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## **Linking PsyCap and creativity: the moderating influence of supervisor support for creativity and job characteristics**

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### **Abstract**

Although the positive effect of psychological capital (PsyCap) on employee performance is well documented, the conditions under which PsyCap is most explanatory for creativity are not well understood. Drawing on trait activation theory, we examine the effects of supervisor support for creativity and job characteristics on the relationship between PsyCap and individual creativity. The results of our cross-sectional study (N=379 individuals from various organizations in China) show that supervisor support for creativity positively moderates the PsyCap-creativity relationship. Additional analyses revealed that when supervisor support for creativity and job characteristics are both high, PsyCap is most effective at enhancing creativity. Implications of these findings for theory, future research and practice are discussed.

Jelcodes: M12, L20

**Extending the Understanding of the Relationship Between Psychological Capital and  
Employee Creativity: Examining the Effects of Supervisor Support for Creativity and  
Job Characteristics**

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## ABSTRACT

Although the positive effect of psychological capital (PsyCap) on employee performance is well documented, the conditions under which PsyCap is most explanatory for creativity are not well understood. Drawing on trait activation theory, we examine the effects of supervisor support for creativity and job characteristics on the relationship between PsyCap and individual creativity. The results of our cross-sectional study (N=379 individuals from various organizations in China) show that supervisor support for creativity positively moderates the PsyCap-creativity relationship. Additional analyses revealed that when supervisor support for creativity and job characteristics are both high, PsyCap is most effective at enhancing creativity. Implications of these findings for theory, future research and practice are discussed.

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

Employee creativity, which is defined as generation of novel and useful ideas, products and processes (Amabile, 1996; Woodman, Sawyer, & Griffin, 1993), has become critical to organizational performance and competitiveness (Florida & Goodnight, 2005). Whereas extant research has addressed a diversity of factors that predict employee creativity in organizations (for a review, see Shalley, Zhou, & Oldham, 2004), 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 to use his/her motivational and cognitive resources to achieve a high level of performance (e.g. Luthans, Avolio, Avey, & Norman, 2007a). Consistent with past research regarding the motivational mechanism in the creativity literature (e.g. Amabile, 1996; Zhou & Shalley, 2011), burgeoning research regarding the linkage between PsyCap and creativity deepens our understanding about how agentic psychological resources predict employee creativity (Avey et al., 2012; Sweetman et al., 2011). Various studies have reconfirmed the link between PsyCap and employee creativity (Avey et al., 2012; Rego, Sousa, & Marques, 2012; Sweetman et al., 2011). However, few studies have addressed the conditions under which this relationship is possible. We consider this an important limitation of the extant studies, given the years of research that have called for studying the contextual influences regarding how individuals exhibit their personality and related factors in the work context (e.g. Shalley et al., 2004; Zhou & Hoever, 2014).

In this paper, we aim to address this limitation. Specifically, building on trait activation theory (Tett & Burnett, 2003), we examine how desired organizational factors—such as supervisor support for creativity and job characteristics—can influence the relationship between PsyCap and creativity. That is, personality 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 interplay with each other to enhance or inhibit creativity (e.g., Oldham & Cummings, 1996; Zhou & Hoever, 2014). For example, Shalley and coauthors (2009) found that growth need strength led to creativity when two situational factors—support contexts and job complexity—were both high. Thus, we explore how supervisor support for creativity and job characteristics moderate PsyCap’s influence on creativity. Figure 1 depicts our research model.

[Insert Figure 1 about here]

Several studies support our interest in the effects of supervisor support and job characteristics on the PsyCap-creativity relationship. Regarding supervisor support, studies indicate that the more support for creativity subordinates receive from supervisors, the greater is the likelihood that their psychological resource will lead to employee creativity (Kim, Hon, & Lee, 2010). Research also shows that supervisor support for creativity can stimulate employees to take an active role in their work and act creatively (Madjar, Oldham, & Pratt, 2002). For example, supportive supervisors encourage subordinates towards creative activities, and employees may feel that creativity is highly valued (Tierney & Farmer, 2004); thereby, supervisor support for creativity can spur workplace creativity (Baer & Oldham, 2006). Moreover, job characteristics can trigger greater motivation for employees to engage in creative behaviors (Hackman & Oldham, 1976) because well-designed jobs enable employees to use their efforts and excitement to consider various ideas that facilitate creativity (Shalley & Gilson, 2004). However, the effects of job characteristics can be different depending on employees’ personal characteristics (Barrick, Mount, & Li, 2013; Hackman & Oldham, 1975), because individuals with positive traits are more likely to achieve high performance since well-designed jobs potentially motivate them and make them willing to address challenges (Shalley & Gilson, 2004). Well-designed jobs can also encourage greater creativity through exerting influence on workplace motivation and excitement (Chang, Jia, Takeuchi, & Cai, 2014; Shalley, Gilson, & Blum, 2009; Tierney & Farmer, 2004). Therefore, we expect that

supervisor support for creativity and job characteristics moderate the relationship between PsyCap and creativity.

