $\Delta R^2 = .04$) (see Figure 3.2). Therefore, Hypotheses 1 and 2 were supported.

Hypothesis 3 predicted a three-way interaction among PsyCap, SSC, and job characteristics wherein creativity is highest when all three variables are high. We entered PsyCap, SSC, and job characteristics into the model in Step 4. Table 3.3 indicates that the three-way interaction was significant ($\beta = .13$, $p < .01$, $\Delta R^2 = .01$). We also plotted the three-way interaction in Figure 3.3. Simple slope tests indicated that the positive relationship between PsyCap and creativity was significant when both SSC and job characteristics were high. To further examine the three-way interaction, we used Dawson and Richter’s (2006) method to test whether the difference between each pair of slopes was significantly different from zero. In Table 3.5, representing high levels for all three explanatory variables, slope 1 is different from the other three slopes ($t = 3.38$, $p < .01$). Thus, Hypothesis 3 was supported.


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Table 3.2 Comparison of Measurement Models

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2(df)$</th>
<th>RMSEA</th>
<th>IFI</th>
<th>TLI</th>
<th>CFI</th>
<th>$\Delta\chi^2(df)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four factors (baseline model): PsyCap, SSC, job characteristics, and creativity</td>
<td>622.22(399)</td>
<td>.04</td>
<td>.96</td>
<td>.95</td>
<td>.96</td>
<td>--</td>
</tr>
<tr>
<td>Three factors: PsyCap and SSC combined</td>
<td>985.50(402)</td>
<td>.06</td>
<td>.89</td>
<td>.87</td>
<td>.88</td>
<td>363.28(3)**</td>
</tr>
<tr>
<td>Three factors: SSC and job characteristics combined</td>
<td>730.01(402)</td>
<td>.05</td>
<td>.93</td>
<td>.93</td>
<td>.93</td>
<td>107.09(3)**</td>
</tr>
<tr>
<td>Two factors: PsyCap, SSC and job characteristics combined</td>
<td>1285.55(404)</td>
<td>.08</td>
<td>.82</td>
<td>.81</td>
<td>.82</td>
<td>663.33(5)**</td>
</tr>
<tr>
<td>One factor: All variables combined</td>
<td>3292.10(406)</td>
<td>.14</td>
<td>.42</td>
<td>.37</td>
<td>42</td>
<td>2669.88(7)**</td>
</tr>
</tbody>
</table>

* $p < .05$, ** $p < .01$
### Chapter 3

Table 3. 3 Means, Standard Deviations, and Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>1.56</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>32.4</td>
<td>7.06</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Tenure</td>
<td>3.26</td>
<td>1.52</td>
<td>0.01</td>
<td>0.58**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Intrinsic motivation</td>
<td>4.74</td>
<td>1.03</td>
<td>-0.08</td>
<td>-0.01</td>
<td>-0.01</td>
<td>(.86)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Education</td>
<td>3.31</td>
<td>1.36</td>
<td>-0.03</td>
<td>-0.31**</td>
<td>-0.20**</td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Job type</td>
<td>3.38</td>
<td>1.22</td>
<td>-0.01</td>
<td>-0.15**</td>
<td>-0.26**</td>
<td>-0.05</td>
<td>.28**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Industry</td>
<td>3.35</td>
<td>1.47</td>
<td>-0.01</td>
<td>0.01</td>
<td>0.00</td>
<td>-0.01</td>
<td>0.03</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. PsyCap</td>
<td>4.39</td>
<td>0.74</td>
<td>-0.10</td>
<td>0.06</td>
<td>0.02</td>
<td>.69**</td>
<td>-0.02</td>
<td>0.06</td>
<td>0.03</td>
<td>(.92)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. SSC</td>
<td>4.40</td>
<td>1.07</td>
<td>-0.01</td>
<td>0.02</td>
<td>-0.03</td>
<td>.63**</td>
<td>0.00</td>
<td>-0.05</td>
<td>0.03</td>
<td>.60**</td>
<td>(.86)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Job characteristics</td>
<td>4.43</td>
<td>0.75</td>
<td>-0.04</td>
<td>0.01</td>
<td>0.00</td>
<td>.69**</td>
<td>-0.01</td>
<td>0.08</td>
<td>0.04</td>
<td>.61**</td>
<td>.69**</td>
<td>(.82)</td>
<td></td>
</tr>
<tr>
<td>11. Creativity</td>
<td>4.06</td>
<td>0.84</td>
<td>-0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>.51**</td>
<td>0.00</td>
<td>0.00</td>
<td>0.09</td>
<td>.49**</td>
<td>.51**</td>
<td>.51**</td>
<td>(.81)</td>
</tr>
</tbody>
</table>

Cronbach’s alphas in brackets on the diagonal.

* $p < .05$, ** $p < .01$
Table 3.4 Results of the Regression Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>R²</th>
<th>ΔR²</th>
<th>F</th>
<th>ΔF</th>
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<td><strong>Step 1</strong></td>
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<tr>
<td>Gender</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job type</td>
<td>.03</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>-.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenure</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>.41**</td>
<td>.27</td>
<td>.27**</td>
<td>18.24**</td>
<td>18.24</td>
</tr>
<tr>
<td>Industry</td>
<td>.05*</td>
<td>.27</td>
<td>.27**</td>
<td>18.24**</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PsyCap</td>
<td>.18*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSC</td>
<td>.16**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job characteristics</td>
<td>.18*</td>
<td>.36</td>
<td>.09**</td>
<td>18.96**</td>
<td>15.38</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PsyCap × SSC</td>
<td>.17**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PsyCap × Job characteristics</td>
<td>.17*</td>
<td>.42</td>
<td>.07**</td>
<td>20.74**</td>
<td>19.46</td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PsyCap × SSC × Job characteristics</td>
<td>.13**</td>
<td>.43</td>
<td>.01**</td>
<td>20.08**</td>
<td>7.46</td>
</tr>
</tbody>
</table>

N = 356.
Regression coefficients represent unstandardized parameters.
Dependent variable: creativity
*p < .05, **p < .01
Table 3. 5 Simple Slope Comparisons for Three-way Interactions

<table>
<thead>
<tr>
<th>Pairs of comparisons</th>
<th>Creativity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slope</td>
<td>t</td>
</tr>
<tr>
<td>1 (High SSC, high job characteristics)</td>
<td>.76</td>
<td>3.38**</td>
</tr>
<tr>
<td>2 (High SSC, low job characteristics)</td>
<td>.17</td>
<td>1.13</td>
</tr>
<tr>
<td>3 (Low SSC, high job characteristics)</td>
<td>-.13</td>
<td>-.99</td>
</tr>
<tr>
<td>4 (Low SSC, low job characteristics)</td>
<td>-.13</td>
<td>-.90</td>
</tr>
</tbody>
</table>

Slope difference

1 and 2 2.98**
1 and 3 4.14**
1 and 4 2.59**
2 and 3 1.34
2 and 4 1.03
3 and 4 .03

Pair numbers correspond to the numbers listed in Figure 3.3.
*p < .05, **p < .01
Chapter 3

Figure 3.2 Two-way Interaction of PsyCap and SSC/Job Characteristics on Employee Creativity

Figure 3.3 Three-way Interaction between PsyCap, SSC, and Job Characteristics on Employee Creativity
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3.5 Discussion

The purpose of this study was to investigate the conditions under which PsyCap is related to higher creativity by testing the moderating role of SSC and job characteristics. Building on the interactional perspective in the creativity literature, the results indicate that the positive effect of PsyCap on creative performance could be amplified by SSC and job characteristics. Additionally, we found that PsyCap has the strongest positive impact on creativity when both SSC and job characteristics are high.

3.5.1 Theoretical Implications

By exploring boundary contexts, our research extends the prior literature on the positive relationship between PsyCap and creativity. In particular, the results of the two-way interactions reveal that SSC positively moderates the PsyCap-creativity relationship. This finding reinforces the importance of positive leader behaviors in enriching the relations between certain personal factors and creativity, especially desired supervisor behaviors (Zhou & Hoever, 2014). Our findings demonstrate that job characteristics significantly moderate the PsyCap-creativity relation. This corresponds with prior arguments suggesting that task characteristics are an important moderator in creativity research because they provide stimulation and information opportunities (Shalley et al., 2009; Shalley et al., 2004). We enrich the earlier research by revealing that overall job characteristics, rather than a single dimension, strengthen the association between high PsyCap and creativity. These results highlight the need for future research to consider a wider range of relevant leadership behaviors and the negative aspects of task characteristics that theoretically influence the relationship between PsyCap and creativity. For example, more investigation is needed regarding how empowering leadership may leverage PsyCap to benefit creativity. Empowering leadership provides employees with considerable latitude (Zhang & Bartol, 2010) to take risks in creative activities (Zhang & Zhou, 2014), which increases employees’ motivational resources (e.g., self-efficacy) (Srivastava, Bartol, & Locke, 2006). Thus, empowering leadership may strengthen the impact of PsyCap on creativity.

As expected, we found PsyCap to be most effective in generating creative results when both SSC and job characteristics were high. This finding also contributes to a growing body of studies regarding the complex interactions of creativity predictors (Zhou & Hoever, 2014); these studies suggest that combinations of personal, environmental, and task characteristics are better suited for employee
creativity. That is, the presence of one condition amplifies the effects of other conditions on promoting creativity (Zhang & Zhou, 2014). In light of our results, future research should emphasize the potential combinations of other situational and positional predictors for promoting or inhibiting workplace creativity.

3.5.2 Practical Implications

Our findings support the perspective that supervisors should support their subordinates’ creative activities and that HR departments have a strategic role in designing jobs that generate additive effects for employees with PsyCap to increase creativity. First, it is beneficial to select candidates using a PsyCap test. Second, supervisors must be trained to encourage employees and provide a supportive environment that motivates their employees to engage in creative activities. Third, jobs should be well designed to enable employees to feel more excited and interested in attaining higher levels of creativity.

3.5.3 Limitations

This study has some limitations. First, as a cross-sectional study, our research encounters the problem of hypothesized causality. Future longitudinal research is encouraged to obtain more reliable results (Newman et al., 2014). Second, most of our data, including our creativity measure, are self-reported. Although (Ng & Feldman, 2012) suggest that in the majority of studies using large data sets, self-ratings of creativity are acceptable (Shalley et al., 2009), future research should apply other measures of creativity to increase the objectiveness of the results.

Third, we relied on a convenience sample in China. Although our sampling technique provided a rich data set that included a wide variety of organizations to test our hypotheses, we do not know the extent to which it may have biased the results. Additionally, although we confirmed Luthan et al.’s (2008) conclusions regarding PsyCap in China, our theoretical hypotheses of moderating effects have not been examined in prior studies. Thus, replication by future studies is required to establish the generalizability of our findings.
Chapter 4 Does Entrepreneurial Leadership Foster Creativity among Employees and Teams? The Mediating Role of Creative Efficacy Beliefs

Abstract

The stagnant situation of leadership theories has limited the advancements of leadership approach in creativity research. From the compatibility perspective, this research enriches our understanding of the potential benefits of entrepreneurial leadership on creativity through creative efficacy beliefs. Using multilevel, multisource survey data from 237 individual members and 43 team leaders in eight Chinese companies, we conducted hierarchical linear modeling analysis (HLM) to support the positive effect of entrepreneurial leadership on employee and team creativity. We also found that creative efficacy beliefs as an underlying mechanism that exerts within-level and cross-level influences in the entrepreneurial leadership-creativity relation. We discuss the theoretical and practical implications of this research and offer suggestions for future research.

Keywords: Entrepreneurial leadership, Employee creativity, Team creativity, Creative self-efficacy, Team creative efficacy, Multilevel research

4.1 Introduction

Given the importance of creativity for organizational success and innovation, both scholars and practitioners have been interested in studying factors that foster creativity in organizations (e.g., Anderson et al., 2014; Shalley et al., 2004; Woodman et al., 1993). Significantly, they have found that leadership engenders creativity in organizations (e.g., Mainemelis et al., 2015; Mumford et al., 2002). Yet, given the mixed results regarding the influences of traditional leadership styles on creativity, such as transformational leadership (for a review, see Rosing et al., 2011), which leadership style is most suitable for this purpose remains to be unclear. The current business world characterized by rapid change, competition, and uncertainty requires leaders to optimize challenges and take advantages of opportunities toward innovative and creative achievements. Thus, scholars have suggested that entrepreneurial leadership emphasizing taking risks may lead subordinates to make changes toward creative outcomes (Hitt et al., 2011). Entrepreneurial leadership refers to “creat(ing) visionary scenarios that are used to assemble and mobilize a ‘supporting cast’ of participants who become committed by the vision to the discovery and exploitation of strategic value creation” (Gupta et al., 2004, p. 242). Specifically, entrepreneurial leaders with social abilities effectively organize and encourage followers to cope with challenges in response to uncertainty (Covin & Slevin, 1991; Ireland et al., 2003). In this way, followers develop a strong sense of producing creativity that they have “not only the right but the obligation to seek out new opportunities and to make them happen” (Gupta et al., 2004, p. 256). However, few empirical studies have examined to what extent and how entrepreneurial leadership contributes to employee and team creativity.

This study aims to contribute to enriching our understanding on this important yet unclear issue. First, we examine the relationship between entrepreneurial leadership and both employee and team creativity. We propose that entrepreneurial leadership is predictive of creativity because of the compatibility principle that suggests the same targets of attitudes and behaviors (Ajzen, 2005). That is, the attributes of entrepreneurial leadership are compatible with workplace creative endeavors (e.g., creating value, initiative, and taking risks) (Leitch & Volery, 2017; Whiting, 1988); thus, subordinates recognizing these similarities with their leader may be more receptive to the entrepreneurial leadership style toward creative achievements. Given the multilevel nature of leadership and creativity (Kozlowski & Klein, 2000), we illustrate the robustness...
of the entrepreneurial leadership-creativity relationship at both the employee and team level in order to fulfill the inadequacy in research that a leader may facilitate multilevel creativity simultaneously (e.g., Anderson et al., 2014). Indeed, entrepreneurial leaders who adapt to emerging challenges and opportunities meet employees’ creative needs to abandon current conventional ideas and pursue creative solutions (Gupta et al., 2004), thus motivating employees creative engagement (Renko et al., 2015). Meanwhile, realizing that team creativity is not only the aggregation of employee creativity (Shin & Zhou, 2007), entrepreneurial leaders formulate an effective venture team to approach challenges (Kuratko, 2007). In this way, they promote team members interactions and evoke high level of team involvement (Gupta et al., 2004) in order to generate more creativity (Chen, 2007).

Second, acknowledging the necessity of confidence to facilitate people to cope with challenges in the creative processes, we rely on the motivational mechanisms in the creativity literature (Liu, Jiang, Shalley, Keem, & Zhou, 2016) to examine the role of creative efficacy beliefs in entrepreneurial leadership-creativity relationships. To do so, we draw on Bandura’s (1986) social cognitive theory (SCT), which notes that creative self-efficacious employees may have a persistent resilience against risks in devising creative ideas (Tierney & Farmer, 2002, 2011). Researchers have recently advanced a multilevel approach by identifying the parallel motivation processes at both the individual and team level (Chen & R. Kanfer, 2006), which guides us in theorizing the application of the concepts of creative efficacy at the team level (Bandura, 1997; Guzzo et al., 1993). Empirically, research supports that team creative efficacy boosts collective motivations to explore new perspectives toward team creativity (Ford, 1996; Shin & Eom, 2014). Thus, given the theoretical arguments that entrepreneurial leaders highly consider developing workplace efficacy of creative accomplishments (Renko et al., 2015), we expect that creative self- and team efficacy are mediators of the relationship between entrepreneurial leadership and both employee and team creativity.

With respect to determining the similarities or differences of motivational intervening at multiple levels (Chen et al., 2013), while the organizational literature suggests that team efficacy may be a more important predictor of employee outcomes in a collectivistic culture (e.g., Asian countries) (Schaubroeck et al., 2000), as it is influenced by context (Shin & Zhou, 2007), little research has empirically examined the team-level mechanisms that transfer the influence of leadership to individual creative outcomes (Shin, 2015). We
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propose that team creative efficacy exerts a cross-level mediating influence on the relationship between entrepreneurial leadership and both employee and team creativity (Gong, Huang, & Farh, 2009; Shin, Kim, Lee, & Bian, 2012). According to prior research that has empirically identified the top-down effects of team properties on individual creativity (Chen et al., 2013; Hülshéger et al., 2009), SCT (Bandura, 1986, 1997) suggests that when a team has a high level of (creative) efficacy, members are highly likely to put their efforts toward (creative) achievements (Gully et al., 2002), as their strong connections with the team (Kark et al., 2002) encourage their personal creative contributions to greater team results (Brewer & Gardner, 1996). Integrating the positive association between entrepreneurial leadership and team creative efficacy, we suggest that team creative efficacy also mediates the relation between entrepreneurial leadership and employee creativity. Overall, we propose a model that suggests that entrepreneurial leadership can significantly foster team and employee creativity through the development of creative team and self-efficacy (Figure 4.1).

