

The Cross-Level Mediating Effect of Psychological Capital on the Organizational Innovation Climate–Employee Innovative Behavior Relationship

ABSTRACT

Organizational innovation climates have been found to be effective predictors of employee creativity and organizational innovation. As such, climate assessments provide a basis for useful organizational interventions in enhancing creativity and innovation. Researchers now call for better articulation of the motivational mechanisms that link social context to employee innovation. In responding to the above call, this study found that employee positive psychological capital (PsyCap) is more influential than organizational innovation climate on employee innovative behavior. With a large sample ($N = 781$) from 16 organizations and a cross-level analysis, we examined the relationship between organizational innovation climate and employee innovative behavior with employee PsyCap as mediator. The results showed that both organizational innovation climate and employee PsyCap significantly affect employee innovative behavior, and more importantly, employee PsyCap fully mediates this relationship. The innovation journey is a challenging and risky one with many frustrations and discouraging moments from idea generation to idea implementation. The research results presented here imply that to be innovatively effective, organizations are advised to manage both social (organizational innovation climate) and psychological (PsyCap) resources of employees in enhancing employee innovative behavior. Other theoretic and practical implications are discussed.

Keywords: organizational innovation climate, employee psychological capital (PsyCap), employee innovative behavior, cross-level mediating effect.

Innovation is essential in maintaining an organizational competitive advantage nowadays. The organizational innovation process evolves from idea generation to idea implementation, or from the unleashing of employee creativity and ideation to the transformation of ideas into new products, services, or practices (Amabile, 1996). The whole process is accompanied by all kinds of employee innovative behaviors at different organizational levels (Anderson, Potonik, & Zhou, 2014; Drucker, 1999; Scott & Bruce, 1994), while employee innovative behaviors are complicated multilevel phenomena and commonly held to emerge from interactions between individuals and work context (Anderson et al., 2014; Hunter, Bedell, & Mumford, 2007; Woodman, Sawyer, & Griffin, 1993).

Many scholars taking the socio-psychological perspective suggest that innovation occurs in person–situation interactions, asserting that social context can enhance employee innovation through employees' intrinsic motivation (Amabile, 1983; Hunter et al., 2007; Woodman et al., 1993; Zhou, 2003). Many of these scholars have demonstrated that organizational innovation climate is a catalyst for employee innovation (Amabile & Grysiewicz, 1989; Basadur, 1997; Hunter et al., 2007; Lin & Liu, 2012; Patterson et al., 2005; Schneider, Gunnarson, & Niles-Jolly, 1994; Van de Ven, 1986). For example, Amabile's (1988) componential theory of creativity asserts that intrinsic motivation acts as a crucial conduit through which social context can affect individual creativity. Although early experimental studies provided evidence for the positive effect of intrinsic motivation on creativity (Amabile, 1996), later studies yielded inconsistent results (Liu, Chen, & Yao, 2011). Researchers, therefore, have called for better articulation of the motivational mechanisms that link social context to employee innovation (George, 2007; Shalley & Perry-Smith, 2001).

The conservation of resource theory (Hobfoll, 1989, 2002) complements discussions about social context and psychological mechanism relationships. Individuals are motivated to keep, protect, and accumulate their

personally valued resources, and individuals feel psychological distress when they sense the imminent loss of these resources or obtain nothing in return for them (Hobfoll, 1989). Individuals have social resources obtainable through organizations or work contexts, while psychological resources are obtainable through personal traits. When people work, they expend their own mental and physical efforts, and run a high chance of experiencing mental or physical problems if there is no resupply of internal or external resources (Hobfoll & Shirom, 2001). The innovation journeys, by their nature, are challenging, unpredictable, and risky, and often trigger frustration and discouraging moments. When dealing with innovative tasks, employees can face a daunting failure risk, bear immense psychological pressures, and rapidly consume both types of resources. Therefore, any effective organizational innovation intervention must take into consideration, and make use of, employee psychological mechanisms.

Employee psychological capital (PsyCap) is an important kind of psychological resource. PsyCap can broaden employees' current "thought-action repertoires" and build enduring resources for future task requirements (Fredrickson, 2001; Luthans, 2002a,b). When thoughtfully harnessed, the concept of PsyCap can clarify the motivational mechanisms that link organizational innovation climate to employee innovative behavior. However, the psychological mechanism of organizational climate and its possible interactions with employee PsyCap—particularly relative to employee innovative behavior—remain unclear (Gardner & Schermerhorn, 2004).