This paper makes several important contributions. First, focusing on supervisor support for creativity and job characteristics in the relationship between PsyCap and creativity, we extend the literature that addresses the conditions under which employees are most creative (Newman, Ucbasaran, Zhu, & Hirst, 2014). This is consistent with the calls for a more interactional approach to the study of individual creativity (Zhou & Hoever, 2014). We also test our hypotheses on a sample of employees from China, where, culturally, the roles of supervisor support and job characteristics are highly determinant of employee behaviors (e.g., Han & Altman, 2009; Yan, Peng, & Francesco, 2011). This sample allows us to extend the understanding of creativity in an international context (Shalley et al., 2004; Zhang & Bartol, 2010). It also allows us to examine whether the creativity predictors that originated in the West (e.g. PsyCap, supervisor support for creativity, and job characteristics) exert similar effects on creativity in China. In what follows, we first present our hypotheses and then our study and analysis. We conclude this paper with a discussion of findings in light of their contributions to both future creativity research and practice.

## PSYCAP AND CREATIVITY

PsyCap represents individuals' positive psychological state (Luthans et al., 2007a; Luthans, Avey, Avolio, Norman, & Combs, 2006). It is a personal characteristic (Luthans et al., 2007a) that contains four main aspects: self-efficacy (which refers to individuals' confidence in successfully mobilizing their efforts to generate desired outcomes), hope (which refers to individuals' motivations and pathways to accomplish their tasks), optimism (which refers to individuals' expectancy and positive attribution towards positive outcomes) and resilience (which 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, 2007b; Newman et al., 2014). PsyCap is positively related with creativity (Sweetman et al., 2011). Specifically, self-efficacious people have abilities to exploit resources to achieve certain goals (Luthans et

al., 2006). Challenges are likely to stimulate these individuals to produce creative ideas (Rego et al., 2012). In turn, employees with hope try alternative methods to pursue creative goals and enjoy engagement in creative endeavors (Sweetman et al., 2011). This process of accomplishing creative goals benefits creative outcomes. Optimism maximizes individuals' positive senses of self in favor of creativity. 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' self-confidence and psychological safety and supports them in overcoming challenges (Luthans, Luthans, & Luthans, 2004). Consequently, we follow existing research and suggest that a core construct of PsyCap is positively related to employee creativity.

Whereas the extant literature found a positive relationship between PsyCap and employee creativity (Rego et al., 2012; Sweetman et al., 2011), it remains unclear how various job- and management-related (i.e. situational) factors influence this relationship (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—supervisor support for creativity and job characteristics—in activating individual attributes (e.g., PsyCap), and together with this enhancing or inhibiting employee creativity. Trait activation theory suggests that how personal attributes impact performance may be contingent on situational cues (Tett & Burnett, 2003), which is consistent with the importance of person-context interactions in creativity research. For example, Hirst, Van Knippenberg and Zhou (2009) found that team learning behavior positively activates the relation between individual's goal orientation and his/her creativity. Additionally, the relevance of the situation to personal attributes may change the influence of personal characteristics on outcomes (Tett & Burnett, 2003). Specifically, Zhou and Hoever's (2014) review found that the relation between individual characteristics and creativity was positive when positive organizational factors such as supportive context moderated this relationship (Shalley et al., 2009; Zhou, Hirst, & Shipton, 2012). These moderators are trait-relevant situational cues that are favorable

to creativity (Tett & Burnett, 2003). Finally, Tett et al. (2000; 2003) called for further research regarding the combined effects of various contextual factors on the associations between personal factors and performance. Among organizational management practices, human resources (HR) departments often exhibit 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 supervisor support for creativity and job characteristics on the association between PsyCap and creativity.

#### MODERATING ROLE OF SUPERVISOR SUPPORT FOR CREATIVITY

Supervisor support can improve employee creativity (Amabile, 1996). As an interpersonal relationship, supervisor support for creativity refers to the extent to which supervisors encourage, care and provide subordinates with assistance to generate creative outcomes (Madjar et al., 2002). Research shows that supervisor support for creativity provides encouragement and assistance to employees (Madjar et al., 2002; Tierney & Farmer, 2004) in increasing workplace initiatives, such as idea generation (Oldham & Cummings, 1996). It also sets the expectation that creativity is highly valued in organizations (Ohly, Sonnentag, & Pluntke, 2006) such that subordinates can realize the importance of creativity and then engage in creative endeavors (Kim et al., 2010). Additionally, supervisor support for creativity is favorable to PsyCap development (Avey, 2014). To be specific, it contributes to employees' self-efficacy by reinforcing training and encouragement towards success; increases employees' hope by setting goals and helping them meet goals through using willpower and ability, ; develops optimism through positive expectations from goal setting; and provides job resources and opportunities for growth, adjustment and recovery from mistakes to shape resiliency.