![Figure 4.1](image_url)

**Figure 4.1 A Theoretical Model of the Multilevel Effects of Entrepreneurial Leadership on Efficacy Beliefs and Creativity**

Dark-shaded box = team-level construct; white box = individual-level construct.

Our research aims to make several important contributions. First, we aim to extend a growing recognition of the yet scarcely empirically examined relevance of entrepreneurial leadership and creativity (Chen, 2007; Gupta et al., 2004; Renko et al., 2015; Shin, 2015). In doing so, we answer calls to explore whether different leadership styles, especially specific leadership with creativity-
enhancing orientations (c.f. Avolio, 2007), foster creativity (Anderson et al., 2014; Zhou & Hoever, 2014) by examining the compatible benefits of entrepreneurial leadership on creative outcomes. Second, we extend the multilevel approach in leadership and creativity research (DeChurch et al., 2010; Kozlowski & Klein, 2000; Zhou & Shalley, 2008). Specifically, our research on entrepreneurial leadership influencing both employee and team creativity addresses the need for research that investigates the utility of leadership-creativity associations at multiple levels. By extending previous findings on the relevance of multilevel efficacy (Stajkovic et al., 2009), we also respond to calls for level-specific mechanisms of the leadership-creativity relation by identifying a similar pathway—creative efficacy beliefs—at both the employee and team level. Furthermore, our examination of cross-level influences regarding team creative efficacy adds to growing research on the generalization of the effects of team variables regarding employee creativity (Hülsheger et al., 2009; Li et al., 2014) by showing that both team efficacy and self-efficacy both motivate employees to generate creativity.

4.2 Theory and Hypotheses

4.2.1 Entrepreneurial Leadership and Employee and Team Creativity

Gupta et al. (2004) develop the construct of entrepreneurial leadership as the combination of creating a visionary scenario of opportunities and creating a cast of followers to realize goals. Recent studies following this concept argue that entrepreneurial leaders provide innovative activities, for instance, by identifying opportunities for innovation and leading followers to achieve creativity (Renko et al., 2015), in order to effectively stimulate employees and teams toward the achievement of organizational innovation goals (e.g., Renko et al., 2015; Thornberry, 2006). This line of research suggests that entrepreneurial leadership motivates and challenges followers toward creative outcomes. In a similar vein, past research acknowledging transformational leadership motivating creativity (e.g., Gong et al., 2009) indicates some similarities between entrepreneurial leadership and transformational leadership. However, there are distinct differences. Transformational leadership overemphasizes leaders’ personal outstanding characteristics, which may set visions beyond expectations. In contrast, entrepreneurial leadership not only creates acceptable goals to lead followers toward creative realization but also promotes a sense of taking risks and taking the best of opportunities toward value creation. Such behaviors match
workplace creative endeavors to generate positive effects for entrepreneurial leaders pursuing innovation to trigger creativity.

At the individual level, employee creativity refers to generation of novel and useful ideas, products, and processes by individual employees (e.g., Anderson et al., 2014; Woodman et al., 1993). Entrepreneurial leaders who pursue innovation and creativity (Covin & Slevin, 1991) entail challenges of creating a vision and influence employees to foster its realization (Ruvio et al., 2010). Specifically, when setting creative goals, entrepreneurial leaders pursuing innovation serve as a role model for followers’ creative engagements (Jaussi & Dionne, 2003). This significantly motivates employees to internalize the willingness to engage in creative endeavors (Gong et al., 2013). For example, targeting value creation, entrepreneurial leaders follow an innovative vision by developing skills and utilizing knowledge (Chen, 2007; Gupta et al., 2004). Moreover, they provide necessary support for creativity, for instance, by designing and adjusting achievable goals to stimulate employees’ persistence and working with employees to bring different perspectives and to resolve uncertain problems and challenges. Thus, we propose the following:

**Hypothesis 1.** Entrepreneurial leadership is positively related to employee creativity.

At the team level, team creativity refers to team members joint development and production of ideas, products, and processes with novelty and usefulness (Shin & Zhou, 2007). Regarding the arguments that teams are key source of new ventures (Chen, 2007), it can be stated that entrepreneurial leaders focus on motivating a collective spirit of creativity (Gupta et al., 2004). Specifically, realizing the growth potential of creative team capacity (Chen, 2007), entrepreneurial leaders attract and organize these highly motivated employees to work together (Gupta et al., 2004), which will lead to collaboration toward creative results. During this process, entrepreneurial leaders set common goals in the dynamic business environment (Bagheri & Pihie, 2011; Ruvio et al., 2010) and emphasize the importance of teams working toward challenges (Chen, 2007; Gupta et al., 2004). Therefore, team members realize that working together may generate greater energy and efforts that can in turn facilitate opportunity exploration and risk taking toward creativity (Chen, 2007). Furthermore, through building commitment among team members, entrepreneurial leaders can develop creative initiatives for their team’s benefit (Morgeson et al., 2009). The team’s creative achievements will be thus higher when leaders display an entrepreneurial leadership style. Thus, we propose the following:
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Hypothesis 2. Entrepreneurial leadership is positively related to team creativity.

4.2.2 Creative Efficacy Beliefs as Mediators

Stemming from SCT, efficacy belief as a key psychological predictor mainly concerns humans’ abilities and confidence that may internally motivate them to approach goals, tasks, and challenges (Bandura, 1986, 1997). With regard to enhancing creativity (Tierney & Farmer, 2002, 2004), efficacy tends to increase the levels of individual effort and persistence that are crucial for successfully generating creativity (Bandura, 1986; Ford, 1996; Stajkovic & Luthans, 1998). The creativity literature uses creativity-oriented constructs of efficacy to offer a better understanding of their effects in predicting creative outcomes (e.g., Shin & Zhou, 2007; Tierney & Farmer, 2002). As such, in our study, we follow prior research and expect that both creative self-efficacy (individual level) and creative team efficacy (team level) mediate the relationship between entrepreneurial leadership and creativity.

Creative self-efficacy—the degree to which employees believe that they are capable of being creative (Tierney & Farmer, 2002)—increases employees’ confidence in their capacity to generate creativity (Choi, 2004; Gong et al., 2009). People with a high sense of creative self-efficacy are likely to choose a creative goal and to then mobilize their potential to realize it (Tierney & Farmer, 2002). Similarly, creative team efficacy, which refers to team members’ shared belief about their team’s capabilities to produce creative outcomes (Shin & Zhou, 2007), facilitates both team and employee creativity (Ford, 1996; Shin & Zhou, 2007). At the team level, it emphasizes collective interactions to build a team’s confidence in generating creative actions and performance (Shin & Eom, 2014). At the individual level, empirical evidence in line with cross-level theories (Chen et al., 2013; Chen & Kanfer, 2006) shows that creative team efficacy motivates individuals’ creative engagements. Additionally, relevant research indicates that leadership predicts both team and individual efficacy beliefs (Chen & Bliese, 2002). Thus, consistent with previous research, we examine whether entrepreneurial leadership instills a sense of creative capabilities (i.e., creative team efficacy and creative self-efficacy) and then fosters creativity.

Creative Self-efficacy as a Mediator

Creative self-efficacy is affected by contextual variables (Tierney & Farmer, 2002) since employees seek information to develop their self-efficacy about their ability (Ford, 1996). Existing research shows that supervisors nurture the
development of employees’ creative self-efficacy (e.g., Tierney & Farmer, 2004) by displaying positive behaviors (e.g., providing assistance and encouragement and acting as models for engagement). For example, Gong et al. (2009) report that transformational leadership can significantly enhance employees’ creative self-efficacy, as supervisors’ desired behaviors can raise expectations toward creativity and effectively stimulate followers’ motivation and belief to creatively solve problems (Wang et al., 2014).

In line with existing studies on the relationship between leadership and creative self-efficacy (Tierney & Farmer, 2002), we theoretically explain how entrepreneurial leadership increases employees’ creative self-efficacy. Specifically, entrepreneurial leaders are often more creative in taking risks (Chen, 2007; Covin & Slevin, 1988). They guide subordinates in behaving creatively (Gupta et al., 2004); thus, they serve as a role model in creative engagement (Renko et al., 2015). Second, as entrepreneurial leaders communicate with employees to accomplish creative achievements (Chen, 2007), they have the power to convince subordinates that they (subordinates) are capable of being creative (Tierney & Farmer, 2002) through verbal persuasion. Moreover, entrepreneurial leaders foster followers’ involvement in creative problem-solving and innovative behaviors by providing support and encouragement (Gupta et al., 2004). Therefore, employees are likely to experience their confidence to create new ideas. Finally, aiming at goal achievement (Gupta et al., 2004), entrepreneurial leaders help subordinates in their personal development by enhancing their skills and abilities, which may lead to their subordinates’ success (Renko et al., 2015). Consequently, employees may experience personal attainment and view themselves as being skillful in generating creativity. Thus, we propose the following:

**Hypothesis 3.** Entrepreneurial leadership is positively related to creative self-efficacy.

Existing conceptual and empirical studies have found a positive relation between creative self-efficacy and employee creativity (e.g., Tierney & Farmer, 2002, 2011). Specifically, individuals are motivated through the establishment of high goals to attain creative outcomes (Bandura, 1986, 1997). Their creative expectations influenced by their creative self-efficacy are likely to motivate them to devote effort to generate creative ideas (Gong et al., 2009; Tierney & Farmer, 2002; Wang et al., 2014). Additionally, creativity requires individuals to take risks, and they therefore need to gain confidence in addressing difficulties and problems (Amabile, 1996). Creative self-efficacy provides internal and
sustaining support to inspire their efforts toward creative activities (Baer et al., 2008; Tierney & Farmer, 2004).

Given our hypothesized positive relationship between entrepreneurial leadership and employee creativity, we argue that when leaders display entrepreneurial behaviors, they can effectively foster subordinates’ creative self-efficacy, which in turn positively mediates the relation between entrepreneurial leadership and employee creative performance. A higher level of entrepreneurial leadership may lead to motivation and a sense of being a role model (Gupta et al., 2004); as such, employees feel more motivated to fulfill and put more effort into accomplishing the innovative goals that supervisors set (Ruvio et al., 2010), which in turn increases their creative performance (Shalley, 1995). Thus, we propose the following:

**Hypothesis 4.** Creative self-efficacy mediates the relationship between entrepreneurial leadership and employee creativity.

**Team Creative Efficacy as Mediators**

At the conceptual level, leader behaviors may motivate teams to raise efficacy at the team level (e.g., Chen & Bliese, 2002). This line of research has empirically shown the positive relation between leadership style and group-level efficacy. According to entrepreneurial leadership theory, entrepreneurial leaders are effective at building teams to accomplish innovative goals (Gupta et al., 2004). Such research emphasizes the benefits of entrepreneurial leadership on team-level attributes toward desired performance (Chen, 2007). Indeed, empirical findings support the positive association between leadership (e.g., transformational leadership) and team efficacy (e.g., Nielsen et al., 2009; Walumbwa et al., 2004).

Theoretically, to effectively build teams, entrepreneurial leaders reinforce the connections between individuals’ and the group’s value (Jung & Avolio, 2000) by setting common goals (Gupta et al., 2004). Through dynamic interactions (Chen, 2007), team members’ connections will then create a high level of recognition among individuals that their collaborations will encourage other team members’ creative contributions toward the big picture (Brewer & Gardner, 1996). Therefore, they become more confident about the capabilities of teams as a whole (Gibson & Earley, 2007). Moreover, since team members are all supervised by the same entrepreneurial leader, they may develop a consistent sense of working for the same goals by the leader; thus, their collective view of
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their joint efficacy to generate creative outcomes will be activated and shaped (Lord et al., 2001). Thus, we propose the following:

**Hypothesis 5.** Entrepreneurial leadership is positively related to team creative efficacy.

Building on the top-down influence of team-level creativity on employee performance (Chen & Kanfer, 2006; Gully et al., 2002), we expect the potential positive effects of team-level factors (i.e., creative team efficacy) on individual creativity. Specifically, team efficacy increases employees’ motivation for creativity (Bandura, 1997; Ford, 1996). Indeed, the perceptions of team creative efficacy set expectations for creative achievements, which in turn encourage individuals to engage into creative endeavors (Bandura, 1997). That is, team members with strong beliefs about their team’s creative capability are effectively motivated to make breakthroughs for improvements and to persist when they face difficulties (Shin & Zhou, 2007), since they know that their endeavor will not be wasted (Shin & Eom, 2014).

Furthermore, as team creative efficacy develops from individual interactions (Ford, 1996; Shin & Zhou, 2007), it motivates members’ interactions and engagements in creative processes (Paulus & Dzindolet, 2008). For example, employees with strong beliefs about their team’s creative capability (i.e., creative team efficacy) initiate creative activities (Bandura, 1986)—they are more willing and confident in sustained creative engagements and are more willing to share and exchange information and ideas to generate creativity (Gibson & Earley, 2007). Thus, we propose the following:

**Hypothesis 6.** Team creative efficacy is positively related to employee creativity.

The foregoing arguments indicate that entrepreneurial leadership is positively related to team creative efficacy and that team creative efficacy is positively related to employee creativity. Therefore, we expect team creative efficacy to serve as a mediator of the entrepreneurial leadership-employee creativity relationship, as entrepreneurial leaders exert a positive influence on team members’ efforts directed at generating creativity by developing the efficacious belief that the team can produce creative outcomes. Thus, we propose the following:

**Hypothesis 7.** Team creative efficacy mediates the relationship between entrepreneurial leadership and employee creativity.
Team creative efficacy leads to team creativity by motivating team members and developing team creative processes (Shin & Zhou, 2007). Members in a team with high level of efficacy are more likely to be motivated and to gain confidence (Liu et al., 2011) and to therefore generate creative ideas. A growing number of studies have found a significant positive relationship between team efficacy and team creativity (e.g., Campion et al., 1993; Guzzo et al., 1993; Jung & Sosik, 1999). For example, empirical work from Shin and Eom (2014) shows that teams with high creative efficacy are more likely to achieve higher levels of team creativity.

Given that we hypothesize that entrepreneurial leadership influences team creative efficacy (Hypothesis 5) and that there is an established positive association between team creative efficacy and team creativity, we expect that entrepreneurial leadership is positively related to team creative efficacy and thus increases team creativity. Therefore, we propose the following:

**Hypothesis 8.** Team creative efficacy mediates the relationship between entrepreneurial leadership and team creativity.

### 4.3 Methods

#### 4.3.1 Research Setting, Sample and Procedure

Our survey is conducted in eight Chinese companies that operate in various industries. We first interviewed senior managers from these companies to acquire the permission and confirm that creativity is welcomed. Next, we randomly chose three to ten teams per firm ($M = 5.4$) and then sent questionnaires to team members (including demographics and independent variable measures) and team leaders (including team and employee creativity measures) through emails. We ultimately received 237 valid questionnaires from team members (response rate of 84.0%) and 43 from team leaders (response rate of 86.0%). Of the participants, 55.3% were men, and their average age was 30.4 years, and the average tenure in their jobs was 7.34 years. The most frequently indicated education level was a bachelor’s degree (57.0%), and most participants were technical workers (81.0%).

#### 4.3.2 Measures
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We used back-translation (Brislin, 1980) to translate our questionnaire into Chinese. Unless noted otherwise, items were assessed on 5-point Likert-type scales ranging from ‘1 = strongly disagree’ to ‘5 = strongly agree’.

**Entrepreneurial leadership.** We measured entrepreneurial leadership with eight items from Renko et al. (2015) (e.g., “My supervisor often comes up with ideas of completely new products/services that we could sell”). Employees rated each item about their supervisor’s entrepreneurial leadership ($\alpha = .91$).

**Creative self-efficacy.** We used a three-item measure of creative self-efficacy from Tierney and Farmer (2002) to assess employees’ creative self-efficacy (e.g., “I have confidence in my ability to solve problems creatively”). Employees were asked to indicate the degree to which the statements accurately describe their efficacy for creative work ($\alpha = .76$).

**Team creative efficacy.** We used four items to measure team creative efficacy from Tierney and Farmer (2002) and Shin and Eom (2012) by modifying the creative self-efficacy items to focus on teams’ creative efficacy (e.g., “Members of my team have confidence in their abilities to solve problems creatively”). Employees rated the extent to which they felt that each statement described their beliefs in their team’s capabilities to perform creative tasks ($\alpha = .86$).