In fact, organizational innovation is a complex multilevel phenomenon. Idea generation and idea implementation in organizations simultaneously occur at individual, team, and organizational levels, and are embedded in organizational contexts. Patterson et al. (2005) and Schneider (1990) noticed that although organizational innovation climate should be an organizational construct of shared perception, most researchers operationalized it as a construct of employees' individual perceptions. Through meta-analysis, Hunter et al. (2007) found that both the effects of organizational innovation climate and the effects of the climate's dimensions on organizational innovation are multilevel. Glick (1985) asserted that when studying organizational interventions' role in enhancing creativity and innovation, management should take organizational climate as an organization-level issue. Therefore, Anderson et al. (2014) encouraged innovation researchers to take cross-level and multilevel approaches to clarifying the roles played by creativity and innovation in organizations.

In summary, the current study uses the conservation of resource theory to investigate the cross-level effects that both organizational innovation climate and its interactions with employee PsyCap can have on employee innovative behavior. Although Hunter et al. (2007) confirmed that climate perceptions have been found to be effective predictors of employee creativity and organizational innovation, Anderson et al. (2014) pointed out that idea implementation is as important as idea generation, but the former lacks enough research to clarify an underlying process. Amabile (1988) asserted that the influence of social contexts on employee creativity can be deeply dependent on intrinsic motivation as a mediator of sorts; thus, it is conceivable that organizational innovation climate can affect individual innovative behavior through psychological mechanisms, such as employee PsyCap. We believe that the emergent PsyCap concept, because of its comprehensiveness, is quite promising as a way to explain employee innovative behavior. Therefore, using a cross-level approach to this research, we want to explore whether employee PsyCap is a mediator between organization-level organizational innovation climate and individual-level employee innovative behavior.

LITERATURE AND HYPOTHESES

ORGANIZATIONAL INNOVATION CLIMATE AND INNOVATIVE BEHAVIOR

The term "organizational climate" is defined as members' combined subjective perceptions of a work environment (Schneider, 1990). One can treat the concept of organizational climate as aggregate; comprising of individual persons' subjective perceptions of a work environment (i.e., comprising psychological climates) (Kwaśniewska & Necka, 2004). In contrast to organizational culture, which is the shared basic values, assumptions, and beliefs held by organizational members, organizational climate tends to promote evaluations of tangible and observable practices, and conditions that organizations have on the "surface" of organizational contexts (Denison, 1996; Guion, 1973; James & Jones, 1974). And the term "employee innovative behavior" refers to all the behaviors contributing to any given innovative process. These behaviors can range from idea generation to idea implementation (Scott & Bruce, 1994). Many studies have investigated how to spark creative ideas in employees, but only a handful of studies have explored the process of idea implementation (Anderson et al., 2014).

Previous studies have shown that social environmental factors and climate dimensions, such as organizational encouragement, workgroup support, and sufficient resources, enhance employee creativity through individual intrinsic motivation (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Hunter et al., 2007). Meaningful and supportive organizational innovative climate, minimizing the potential risks perceived by employees during the process of innovation, enhance employees' innovation at work. When employees feel valuable and respected in a supportive organizational climate, they have a higher motivation to be innovative and to achieve goals (Cohen-Meitar, Carmeli, & Waldman, 2009; Zhou & George, 2001). In contrast, employees in an unsupportive organizational climate tend to view their ideas as unworthy of public consideration or to fear being blamed or laughed at for proposing poor ideas; these tendencies hamper employees' motivation to innovate (Amabile, 2004; Amabile et al., 1996; Birkinshaw, Hamel, & Mol, 2008; Shalley, Zhou, & Oldham, 2004). To be innovative, organizations are accordingly advised to develop an innovative work-environment climate.

By its very nature, however, the path leading toward innovation is fraught with challenges, uncertainty, and risk, and can trigger frustration and discouraging moments. As a result, employee innovative behavior is a critical component in the whole innovation process. Particularly, these innovative behaviors in organizations simultaneously occur at individual, team, and organizational levels, and are embedded in organizational contexts. For example, an employee generates a novel idea by interacting with partners in a group, while other employees follow up by prototyping work in another group, and yet again another group of employees is responsible for mass producing and marketing the new product. Throughout the entire innovation process, multilevel employees interact with one another and demonstrate innovative behavior.