We suggest that supervisor support for creativity is a situational moderator that works with PsyCap to foster creativity by motivating employees to utilize their PsyCap to be creative (Tett & Burnett, 2003). Because an individual psychological attribute such as PsyCap significantly determines how employees respond to their work environments (Shalley et al.,

2009), employees with high PsyCap tend to take advantage of chances and support from supervisors to attain creative achievements. Thus, PsyCap that conveys individual psychological positivity for accomplishment and growth (Avey, Luthans, & Youssef, 2010; Luthans et al., 2007b) will initiate engagement in creativity, and supervisor support for creativity will heighten this positive association between individual psychological characteristics and creativity as a situational moderator (e.g., Shalley & Gilson, 2004). Specifically, when people with high PsyCap perceive high supervisor support for creativity, they may feel encouraged and be less afraid of failure (Paterson, Luthans, & Jeung, 2014); thus, they may be more open to engage in new idea generation (To, Fisher, Ashkanasy, & Rowe, 2012). Therefore, supportive supervisors encourage an individual's cognitive appraisal of a situation (Glazer, 2006) towards creativity. Conversely, when subordinates with high PsyCap perceive low supervisory support, they may fail to experience an atmosphere of safety (Shalley & Gilson, 2004); hence, they may engage less in creativity. Thus, we hypothesize this as follows:

Hypothesis 1: Supervisor support for creativity moderates the relationship between PsyCap and creativity in such a way that the relationship between PsyCap and creativity is stronger when supervisor support for creativity is higher.

#### MODERATING ROLE OF JOB CHARACTERISTICS

Hackman and Oldham (1975) suggested a Job Characteristic Model (JCM) that reflects psychological influences on creativity (Oldham & Cummings, 1996). It contains five dimensions related to job-relevant factors: skill variety (which refers to the degree of knowledge and skills that employees need to accomplish tasks), autonomy (which refers to the freedom that employees have in choosing the methods, processes and resources to perform their work), identity (which refers to the extent to which employees can complete their entire task), significance (which refers to the importance of the task for others), and feedback (which refers to employees receiving information related to their work performance). Job characteristics have motivational potential (Hackman & Oldham, 1976; Shalley & Gilson,

2004) to influence creativity through 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 the studies of Scott and Bruce (1994) and Newman et al. (2014), we expect that the PsyCap-creativity relationship is contingent on job characteristics.

As an important component of creativity, skill variety effectively increases personal motivation and engagement (Amabile, 1996; 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 seek to produce creative results (Oldham & Cummings, 1996). For example, task significance requires utilizing motivations and cognitions (Humphrey et al., 2007), which signify to the workplace that utilizing their PsyCap in creative actions are worthwhile. Autonomy is a strong predictor of creativity (Liu, Chen, & Yao, 2011) because it offers freedom from control (Deci, Connell, & Ryan, 1989) and internalizes 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. Task identity, through increasing the feeling of completion and responsibility, increases the meaningfulness of work (Griffin, Welsh, & Moorhead, 1981), which is associated with creativity (Oldham & Cummings, 1996). Perceiving high task identity, employees 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 psychological capital. Thus, we hypothesize this as follows:

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

### THREE-WAY INTERACTION EFFECTS ON CREATIVITY

Supervisor support and job characteristics both boost PsyCap and creativity and play an important role in moderating the associations between PsyCap and work-related outcomes. However, no research has examined their joint influence, especially on the relation between PsyCap and creativity. It is necessary to consider their combined influences because existing studies have shown 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 exerted influences on workplace appraisal of their (subordinates') work. Thereby, we propose that employee creativity is a function of multiple accounts involving PsyCap, supervisor support for creativity, and job characteristics.

More specifically, the combinational effects of desired individual and different desired contextual predictors (Shalley et al., 2009) 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 valuable and worthy, and they thus may feel confident and devote themselves to creativity with more encouragement and be less afraid of taking risks. In this situation, when well-designed work is assigned to them, they are also likely to feel more self-determination to accomplish meaningful tasks in creative manners through skill utilization. In contrast, when people with high PsyCap pursue creative goals and adjust to adversities, low supervisor support for creativity (e.g., unsupportive supervisors) and

an unchallenging task (e.g., insignificance, less skills) with less authority may fail to continuously inspire their psychological response towards creative achievements.

Taken together, we propose a three-way interactive effect on creativity: PsyCap is more positive for facilitating employee creativity when a supervisor provides support for creativity and employees are assigned to well-designed jobs. Thus, we hypothesize this as follows

Hypothesis 3: PsyCap, supervisor support for creativity, and job characteristics interact to affect creativity in such a way that the highest level of creativity is expected when employee PsyCap, supervisor support for creativity, and job characteristics are all high.

## METHODS

### SAMPLE AND PROCEDURES

379 employees from the east of the People's Republic of China who work for different organizations completed the questionnaire, which included items measuring all of the independent and dependent variables and demographic information. All 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 (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) to control for common method bias.

We distributed 490 questionnaires and received back 379 completed surveys (77% response rate). Of the participants, 44.9% were male. Their average age was 32.5 years, and their average job tenure was 1 to 3 years. The most frequently indicated education level was a master's degree (29.3%), and most participants were technical workers (28.8%).