**Employee creativity.** We used four items from Farmer et al. (2003) and asked supervisors to report the creativity of each of their employees (e.g., “This employee seeks new ideas and ways to solve problems”). This scale has been developed from the Chinese context to reflect the Chinese view of employee creativity ($\alpha = .84$).

**Team creativity.** Using Shin and Zhou’s (2007) four-item scale, we asked supervisors to measure their team creative performance (e.g., “How well does your team produce new ideas?”), with a range from ‘1 = poor’ to ‘5 = excellent’ ($\alpha = .81$).

**Control variables.** At the individual level, we controlled for age (in years), gender (1 = male, 2 = female), education level (1 = “high school”, 2 = “institute of technology”, 3 = “bachelor”, 4 = “master”, 5 = “doctorate”), tenure (in years), and job type classifications (1 = “technical (R&D)”, 2 = “marketing/sale”, 3 = “administrative”, 4 = “financial/accounting”, 5 = “managerial”, 6 = “other”). At the team level, we controlled for team size (total number of team members), team age (in years), and leader tenure within the team (in years). We also
controlled for transformational leadership, as we suggested at the outset that entrepreneurial leadership is more facilitative than transformational leadership to enhance creativity. For those purpose, we used a seven-item measure on a five-point scale from Carless et al. (2000) (e.g., “My leader treats staff as individuals, supports and encourages their development”).

4.3.3 Data Aggregation

We tested whether statistically aggregating data from employee responses to team-level constructs would be justified. Specifically, we computed the within-group interrater agreement ($r_{wg}$) (James et al., 1984) and intra-class correlation (ICC) (Bliese, 2000). The ICC(1) values of entrepreneurial leadership, creative team efficacy, and transformational leadership were .29, .26 and .17, respectively, while the ICC(2) values were .69, .65 and .53, respectively (all $p$’s < .001). Moreover, the mean $r_{wg}$ values of entrepreneurial leadership, creative team efficacy, and transformational leadership were all above .95. The results indicate that aggregation was justified (LeBreton & Senter, 2007).

4.3.4 Validity Analyses

To assess the discriminant validity of the measures in our study, we conducted a confirmatory factor analysis (CFA) for entrepreneurial leadership, creative self-efficacy, team creative efficacy, and employee creativity (Anderson & Gerbing, 1988). The results are presented in Table 4.1. The proposed five-factor model demonstrated a better fit to the data ($\chi^2 [210] = 385.45, p < .001$, CFI = 0.94, RMSEA = 0.06, IFI =0.95, TLI = 0.93, RMR = 0.04) than the following alternative models. These results provide support for the distinctiveness of the four study variables for subsequent analyses (Hu & Bentler, 1999).

4.3.5 Analytic Strategy

Given the proposed relationships from multi-levels, we used Hierarchical Linear Modelling (HLM) and hierarchical regression analysis to test our hypotheses. Specifically, to test hypotheses (H) 1, 3, 4, 6 and 7, we conduct three-step regressions: 1) The independent variable (entrepreneurial leadership) should be significantly related to the dependent variable (employee creativity), which tests H1. 2) The independent variable should be significantly related to the mediating variable (creative self-efficacy), which tests H3. 3) The mediating variable should be related to the dependent variable with the independent variable included in the equation, which tests H4 and H7. Moreover, to examine the relationship between team creative efficacy and employee creativity (H6), we
regress team creative efficacy at Level 2 on employee creativity at Level 1 in the HLM. At the team level, to test hypotheses 2, 5 and 8, we conduct hierarchical regression analysis because all the variables (entrepreneurial leadership, team creative efficacy, and team creativity) are at the team level. Finally, we use the Monte Carlo method (Selig & Preacher, 2008) to estimate the Confidence Intervals (CIs) of the indirect effects. The analyses are conducted after we mean centered all the variables.

Table 4.1 Results of the CFA Models

<table>
<thead>
<tr>
<th>CFA Models</th>
<th>$\chi^2/df$</th>
<th>CFI</th>
<th>RMSEA</th>
<th>IFI</th>
<th>TLI</th>
<th>RMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-factor model: Baseline model</td>
<td>385.45/2</td>
<td>0.94</td>
<td>0.06</td>
<td>0.95</td>
<td>0.93</td>
<td>0.04</td>
</tr>
<tr>
<td>4-factor model: Combine entrepreneurial leadership and team creative efficacy</td>
<td>990.71/2</td>
<td>0.77</td>
<td>0.11</td>
<td>0.77</td>
<td>0.74</td>
<td>0.07</td>
</tr>
<tr>
<td>4-factor model: Combine team creative efficacy and creative self-efficacy</td>
<td>920.05/2</td>
<td>0.79</td>
<td>0.11</td>
<td>0.79</td>
<td>0.77</td>
<td>0.09</td>
</tr>
<tr>
<td>3-factor model: Combine entrepreneurial leadership, team creative efficacy, creative self-efficacy</td>
<td>1195.10/249</td>
<td>0.71</td>
<td>0.13</td>
<td>0.71</td>
<td>0.68</td>
<td>0.07</td>
</tr>
<tr>
<td>1-factor model: Combine all variables</td>
<td>1579.63/252</td>
<td>0.59</td>
<td>0.15</td>
<td>0.59</td>
<td>0.53</td>
<td>0.07</td>
</tr>
</tbody>
</table>

4.4 Results

Descriptive statistics, reliabilities and correlations are provided in Table 4.2. As expected, entrepreneurial leadership is significantly correlated with employee creativity ($r = .58$, $p < .01$), team creativity ($r = .64$, $p < .01$), creative self-efficacy ($r = .52$, $p < .01$), and team creative efficacy ($r = .37$, $p < .01$). Furthermore, creative self-efficacy is significantly correlated with employee creativity ($r = .50$, $p < .01$), and team creative efficacy is correlated with team creativity ($r = .53$, $p < .01$).
We use HLM to examine the multilevel influences on employee creativity (see Table 4.3), and we use hierarchical regression analysis to examine the team-level influences (see Table 4.4). Before testing the hypotheses, we run a null model to examine the significance of systematic between-group variance. The results show that the proportion of variance is 20%, and the chi-square test is significant ($\chi^2 [42] = 255.44, p < .001$), supporting the use of HLM.

Entrepreneurial leadership is significantly related to employee creativity, as shown in Table 4.3 ($\gamma = .75, p < .001$), and to team creativity, as shown in Table 4.4 ($\beta = .77, p < .001$). Thus, H1 and H2 are both supported.

H3 predicts that entrepreneurial leadership is positively related to creative self-efficacy. Model 2 in Table 4.3 shows significance ($\gamma = .69, p < .001$), supporting H3. To test the mediatational effects of creative self-efficacy in H4, we regress both creative self-efficacy and entrepreneurial leadership in Model 3. The results indicate that both creative self-efficacy ($\gamma = .19, p < .01$) and entrepreneurial leadership ($\gamma = .75, p < .001$) are significantly related to employee creativity, in accordance with H4.

Regarding the cross-level effects, in Table 4.3, we first regress team efficacy in Model 4 to establish the relationship between team-level efficacy and individual-level creativity. Then, we simultaneously add entrepreneurial leadership and team creative efficacy to Model 5 in order to determine the mediator of team creative efficacy. H6 is supported in Model 4, as the team creative efficacy-employee creativity relationship is significant ($\gamma = .84, p < .001$). Likewise, the results in Model 5 show that both entrepreneurial leadership ($\gamma = .60, p < .001$) and team creative efficacy ($\gamma = .57, p < .001$) are significantly related to employee creativity, supporting H7.

Table 4.4 shows the results of the influences at the team level. Model 2 supports H5 that entrepreneurial leadership is positively related to team creative efficacy ($\beta = .28, p < .05$). Model 3 shows that both entrepreneurial leadership ($\beta = .60, p < .01$) and creative team efficacy ($\beta = .60, p < .01$) are significantly related to team creativity, lending support for H8.

Bootstrapped CIs corroborate the significant indirect effects of entrepreneurial leadership on employee creativity through creative self-efficacy (CI$_{95\%} = [.04, .22]$) and through team creative efficacy (CI$_{95\%} = [.05, .18]$); in addition, the indirect effects of entrepreneurial leadership on team creativity through team creative efficacy (CI$_{95\%} = [.01, .39]$) are significant. That is, the entrepreneurial
leadership-employee/team creativity associations are partially mediated by creative self-efficacy and team creative efficacy, again supporting H4, H7 and H8.

4.5 Discussion

Our study explores the positive relationship of entrepreneurial leadership with team and employee creativity, as well as the mechanism of creative efficacy beliefs by adopting a multilevel perspective. As expected, entrepreneurial leadership strongly predicts both team and employee creativity, which is mediated by creative team and self-efficacy. Additionally, we found cross-level mediation that team creative efficacy mediates the entrepreneurial leadership-employee creativity relation.

4.5.1 Theoretical Implications

First, the primary contribution of this study is that with the first research initiatives in this area (e.g. Chen, 2007; Gupta et al., 2004; Renko et al., 2015), we build and examine a model that links entrepreneurial leadership and creativity. We thus broaden knowledge on the influence of leadership styles on creativity (Anderson et al., 2014) from the compatibility perspective. Specifically, scholars in leadership-performance research have found empirical redundancy and suggested that a specific leadership style may outperform traditional leadership styles (e.g., transformational leadership) in predicting specific creative performance (c.f. Banks et al., 2016; Van Knippenberg & Sitkin, 2013). Indeed, our findings indicate that transformational leaderships is not a significant predictor of creativity, which substantially provides credible evidence on entrepreneurial leadership capturing more “compatibility” to fit workplace creative characteristics toward creativity (Rosing et al., 2011). Thus, extending the specific leadership-outcomes relations (Avolio, 2007) in creativity research, our study established that leaders taking risks in uncertainty evoke creativity (Mumford et al., 2002). In particular, although articles have suggested the potential benefits of entrepreneurial leadership on creativity (Gupta et al., 2004; Shin, 2015) limited empirical research has tested this assumption. We enrich this line of literature by providing a preliminary attempt to show that entrepreneurial leadership is a positive and critical facilitator of creativity.
Table 4. 2 Means, Standard Deviations and Correlations

<table>
<thead>
<tr>
<th>Individual-level Variables</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>1.45</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>30.44</td>
<td>5.52</td>
<td>-.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Education</td>
<td>3.77</td>
<td>0.68</td>
<td>.13</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Tenure</td>
<td>7.34</td>
<td>5.68</td>
<td>-.07</td>
<td>.83**</td>
<td>-.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Job type</td>
<td>1.42</td>
<td>1.12</td>
<td>.02</td>
<td>.05</td>
<td>-.04</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Transformational leadership</td>
<td>3.89</td>
<td>0.44</td>
<td>-.03</td>
<td>-.12</td>
<td>.05</td>
<td>-.08</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Entrepreneurial leadership</td>
<td>3.65</td>
<td>0.67</td>
<td>-.09</td>
<td>-.02</td>
<td>-.06</td>
<td>-.01</td>
<td>-.00</td>
<td>-.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Creative self-efficacy</td>
<td>4.08</td>
<td>0.61</td>
<td>.11</td>
<td>-.09</td>
<td>-.01</td>
<td>-.03</td>
<td>-.10</td>
<td>-.02</td>
<td>.52**</td>
<td></td>
</tr>
<tr>
<td>9. Employee creativity</td>
<td>4.07</td>
<td>0.62</td>
<td>-.02</td>
<td>.01</td>
<td>-.08</td>
<td>.01</td>
<td>-.07</td>
<td>.00</td>
<td>.58**</td>
<td>.50**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Team-level Variables</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Team size</td>
<td>7.14</td>
<td>4.38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Team age</td>
<td>3.00</td>
<td>1.53</td>
<td>-.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Leader tenure with the team</td>
<td>2.37</td>
<td>1.33</td>
<td>.41**</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Transformational leadership (agg.)</td>
<td>3.89</td>
<td>0.29</td>
<td>.00</td>
<td>-.08</td>
<td>-.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Entrepreneurial leadership (agg.)</td>
<td>3.58</td>
<td>0.48</td>
<td>.20</td>
<td>-.10</td>
<td>.23</td>
<td>-.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Team creative efficacy (agg.)</td>
<td>3.81</td>
<td>0.38</td>
<td>.01</td>
<td>-.09</td>
<td>-.06</td>
<td>-.17</td>
<td>.35*</td>
<td></td>
</tr>
<tr>
<td>7. Team creativity</td>
<td>3.88</td>
<td>0.65</td>
<td>.22</td>
<td>-.36*</td>
<td>.17</td>
<td>-.18</td>
<td>.64**</td>
<td>.53**</td>
</tr>
</tbody>
</table>

$N = 237$ for individual-level data and $N = 43$ for team-level data. agg. = aggregation.

*p < .05, **p < .01
Table 4.3 Results of HLM Predicting Entrepreneurial Leadership, Team Creative Efficacy, Creative Self-efficacy, and Employee Creativity

<table>
<thead>
<tr>
<th></th>
<th>Model 1 Employee creativity</th>
<th>Model 2 Creative Self-efficacy</th>
<th>Model 3 Employee creativity</th>
<th>Model 4 Employee creativity</th>
<th>Model 5 Employee creativity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>-.06 (.05)</td>
<td>-.06 (.04)</td>
<td>-.06 (.05)</td>
<td>-.05 (.05)</td>
<td>-.05 (.04)</td>
</tr>
<tr>
<td>Gender</td>
<td>.03 (.03)</td>
<td>.10 (.03)**</td>
<td>.01 (.02)</td>
<td>.03 (.03)</td>
<td>.03 (.03)</td>
</tr>
<tr>
<td>Age</td>
<td>-.01 (.05)</td>
<td>-.10 (.05)</td>
<td>.01 (.05)</td>
<td>-.01 (.05)</td>
<td>-.00 (.04)</td>
</tr>
<tr>
<td>Education</td>
<td>-.05 (.03)</td>
<td>-.03 (.04)</td>
<td>-.05 (.03)</td>
<td>-.06 (.03)</td>
<td>-.06 (.03)*</td>
</tr>
<tr>
<td>Tenure</td>
<td>.01 (.04)</td>
<td>.08 (.04)</td>
<td>.01 (.04)</td>
<td>-.00 (.04)</td>
<td>-.00 (.04)</td>
</tr>
<tr>
<td>Job type</td>
<td>-.03 (.03)</td>
<td>-.06 (.06)</td>
<td>-.01 (.04)</td>
<td>-.03 (.03)</td>
<td>-.03 (.03)</td>
</tr>
<tr>
<td>Creative self-efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.19 (.06)**</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team size</td>
<td>.01 (.03)</td>
<td>-.01 (.03)</td>
<td>.05 (.03)</td>
<td>.04 (.04)</td>
<td>-.01 (.04)</td>
</tr>
<tr>
<td>Team age</td>
<td>-.05 (.05)</td>
<td>-.01 (.03)</td>
<td>.05 (.05)</td>
<td>-.06 (.04)</td>
<td>-.03 (.04)</td>
</tr>
<tr>
<td>Leader tenure with the team</td>
<td>-.02 (.04)</td>
<td>.06 (.03)</td>
<td>.06 (.04)</td>
<td>.06 (.05)</td>
<td>.03 (.04)</td>
</tr>
<tr>
<td>Transformational leadership</td>
<td>-.12 (.15)</td>
<td>.08 (.11)</td>
<td>-.13 (.15)</td>
<td>-.15 (.22)</td>
<td>-.02 (.12)</td>
</tr>
<tr>
<td>Entrepreneurial leadership</td>
<td>.75 (.12)</td>
<td>.69 (.08)**</td>
<td>.75 (.12)**</td>
<td>.60 (.12)***</td>
<td>.57 (.14)***</td>
</tr>
<tr>
<td>Team creative efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.84 (.11)</td>
</tr>
</tbody>
</table>

N = 237 team members (Level 1), N = 43 teams (Level 2); Unstandardized estimates are reported; Values in parentheses are robust standard errors.

*p < .05, **p < .01, ***p < .001 (two-tailed test)
Table 4. 4 Results of Hierarchical Regression Analysis Predicting Entrepreneurial Leadership, Team Creative Efficacy, and Team Creativity

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team creativity</td>
<td>Team creative efficacy</td>
<td>Team creativity</td>
</tr>
<tr>
<td>Constant</td>
<td>.28</td>
<td>.14</td>
</tr>
<tr>
<td>Team size</td>
<td>.01</td>
<td>.00</td>
</tr>
<tr>
<td>Team age</td>
<td>-.13*</td>
<td>-.01</td>
</tr>
<tr>
<td>Leader tenure with the team</td>
<td>.01</td>
<td>-.04</td>
</tr>
<tr>
<td>Transformational leadership</td>
<td>-.20</td>
<td>-.14</td>
</tr>
<tr>
<td>Entrepreneurial Leadership</td>
<td>.77***</td>
<td>.28*</td>
</tr>
<tr>
<td>Team creative efficacy</td>
<td>.60**</td>
<td></td>
</tr>
</tbody>
</table>

\[ \Delta R^2 = .28 \quad \text{.11} \quad \text{.10} \]
\[ \Delta F = 20.78^{***} \quad 5.01^* \quad 8.95^{**} \]

Level-2 N = 43.