Using a multilevel approach, this study explores the psychological mechanism of employees as it pertains to the relationship between organizational innovation climate and employee innovative behavior. We first propose the following hypothesis:

Hypothesis 1: Organization-level organizational innovation climate is positively related to individual-level employee innovative behavior.

PSYCHOLOGICAL CAPITAL AND INNOVATIVE BEHAVIOR

Recently, it has been suggested that researchers in the field should explore the positive sides to people's natures, not just those facets that are negative or "dark" (Stajkovic & Luthans, 1998). PsyCap is a positive psychological state of individuals' development, consisting of self-efficacy, optimism, hope, and resilience (Luthans, 2002a,b; Luthans, Youssef, & Avolio, 2007). Luthans (2002a) stressed that, in contrast to rigid personal traits, PsyCap can flexibly undergo development for the purpose of improving the given individual's performance in an organization (Luthans, Avey, Avolio, Norman, & Combs, 2006; Luthans, Avey, Avolio, & Peterson, 2010).

Luthans (2002a) conceptualizes PsyCap as comprising the following four dimensions: (a) self-efficacy, a personal subjective perception about one's own ability to complete a specific task (Bandura, 1997); (b) hope, a positive motivation status built up from past successful experiences, with willpower, path, and goal attainment intertwining to form this dimension (Snyder et al., 1996); (c) optimism, an inner stable attitude for handling tasks positively (Seligman, 1998); and (d) resilience, the ability to positively handle difficulties in serious situations or during uncertainty (Luthans, 2002a). PsyCap enables individuals to recover from difficulties (Luthans, 2002a; Masten & Reed, 2002), to lower employee absenteeism (Avey, Patena, & West, 2006), and to improve employee performance and job satisfaction (Luthans, Avolio, Avey, & Norman, 2007), employee organizational commitment (Luthans, Norman, Avolio, & Avey, 2008), and employee organizational citizenship behavior (Goody, Gavin, Johnson, Frazier, & Snow, 2009).

In Avey, Luthans, Hannah, Sweetman, and Peterson's (2012) study, these psychological strengths can promote employees' creativity. Compared to idea generation, an individual's psychological resources (such as PsyCap) are also relevant to idea implementation. However, researchers in the field have seldom explored the relationship between PsyCap and innovative behavior. Employees with high self-efficacy can take risks and undertake challenging tasks (Bandura, 1997) while bouncing back from unexpected setbacks and failures (Luthans, 2002a). Hope is closely associated with employees' willpower and waypower (planning to meet goals), both of which are indispensable to the latter half of an innovation journey. And optimism, characterized by positive outcome expectancies and a sense of purpose in accomplishing an innovative task (Carver & Scheier, 2002), leads to self-fulfilling prophecies (Peterson & Chang, 2002).

As a higher order construct, PsyCap can synergistically promote the achievement of goals and the improvement of performance (Stajkovic, 2006), in turn initiating a higher order “resource caravan” (Hobfoll, 2002). Luthans, Avolio, et al. (2007) verified that this higher order construct has stronger effects on employees’ job performance than the four constituent dimensions described above (Sweetman, Luthans, Avey, & Luthans, 2011). We therefore propose the second hypothesis:

Hypothesis 2: The higher an employee’s positive psychological capital, the higher the employee’s level of innovative behavior.

PSYCHOLOGICAL CAPITAL AS A MEDIATOR

Social and psychological resources carry equal importance in determining job performance and behavior (Hobfoll, 1989, 2002), while psychological mechanisms can link organizational innovation climate and employee innovative behavior to each other (Amabile, 1983, 1988; Gardner & Schermerhorn, 2004; Hunter et al., 2007; Woodman et al., 1993; Zhou, 2003). Examining the job characteristics model (Hackman & Oldham, 1980), Renn and Vandenberg (1995) found that critical psychological states (job-related meanings and responsibilities) are a partial mediator between core job dimensions and personal job performance.

In terms of psychological mechanisms, research has found that creative self-efficacy can be a crucial personal factor in predicting employee creative performance (Tierney & Farmer, 2002, 2011). Specifically, creative self-efficacy can mediate not only between employee learning orientation and employee creative performance but also between transformational leadership and employee creativity. Self-efficacy in employees comes from their evaluation of their own work environment. This work environment includes colleagues, supervisors, job design, and the organization itself (Eden, 1990; Ford, 1996). After reviewing their own personal and situational resources and conditions, employees can develop a sense of self-efficacy.