## MEASURES

### PsyCap

To measure PsyCap containing four dimensions of self-efficacy, hope, optimism and resilience, we used the 12-item instrument (Cronbach's  $\alpha = .852$ ,  $\chi^2[54] = 77.967$ ,  $p < .01$ , CFI = .990, RMSEA = .034) developed and validated by Luthans et al. (2007a). Participants responded on a 6-point scale ranging from 1 = "strongly disagree" to 6 = "strongly agree" (Huang & Luthans, 2015; Rego et al., 2012). Sample items are: "I feel confident analyzing a long-term problem to find a solution" (self-efficacy); "I can think of many ways to reach my current work goals" (hope); "I can get through difficult times at work because I've experienced difficulty before" (resilience); and "I always look on the bright side of things regarding my job" (optimism).

#### Supervisor support for creativity

Baer and Oldham's (2006) four-item scale (Cronbach's  $\alpha = .852$ ,  $\chi^2[2] = 3.487$ ,  $p < .01$ , CFI = .998, RMSEA = .044) developed by Madjar et al. (2002) was used to measure this construct. We utilized a 6-point scale (1 = "never" to 6 = "always"). A sample item is "My supervisor supports experimentation with new methods and ways of doing things".

#### Job characteristics

We considered job characteristics as a core construct (Judge, Bono, & Locke, 2000) and used a revised version of the Job Diagnostic Survey (Hackman & Oldham, 1975) with 10 items (Cronbach's  $\alpha = .839$ ,  $\chi^2[35] = 68.862$ ,  $p < .01$ , CFI = .973, RMSEA = .051) 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 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).

#### Self-reported creativity

Consistent with existing research that used self-reported creativity (e.g., Madjar et al., 2002; Shalley et al., 2009), we adapted four items (Cronbach's  $\alpha = .873$ ) developed in Chinese context (Farmer, Tierney, & Kung-Mcintyre, 2003). 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 (1 = "doctoral degree", 2 = "master's degree", 3 = "bachelor's degree", 4 = "associate's degree", 5 = "high school/technical school", 6 = "middle school"), organization tenure (1 = "less than 1 year", 2 = "1-3 years", 3 = "3-5 years", 4 = "5-7 years", 5 = "7-15 years", 6 = "more than 15 years"), and job type (1 = "managerial", 2 = "administrative", 3 = "technical (e.g. R&D)", 4 = "sales & marketing", 5 = "other").

Furthermore, as suggested by Shalley et al. (2009), we controlled employee's intrinsic motivation to test whether it offers an alternative explanation to creativity (e.g., Mueller & Kamdar, 2011; Shin & Zhou, 2003). 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".

## RESULTS

We performed confirmatory factor analysis (CFA) on the four factors (separate factors for PsyCap, supervisor support for creativity, job characteristics, and creativity) using AMOS to establish the factors' discriminant validity. The results are summarized in Table 1. The four-factor model generally yielded a good fit to the data ( $\chi^2[399] = 710.13$ , CFI = .94, RMSEA = .05, TLI = .94, IFI = .94). Next, we fitted three three-factor models and one two-factor model, which all had poor fit indexes. Finally, a null latent CFA model with all items loading onto a single latent variable had exceedingly poor fit indexes ( $\chi^2[405] = 1682.80$ , CFI = .77, RMSEA = .09, TLI = .75, IFI = .77). All of the indicators are acceptable in the

organizational research (Hu & Bentler, 1999), which lends further assurance of the robustness of our four-factor structure and model.

[Insert Table 1 about here]

The means, standard deviation, and correlations of all measures are listed in Table 2. To test our hypotheses, we used hierarchical multiple regression analysis, in which creativity was the dependent variable, and its predictor variables were entered in the following steps: (1) the control variables, (2) the three main effects (i.e., PsyCap, supervisor support for creativity, and job characteristics), (3) the two-way interactions, and (4) the three-way interactions. Table 3 summarizes the results of the interactions.

[Insert Table 2 about here]

[Insert Table 3 about here]

Although we did not hypothesize main effects, PsyCap was positively related to individual creativity ( $\beta = .22, p < .01, \Delta R^2 = .09$ ) in Step 2. To test Hypothesis 1 and 2, which concerned supervisor support for creativity and job characteristics as moderators in the relationship, in Step 3, we computed the product terms for the variables in our two-way interactions and entered them into the regression (i.e., PsyCap  $\times$  supervisor support for creativity, PsyCap  $\times$  job characteristics). The results revealed that the interaction term of supervisor support for creativity was positive and significant ( $\beta = .18, p < .01, \Delta R^2 = .04$ ) (see Figure 2). Inconsistent with Hypothesis 2, however, the moderation effect of job characteristics was not significant ( $\beta = .05, p > .10, \Delta R^2 = .04$ ). Therefore, Hypothesis 1 was supported, whereas Hypothesis 2 was unsupported.