*p \leq .05, **p \leq .01, ***p \leq .001 (two-tailed test)

Moreover, we extend the multilevel perspective on leadership and creativity literature (e.g., Agars et al., 2008; Chen, 2007; Oke et al., 2009) by simultaneously demonstrating the entrepreneurial leadership-creativity relationship at both the team and individual level. Our explanations that support the positive associations between entrepreneurial leadership and creativity advance the leadership approaches in the creativity literature (Zhang & Bartol, 2010). Specifically, entrepreneurial leaders not only motivate employees to pursue creativity but also promote employee interactions toward team creativity.

Second, we embed creative efficacy beliefs as a mediator of the entrepreneurial leadership-creativity relationship. Our findings thus extend SCT in leadership-creativity research by hypothesizing that creative efficacy beliefs significantly mediate the influence of entrepreneurial leadership on creativity. In this way, we respond to the urgent calls for the investigation of intervening mechanism (e.g., George, 2007; Shalley et al., 2004) by showing that entrepreneurial leadership influences creativity through a motivational mechanism (Shin, 2015). Emphasizing that creative efficacies mediate entrepreneurial leadership-creativity relations, our research confirms the importance of creative efficacy beliefs as a mediator in the creativity literature (e.g., Chen et al., 2013; Liu et al., 2011) by showing that entrepreneurial leaders building confidence convinces followers can do motivation toward creative outcomes (Liu et al., 2016).
Furthermore, by conceptualizing team-level efficacy, we enrich existing research by illustrating entrepreneurial leadership as an antecedent and team creativity as a consequence of team creative efficacy (e.g., Chen & Bliese, 2002). Our research, furthermore, extends Chen’s (2007) research on the positive relationship between (entrepreneurial) leadership and team creativity by testing the significant mediator of creative team efficacy. This result definitely strengthens the essence of the shared belief of a team’s creativity capability (i.e., creative team efficacy) through which entrepreneurial leaders convey to increase team creative performance.

Third, we add additional evidence of a multilevel approach in creativity research. The mediation of both individual- and team-level creative efficacy beliefs highlights the necessity to consider the effect of leadership on creativity at different levels, as it is multilevel by nature (Oke et al., 2009). We also find significant cross-level effects that the influence of entrepreneurial leadership on employee creativity can be realized through team creative efficacy. Further, extending prior studies on how team-level predictors lead to individual creativity (e.g., Chen et al., 2013; Hirst et al., 2009; Liu et al., 2011), our research enriches the paucity of research exploring the multilevel mechanisms by which (entrepreneurial) leadership promotes employee creativity (Shin, 2015). More importantly, by simultaneously including both self- and team efficacy, our findings significantly respond to the debate regarding the similar importance of various types of efficacy in creativity research (e.g., Walumbwa et al., 2004) by showing that both individual creative efficacy and team creative efficacy are key antecedents to employee creativity in collectivistic countries.

4.5.2 Managerial Implications

We provide practical implications on facilitating creativity. First, organizations should select leaders with entrepreneurial characteristics (e.g., taking risks, building teams, and developing workplace efficacy) and provide training (e.g., designing dynamic and acceptable goals) to develop leaders’ skills of displaying entrepreneurial behaviors. Moreover, leaders should display desirable behaviors to nourish employees’ and teams’ creative capability (e.g., providing expectations and encouragement toward creativity) and help members share strong beliefs concerning their teams’ creative capabilities. By searching for practices that develop teams’ confidence in being creative, leaders will boost their team creativity.
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4.5.3 Limitations

First, our cross-sectional design may provide ambiguity about causality. For example, team and employee creativity may enable leaders to act entrepreneurially, accounting for the observed association. Further studies may use a longitudinal design to better confirm the causal effects. Second, we test our Western-originated model in the Chinese context without considering cultural factors. Thus, future research should generalize our results in other non-Western countries. Third, we fail to consider the effects of the working environment. For example, as an innovative climate stimulates employees to obtain resources from leaders, such a climate may accentuate the influence of leadership styles on personal attributes and then creativity. Future research should thus examine whether organizational climate positively moderates the mediated effects of creative self-/collective efficacy in the relationship between entrepreneurial leadership and employee/team creativity.
Chapter 5 Servant Leadership Promoting Innovative Work Behavior in Chinese High-Tech Firms: The Role of Meaningful Work and Job Autonomy

Abstract

Although existing research suggests that servant leadership contributes to employee innovative work behavior (IWB), the mechanisms and boundary conditions of this relationship are relatively unclear. We examine meaningful work as a mediator and job autonomy as a moderator in the servant leadership-IWB relationship. We collected data from three high-tech firms in China and found that employees’ perception of meaningful work mediates the relationship between servant leadership and employee IWB. Furthermore, the results showed that this mediating relationship is conditional on the moderating role of job autonomy in the path from servant leadership to meaningful work.

Keywords: Servant leadership, Meaningful work, Job autonomy, Innovative work behavior

Chapter 5

5.1 Introduction

Defined as a series of activities for the generation, promotion, and realization of ideas for new technologies, processes, techniques, or products (Janssen, 2000; Janssen & Van Yperen, 2004; Yuan & Woodman, 2010), employee innovative work behavior (IWB) plays a critical role in sustaining organizations’ competitiveness and success. There has been growing scholarly interest in understanding the factors that foster this behavior (e.g., Anderson, Potočnik, & Zhou, 2014; Scott & Bruce, 1994). More specifically, research has acknowledged the important influence of leadership styles, such as transformational leadership, transactional leadership, and ethical leadership, on IWB (e.g., Michaelis, Stegmaier, & Sonntag, 2010; Pieterse, van Knippenberg, Schippers, & Stam, 2010; Yidong & Xinlin, 2013). Acknowledging that the traditional perspective of treating employees as instruments is detrimental to an organization’s long-term competitiveness and survival (Van Dierendonck, Stam, Boersma, De Windt, & Alkema, 2014), leaders must now support employees’ efforts to achieve organizational innovation by placing primary emphasis on employees and their strengths (Liden, Wayne, Zhao, & Henderson, 2008). Thus, academics and practitioners have increasingly linked servant leadership to employees’ innovation (Hamilton, 2008; Liden, Wayne, Liao, & Meuser, 2014; Neubert, Kacmar, Carlson, Chonko, & Roberts, 2008; Yoshida, Sendjaya, Hirst, & Cooper, 2014).

Servant leadership is defined as “developing employees to their fullest potential in the area of task effectiveness, community stewardship, self-motivation, and future leadership capabilities” (Liden et al., 2008). It emphasizes serving followers by caring and putting subordinates first (Liden et al., 2008). Thus, servant leaders demonstrate that through a serving-others orientation, employees can develop their desire to engage in innovative work (Hamilton, 2008; Liden et al., 2014; Panaccio, Henderson, Liden, Wayne, & Cao, 2015; Van Dierendonck, 2011). A better understanding of the mechanism and the boundary conditions through which servant leadership may relate to IWB will allow leaders to manage employees more effectively. However, this important issue remains underexplored (Liden et al., 2014; Yoshida et al., 2014). Our study aims to fill this gap by identifying meaningful work as a key mediator and job autonomy as a moderator.

Although prior research has pointed to identification with surroundings (e.g., leaders and groups) as mediators of the servant leadership–IWB association,
such works overlooked individuals’ internal psychological processes (Chiniara & Bentein, 2016). Drawing on Amabile and Pratt’s (2016) dynamic componential model of creativity and innovation, we propose that meaningful work mediates the influence of servant leadership on IWB. Referring to the subjective experience that one’s work has significance, facilitates personal growth, and contributes to the greater good (Steger, Dik, & Duffy, 2012), meaningful work funnels employees’ willingness and excitement into innovative tasks (Shalley, Zhou, & Oldham, 2004; Steger et al., 2012). When servant leaders empower employees and create values for them, employees tend to have a higher sense of purpose in their work (Greenleaf & Spears, 2002); this significance increases the value employees attribute to innovation engagement and behaviors (Yuan & Woodman, 2010).

Furthermore, based on situational leadership theory (Podsakoff & MacKenzie, 1997), the extent to which servant leaders effectively influence their followers’ outcomes may depend on certain conditions (Chen, Zhu, & Zhou, 2015; Liden et al., 2014), especially task characteristics (Avolio, Walumbwa, & Weber, 2009; Kerr & Jermier, 1978; Mumford, Scott, Gaddis, & Strange, 2002). Thus, a consideration of working context is necessary to achieve a full understanding of the effects of servant leadership on employees’ meaningful work and IWB (e.g., Ling, Lin, & Wu, 2016; Yoshida et al., 2014). The variations in creativity primarily depend on whether employees’ tasks facilitate creativity (Shalley, Gilson, & Blum, 2000), especially the discretion that each employee has to perform tasks (Coelho & Augusto, 2010). Thus, we propose that job autonomy—the core component of task characteristics (Hackman & Oldham, 1976)—moderates the influence of servant leadership on employee IWB via meaningful work. Specifically, servant leaders are likely to motivate employees’ perception of meaningful work in a highly autonomous context in which employees are provided more freedom and latitude to involve servant leaders in the process of guiding meaningful work. In a similar vein, because autonomy broadens employees’ choice (Ho & Nesbit, 2014) to fulfill their responsibility for completing work in their own way (Langfred & Moye, 2004), it stimulates them to obtain more IWB resources from servant leadership (e.g., assistant and concerns) in a meaningful way. Taken together, we propose a moderated mediation model in which meaningful work operates as a mediator in the relationship between servant leadership and employee IWB while job autonomy moderates the first path from servant leadership to meaningful work. Figure 5.1 presents the hypothesized model.
Our study makes several contributions. First, examining meaningful work as a mediator extends our understanding of how servant leadership contributes to employee innovation. In doing so, we answer calls to examine whether employees’ subjective experiences of meaningful work may transfer the benefits of contextual variables (e.g., leadership) to employee innovation (Amabile & Pratt, 2016; Cohen-Meitar, Carmeli, & Waldman, 2009). In addition, we explore other mechanisms, instead of identification constructs, that link servant leadership and employee IWB (Liden et al., 2014; van Dierendonck & Rook, 2010; Yoshida et al., 2014). Furthermore, we enrich the theoretical arguments about when leadership styles may generate effective influences by examining job autonomy as a boundary condition in the indirect influences of servant leadership on IWB via meaningful work. This is consistent with the conclusions of recent studies (Avolio et al., 2009; Wang & Cheng, 2010), which have found that the effects of effective leadership on employees’ desirable outcomes may be contingent on task characteristics (e.g., job autonomy). To examine this issue further, we illustrate that under the condition of high job autonomy, servant leadership may lead to employees’ perception of meaningful work and in turn, their subsequent IWB.

5.2 Theory and Hypotheses

5.2.1 Servant Leadership, Meaningful Work, and IWB

In terms of maintaining an employee focus to enhance subordinates’ motivations toward innovation (van Dierendonck & Rook, 2010), servant leadership nurtures followers’ desirable outcomes (Barbuto & Wheeler, 2006; Hamilton, 2008; Mayer, Bardes, & Piccolo, 2008; Parris & Peachey, 2013). For example, Mayer et al. (2008) found that servant leadership is positively related to employees’ positive psychological states (e.g., job satisfaction). Existing studies indicate that
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A servant leader may effectively fulfill subordinates’ needs by prioritizing their development (Chiniara & Bentein, 2016), which in turn facilitates meaningful jobs (Michaelson, Pratt, Grant, & Dunn, 2014; Owens & Hekman, 2012; van Dierendonck & Sousa, 2016). Nevertheless, this line of research primarily focuses on leadership behaviors’ influence on the single aspect of meaningful work in terms of job characteristics, overlooking the fact that working may also satisfy personal needs to connect with one’s surroundings and build relations with the greater society and community (Allan, Autin, & Duffy, 2014). Meaningful work represents “all that work means for individuals” and has a “significant and positive valence” (Arnoux-Nicolas, Sovet, Lhotellier, Di Fabio, & Bernaud, 2016). Specially, individuals’ perception of meaningful work refers to their subjective sense that work has personal significance, contributes to broader meaning in life (e.g., personal growth), and provides greater motivation to positively influence others (Steger et al., 2012).

We propose a positive relationship between servant leadership and meaningful work. To illustrate, when servant leaders put employees first by providing for their concerns and development, employees feel that they are highly valued (Liden et al., 2008). Moreover, when servant leaders’ behaviors (e.g., providing assistance) cue employees that their work is worthwhile and significant, employees develop a strong sense that their jobs are regarded as important and meaningful. Similarly, servant leaders set a clear goal and build on employees’ strengths to achieve that goal, motivating employees to fulfill their responsibility by working (Van Dierendonck, 2011). This responsibility develops individuals’ perception of meaningful work (Dik, Duffy, & Eldridge, 2009). In addition, servant leaders prioritize subordinates’ personal growth (Bass, 2000), increasing the likelihood that an employee will have a meaningful work experience (Chiniara & Bentein, 2016). This line of reasoning suggests that servant leaders provide employees with assistance and support to enhance their skills and abilities (Liden et al., 2008), causing employees to perceive their competence as developing and enabling them to experience meaningful work (Gagné & Deci, 2005; Van Dierendonck, 2011). Since leaders’ servant behaviors internalize subordinates’ servant-oriented behaviors as a servant (Greenleaf & Spears, 2002), these employees may build a prosocial motivation with a strong desire to help others by displaying servant behaviors (Grant, 2008). Therefore, they have a greater perception of meaningful work (Steger & Dik, 2010). In short, servant leadership can leverage employees’ broader perception of meaningful work. Therefore, we propose the following:
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**Hypothesis 1.** Servant leadership is positively related to employees’ perceptions of meaningful work.

Following previous research concluding that meaningful work is a predictor of employee work outcomes (e.g., Steger et al., 2012), we propose a positive association between meaningful work and employee IWB. Faced with inevitable failures and risks in the innovation process, employees who believe that work is meaningful may be internally motivated to manage difficulties and challenges (Simonton, 1999; Staw, 1990). The fact that people experiencing work as meaningful may invest themselves in their work has been supported in a considerable number of studies (May, Gilson, & Harter, 2004). Meanwhile, since meaningful work underlines individuals’ valuable goals (Lips-Wiersma & Morris, 2009), employees become motivated to perform more IWB (Yuan & Woodman, 2010). Furthermore, the optimal experience of meaningful work that originates from individual development may increase employees’ willingness to utilize their abilities and energies toward innovation achievements (Kashdan, Rose, & Fincham, 2004). Relevant findings were reported in a study by Shalley, Gilson, and Blum (2009), who concluded that employees with a strong desire to learn are more likely to generate, promote, and realize new ideas (Janssen & Van Yperen, 2004). According to prosocial behavior research (Michaelson et al., 2014), the fact that meaningful work benefits others (Steger et al., 2012) signifies employees’ prosocial motivations by highlighting both their interactions and their sense of belonging (May et al., 2004). By leading employees both to find significance and purpose from their work and to work for the sake of benefitting others (Grant, 2012), this prosocial influence stimulates employees to generate innovative outcomes (Grant & Berry, 2011), because these employees absorb information and perspectives that foster their cognitively high level of IWB (De Dreu & Nauta, 2009). In sum, we posit that employees’ perception of meaningful work will enhance their IWB. Therefore, we propose the following:

**Hypothesis 2.** Employees’ perceptions of meaningful work are positively related to their IWB.

We further suggest that meaningful work can be a key mediator for explaining how servant leadership can contribute to employee IWB. According to the dynamic componental model of creativity and innovation (Amabile & Pratt, 2016), meaningful work acts as a mechanism that connects situational predictors and employee IWB. Prior research found that innovation-facilitative leadership (e.g., transformational leadership) facilitates subordinates’ desirable outcomes

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by making work meaningful (Arnold, Turner, Barling, Kelloway, & McKee, 2007; Walumbwa, Christensen, & Muchiri, 2013). As a leadership style that generates meaning (van Dierendonck & Sousa, 2016), servant leadership positively relates to employees’ IWB via the perception of their meaningful work.