Building on the work of Bandura, the team of Gist and Mitchell (1992) modeled work-related self-efficacy development. They noted that individuals engage in a process whereby they assess their personal and situational resources and constraints, and subsequently rely on these assessments to yield interpretive data they use to form personal efficacy judgments. This is why organizational innovation climate could be a determinant of employee creative self-efficacy or of PsyCap, as well. Organizational innovation climate could enhance or undermine PsyCap, which itself may be an important contributor to innovative behavior. In sum, the higher order construct PsyCap can synergistically contribute to both the achievement of goals and improvements in performance, and can do so through stronger effects on employee job performance than are achieved individually by PsyCap’s four component dimensions (Luthans, Avolio, et al., 2007).

Organizational innovation can be catalyzed not only by organizational environment, context, and practices but also by personal characteristics (Shalley et al., 2004). Organizational innovation climate is a social resource available to employees who are handling innovative tasks, and personal positive psychological capital is another resource in innovation processes, but individual factors may have a more proximate effect than organizational innovation climate on employees’ behavior and performance (Klein & Kozlowski, 2000; Mathieu & Taylor, 2007). Gardner and Schermerhorn (2004) argued that important personal factors mediate the relationship between a supportive organizational climate and employee performance. When perceiving the receipt of support from others, employees might be likelier than they would be in the absence of such perceived support to engage in positive psychological patterns of behavior, such as taking pleasure in completing tasks or being optimistic about failure. However, without sufficient ability, self-efficacy, or an adequate psychological status to perform job requirements well, employees cannot accomplish job tasks even when the given organization’s climate is supportive (Luthans et al., 2008). Indeed, both psychological and social resources are necessary for strong performances from employees. Research has shown that organizational factors can affect employee performance directly (Eisenberger, Fasolo, & Davis-LaMastro, 1990; Hsu & Fan, 2010), but that the effect might pass through a personal channel—that is, a psychological mechanism.

In addition, organizational innovation takes place at multiple levels in an organization, but most past research adopted a single-level perspective. In order to explore and understand the multilevel phenomenon of the innovation process, we propose a cross-level model for examining employee PsyCap as a mediator capable of having cross-level mediating effects on organization-level organizational innovation climate and individual-level employee innovative behavior. Thus, we propose the following hypothesis:

Hypothesis 3: Individual-level positive psychological capital mediates the relationship between organization-level organizational innovation climate and individual-level employee innovative behavior.

METHODS

SAMPLE AND MEASURES

The present study uses a sample of 16 organizations and 922 participants in Taiwan. To develop this study's underlying theory, we have applied Western-based theory, findings, and patterns to Eastern cultural contexts (Whetten, 1989), and such applications are pertinent especially for employee innovation studies, which are rare in non-Western countries (Hsu & Fan, 2010). Regarding the present study's sample, its 16 organizations participated in a research project supported by the Taiwan Ministry of Economic Affairs. To strengthen the study's external validity, we made sure that the 16 organizations covered various industries, including information technology, manufacturing, insurance, tourism, international business, and biotechnology. Of the 16 organizations, 2 offered over 100 participants each (one organization had 223 participants, and the second organization had 103 participants). Each of the remaining 14 organizations involved smaller samples, ranging from 15 to 64 participants. We used Web-based and paper-based questionnaires to get participants to evaluate their feelings about their surrounding work environment. After eliminating returned questionnaires that contained invalid data, we ended up with 781 completed questionnaires. The data corresponded to 179 participants in R&D positions (22.92%), 160 participants on production lines (20.49%), and 158 participants in sales (20.23%). Of the participants, 419 were males (53.65% of the sample population) with an average of 4.35 years of organizational tenure. Moreover, 185 of the participants (23.69% of the sample) were managers, 187 (23.94%) had a graduate degree, and 334 (42.77%) had a 4-year degree.

The present study has three research foci: (a) organization-level organizational innovation climate, (b) individual-level employee positive psychological capital, and (c) employee innovative behavior. We adopted each measure from past research on the basis of the given measure's reliability and validity as verified in many studies. We followed Brislin's (1980) suggestion and carried out a back-translation procedure to address language concerns. All items corresponded to a 6-point Likert agreement scale (ranging from 1 = strongly disagree to 6 = strongly agree).