[Insert Figure 2 about here]

Hypothesis 3 predicts a three-way interaction among PsyCap, supervisor support for creativity, and job characteristics wherein creativity is highest when all three variables are high. To test this influence, we entered employee PsyCap, supervisor support for creativity, and job characteristics into the model in Step 4. Table 3 indicates that the three-way interaction was significant ( $\beta = .17, p < .01, \Delta R^2 = .02$ ). We also plotted the three-way

interaction in Figure 3 (Aiken & West, 1991). Simple slope tests indicated that the positive relationship between PsyCap and creativity was significant when supervisor support for creativity and job characteristics were both high. To further examine the three-way interaction, we used Dawson and Richter's (2006) method to test whether the differences between each pairs of slopes were significantly different from zero. In Table 4, representing high levels of all three explanatory variables, slope 1 is different from the other three slopes ( $t = 6.09$ ;  $p < .01$ ). Thus, Hypothesis 3 was supported.

[Insert Figure 3 about here]

[Insert Table 4 about here]

#### POST-HOC ANALYSES

As an entire scale, job characteristics failed to moderate the association between PsyCap and creativity, but moderated positively together with supervisor support for creativity. To further understand which dimension of job characteristics drove the above three-way interaction effects, we performed sub-group analyses, conducting moderated multiple regression five times. The five dimensions of job characteristics (i.e., autonomy, skill variety, task significance, feedback, and task identity) were tested in three steps in each case.

Table 5 shows that only autonomy exhibited significant moderating effects on both the two- ( $\beta = .131$ ,  $p < .01$ ,  $\Delta R^2 = .049$ ) and three-way interactions ( $\beta = .178$ ,  $p < .01$ ,  $\Delta R^2 = .026$ ). Moreover, despite significant and positive effects in the three-way interactions, skill variety, task significance, feedback, or task identity did not moderate the association between PsyCap and self-reported creativity.

[Insert Table 5 about here]

#### DISCUSSION

The purpose of this study was to investigate the conditions under which PsyCap is related to higher creativity. We tested the moderating role of supervisor support for creativity and job characteristics on the relationship between PsyCap and employee self-reported creativity. Building on the interactional perspective in the creativity literature (Oldham &

Cummings, 1996; Shalley et al., 2004; Zhou & Hoever, 2014), the results indicated that the positive effect of PsyCap on creative performance could be amplified by supervisor support for creativity. Additionally, we found that PsyCap had the strongest positive impact on creativity when supervisor support for creativity and job characteristics were both high.

#### THEORETICAL IMPLICATIONS

Through exploring boundary contexts, our research extended the prior research regarding the positive relationship between PsyCap and creativity. In particular, results of the two-way interactions revealed that supervisor support for creativity positively moderated the PsyCap-creativity relationship. This finding reinforced the essential stimulations of positive leader behaviors in enriching the relations between certain personal factors and creativity, especially desired supervisor behaviors (Zhou & Hoever, 2014). Because much of creativity research has theorized leadership styles and behaviors as a moderator in the relation between personal characteristics and creativity (e.g., Zhou, Hirst, & Shipton, 2012), future research should consider a wider range of relevant leadership initiatives that theoretically influence the relationship between PsyCap and creativity. For example, empowering leadership enables considerable employee latitude (Zhang & Bartol, 2010) to take risks in creative activities (Zhang & Zhou, 2014), which raises employees' motivational resources (e.g., self-efficacy) (Srivastava, Bartol, & Locke, 2006). Thus, more investigation regarding how empowering leadership may leverage PsyCap benefits for creativity is encouraged. In addition, because supervisor support for creativity in our study highlighted the role of social support, future work should consider other similar constructs, such as organizational supportive climate (Kraimer, Wayne, & Jaworski, 2001), team value congruence or cohesion (Newman et al., 2014).

Our study found that job characteristics had no significant effect on the PsyCap-creativity relation. We see three potential explanations for this finding. First, prior research reported that having a well-managed job is insufficient to reinforce the relationship between personal predictors (e.g., self-efficacy) and creativity (e.g., Tierney & Farmer, 2002). When

employees focus more on idea implementation, job characteristics become more important for innovation rather than creativity (Ohly, Sonnentag, & Pluntke, 2006). Second, the influence of job characteristics on performance may require a long period of time because well-designed work requires sufficient time to allow involved employees to fully understand and adjust to it (Fried & Ferris, 1987; Griffin et al., 1981). Therefore, our cross-sectional research design may represent a limitation in this regard. Finally, scholars suggest that the influence of job characteristics is subject to other organizational factors (Griffin et al., 1981). Because we found that the combination of supervisor support for creativity and job characteristics has a significant impact on the relationship between PsyCap and creativity (discussed next), future research can be performed to measure how multiple combinations of job characteristics and other contextual and personal variables predict creativity.