Leaders’ behaviors and attitudes reflect organizational values and goals (Avolio et al., 2009). Therefore, in organizations in which innovation is highly welcome, servant leaders transfer their organizational innovation goals to subordinates (Liden et al., 2008), imbuing work with meaningfulness by connecting employees’ personal innovation goals with broader organizational goals (Rosso, Dekas, & Wrzesniewski, 2010). To realize employees’ personal goals, servant leadership provides the service and resources needed to enable employees to conduct more innovative work. Moreover, servant leadership emphasizing employees’ growth and development helps employees feel that they are living up to their full potential (Pratt & Ashforth, 2003). As a result, these employees are likely to view their work as meaningful and engage in innovative activities (Scott & Bruce, 1994). Accordingly, we propose that when a leader engages in servant behavior, employees are likely to perceive their work as meaningful, which then motivates them to generate and implement innovative ideas. Therefore, we propose the following:

**Hypothesis 3.** Employees’ perceptions of meaningful work mediate the relationship between servant leadership and employee IWB.

5.2.2 **Job Autonomy as a Moderator**

Job autonomy, defined as the extent to which individuals can decide on the methods, process, and efforts necessary to accomplish their jobs/tasks (Hackman & Oldham, 1976), is an important contextual factor to predict employee creativity and innovation (Liu, Chen, & Yao, 2011; Scott & Bruce, 1994). Scholars also found that job autonomy, like meaningful work, contributes to a high level of employee well-being (e.g., Thompson & Prottas, 2006). For example, when employees are performing autonomous tasks, they can freely pursue the interests and activities that they value (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000).

According to situational leadership theory, the effects of leadership may depend on situational contingency (Sims, Faraj, & Yun, 2009). Following the previous research suggesting that job characteristics may determine the dysfunctional
effects of servant leadership on employee well-being (e.g., Kalshoven & Boon, 2012), we hypothesize that job autonomy moderates the association between servant leadership and meaningful work. Theoretically, job autonomy helps employees feel more responsible for their work outcomes because they initiate behaviors on working process (Hackman & Oldham, 1976); it also offers employees more freedom to decide which information they can obtain and use from relevant contexts (e.g., leaders) (Kim, Cable, Kim, & Wang, 2009). In other words, when job autonomy is high, employees may have more opportunities to receive and take advantage of the benefits of their servant leaders’ supervision related to obtaining positive attitudes and taking initiative when working (Den Hartog & Belschak, 2012; Gagné & Deci, 2005) (e.g., meaningful work). Specifically, when leaders create a serving environment to help employees experience work as meaningful, high-autonomy jobs may allow employees to broadly engage and enjoy meaningful work (Ho & Nesbit, 2014). Thus, considerable autonomy among employees will strengthen the relationship between servant leadership and employees’ meaningful work.

In contrast, employees who have a low degree of autonomy in their jobs may gain a low level of psychological satisfaction (e.g., Hackman & Oldham, 1976) and may be more dependent on leaders in this respect (Semmer, 2000). Thus, even though servant leaders create the highest potential for employees to find meaning and purpose in work, employees will be less likely to internalize their activities as meaningful. Employees who fail to become interdependent and self-contained are unlikely to utilize available resources to makes work meaningful. Therefore, we propose the following:

**Hypothesis 4.** Job autonomy moderates the relationship between servant leadership and employees’ perceptions of meaningful work in such a way that this relationship is more positive in situations of high rather than low job autonomy.

Despite the impact of high or low levels of job autonomy on how employees respond to the effect of (different levels of) servant leadership on their perception of meaningful work, levels of meaningful work are still critical to predict levels of IWB. We further establish the moderated mediation effects (Edwards & Lambert, 2007; Preacher, Rucker, & Hayes, 2007). In other words, meaningful work mediates not only the association between servant leadership and employee IWB but also the interactive effect of servant leadership and job autonomy on innovation. Specifically, when a high level of job autonomy broadens employees’ choice (Ho & Nesbit, 2014) and renders them more
responsible for work (Langfred & Moye, 2004), it motivates greater IWB based on a meaningful response to the benefits of servant leadership. Therefore, the indirect effect of servant leadership on employee IWB through meaningful work is likely to be stronger in situations of a high level of job autonomy. However, when employees are constrained by a low level of job autonomy, employees may have fewer opportunities to utilize the benefits of servant leadership to build their perception of meaningful work; consequently, the indirect effect of servant leadership on employee IWB should be weaker. Accordingly, we propose the following:

**Hypothesis 5.** Job autonomy positively moderates the indirect effect of employees’ perceptions of meaningful work on the servant leadership-employee IWB relationship such that mediation effects are stronger when job autonomy is higher.

### 5.3 Method

#### 5.3.1 Procedures

Data collection was conducted in three Chinese high-tech firms by using a questionnaire survey designed for this study. The firms were all IT-oriented organizations in southwest China. We first contacted CEOs/HRs from these companies to confirm that employee innovation was welcomed and to obtain permission for our investigation. Next, employees completed the questionnaires online with a brief introduction explaining that all information provided would be kept confidential and the results would be sent to researchers only. To avoid response bias, the names of the measures were not revealed, and the survey was anonymous. Informed consent was obtained from all participants to ensure the researcher had the right to use the collected data. The original questionnaires were written in English; we used a back-translation process (Brislin, 1986) to create a Chinese version.

The sample included 288 participants, 54.5% of whom were male and 45.5% of whom were female. The average age of the employees was 30.5 years, and the majority had a bachelor’s degree (55.9%). Participants’ average number of years working in the relevant company was 3.3 years.

#### 5.3.2 Measurements
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Existing measures with established validity and reliability were used to operationalize all the constructs in our study. We used a five-point Likert-type scale (from 1 = “strongly disagree” to 5 = “strongly agree”) to rate all items.

Servant leadership. Employees evaluated their managers’ servant leadership on a 7-item scale developed by Liden et al. (2014) ($\chi^2 [11] = 16.98; \text{TLI} = .99; \text{CFI} = .99; \text{RMSEA} = .04$). This scale measures the extent to which employees perceive their supervisor’s servant leadership style in organizations. A sample item is “My manager puts my best interests ahead of his/her own” ($\alpha = .87$).

Meaningful work. Meaningful work was assessed using the Work and Meaning Inventory (WAMI) with ten items (Steger et al., 2012) ($\chi^2 [24] = 33.25; \text{TLI} = .99; \text{CFI} = .98; \text{RMSEA} = .04$). Employees rated the extent to which their work has a significant, worthwhile, and positive meaning ($\alpha = .88$). Sample items are: “I have a good sense of what makes my job meaningful” (positive meaning); “I view my work as contributing to my personal growth” (meaning-making through work); and “The work I do serves a greater purpose” (greater good motivations). A higher-order factor of meaningful work was also found, suggesting that the total score can be used as an entire measurement.

Job autonomy. Job autonomy was assessed with two items by adopting the measure from the Job Diagnostic Survey (Hackman & Oldham, 1975). One reversed item was dropped because of poor fit. Employees indicated the extent to which they have freedom, independence, and discretion to determine their jobs and tasks. A sample item is “I decide on my own how to go about doing the work” ($\alpha = .80$).

Innovative work behavior (IWB). Six items from Scott and Bruce (1994) were used to evaluate employees’ innovative work behavior ($\chi^2 [3] = 3.57; \text{TLI} = .99; \text{CFI} = .99; \text{RMSEA} = .02$). We followed prior research and used self-reported ratings to ask employees to assess their IWB (e.g. Montani, Odoardi, & Battistelli, 2014). A sample item is “I searched out new technologies, processes, techniques, and/or products” ($\alpha = .89$).

Control variables. Following previous research (e.g. Cuyper & Witte, 2006; Scott & Bruce, 1994; Steger, Littman-Ovadia, Miller, Menger, & Rothmann, 2013), we controlled for a number of demographic characteristics that may potentially influence the results in this study: age (in years), gender (1 = male; 2 = female), education (1 = high school, 5 = doctorate), and work tenure in the
relevant organization (in years). We controlled for these variables because existing research suggests that they influence IWB.

5.3.3 Discriminant Validity Testing

Given that all the data were collected from a single source (employees), we conducted a confirmatory factor analysis (CFA) to assess the discriminant validity of measures in our study (Anderson & Gerbing, 1988). Table 5.1 shows the CFA results. Our hypothesized four-factor model demonstrated a better fit to the data ($\chi^2 [231] = 389.14; \text{TLI} = .96; \text{CFI} = .96; \text{RMSEA} = .05$) than all the alternative models (Hu & Bentler, 1999).

We also used a single test to conduct an explanatory factor analysis to identify the potential for common method bias (CMB) (Harman, 1976). The result—that one factor accounted for 33.80%, which is below the accepted threshold of 40%—suggests that CMB was unlikely to be a serious problem in this study. In addition, we conducted the test of one-factor measurement model (Podsakoff & Organ, 1986), which generated a poor fit to the data. Thus, CMB is not a serious problem in our study.

5.3.4 Analytical Strategy

We follow existing research and conduct a four-step procedure to test the mediation effects of servant leadership on employee IWB through meaningful work. That is, when we conduct hierarchical regression analyses by entering control variables, servant leadership, IWB, meaningful work, and job autonomy on different steps, a full mediation is supported if four conditions are met: (1) the independent variable (i.e., servant leadership) is significantly related to the mediator (i.e., meaningful work); (2) the independent variable is significantly related to the dependent variable (i.e., employee IWB); (3) the mediator is significantly related to the dependent variable; (4) the relationship between the independent variable and dependent variable becomes insignificant when the mediator is present. We used the PROCESS macro from Hayes (2013) to examine the moderated mediation effects.

5.4 Results

5.4.1 Descriptive Statistics

Table 5.2 presents the descriptive statistics, correlations, and scale reliabilities for the research variables. As shown in Table 5.2, servant leadership was
positively correlated with meaningful work ($r = .45, p < .01$) and employee IWB ($r = .16, p < .01$). Moreover, employees’ perception of meaningful work is positively correlated with their IWB ($r = .48, p < .01$). The variables were mean-centered to calculate the components of the interaction terms (Aiken, West, & Reno, 1991).

5.4.2 Hypotheses Testing

Table 5.3 presents the results of hierarchical regression. To test Hypothesis 1, we examined the positive association between servant leadership and employees’ perceptions of meaningful work. The results in Model 2 shows that, after controlling for the effect of employees’ gender, age, education, and tenure, servant leadership was found to be significantly and positively related to employees’ perception of meaningful work ($\beta = .37, p < .001$). Thus, Hypothesis 1 was supported. In addition, meaningful work was found to be positively related to employee IWB in Model 6 ($\beta = .48, p < .001$). Thus, Hypothesis 2 was supported.

Hypothesis 3 suggests that meaningful work mediates the relationship between servant leadership and employee IWB. In Table 5.3, the first three conditions were supported in Model 2 (servant leadership is positively related to meaningful work), Model 5 (servant leadership is positively related to IWB), and Model 6 (meaningful work is positively related to IWB). Model 7 shows that when servant leadership and meaningful work were simultaneously regressed, the relationship between servant leadership and employee IWB was not significant ($\beta = -.04, p = .45$). To further clarify the mediation effect, we used a bootstrap procedure with 10,000 samples by producing a confidence interval (CI) for the indirect effect. The results reveal that the indirect effects through meaningful work were significant (indirect effect $= .18, p < .01$, 95% CI $= .12, .26$). Therefore, Hypothesis 3 was fully supported.

Hypothesis 4 predicted that job autonomy moderates the relationship between servant leadership and meaningful work. As shown in Table 5.3, Model 3 shows that the interaction between servant leadership and job autonomy was positively related to meaningful work ($\beta = .13, p < .05$). As suggested by Aiken et al., (1991), we illustrated the pattern of the interaction effect. Figure 5.2 depicts the plot of the moderation effect, showing that servant leadership is more effective in increasing meaningful work when employees are high in job autonomy. We also conducted a simple slope test. Specifically, servant leadership exerts a stronger influence on employees’ perception of meaningful work when job
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autonomy is high \((simple \ slope = .35, SE = .05, t = 6.64, p < .001)\) than when such job autonomy is low \((simple \ slope = .16, SE = .07, t = 2.20, p < .05)\). Thus, Hypothesis 4 was supported.

Hypothesis 5 predicted that the indirect relation between servant leadership and employee IWB through meaningful work would be conditional on the moderator variable of job autonomy for the path from servant leadership to meaningful work. Conducting a bootstrapping procedure with 10,000 samples, we estimated the conditional indirect effects of an independent variable (servant leadership) through a mediator (meaningful work) on a dependent variable (employee IWB) at both high and low levels of a moderator (job autonomy). The results of bias-corrected confidence intervals in Table 5.4 show that the indirect effect of servant leadership on employee IWB through meaningful work was significant only when job autonomy is higher (conditional indirect effect = .17, 95% CI = .11, .26). These results lend support for Hypothesis 5.
Table 5.1 Comparison of Measurement Models

<table>
<thead>
<tr>
<th>Model Test</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$\Delta \chi^2$</th>
<th>$\Delta df$</th>
<th>TLI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesized 4-factor model</td>
<td>389.14</td>
<td>231</td>
<td>-</td>
<td>-</td>
<td>.91</td>
<td>.93</td>
<td>.06</td>
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<td>3-factor model:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Servant leadership, and job autonomy merged</td>
<td>981.30</td>
<td>272</td>
<td>592.16</td>
<td>41</td>
<td>.82</td>
<td>.83</td>
<td>.09</td>
</tr>
<tr>
<td>Job autonomy, and IWB merged</td>
<td>1311.37</td>
<td>272</td>
<td>922.23</td>
<td>41</td>
<td>.71</td>
<td>.73</td>
<td>.12</td>
</tr>
<tr>
<td>Servant leadership, and meaningful work merged</td>
<td>1647.80</td>
<td>272</td>
<td>1258.66</td>
<td>41</td>
<td>.61</td>
<td>.65</td>
<td>.13</td>
</tr>
<tr>
<td>Servant leadership, and IWB merged</td>
<td>925.33</td>
<td>272</td>
<td>536.19</td>
<td>41</td>
<td>.82</td>
<td>.83</td>
<td>.09</td>
</tr>
<tr>
<td>Servant leadership, and meaningful work merged</td>
<td>1364.24</td>
<td>272</td>
<td>975.10</td>
<td>41</td>
<td>.69</td>
<td>.72</td>
<td>.12</td>
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<td>2-factor model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Servant leadership, meaningful work, and job autonomy merged</td>
<td>1477.03</td>
<td>274</td>
<td>1087.89</td>
<td>43</td>
<td>.67</td>
<td>.70</td>
<td>.12</td>
</tr>
<tr>
<td>Meaningful work, job autonomy, and IWB merged</td>
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<td>274</td>
<td>1116.56</td>
<td>43</td>
<td>.65</td>
<td>.68</td>
<td>.13</td>
</tr>
<tr>
<td>Servant leadership, meaningful work, and IWB merged</td>
<td>1766.50</td>
<td>274</td>
<td>1377.36</td>
<td>43</td>
<td>.58</td>
<td>.62</td>
<td>.14</td>
</tr>
<tr>
<td>1-factor model (all variables merged)</td>
<td>2258.91</td>
<td>350</td>
<td>1869.77</td>
<td>119</td>
<td>.56</td>
<td>.59</td>
<td>.14</td>
</tr>
</tbody>
</table>
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### Table 5.2 Means, Standard Deviations, and Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IWB</td>
<td>3.77</td>
<td>0.54</td>
<td></td>
<td></td>
<td>.21**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Gender</td>
<td>1.45</td>
<td>0.50</td>
<td>-.21**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Age</td>
<td>30.54</td>
<td>6.37</td>
<td>.03</td>
<td>-.12*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Education</td>
<td>3.80</td>
<td>0.73</td>
<td>-.00</td>
<td>.10</td>
<td>.17***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Organizational tenure</td>
<td>3.33</td>
<td>3.13</td>
<td>.02</td>
<td>-.01</td>
<td>.43***</td>
<td>-.14*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Servant leadership</td>
<td>3.61</td>
<td>0.66</td>
<td>.16**</td>
<td>.03</td>
<td>-.14*</td>
<td>-.03</td>
<td>-.15*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Job autonomy</td>
<td>3.69</td>
<td>0.78</td>
<td>.38**</td>
<td>-.10</td>
<td>-.06</td>
<td>.01</td>
<td>-.04</td>
<td>.37**</td>
<td></td>
</tr>
<tr>
<td>8. Meaningful work</td>
<td>3.82</td>
<td>0.56</td>
<td>.48**</td>
<td>-.05</td>
<td>-.07</td>
<td>-.07</td>
<td>-.15*</td>
<td>.45**</td>
<td>.37**</td>
</tr>
</tbody>
</table>

*N*=288.  
*p < .05, ** p < .01
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Table 5.3 Results of Hierarchical Regression Analysis