Organizational innovation climate

The present study adopted Hsu and Fan's (2010) scale, which features seven dimensions from KEYS (Assessing the Climate for Creativity) (Amabile et al., 1996): organizational encouragement, supervisory encouragement, workgroup support, freedom, sufficient resources, challenging work, and organizational impediments. We added two dimensions to the concept of organizational innovation climate: learning and development (a sample item of which is: "My company often holds training, workshop, and inspection activities") and space (a sample item of which is: "My company designs space for team-member discussions and holds open meetings"). A learning and development opportunity helps employees behave innovatively (Sundgren, Dimenas, Gustafsson, & Selart, 2005), and a positive space facilitates creative thinking and interpersonal communication and interaction (Kelley, 2002; Leonard & Swap, 1999). Our resulting nine-dimension scale comprised 34 items and has a Cronbach's α of .94. The results of a second-order confirmatory factor analysis (2nd-order CFA) show that the nine first-order dimensions can be comprised of the core construct of organizational innovation climate ($\chi^2 [df = 518] = 2124.90$, $\chi^2/df = 4.10$, CFI = .91, NNFI = .90, SRMR = .06, RMSEA = .06).

Because organizational innovation climate is an organization-level concept, we needed to aggregate individual-level data at the organizational level. To examine the appropriateness of the data aggregation, we first calculated the inter-rater agreement by calculating the *rwg(j)* values for each organization (James, Demaree, & Wolf, 1984). The mean *rwg(j)* for the 16 organizations is .99 (with a range from .980 to .993), achieving an acceptable level of inter-rater agreement.

Following Bliese (2000), we examined the intra-class correlation coefficients by calculating ICC(1) and ICC(2) values to show that the data were good for aggregation (James et al., 1984). The ICC(1) value of organizational innovation climate is .06, which means that for the total variance in employee innovative behavior, the between-organization variance is about 6%. This figure should not be ignored (Cohen, 1988). The ICC(2) value is .65, an acceptable reliability value for aggregated data (Ostroff & Schmitt, 1993).

Employee positive psychological capital

For the current study, we referred to Luthans, Avolio, et al. (2007) and used the psychological capital questionnaire verified through robust scale development and verification procedures. The questionnaire has six items for each of the following four dimensions: (a) self-efficacy, a sample item of which is “I feel confident contacting people outside the company (e.g., suppliers, customers) to discuss problems”; (b) hope, a sample item of which is “At the present time, I am energetically pursuing my work goals”; (c) optimism, a sample item of which is “When things are uncertain for me at work I usually expect the best”; and (d) resilience, a sample item of which is “I can get through difficult times at work because I’ve experienced difficulty before.” Because the definition of psychological capital is a state, participants should base their answers on the “current moment.” The Cronbach’s α for the scale is .92. The results of a 2nd-order CFA show that the four first-order dimensions also can comprise the core construct of positive psychological capital ($\chi^2 [df = 248] = 1646.69$, $\chi^2/df = 6.64$, CFI = .86, NNFI = .85, SRMR = .07, RMSEA = .08).

Employee innovative behavior

The employee innovative behavior scale was developed by Scott and Bruce (1994) with six items to capture the whole innovation process, from idea generation to idea implementation. A sample item is “I will search out new technologies, processes, techniques, and/or product ideas in my job.” The present study used a self-report survey because this type of survey is a more appropriate method for measuring employee innovative behavior. Employees who undertake an innovative task are essentially engaging in a long process with many subtle stipulations, and employees often perceive these stipulations differently (Dul, Ceylan, & Jaspers, 2011). For this reason, an optimal approach to evaluating employees’ on-the-job innovative behavior would appear to be employee self-evaluations, regardless of how significant or minor the innovative behavior is and regardless of whether supervisors or colleagues understand or even observe the innovative behavior (Dul et al., 2011; Hocevar, 1981; Shalley, Gilson, & Blum, 2009). Thus, the self-report method is appropriate for evaluating employee innovative behavior (Kaufman, Cole, & Baer, 2009). The Cronbach’s α for this scale is .92.