Our post-hoc tests showed that job autonomy is a stronger moderator between PsyCap and creativity. This finding is consistent with self-determination theory—high task-autonomy promotes employees' feelings of control over their choices and of less demands imposed by the organization, which stimulates individuals to engage in creative activities (Ryan & Deci, 2000). Nevertheless, the finding that the other four dimensions of job characteristics—skill variety, task significance, task identity, and task feedback—insignificantly moderated the PsyCap-creativity relation signifies the diverse motivational moderating effects of job characteristics on the relation between PsyCap and creativity (Fried et al., 1987). Specifically, the fact that creativity can be attained through practice (i.e., “practice makes perfect”) in China demonstrates that breadth of skills are insufficient for Chinese employees (Niu & Kaufman, 2013). Although task feedback provides effective information about how well does employee works (Bandura, 1991; Hackham & Oldham, 1980), Chinese employees prefer critical feedback (related to mistakes) (Bailey, Chen, & Dou, 1997). This, in turn, may inhibit their creativity (Amabile & Pillemer, 2012). Furthermore, though both task identity and significance stimulate individual motivation, if these stimulations exceed an employee's optimal level, the employee might feel overwhelmed and exhibit decreased performance

(Singh, 1998), especially in Taiwan (Lin & Hsieh, 2002). Thus, the negative impact of high task identity was significant in China. Therefore, future research should study the effects of each aspect separately rather than an overall indicator of job characteristics, which may provide an imperfect explanation of the role of job characteristics (Fried & Ferris, 1987).

As expected, we found PsyCap to be most effective in engendering creative results when supervisor support for creativity and job characteristics were both high. This finding also feeds into a growing body of studies regarding the complex interactions of creativity predictors (Zhou & Hoever, 2014), suggesting that combinations of various personal and contextual 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 view of our results, future research should emphasize the potential combinations of other situational and positional predictors for promoting or inhibiting workplace creativity.

#### LIMITATIONS

This study has some limitations. First, as a cross-sectional study, our research has a problem of the direction of causality. This is also related to the unsupported hypothesis about job characteristics moderating the PsyCap-creativity relationship. Future research should use a time-lagged design to ensure more reliable results (Newman et al., 2014). Second, most of our data, including our creativity measure, are self-reported. Although Ng and Feldman (2012) suggest that in the majority of cases with a large set of data, self-ratings of creativity are acceptable (Shalley et al., 2009), future research should apply other measures of creativity to increase its objectiveness.

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, Avey, Clapp-Smith and Li'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 in two ways: 1) collect data from a specific type of organization before offering conclusive statements to better understand these complex interactions; and 2) study in countries other than China.

#### PRACTICAL IMPLICATIONS

Our finding that the positive relationship between PsyCap and creativity is positively moderated by supervisor support for creativity and job characteristics supports the view and practice that supervisors should support their subordinates' creative activities and HR departments have a strategic role in designing jobs. First, it is preferable to select candidates by using a PsyCap test. Second, supervisors need to be trained regarding how to encourage and provide a supportive environment to make their employees 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.

Additionally, given our findings about the divergent moderating effects of job characteristics in China, we suggest that Chinese organizations, especially foreign companies that operate in China and hire Chinese employees, implement HR practices that focus on providing sufficient autonomy to employees, which may activate employees' PsyCap in favor of generating creative outcomes.

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TABLE 1. Comparison of Measurement Models

<b>Model</b>	<b>Factors</b>	<b><math>\chi^2</math></b>	<b>df</b>	<b>RMSEA</b>	<b>IFI</b>	<b>TLI</b>	<b>CFI</b>
Baseline model	Four factors: PsyCap, supervisor support for creativity, job characteristics, and creativity	710.13	399	.05	.94	.94	.94
Model 1	Three factors: PsyCap and supervisor support for creativity combined into one factor	1118.68	402	.07	.87	.86	.87
Model 2	Three factors: Supervisor support for creativity and job characteristics combined into one factor	832.21	402	.05	.92	.92	.92
Model 3	Three factors: PsyCap and job characteristics combined into one factor	1250.79	402	.08	.85	.83	.85
Model 4	Two factors: PsyCap, supervisor support for creativity and job characteristics combined into one factor	1470.16	404	.08	.81	.79	.81
Model 5	One factor: All variables combined into one factor	1682.80	405	.09	.77	.75	.77

TABLE 2. Means, Standard Deviations, and Correlations of the Study Measures

Variables	M	S.D.	1	2	3	4	5	6	7	8	9
1. Gender	1.55	0.50									
2. Age	32.5	7.04	.000								
3. Tenure	3.31	1.53	.007	.592**							
4. Intrinsic motivation	4.71	1.04	-.035	-.068	-.248**						
5. Education	3.29	1.35	-.030	-.304**	-.206**	.119					
6. Job type	3.37	1.22	.012	-.162**	-.285**	.244**	.282**				
7. PsyCap	4.38	0.75	-.083	-.043	-.152**	.698**	.003	.136**			
8. Supervisor Support for creativity	4.40	1.07	-.079	-.087*	-.141**	.614**	.076	.159**	.589**		
9. Job Characteristics	4.43	0.77	-.035	-.019	-.049	.687**	.035	.064	.617**	.692**	
10. Creativity	4.05	0.85	.019	-.035	-.049	.509**	-.031	.166**	.510**	.512**	.513**

Note. N=379.