<table>
<thead>
<tr>
<th>Control variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-.04</td>
<td>-.05</td>
<td>-.02</td>
<td>-.23***</td>
<td>-.24***</td>
<td>-.21***</td>
<td>-.21***</td>
</tr>
<tr>
<td>Age</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
<td>-.00</td>
<td>.00</td>
<td>-.00</td>
<td>-.00</td>
</tr>
<tr>
<td>Education</td>
<td>-.07</td>
<td>-.05</td>
<td>-.06</td>
<td>.02</td>
<td>.01</td>
<td>.05</td>
<td>.05</td>
</tr>
<tr>
<td>Organizational tenure</td>
<td>-.03*</td>
<td>-.02</td>
<td>-.02*</td>
<td>.01</td>
<td>.01</td>
<td>.02</td>
<td>.02</td>
</tr>
</tbody>
</table>

| Independent variable   |         |         |         |         |         |         |         |
| Servant leadership     | .37***  | .25***  | .15**   | -.04    |

| Mediator               |         |         |         |         |         |         |         |
| Meaningful work        | .48***  | .50***  |

| Interactive effects    |         |         |         |         |         |         |         |
| Servant leadership ×   | .13*    |
| job autonomy           |         |         |         |         |         |         |         |

| R²                     | .03     | .21     | .28     | .05     | .08     | .28     | .28     |
| △R²                   | .03     | .18     | .02     | .05     | .03     | .23     | .20     |
| F                      | 2.37    | 15.29***| 15.36***| 3.30*   | 4.60*** | 21.74***| 18.18***|
| △F                    | 2.37    | 65.83***| 6.35*   | 3.30*   | 9.29**  | 90.12***| 79.66***|

N=288.
* p < .05, ** p < .01, *** p < .001
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Figure 5.2 Moderating Effects of Autonomy on the Servant Leadership-Meaningful Work Relationship

Table 5.4 Results of Moderated Mediation

<table>
<thead>
<tr>
<th>Moderator (job autonomy)</th>
<th>Indirect effect</th>
<th>SE</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower limit</td>
</tr>
<tr>
<td>Low levels of job autonomy (-1 S.D)</td>
<td>.08</td>
<td>.05</td>
<td>-.01</td>
</tr>
<tr>
<td>High levels of job autonomy (+1 S.D)</td>
<td>.17</td>
<td>.04</td>
<td>.11</td>
</tr>
</tbody>
</table>

N=288.
Based on the 10,000 bootstrapping samples.
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5.5 Discussion

Acknowledging the association between servant leadership and employee IWB, the present research sought to explore this association by establishing meaningful work as an intervening mechanism. Moreover, we identified autonomy as a boundary condition for this indirect influence. As expected, our analyses showed that the servant leadership-employee IWB association was mediated by followers’ perception of meaningful work and moderated by job autonomy. Therefore, the findings illustrate that servant leadership has some influence on employee innovation by promoting meaningful work when job autonomy is high.

5.5.1 Theoretical Implications

Expanding the literature that links servant leadership and IWB, the current study identifies the mechanism of employees’ perception of meaningful work. Our findings are consistent with past research that acknowledges an indirect link between servant leadership and employee innovativeness (Neubert et al., 2008; Yoshida et al., 2014). Thus, we answered the call for exploring the mechanisms between servant leadership and employee outcomes, especially innovative results (e.g., Liden et al., 2014; van Dierendonck & Rook, 2010; Yoshida et al., 2014). Extending the existing research suggesting that an identity perspective transmits the impact of servant leadership on subordinates, our examination evokes the internal psychological process (Chiniara & Bentein, 2016) of employees perceiving work as meaningful. When servant leaders nurture employees’ experience of meaningful work, employees are motivated to be innovative and provide empirical contributions to the dynamic componential model of creativity and innovation (Amabile & Pratt, 2016). This indicates that leaders’ behaviors and attitudes toward innovation may shape the value that employees attribute to work (i.e., meaningful work), further promoting innovative endeavors. Since previous research has indicated some concepts that constitute the mechanisms linking servant leadership and employee innovative outcomes, it would be productive for future research to explore other potential mechanisms (e.g., trust, engagement, and efficacy beliefs) (e.g., Sendjaya & Sarros, 2002; Walumbwa, Hartnell, & Oke, 2010).

Furthermore, although researchers who study meaningful work acknowledge that leaders may influence the meaning employees experience at work (e.g., Arnold et al., 2007; Peng et al., 2016; Walumbwa et al., 2013), our findings enriched this line of research by arguing that servant leadership is an antecedent...
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of meaningful work. As such, we broaden the research scope on leaders as a source of meaningful work by answering the call of Michaelson and coauthors (2014) to investigate the association between servant leadership styles and followers’ meaningful work. Consistent with previous studies that emphasize the significance of servant leadership in facilitating employees’ psychological needs (Van Dierendonck et al., 2014), the positive relation between servant leadership and meaningful work further theorizes scholars’ concerns that caring for and serving the strengths of followers (i.e., displayed by servant leadership) may form a sense of meaningful work (van Dierendonck & Sousa, 2016).

In addition, our findings bolster the argument that meaningful work is a critical antecedent to employee innovation (Cohen-Meitar et al., 2009; Staw, 1990). As one of the initial attempts to empirically examine the positive association between meaningful work and employee IWB, our results shed light on the neglected benefit of having a sense of meaningful work in employee creativity and innovation research (Amabile & Pratt, 2016). In other words, when work is perceived as meaningful, employees may be motivated to cope with challenges with innovative activities because they have built a strong sense that their work has significance, value, and social influence. This effect also reflects the prominent motivational perspective in creativity and innovation research (Liu, Jiang, Shalley, Keem, & Zhou, 2016) that meaningful work acts as a new type of motivation contributing to innovative results.

Finally, our findings on job autonomy as a moderator of the indirect influences of servant leadership on IWB through meaningful work highlights the key boundary condition of working conditions (Van Dierendonck et al., 2014). The role of job autonomy as revealed herein contributes to the servant leadership literature by suggesting that autonomy significantly strengthens the relationship between servant leadership and meaningful work. Autonomous job design allows employees to gain more opportunities to enjoy the benefits of servant leadership and experience meaningful work. More importantly, by answering calls for more study and extending past research on how context may enhance or inhibit the effects of servant leadership and employee innovation (e.g., Liden et al., 2014; Ling et al., 2016; Yoshida et al., 2014), this study also shows how job autonomy moderates the indirect relation of servant leadership and employee IWB through meaningful work, with slightly mixed implications. Regarding the integrated model, the moderated mediation effects indicate that meaningful work mediates the impact of servant leadership on IWB only when employees have high job autonomy, not when they have low job autonomy. This finding suggests
that when highly autonomous jobs are assigned to employees, servant leadership may generate more positive effects for enhancing their meaningful work, and then IWB. When employees have a low level of autonomy, regardless of whether servant leaders provide desirable behaviors that allow people to perceive their work as meaningful, they are unlikely to engage in innovative behavior in their work. In other words, high job autonomy is essential to determining whether servant leadership has positive effects on meaningful work and employee IWB.

5.5.2 Practical Implications

Our research highlighted the significance of servant leadership and meaningful work in promoting employee IWB. Although Chinese companies have a hierarchical structure (Redding, 1990), servant leadership has the same positive influence in Chinese contexts (Han, Kakabadse, & Kakabadse, 2010), with powerful effects on managing employees’ positive psychological states and innovativeness. Based on our findings, we can discuss some managerial implications. First, the results suggest that leaders who serve subordinates motivate them to pursue meaningful work and engage in innovative endeavors; therefore, organizations should select managers with servant leadership skills. Alternatively, supervisors should learn how to develop coaching and serving skills to benefit employees’ well-being, especially as it relates to the perception of meaningful work. Second, given the importance of meaningful work, diverse human resource management practices should be implemented to help increase the meaningfulness of work (Grant, 2008). To be more specific, by providing training programs relevant to employees’ work and by designing meaningful work for employees, an organization can effectively reinforce employees’ ability to find meaning in their jobs. Finally, considering the critical role of autonomy in fostering the influence of servant leadership on IWB through meaningful work, a desirable social environment is required to strengthen the positive role of IWB predictors. On the one hand, managers should adopt an autonomy-oriented style, and organizations should also design autonomous work structures in the workplace that reinforce the advantages of servant leadership on meaningful work. On the other hand, organizations can build an autonomous work environment to promote employees’ vitality in innovative outcomes.

5.5.3 Limitations

This study has some limitations. First, our cross-sectional research design generates a problem of causality in our results. In the future, longitudinal designs
should be conducted to provide more evidence for reliable causal directions. Second, we use self-reported assessments of employee IWB, which may fail to assess it more objectively. Even though scholars found that employees can make a better judgment of their (innovative/creative) performance than supervisors because they (employees) have more information about their work activities (Janssen, 2000), we encourage future research to introduce more objective measures of IWB (e.g., customer or supervisor assessment) (e.g. Stashevsky, Burke, Carmeli, Meitar, & Weisberg, 2006). Next, given that IWB includes a series of stages (e.g., idea generation and idea implementation), predictors may have different relations with separate aspects of the innovation process (Birdi, Leach, & Magadley, 2016). For example, in an empirical study by Birdi et al. (2016), social support has no significantly positive influence on idea implementation. Consequently, future research needs to examine whether the antecedents have the same effects on the different IWB stages. The last limitation concerns the generalizability of these findings in that this study contained a relatively small sample from IT companies. In this regard, it would be valuable to build on our findings in other types of industries/organizations by using a larger dataset.
Chapter 5
Chapter 6 Discussion

Creativity is widely recognized as an important source of organizational success and competition, and thus, managing employee creativity is a critical task for organizations. In this dissertation, I set out to investigate how to creativity can be fostered by integrating the influences from organizations and employee themselves. In doing so, I simultaneously examined five important yet well-investigated topics on organizational HRM, employee themselves, leadership issues, job design, and team properties with respect to their effects on creative outcomes. Our theoretical reasoning and findings suggest that 1) organizations can provide bundles of HR practices to produce synergistic effects in maximizing employee creative performance; 2) employees may take advantage of their own psychological characteristics to attain creative achievements; 3) leadership or supervisory behavior in favor of creativity and innovation may contribute to creativity by nurturing employees’ psychological states (e.g., meaningful work and creative self-efficacy), as well as by accentuating the positive effects of positive psychological factors (i.e., PsyCap) on creativity; 4) well-designed tasks (i.e., those rich in variety, identity, autonomy, feedback, and significance) enhance the possibilities that employees may utilize their psychological advantages (e.g., PsyCap and meaningful work) or leaders’ influences (e.g., supervisor support for creativity and servant leadership) for creative and innovative outcomes; and 5) team variables have strong associations with employee creativity. This chapter discusses the main findings of Chapters 2-5 and illuminates the important theoretical and practical implications and some limitations of the current thesis.

6.1 Summary of the Main Findings per Topic

This section presents the most important findings from one conceptual paper and three empirical papers, which all focus on exploring the influences of organizations and employee themselves on creativity. Table 6.1 presents an overview of the main findings of each chapter.
### Chapter 6

Table 6.1 Research Questions and Key Findings per Chapter

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Research question</th>
<th>Key findings</th>
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| 2       | How can the AMO model provide a new framework to understand the interactions in the creativity literature in depth? | - From a practical perspective, the AMO model (as a typical HRM theory) can provide a new lens to explain how personal factors interact with contextual factors in generating employee creativity.  
- Creativity predictors can be categorized as ability-, motivation-, and opportunity-enhancing practices, based on their different functions in the AMO model.  
- A framework with two main models—the combination model and multiplicative model—explains the different levels of creative performance. In the combination model, the separate moderation effects of motivation- and opportunity-enhancing practices on the relationship between ability-enhancing practices and creativity lead to higher level of employee creativity, whereas in the multiplicative model, the joint moderation effect of motivation- and opportunity-enhancing practices on the relationship between ability-enhancing practices and creativity leads to the highest level of employee creativity. |
| 3       | To what extent does PsyCap predict the highest level of employee creativity? | - PsyCap (a high-order construct that contains self-efficacy, optimism, hope and resiliency) is positively related to employee creativity.  
- SSC moderates the relationship between PsyCap and creativity such that the relationship between PsyCap and creativity is stronger when SSC is higher.  
- Job characteristics (a high-order construct that contains job autonomy, task significance, skill variety, task identity, and feedback) moderate the relationship between PsyCap and creativity such that the relationship between PsyCap and creativity is stronger when job characteristics (autonomy, significance, identity, skill variety, and feedback) are higher with respect to fostering creativity.  
- PsyCap, SSC, and job characteristics interact in affecting creativity such that the highest level of creativity is expected when employee PsyCap, SSC, and job characteristics are all high with respect to fostering creativity. |

Continued
### Chapter 6

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<th>Chapter</th>
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| 4       | How does entrepreneurial leadership influence creativity from a multi-level perspective? | - We found a positive relationship between entrepreneurial leadership and creativity, which broadens our horizons on the specific effects of leadership for creativity.  
- At the individual level, creative self-efficacy mediates the relationship between entrepreneurial leadership and employee creativity.  
- At the team level, team creative efficacy mediates the relationship between entrepreneurial leadership and team creativity.  
- Regarding the cross-level effects, team creative efficacy not only contributes to employee creativity but also mediates the relationship between entrepreneurial leadership and employee creativity. |
| 5       | Through what explanatory mechanisms and under what boundary conditions does servant leadership contribute to employee IWB? | - Meaningful work as a key mediator and job autonomy as a moderator enrich our understanding of the positive relationship between servant leadership and IWB.  
- Servant leadership is positively related to meaningful work.  
- Employees’ perception of meaningful work is positively related to their IWB.  
- Job autonomy positively moderates the relationship between servant leadership and employees’ perception of meaningful work in such a way that this relationship is more positive with high rather than low job autonomy, and employees’ perception of meaningful work has a mediating effect on the servant leadership-employee IWB relationship, such that the mediation effect is stronger when job autonomy is higher. |
6.2 Theoretical Implications and Related Future Research Directions

The previous section provides an overview of the main findings of each study. In this section, I expand upon the theoretical implications of this thesis across the four individual chapters above by highlighting how the key topics of research can be examined continuously, as well as by pointing to future research avenues.

6.2.1 HR practices focused on creativity management

While some theoretical arguments suggest connections between HRM and creativity by showing that HRM practices may facilitate employee creativity at work (e.g., Bos-Nehles, Renkema, & Janssen, 2017; Bos-Nehles & Veenendaal, 2017; Chang et al., 2014; Ma, Long, Zhang, Zhang, & Lam, 2017; Shin, Jeong, & Bae, 2016), an integrated conceptual framework combining HRM and creativity is lacking. Given the ongoing scholarly attention on how to advance existing knowledge on the complex interactionist approach in the creativity literature, I draw on the domain theory in the HRM literature—the AMO model—to provide a new lens to understand creativity research in depth, especially with respect to the interactional perspective. That is, employee creativity can be best explained in terms of bundles of HR practices within the AMO model.

This thesis first adds to the creativity literature by providing a refined categorization of creativity predictors in the AMO model. That is, personal and contextual predictors in creativity research are classified into three practical dimensions (i.e., ability-, motivation- and opportunity-enhancing practices). The classifications of creativity predictors from the viewpoint of HRM suggest a new explanation for the different functions of personal and contextual variables. This, furthermore, indicates the various interaction effects with respect to creativity. The results reveal that the various bundles of practices may bring about variations in creativity, which enriches extant knowledge on interactions effects with respect to creativity. Specifically, the combination model (i.e., where motivation- and opportunity-enhancing practices are interacted with ability-enhancing practices) shows a higher level of creativity than the main effects of ability predictors on creativity; moreover, the multiplicative model (i.e., where motivation- and opportunity-enhancing practices are simultaneously interacted with ability-enhancing practices) shows the highest level of creativity.
Chapter 6

By conceptually confirming the connections between HRM and creativity, the results provide a better understanding on the interactionist model in the creativity literature. However, this thesis provides only one additional step in this direction, and future research is highly encouraged to ensure that these findings apply broadly. First, based on the various interactions that I propose in the study (i.e., combination model and multiplicative model), researchers may conduct studies to empirically determine how these variables interplay with each other in contributing to employees’ creative results. For example, Chapter 3 follows the logic above to examine the interactions of PsyCap, supervisor support for creativity, and job characteristics with respect to creativity. The results fully support the conclusion that the combination model and multiplicative model lead to higher and the highest level of employee creativity, respectively. Next, as the AMO theory is developing, some scholars have claimed that the three dimensions of HR practices may exert indirect influences on employees’ (creative) performance (e.g., Jiang et al., 2012). Thus, it would be promising to investigate the mechanisms through which these interactions affect creativity. Take PsyCap in Chapter 3 as an example. Given that PsyCap may influence employees’ perception of their jobs (e.g., Sun, Zhao, Yang, & Fan, 2012), the interactions between PsyCap and other contextual variables (i.e., motivation- and opportunity-enhancing practices) may affect employees’ job attitudes (e.g., job embeddedness), which in turn predicts employees’ creative performance.