Control variables

Empirical studies have shown that educational level and work experience have a significant effect on employee innovative behavior (Gong, Huang, & Farh, 2009; Tierney & Farmer, 2002). Educational level is related to employees’ professional abilities and knowledge (Amabile, 1988), while tenure is related to the extent of employees’ involvement in innovative workplace activities (Ibarra, 1993). Therefore, we set controls for educational level and tenure in the current study.

RESULTS

Table 1 presents the descriptive statistics (overall means and standard deviations) and the correlation matrix of this study’s variables. As shown, the correlation between organizational innovation climate and employee innovative behavior is .42 ($p < .01$), and the relationship between employee PsyCap and employee innovative behavior is .71 ($p < .01$). These results are consistent with our expectations. We then conducted a series of statistical analyses to check the theoretical construct before performing the hypothesis testing.

CONFIRMATORY FACTOR ANALYSES AND DISCRIMINANT VALIDITY

To confirm the factor structure and to eliminate concerns about high correlation between focal variables, we performed a series of CFAs (Jöreskog & Sörbom, 2003). Table 2 presents the results. A CFA with the

TABLE 1. Means, Standard Deviations, and Correlations among Variables

Variables	Mean	SD	1	2	3	4	5
1. Education	1.94	.76	–				
2. Tenure	4.35	4.54	–.17**	–			
3. Innovation Climate	4.45	.62	.10**	–.02	–		
4. Employee PsyCap	4.41	.56	.03	.11**	.53**	(.92)	
5. Innovative Behavior	4.50	.75	.04	.09**	.42**	.71**	(.92)

Note. $N = 781$. Cronbach’s α coefficients are on the diagonal.

** $p < .01$.

proposed three-factor model (i.e., comprising organizational innovation climate, PsyCap, and employee innovative behavior) showed better fit indices to the data ($\chi^2 [df = 132] = 833.50$, $\chi^2/df = 6.31$, CFI = .92, NNFI = .91, SRMR = .064, RMSEA = .08) than the one-factor model ($\chi^2 [df = 1,890] = 43708.08$, $\chi^2/df = 23.13$, CFI = .48, NNFI = .47, SRMR = .011, RMSEA = .17). In addition, because the variables were highly correlated (e.g., the correlation between PsyCap and employee innovative behavior turned out to be .71, $p < .01$), we performed a two-factor model, where employee PsyCap and innovative behavior were combined into a single factor, together with organizational innovation climate. The results show that the fit indices of the two-factor model (i.e., $\chi^2 [df = 248] = 1646.69$, $\chi^2/df = 6.64$, CFI = .86, NNFI = .85, SRMR = .07, RMSEA = .08) were worse than the proposed three-factor model, which indicates that employee PsyCap and employee innovative behavior can be separated into two distinct constructs.

Moreover, we also examined the discriminant validity between variables. After we fixed the correlation value between focal variables at 1.0, the results of the chi-square test showed that the difference between organizational innovation climate and employee PsyCap was significant ($\Delta\chi^2(1) = 146.56$, $p < .001$), as was the difference between organizational innovation climate and employee innovative behavior ($\Delta\chi^2(1) = 169.40$, $p < .001$). The difference between employee PsyCap and employee innovative behavior was also significant ($\Delta\chi^2(1) = 117.03$, $p < .001$). Overall, these analyses show that the proposed three-factor model fit the data well, and that the three variables are distinct constructs.

HYPOTHESIS TESTING

We organized the current study’s data in a hierarchical nested model: in brief, our assumption was that organizational members belong to a given organization and come under the influence of organization-level factors (e.g., organizational innovation climate). According to the above calculation, there are significant differences among organizations, meaning that the data may violate the independence assumption of traditional ordinary least squares. Therefore, we adopted the multilevel model (MLM) to test this study’s hypotheses (Hofmann, 1997).

For testing hypothesis 2 (i.e., the individual-level hypothesis), we treated employee innovative behavior as the dependent variable and PsyCap as the independent variable. To test this relationship, we used a random model of the MLM (Hofmann, 1997). After controlling for the effect of educational level and tenure, we found that employee PsyCap had a positive and significant effect on employee innovative behavior ($\gamma = .96$, $p < .01$); that is, the results support hypothesis 2.