Dependent variable: Creativity

\* p < 0.05

\*\* p < 0.01

TABLE 3. Results of the Regression Analysis

Variables	$\beta$	$R^2$	$\Delta R^2$	F	$\Delta F$
Step 1					
Gender	.06				
Age	-.01 <sup>†</sup>				
Job type	.07				
Education	-.08				
Tenure	.08				
Intrinsic motivation	.44**	.29	.29**	24.93**	24.93**
Step 2					
PsyCap (PC)	.22**				
Supervisor support for creativity (SS)	.16**				
Job characteristics (JC)	.16*	.38	.09**	24.85**	17.90**
Step 3					
PC×SS	.18**				
PC×JC	.05	.42	.04**	24.11**	13.30**
Step 4					
PC×SS×JC	.17**	.44	.02**	24.06**	14.09**

Note. N=379.

Regression coefficients represent unstandardized parameters.

Dependent variable: creativity

PC: PsyCap

SS: Supervisor support for creativity

JC: Job characteristics

<sup>†</sup> p < 0.1

\* p < 0.05

\*\* p < 0.01

TABLE 4. Simple Slope Comparisons for Three-way Interactions

Pairs of comparisons	Creativity	
	Slope	t
1 (High supervisor support for creativity, high job characteristics)	0.53	6.09**
2 (High supervisor support for creativity, low job characteristics)	0.17	1.13
3 (Low supervisor support for creativity, high job characteristics)	-0.13	-0.99
4 (Low supervisor support for creativity, low job characteristics)	0.07	0.90
Slope difference		
1 and 2		2.54*
1 and 3		4.84**
1 and 4		4.80**
2 and 3		1.41
2 and 4		0.71
3 and 4		-1.45

Note. Pair numbers correspond to the numbers listed in Fig. 3. Slope difference tests were based on Dawson and Richter (2006).

\*  $p < 0.05$

\*\*  $p < 0.01$

TABLE 5. Significance of Two-way and Three-way Interaction Effects at the Dimensional Level

	Autonomy	Task identity	Feedback	Skill variety	Task significance
Main effects					
PsyCap (PC)	.227**	.244**	.234**	.223**	.251**
Supervisor support for creativity (SS)	.200	.204**	.205**	.146**	.068**
Job characteristics (dimension Y)	.047**	.017**	.031	.162**	.188**
(JC)					
$\Delta R^2$	.084**	.083**	.083**	.101**	.086**
Two-way interactions					
PC $\times$ SS	.150**	.213**	.224**	.174**	.218**
PC $\times$ JC (dimension Y)	.131*	-.005	-.021	.053	-.019
$\Delta R^2$	.049**	.043**	.043**	.041**	.043**
Three-way interactions					
PC $\times$ SS $\times$ JC (dimension Y)	.178**	.155**	.090**	.116**	.089 <sup>†</sup>
$\Delta R^2$	.026**	.026**	.014**	.015**	.004 <sup>†</sup>

Note. N=379.

Regression coefficients represent unstandardized parameters.

Control variables were included in the regression models but are not shown here.

Dependent variable: creativity

PC: PsyCap

SS: Supervisor support for creativity

JC: Job characteristics

Dimension Y represented one of the five dimensions of job characteristics (i.e., autonomy, task identity, feedback, skill variety, and task significance) in each moderated multiple regression.