6.2.2 The psychological role of employee themselves

A commonly accepted argument is that employees with creative potential may use their personal characteristics to produce creativity (Zhou & Shalley, 2008). Thus, many studies have identified the influences of these factors on creativity (for reviews, see Anderson et al., 2014; Shalley et al., 2004). The significant conclusions in this thesis highlight that individuals’ psychological attributes, which are specified as PsyCap (Chapter 3), creative efficacy beliefs (Chapter 4), and meaningful work (Chapter 5), are important for their creative outcomes. These psychological states indicate whether employees are psychologically capable of doing creative and innovative work.

In terms of main effects, Chapter 3 confirms the existing theoretical suggestions that employee PsyCap benefits their creative performance. As a high-order construct, PsyCap captures the main meaning of positive psychology, and thus, psychologically positive employees may generate a strong internal motivation to address the inevitable failures when generating novel and useful ideas and
solutions. This empirical explanation of the moderators of favorable contextual predictors (e.g., supervisor support for creativity and job characteristics) also indicates that the advantages of followers’ positive psychology on creativity can be strengthened by the joint interactions of multiple contextual facilitators.

Chapter 4 further centers on the widely accepted aspect of PsyCap—efficacy beliefs. It not only examines the positive influences of creative efficacy on creativity but also investigates the process whereby creative efficacy beliefs are shaped by leadership styles in helping employees pursue creativity. In line with the motivation mechanisms in creativity, the findings establish the intervening mechanisms of creative efficacy by highlighting creative self-efficacy as a mediator of the entrepreneurial leadership-creativity association. Moreover, Chapter 5 opens a new avenue for innovation and creativity research, where employees’ perception of meaningful work is a key mediator in the positive relation between (servant) leadership and IWB. Beyond the traditional perspective of motivations that predict IWB, the construct of meaningful work is proposed and examined to promote employee IWB, as experiencing work as meaningful enables employees to build a strong and clear understanding of their abilities and expectations regarding innovative activities.

Although these studies attempt to identify the positive relation between employee psychology and creativity, future research is encouraged to broaden this concept of psychology in the creativity and innovation literature by exploring other types, such as prosocial motivations. For example, as creativity requires both novelty and usefulness, employees’ preferences in taking others’ opinions are highly critical for creativity (Grant & Berry, 2011). That is, prosocial motivation may direct employees’ thinking in other ways (Hoever, Van Knippenberg, Van Ginkel, & Barkema, 2012) and foster generous actions (Carmeli, McKay, & Kaufman, 2014), which in turn internally motivates employees to produce creative outcomes (Bai, Li, & Lin, 2016). The results that prosocial motivation mediates the context-creativity relationship in the meta-analysis of Liu et al. (2016) also indicates that future research should consider how leaders nurture employees’ prosocial motivation through a role-model process that facilitates employees’ creative achievements. Furthermore, given the multilevel approach in Chapter 4, research in the future should consider the application of individual psychological characteristics at the team level, which may enrich the functional similarities or differences in the creative processes across levels of analysis. For example, team PsyCap, reflecting a more consistent sense of efficacy, optimism, hopefulness, and resilience, may predict creative
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and innovative outcomes at both the individual and team level, as it allows employees to be involved in an interactive or coordinative process in teams to produce desired behaviors and performance outcomes (Walumbwa, Luthans, Avey, & Oke, 2011).

6.2.3 The leadership approach in creativity research

In line with the acknowledgement that leadership or supervisory behavior does affect employee creativity (Tierney, 2008), we extend this limited area on how leaders influence creativity and innovation by answering scholars’ calls for investigating a broad range of leadership styles (e.g., Anderson et al., 2014; Shalley et al., 2004). Basically, because of the uncertainty and risk taking during the process of generating and implementing ideas, the potential advantages of leaders indicate that leaders should have a strong creativity and innovation orientation and display behaviors and attitudes in favor of fostering employees’ creativity (Mainemelis et al., 2015; Mumford, Scott, Gaddis, & Strange, 2002). In particular, Chapter 2 generalizes the basic role of leaders—motivating employees to devise creative ideas. The results support the proposition that supervisor behaviors, especially in supporting creativity, serves as a key contextual factor that moderates the association between individual positive psychological attributes and creative results (Kim et al., 2010). Receiving substantial support for creativity enables employees to persist in their creative endeavors. Consistently, Chapter 3 provides empirical evidence showing that supervisor support for creativity activates the process by which employees utilize PsyCap for creative performance, which responses to the scholarly debate on the benefits of leader support on creativity (Baer & Oldham, 2006).

Furthermore, to have a comprehensive understanding on how leadership or supervisor behaviors exactly result in creative and innovative outcomes, Chapters 4 and 5 contextualize entrepreneurial leadership and servant leadership, respectively, to provide consistent support for the argument that creativity-specific leadership styles indeed play an important role in promoting creativity and IWB. Specifically, because entrepreneurial leaders share similarities with creative employees (e.g., risk taking and intuition), entrepreneurial leadership highlights the match between leaders and followers. Thus, creativity-oriented leadership is a substantial facilitator of creative achievements in the workplace. Given the innovative results generated by employees, leaders should focus more on followers. Thus, the results regarding servant leadership emphasize that leaders who consider the needs and desires of subordinates may motivate employees to engage in reciprocating behaviors (e.g., IWB). Although servant
leadership has an indirect relationship with employee IWB through meaningful work, the findings enrich the ongoing research focus on how follower-oriented leadership styles fuel employees’ innovative results.

The abovementioned results highlight that creativity- and innovation-oriented leadership or supervisory behavior not only leads to creativity and IWB at the individual level but also acts as a crucial contingency factor that facilitates a higher level of creativity from employees’ positive psychology. In the future, studies are needed to examine how supervisory behavior fits together with other contextual factors, especially opportunity-enhancing predictors, to generate the highest level of creativity and innovation, such as whether supervisor (supportive) behaviors and participative management practices (e.g., organizational structures) jointly accentuate the psychological characteristics-creativity relationship. For example, when leaders encourage employees to voice their perspective in producing creative ideas, organizations may be able to build a comfortable environment and climate that further facilitates employees' proclivity for expressing their ideas. Together, these factors may promote sense of safety among employees to invest their energy in creative and innovative endeavors (Liang, Huang, & Chen, 2013). In addition, to further develop the arguments that leadership approaches address the underpinnings of creativity, research in the future may explore whether other undeveloped leadership styles that potentially motivate employees’ creative engagement may predict creativity and IWB, such as participative leadership and visionary leadership. Take participative leaders as an example. When participative leaders invite employees to participate in the decision-making process, employees may not only develop a strong sense of commitment to their organization but also feel an obligations to provide reciprocating behavior in order to realize the organizational goals (Huang, Iun, Liu, & Gong, 2010). Consequently, employees will engage more in creative and innovative activities (De Jong & Den Hartog, 2010).

6.2.4 Well-designed jobs as a strengthening factor

The consideration of job characteristics is consistent with the applications of the person-in-situation theory in the creativity literature. The results indicate that organizations that enhance employee tasks along five dimensions (i.e., variety, identity, significance, autonomy, and feedback) may create as a positive context to moderate the influences of personal psychological attributes on creative results. Specifically, in Chapter 2, the conceptual results indicate that job characteristics that potentially provide opportunities for employees may interact with motivation-enhancing practices (e.g., leadership) in positively influencing
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the psychology-creativity relationship to the greatest extent. Empirically, Chapter 3 considers this entire construct and teases out the combined effects of job characteristics, supervisor support for creativity, and PsyCap with respect to the highest level of creativity.

Further understanding of the boundary conditions of job characteristics lies in extending the situational leadership theory in creativity and innovation studies. Consistently, leaders can work best to foster employee (innovative) results in certain environments, such as autonomous jobs (Podsakoff & MacKenzie, 1997). The research in Chapter 5 advances our understanding of this line of theoretical arguments by focusing on the main aspect of job characteristics—job autonomy. More specifically, higher job autonomy, rather than lower job autonomy, significantly accentuates the indirect influences of servant leadership on IWB via meaningful work. Thus, the research findings establish the importance of job autonomy for employees’ creative process: an autonomous job design enhances the influences of leadership and supervisory behavior on the associations between positive psychology and creativity as well as IWB. That is, well-designed tasks are key boundary conditions that determine the extent to which leaders play effective roles in directing the process of idea generation and implementation at workplace.

While the evidence on job characteristics provides a better understanding on situational leadership theory in creativity and innovation research, the strength of tasks has not been fully examined. Specifically, as the effect of creative and innovative efforts on the features of tasks may vary, further clarification regarding whether other facets of jobs, such as time pressure, task challenges, and job demand and resources, may substitute for, neutralize, or enhance the influences of leadership issues on creativity and innovation is required. For example, although existing research has confirmed the dark side of leadership or supervisory behaviors (e.g., paternalistic leadership), employees may proactively respond to the disadvantages of leaders by utilizing the resources from jobs for a better fit and thus for more creative contributions. In addition, considering that job characteristics have multiple dimensions, more research distinguishing between these dimensions may generate a clear understanding of their similar or different effects in creativity research. Primarily, previous studies have yielded inconsistent results regarding each dimension. For example, Tierney and Farmer (2002) reported that having a well-managed job is insufficient to reinforce the relationship between personal predictors (e.g., self-efficacy) and creativity, while Bailey, Chen, and Dou (1997) found that Chinese employees prefer critical
feedback (related to mistakes) (Bailey, Chen, & Dou, 1997), which may inhibit their creativity (Amabile & Pillemer, 2012).

6.2.5 Creativity in a team environment

Consistent with the theoretical arguments that the team context generates a strong influence on employee creativity, putting employee creativity into a team context deepens scholars’ understanding regarding how to make team members more creative. In Chapter 4, the delineation of top-down influences of team-level creative efficacy beliefs on individual-level employee creativity goes beyond extant research by considering the effects of creative self- and team efficacy simultaneously. That is, the results indicate the similar positive motivational effects of creative efficacy beliefs on employee creative results, especially the cross-level effect of team efficacy. Considering the Chinese research background, the findings provide strong evidence showing that employees in the collective culture not only independently draw upon their own creative activities but also are able to work creatively as part of a team. In addition, Chapter 4 answers to the calls for a multilevel approach in organizational research by highlighting how (entrepreneurial) leadership can facilitate the management of creativity across levels. Concurrently, the results—specifically regarding how employee and team creativity can be synchronized in a manner that is predicted by creative efficacy beliefs—provide a more complete account of the motivational mechanisms of multilevel creative efficacy beliefs in creativity research.

Previous research indicates that the proposed benefits of team properties (e.g., team creative efficacy) on employee (creative) outcomes can be highlighted in the Chinese context (Schaubroeck, Lam, & Xie, 2000). Since Chinese organizations with a collectivistic culture highlight the collective psychology during creative processes (Shin & Zhou, 2007), team members may rely more on teams to acquire more support. Therefore, team-level creative efficacy beliefs may exert a greater influence on individual-level creative results. Evidently, Chapter 4 attempts to address whether creative efficacy beliefs at multiple levels may function more or less well together with respect to employee creativity. Considering the creative self- and team-efficacy simultaneously, the results indicate the similarities in the function of creative efficacy beliefs across levels in stimulating employee creativity, as well as in mediating the relationship between leadership and creativity.

The studies in this thesis include only one aspect of the team context that influences employee creativity directly. Further investigations should focus on
how team properties may interact with other creativity predictors in fostering employee creative performance. For example, given that team-level factors may influence the development of individual-level psychological variables through complex interactional and reciprocal effects on individuals’ motivations, beliefs and orientations (Gully, Incalcaterra, Joshi, & Beaubien, 2002), team creative efficacy may activate the potential benefits of employee psychological states (e.g., learning orientation) on creativity. Moreover, since team creativity is not an aggregation of employee creativity (Pirola-Merlo & Mann, 2004), to enrich the incomplete phenomenon of creativity and innovation at multiple levels, more studies are needed to investigate how creativity predictors from various levels may simultaneously boost team and employee creativity. For example, although servant leaders’ roles and responsibilities may vary at different organizational levels (Ling, Lin, & Wu, 2016), Chapter 5 of this dissertation tested only the influences of servant leadership at the individual level. It would thus be interesting to study the dual-focused conceptualization of servant leadership (i.e., individual-focused and team-focused servant leadership), as well as whether they are well suited for motivating creativity and IWB at both the individual and team level.

6.3 Practical Implications

Our findings concerning the benefits of leaders and personal psychological attributes have important practical implications for organizations in fostering creativity and IWB among their employees and teams. First, as Chapter 2 generally conceptualizes the importance of enhancing abilities, organizations should highly focus on selecting and training leaders and employees. Regarding whether leaders display effective leadership styles, organizations should select managers who exemplify their favorable attitudes and behaviors towards creativity and innovation. Specifically, based on Chapter 4, companies need to invite managers with entrepreneurial characteristics, such as taking risks, building teams, and initiating opportunities for exploration and exploitation, that fit with creative employees in order to foster creativity. Moreover, regarding the development of employees’ and supervisors’ potential, organizations should implement training aimed at increasing leaders’ managerial skills and employees’ creative attributes. Specifically, organizations should provide developments on managers’ behaviors for providing various types of support for creativity and innovation, such as frequent comminations, encouragement, assistance and resources in addressing problems. When IWB becomes increasing critical for
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organizations’ long-term success and innovation, they should develop leader behaviors and a sense on caring and concern for employees’ needs and growth rather than exercise their power on subordinates. Concurrently, HR departments need to offer training and courses for employees to acquire abilities and knowledge that may enhance their individual psychological characteristics (e.g., efficacy belief) for identifying and fixing difficulties. Additionally, organizations can build a comfortable environment to enable employees to experience a sense of excitement that fosters their positive psychological traits.

Second, given the direct influences of personal psychology on creative and innovative results, organizations should create an environment where employees and teams can develop their psychological attributes. Specifically, since leadership and supervisory behavior can shape the development of employees’ positive psychological attributes, leaders should create a desirable environment, where they should set creative and innovative goals, build confidence, and promote interactions, among others. For example, leaders should clearly set acceptable creative and innovative goals for employees to help them direct their efforts and keep looking forward to new accomplishments. As Chapter 4 shows the potential effect of entrepreneurial leadership on creativity, one of leaders’ creativity-facilitating behaviors is to build an inspiring vision that fosters followers’ motivation and excitement to share and follow. Chapter 5 also indicates that leaders should create a service context where employees perceive the essence of being a servant to organizations, colleagues and customers; in this way, they can will find that their work is more meaningful and thus engage in more innovative work. Relatively, organizations have the responsibility to build a friendly working environment that benefits teams’ and individuals’ psychological strengths, such as providing supports, encouraging challenges and engagement, and offering opportunities for participation. For example, designing systems of knowledge sharing may motivate employees to connect with their surroundings in order to broaden their perspective in devising creative products.

Next, given that job characteristics determine how leaders influence followers’ psychology and creativity, organizations can design the tasks of their employees in an effective way. Specifically, with regard to task significance, organizations should not only assign significant jobs to employees but also reinforce the linkage between organizational innovation and personal creative work in order to highlight the importance and purpose of employees’ tasks. Organizations should provide opportunities for employees to acquire various abilities and skills, such as assigning various tasks to stimulate employees’
learning skills and implementing personal development courses with their employees to facilitate employees’ obtainment of new knowledge. To help employees have a sense of task identity, organizations should broaden job designs by assigning entire tasks to employees, which allows employees to complete a project from the beginning to end. Developing group-oriented tasks is also needed for organizations to strengthen workers’ identifications. Organizations should also develop performance appraisal systems and encourage employees to have performance appraisal themselves in order to obtain feedback from their work completely and timely. More importantly, the results in Chapter 5 highlight the critical role of job autonomy. Since job autonomy not only significantly motivates employees to have more responsibility and control in their work but also influences how leaders foster employees’ outcomes, the provision of autonomy should be guaranteed in order to provide employees with more discretion to make decisions and to work on their own schedule.

Furthermore, considering the results supporting the significant role of team properties, especially team creative efficacy, with respect to employee creative achievements, organizations should **organize efficacious teams**. Specifically, organizations need to appoint an entrepreneurial leader who makes plans, coordinates team work, and is responsible for developing creative efficacy among teams and employees. As discussed above, entrepreneurial leaders may be an appropriate candidate for building teams to produce creative outcomes. In addition, it is suitable to assemble the right group of employees to work together. For example, the HR department can select employees with a high level of creative efficacy beliefs to organize an effective team that may have a strong sense of collective efficacy beliefs toward creativity. Meanwhile, team members should be encouraged to share knowledge, information, and goal setting, which is likely to strengthen team creative efficacy. The practices should include allocating resources for creativity, progressing creative goal achievements, encouraging individuals’ expression of opinions, exploring multiple strategies and avoiding negative facets to leverage the potential benefits of team efficacy.