In testing the cross-level main effect of hypothesis 1 and the mediated effect of hypothesis 3, we followed Mathieu and Taylor’s (2007) meso-mediation analytical approach to test our cross-level mediation. This approach features three steps for checking mediating effects, and itself is based on an approach outlined by Baron and Kenny (1986). First, we used employee innovative behavior as the outcome variable for testing the direct cross-level effects that organization-level organizational innovation climate had on employee innovative behavior ($X \rightarrow Y$). We then used employee PsyCap as a dependent variable to test the cross-level effect of organization-level organizational innovation climate on individual-level employee PsyCap ($X \rightarrow \text{Mediator}$).

TABLE 2. Comparison of the Measurement Model in This Study

Measurement model	$\chi^2 (df)$	χ^2/df	CFI	NNFI	SRMR	RMSEA
Three factors OIC, PsyCap, and IB as distinct	833.50 (132)	6.31	.92	.91	.06	.08
Two factors PsyCap and IB constrained as one construct	1363.79 (134)	10.18	.86	.84	.08	.13
One factor All three factors together as one construct	43,708.08 (1,890)	23.13	.48	.47	.01	.17

Note. $N = 781$. All χ^2 are significant at $p < .01$. CFI = comparative fit index; NNFI = non-normed fit index; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; OIC = organizational innovation climate; PsyCap = employee psychological capital; IB = innovative behavior.

TABLE 3. Hierarchical Linear Modeling Analysis

Predictors	Multilevel mediation test		
	Step 1 X→Y	Step 2 X→M	Step 3 X→M→Y
	Outcome variables		
	Innovative behavior (Model 1)	Employee PsyCap (Model 2)	Innovative behavior (Model 3)
Level 1			
Intercept	1.38	1.85**	4.51**
Education	.06*	.002	.04
Tenure	.006	.011**	.00
Employee PsyCap			.96**
Level 2			
Organizational innovation climate	.70**	.58**	.03

Note. Employee $N = 781$, Organization $N = 16$. Entities presented are estimations of MLM regression coefficients.

* $p < .05$. ** $p < .01$.

Finally, we used employee innovative behavior as a dependent variable again. This time, in the regression, we treated both organizational innovation climate and employee PsyCap as independent variables. We compared the main effect in step 1 with the main effect in step 3.

Table 3 presents both the analytical procedure that we conducted and the results that we obtained in testing for mediating effects. First, we found that the organization-level organizational innovation climate had a significant effect on individual-level employee innovative behavior ($\gamma = .70$, $p < .01$), supporting hypothesis 1. We also found that organizational innovation climate significantly and positively affected individual-level employee PsyCap ($\gamma = .58$, $p < .01$). Finally, when we put organizational innovation climate and employee PsyCap into the regression equation, we found that employee PsyCap still positively affected employee innovative behavior ($\gamma = .96$, $p < .01$), but the effect of organization-level organizational innovation climate on employee innovative behavior had totally disappeared ($\gamma = .70$, $p < .01 \rightarrow \gamma = .03$, $p > .05$). We adopted the Sobel test to confirm the mediation effect. The Sobel z statistic was 9.29 ($p < .01$). Therefore, the combined results from steps 1 through 3 and the result of the Sobel test above support hypothesis 3: employee PsyCap fully mediated the relationship between organizational innovation climate and employee innovative behavior.

DISCUSSION

THEORETICAL AND PRACTICAL IMPLICATIONS

In carrying out tasks, people need both social and psychological resources, which can compensate for and enhance each other (Hobfoll, 2002). Though the literature has confirmed the importance of organizational innovation climate to employee innovation, the psychological mechanism by which this type of climate affects employee innovative behavior has long remained a mystery. In responding to the call for research clarifying the motivational mechanisms that link social contexts to employee innovation (Amabile, 1988; Gardner & Schermerhorn, 2004), our present study has found that employee PsyCap's effect on employee innovative behavior was greater than organizational innovation climate's effect on employee innovative behavior and that employee PsyCap even mediated the crucial relationship between organizational innovation climate and employee innovative behavior.