<sup>†</sup> p < 0.1

\* p < 0.05

\*\* p < 0.01

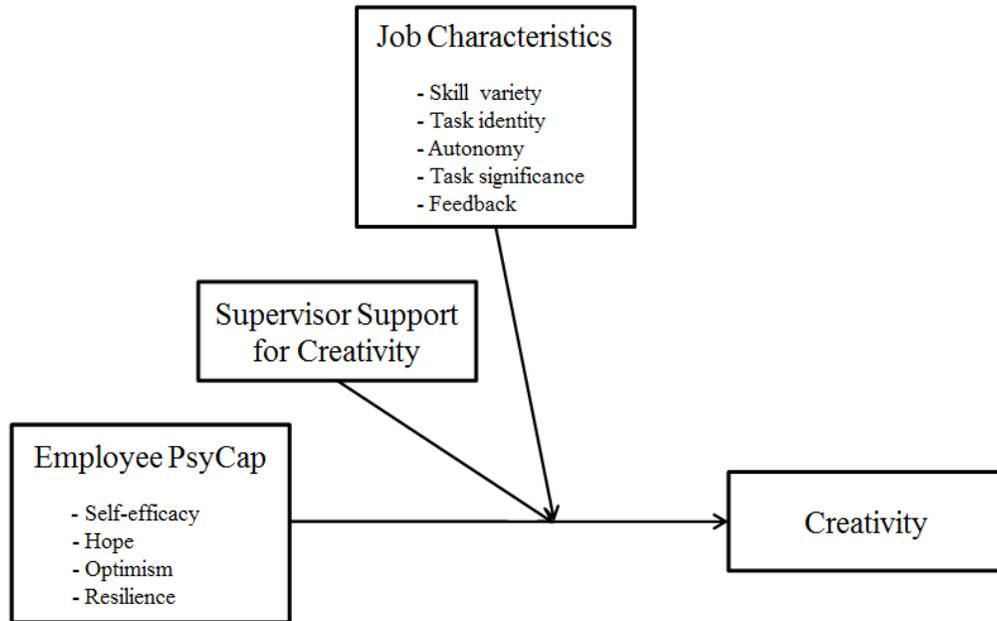


FIGURE 1. Research Model

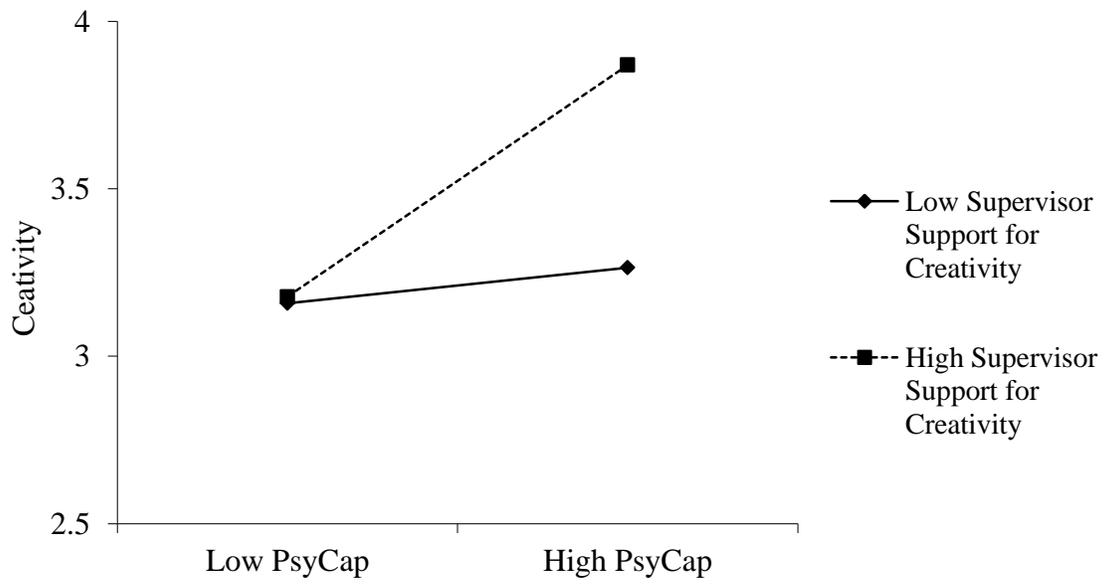


FIGURE 2. Two-way Interaction of PsyCap and Supervisor Support for Creativity on Employee Creativity

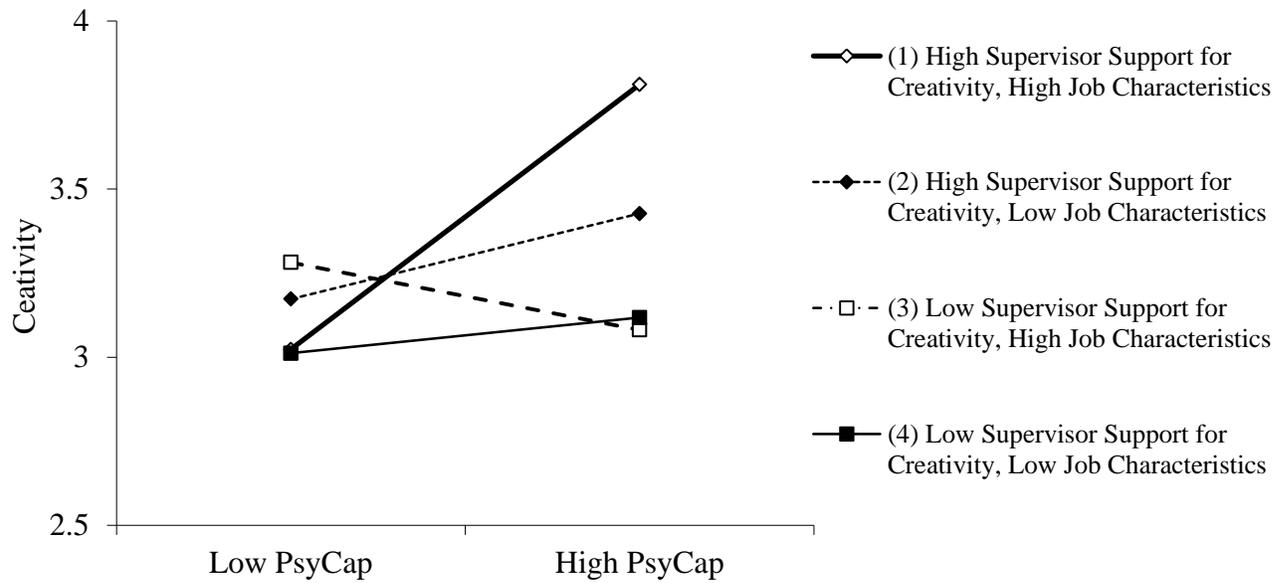


FIGURE 3. Three-way Interaction between PsyCap, Supervisor Supportive for Creativity, and Job Characteristics