Finally, considering the combined effects of leaders, positive psychology, and job design, organizations should **implement a bundle of practices** to facilitate workplace creativity and innovation to the greatest extent. Generally, although this thesis cannot provide all the specific practices in each bundle toward creativity and innovation, the results above strongly inform the guidance that the fit between practices (i.e., ability-, motivation-, and opportunity-enhancing practices) may jointly promote creativity. That is, the HR department should
consider providing effective practices that are oriented toward enhancing employees’ ability, motivation and opportunities to participate, which together promote their creative and innovative achievements. Based on extant research and the studies in this thesis, some bundle practices can be suggested to help organizations better manage employee creativity. For example, when HR departments select employees embodying high levels of PsyCap, organizations should also provide well-designed jobs to employees and develop managers supportive behaviors in order to fully active employees’ ability to utilize their positive psychological resources for creative performance.

6.4 Limitations

In addition to the limitations at the end of each chapter, I discuss the overarching limitations that run through the current thesis in this section. First, all the three empirical studies used a cross-sectional research design to examine the hypotheses. Collecting data at a single point in time may raise questions of causality. For example, although we follow the logic of using creativity and IWB as outcomes, the possibility that employees who have produced a high level of creative and innovative outcomes may not only stimulate leaders to provide more specific leadership or behaviors to further increase their (employees’ and teams’) creativity and IWB but also develop more positive psychological characteristics that foster better results could still exist. Therefore, future research should consider the longitudinal research design to establish the causal directionality of findings in this thesis.

Next, although all the studies in this thesis examine Western-originated concepts and theories (e.g., leadership, positive psychology, job characteristics, and creativity and IWB) in the Chinese context, there are still some unaddressed issues. First, the potential influences of Chinese factors were not considered in the chapters. Specifically, since China is traditional characterized by hierarchies (e.g., between leaders and followers and between organizations and both employees and teams), there may be some influences on the ability of employees and teams to produce outcomes, as well as on how leadership and positive psychology affects the workplace. For example, scholars have found that leader-member exchange (LMX) significantly influences creativity and innovation (Gu, Tang, & Jiang, 2015), and organizational formalization and centralization moderate the relationships between personal orientations and creativity (Hirst et al., 2011). Thus, future research is encouraged to take specific contextual characteristics into consideration. Second, although I argue that conducting
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studies in China may provide more evidence to examine the similarities and differences between Western and Asian nations, the studies in these chapters are weak in their ability to provide a comprehensive picture—there is no support for the relevant findings in other Asian countries (e.g., Japan, and South Korea), nor in comparisons between China and Western countries. To further address the external validity, future studies are required to establish the generalizability of our findings through conducting research in other non-Western countries on the one hand, and through doing comparison studies to replicate our findings in different Asian and Western countries on the other hand.

Finally, although the conceptual study (Chapter 2) provides an important information to guide the following research (Chapter 3-5) on the topic of leadership and positive psychology in creativity and IWB research, the lack of qualitative research indeed limits the comprehensiveness of the results of this thesis. Theoretically, qualitative and quantitative approaches are complementary in extending organizational behavior studies (Cassell & Symon, 2004). Although the empirical research mostly provides strong evidence to prove the theories, qualitative methods are the baseline. In this thesis, specifically, the three quantitative studies (Chapter 3-5) are based on solid theory, and their applications, especially with respect to entrepreneurial leadership, may be justified to a greater extent under the conditions of qualitative investigations. Thus, it would be interesting to conduct qualitative studies to further establish our theoretical logic and provide more fundamental support for the topic of leadership and supervisory behaviors, together with positive psychological factors facilitating creativity and IWB.

6.5 Conclusions

In short, this dissertation sets out to simultaneously explore how organizations and employees themselves awaken creativity and innovation in the workplace. By examining the influences of organizational HRM, leaders, job design, teams, and individual (or team) psychological characteristics on creativity, the chapters suggest that the bundled organizational HRM practices may effectively boost employee creativity. Regarding to the influences of leaders, the results demonstrate that entrepreneurial and servant leadership significantly contributes to creativity and IWB at the individual and team level by fostering creative efficacy beliefs and meaningful work, respectively, while supervisor support for creativity strengthens the link between positive psychology and employee creativity. Furthermore, job characteristics represent a key boundary condition
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that enhances the influences of leadership or supervisory behavior on positive psychology towards higher levels of creativity. Overall, the research findings offer opportunities for further research on the topic of integrating organizational and employee predictors in the creativity literature.
References


Reference


Reference


Reference


Reference


Reference


Reference


Reference

and level of analysis as moderators of observed relationships. *Journal of Applied Psychology, 87*(5), 819-832.


Reference


141
Reference


informational, and structural mechanisms. *Journal of Applied Psychology, 89*(6), 934-945.


Reference

theoretical extension of the creativity literature. *Organizational behavior and human decision processes, 137*, 236-263.


Reference


Reference


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Summary

Employee creativity is considered to be an important determinant for organizational innovation, survival and competition in the modern global marketplace. Thus, researchers have been investigating various variables that facilitate employee creativity in organizations. However, thus far, there is limited research on elucidating what predictors from organizations and employees themselves can align to engender employee creative results. Therefore, the present dissertation aims to fill in this research gap by addressing the following five research questions: 1) how to awaken employee creativity from an HR perspective; 2) how employees could awaken their own creativity; 3) how leaders could awaken employee creativity; 4) how to awaken employee creativity through job design; and 5) can employee creativity be awakened in teams. To realize this goal, I conducted four independent conceptual and empirical studies (Chapter 2 to 5) to provide a better understanding of how to manage employee creativity in organizations through integrating predictors from various aspects.

The results showed that HR practices of ability-, motivation-, and opportunity-enhancing perspectives can be interacted into combination model and multiplicative model to generate different levels of employee creativity (Chapter 2). Furthermore, highlighting the psychological role of employee themselves, their PsyCap (Chapter 2), creative efficacy beliefs (Chapter 4) and meaningful work (Chapter 5) are specified as critical predictors of their creative outcomes. To extend the leadership approach in creativity research, our findings also indicated that entrepreneurial leadership (Chapter 4) and servant leadership (Chapter 5) significantly foster employee creativity and innovative work behaviors, and supervisor support for creativity (Chapter 3) strengthens the positive influence of PsyCap on employee creativity. Given that job characteristics are consistent with the applications of the person-in-situation theory in the creativity literature, the results further illustrated that organizations that enhance employee tasks along five dimensions (i.e., variety, identity, significance, autonomy, and feedback) may create as a positive context to positively moderate the influences of personal psychological attributes on creative results (Chapter 3 and 5). Finally, the attention to nurturing employee creativity in the team context demonstrated the beneficial effects of team creative efficacy on team members’ creative performance, as well as its cross-level mediational effects that links entrepreneurial leadership and creativity.
Summary

(Chapter 4). All studies together provide evidence to highlight that variables from various aspects can be well integrated to promote employee creativity in organizations.

From different perspectives and frameworks, this dissertation contributes to the creativity research by primarily providing important insights into how to enhance employee creativity in organizations through integrating predictors from HR management, employee themselves, leadership and supervisory behaviors, job characteristics, and building teams. Enriching our practical understanding on awakening creativity in organizations, this dissertation also offers useful implications for practitioners to effectively manage workplace creativity.
Nederlandse Samenvatting (Dutch Summary)

Creativiteit van medewerkers wordt beschouwd als een belangrijke, bepalende factor voor organisatorische innovatie, overleving en concurrentie in de moderne wereldmarkt. Onderzoekers hebben verschillende variabelen onderzocht die de creativiteit van werknemers in organisaties bevorderen. Tot dusverre is er echter weinig onderzoek gedaan naar het ophelderen van welke voorspellers van organisaties en werknemers zichzelf kunnen afstemmen op creatieve resultaten van werknemers. Dit proefschrift wil deze leemte in de literatuur opvullen door de volgende vijf onderzoeksvragen aan te pakken: 1) hoe kan de creativiteit van werknemers te wekken vanuit een HR-perspectief; 2) hoe kunnen werknemers hun eigen creativiteit opwekken; 3) hoe kunnen managers de creativiteit van werknemers wekken; 4) hoe kan de creativiteit van werknemers op te wekken door middel van functiebeschrijving; en 5) kan de creativiteit van werknemers in teams worden gewekt. Om deze vragen te beantwoorden, zijn er vier onafhankelijke conceptuele en empirische studies (hoofdstuk 2 tot 5) uitgevoerd om een beter begrip te krijgen van hoe creativiteit van werknemers in organisaties kan worden beheerd door voorspellers van verschillende aspecten te integreren.

De resultaten tonen aan dat HR-praktijken van capaciteits-, motivatie- en kansenverhogende perspectieven kunnen worden gecombineerd in een combinatie- en multiplicatief model om verschillende niveaus van werknemerscreativiteit te genereren (hoofdstuk 2). Verder wordt de nadruk gelegd op de psychologische rol van de werknemer zelf, hun PsyCap (hoofdstuk 2), creatieve werkzaamheidsopvattingen (hoofdstuk 4) en zinvol werk (hoofdstuk 5) als kritische voorspellers van hun creatieve uitkomsten. Om de leiderschapsstijl in creatief onderzoek uit te breiden, geven onze bevindingen ook aan dat ondernemer leiderschap (hoofdstuk 4) en dienend leiderschap (hoofdstuk 5) creativiteit en innovatief werkgedrag van werknemers aanzienlijk bevorderen, en supervisorondersteuning voor creativiteit (hoofdstuk 3) de positieve invloed van PsyCap op medewerkerscreativiteit. Aangezien de kenmerken van een baan consistent zijn met de toepassingen van de persoon-in-situ-theorie in de creativiteitsliteratuur, hebben de resultaten verder geïllustreerd dat organisaties die taken van medewerkers langs vijf dimensies verbeteren (d.w.z. variëteit, identiteit, betekenis, autonomie en feedback) mogelijk als een positieve context creëren om de invloeden van persoonlijke psychologische kenmerken op creatieve resultaten positief te matigen (hoofdstuk 3 en 5). Tot slot toonde de aandacht voor het koesteren van de creativiteit van medewerkers
Nederlandse Samenvatting (Dutch Summary)

in de teamcontext de positieve effecten van team creatieve efficiëntie op de creatieve prestaties van teamleden, evenals de cross-level mediale effecten die ondernemer leiderschap en creativiteit verbinden (hoofdstuk 4). Alle onderzoeken samen tonen aan dat variabelen uit verschillende aspecten goed kunnen worden geïntegreerd om de creativiteit van medewerkers in organisaties te bevorderen.

Vanuit verschillende perspectieven en kaders draagt dit proefschrift bij aan het creativiteitsonderzoek door vooral belangrijke inzichten te bieden over hoe de creativiteit van werknemers in organisaties kan worden verbeterd door voorspellers van HR-management, de werknemer zelf, leiderschaps- en supervisiestijl, functie-eigenschappen en bouwteams te integreren. Het proefschrift verrijkt ons praktische begrip van creativiteit in organisaties, en biedt ook nuttige richtlijnen voor de praktijk om creativiteit op de werkplek effectief te managen.
Appendix

Survey items in Chapter 3:

**PsyCap** *(Luthans, Avolio, Avey & Norman, 2007)*
1. I feel confident analyzing a long-term problem to find a solution. (E)
2. I feel confident contributing to discussions about the company's strategy. (E)
3. I feel confident presenting information to a group of colleagues. (E)
4. If I should find myself in a jam at work, I could think of many ways to get out of it. (H)
5. Right now I see myself as being pretty successful at work. (H)
6. I can think of many ways to reach my current work goals. (H)
7. At this time, I am meeting the work goals that I have set for myself. (H)
8. I can be "on my own" so to speak at work if I have to. (R)
9. I usually take stressful things at work in stride. (R)
10. I can get through difficult times at work because I've experienced difficulty before. (R)
11. I always look on the bright side of things regarding my job. (H)
12. I’m optimistic about what will happen to me in the future as it pertains to work. (H)

**Supervisor support for creativity (SSC)** *(Baer & Oldham, 2006)*
1. My supervisor discusses with me my work-related ideas in order to improve them.
2. My supervisor gives me useful feedback about my ideas concerning the workplace.
3. My supervisor is always ready to support me if I introduce an unpopular idea or solution at work.
4. My supervisor supports experimentation with new methods and ways of doing things.

**Job characteristics** *(Hackman & Oldham, 1976)*
1. The job requires me to use a number of complex or high-level skills. (V)
2. The job is arranged so that I can do an entire piece of work from beginning to end. (I)
3. Just doing the work required by the job provides many chances for me to figure out how well I am doing. (F)
4. The job is quite simple and repetitive. (V)
5. This job is one where a lot of other people can be affected by how well the work gets done. (S)
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6. The job gives me a chance to use my personal initiative and judgment in carrying out the work. (A)
7. The job provides me the chance to completely finish the pieces of work I begin. (I)
8. After I finish a job, I know whether I performed well. (F)
9. The job gives me considerable opportunity for independence and freedom in how I do the work. (A)
10. The job itself is very significant and important in the broader scheme of things. (S)

Employee creativity (Farmer, Tierney, & Kung-Mcintyre, 2003)
1. I try new ideas or methods first.
2. I seek new ideas and ways to solve problems.
3. I generate ground-breaking ideas related to the field.
4. I am a good role model for creativity.

Intrinsic motivation (Guay, Vallerand & Blanchard, 2000)
1. I feel good when doing this activity.
2. I think that this activity is interesting.
3. This activity is fun.
4. I think that this activity is pleasant.

Survey items in Chapter 4:

Entrepreneurial leadership (Renko, Tarabishy, Carsrud & Brännback, 2015)
1. My leader often comes up with radical improvement ideas for the products/services we are selling.
2. My leader often comes up with ideas of completely new products/services that we could sell.
3. My leader takes risks.
4. My leader has creative solutions to problems.
5. My leader demonstrates passion for his/her work.
6. My leader has a vision of the future of our business.
7. My leader challenges and pushes me to act in a more innovative way.
8. My leader wants me to challenge the current ways we do business.

Creative self-efficacy (Tierney & Farmer, 2002)
1. I have confidence in my ability to solve problems creatively.
2. I have confidence in my ability to solve problems creatively.
3. I have a knack for further developing the ideas of others.

Team creative efficacy (Tierney & Farmer, 2002; and Shin & Eom, 2012)
1. Members of my team feel that they are good at generating novel ideas.
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2. Members of my team have confidence in their abilities to solve problems creatively.
3. Members of my team have a knack for further developing the ideas of others.
4. Members of my team believe that they will be able to achieve most of the team goals in a creative way.

Employee creativity (Farmer, Tierney, & Kung-Mcintyre, 2003)
1. This employee tries new ideas or methods first.
2. This employee seeks new ideas and ways to solve problems.
3. This employee generates ground-breaking ideas related to the field.
4. This employee is a good role model for creativity.

Team creativity (Shin & Zhou, 2007)
1. How well does your team produce new ideas?
2. How useful are those ideas?
3. How creative do you consider your teams?
4. How significant are those ideas to your organizations?

Survey items in Chapter 5:

Servant leadership (Liden Wayne, Liao & Meuser, 2014)
1. My manager can tell if something work-related is going wrong.
2. My manager makes my career development a priority.
3. I would seek help from my manager if I had a personal problem.
4. My manager emphasizes the importance of giving back to the community.
5. My manager puts my best interests ahead of his/her own.
6. My manager gives me the freedom to handle difficult situations in the way that I feel is best.
7. My manager would NOT compromise ethical principles in order to achieve success.

Meaningful work (Steger, Dik & Duffy, 2012)
1. I have found a meaningful career.
2. I have a good sense of what makes my job meaningful.
3. I have discovered work that has a satisfying purpose.
4. My work helps me better understand myself.
5. My work helps me make sense of the world around me.
6. I know my work makes a positive difference in the world.
7. The work I do serves a greater purpose.
Appendix

Innovative work behavior (IWB) (Scott & Bruce, 1994)

1. I search out new technologies, processes, techniques, and/or service ideas.
2. I generate creative ideas.
3. I promote and champion ideas to others.
4. I investigate and secure funds needed to implement new ideas.
5. I develop adequate plans and schedules for the implementation of new ideas.
6. I am innovative.

Job autonomy (Hackman & Oldham, 1975)

1. I decide on my own how to go about doing the work.
2. The job gives me considerable opportunity for independence and freedom in how I do the work.
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