The present study first confirmed the key role of employee PsyCap in organizational innovation research. Sweetman et al. (2011) validated the relationship between employee PsyCap and creative performance, while we extended their findings to incorporate social (organizational innovation climate) and psychological (PsyCap) resources into the present study, and demonstrated that employee PsyCap fully mediates the relationship between organizational innovation climate and employee innovative behavior. Indeed, like Thomas Edison maintained that he failed his way to success, we suggest that some people are more innovative than

others, regardless of how supportive or adverse the environment might be. We believe that these people have higher PsyCap than their peers, helping to compensate for the lack of social resources or support that can characterize an environment. In line with Hunter et al. (2007), who concluded that organizational innovative climate can manifest and enhance employee creative potential, the present study has found evidence that personal characteristics may be more important than the influence of environment (Kelley & Kelley, 2012).

We therefore suggest that organizations seeking to enhance employee innovative behavior consider managing both the social and psychological resources of employees. Though a supportive climate can spark idea generation and can strengthen idea implementation among employees, employee PsyCap can perhaps be much more influential than a supportive climate throughout each stage of the innovation process. To strengthen its practicality and thus its relevance, future research into organizational innovation climate should address psychological mechanisms and advance our understanding of employee innovation beyond idea generation. This suggestion emphasizes the importance of the human resource functions in promoting organizational innovation. Simply put, organizations should recruit new employees with high PsyCap from the outset and then provide in-house training as needed. Luthans et al. (2006, 2010) have shown that short-term training courses on positive work attitude, career planning, and problem-solving can help not only maintain but also indeed improve employee's PsyCap. Thus, PsyCap is a state that can be developed.

LIMITATIONS AND FUTURE RESEARCH

In studying employee innovation, researchers should bear in mind that employees' self-reported data are always a concern because self-reported data may inflate or even bias the results. Hunter et al. (2007) found that self-reported data have the strongest effect size on the association between organizational innovation climate and employee innovative performance. However, these researchers doubted that supervisors or colleagues might overlook some minor or hard to observe innovative behaviors, and argued that this way to evaluate employee behavior has the problem of range restriction. Nonetheless, we would like to call attention to the concerns raised about self-reported data and suggest that, in the future, researchers collect both self-reported and other-reported data, and then compare the two with an eye toward identifying differences between them.

The concern surrounding common method variance (CMV) also applied to single-source cross-sectional designs which may artificially inflate the relationship between key variables in the present study (e.g., employee PsyCap and innovative behavior). To address this concern, we follow Podsakoff, MacKenzie, Lee, and Podsakoff's (2003) and Podsakoff, MacKenzie, and Podsakoff's (2012) recommendations by adopting specific procedural controls and posthoc statistical remedies. Regarding the procedural controls, we developed the questionnaire without ambiguity, informed the participants that their answers and personal information would be confidential, and notified them that there were neither right nor wrong answers—in this way, the present study sought to reduce the possibility of social desirability. Moreover, we included negatively worded items to control for acquiescence bias.

As for statistical remedies, we adopted three steps for detecting the seriousness of CMV in the present study. First, as mentioned above, a series of CFAs and the discriminant validity analyses confirmed that these same-source data were distinct from one another. Second, we performed Harman's single-factor test, which showed that the first factor explained only 30.28% of the variance. The statistical figures indicate that there is no hidden method factor to influence the theoretical model. Finally, we further adopted an unmeasured latent method construct to evaluate CMV (Podsakoff et al., 2003; Williams, Cote, & Buckley, 1989), and the results showed that CMV was absent in the present study. In other words, the CMV concern appears not to be a serious one in the present study. However, the three posthoc remedies that we used to draw this conclusion have their own limitations, and future research should consider using lagged or longitudinal approaches.

Currently, research into PsyCap and positive psychological mechanisms is in its infancy. As Luthans, Avolio, et al. (2007) pointed out, some personal states can be included in PsyCap because these states satisfy PsyCap criteria. Among these criteria are three of note: (a) personal states must be measurable; (b) personal states must be trainable; and (c) personal states must increase organizational performance (Luthans, 2002b). Future research on PsyCap, on its components, and on their psychological mechanism stands a good chance of clarifying employee innovative behavior and the effects of contextual social resources on employee behavior.

In cooperative work teams, the occurrence of "A-ha" moments (i.e., moments of great insight) often serves as permission to continue exploring ideas and to transform novel ideas into practical realities

(Hülshager, Anderson, & Salgado, 2009). As organizations adopt increasingly team-based structures and grow reliant upon teams to develop and implement innovative solutions (even those originally proposed by an individual), research into teamwork becomes ever more valuable. Team-level concepts, therefore, should not be neglected in future organizational innovation research.

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