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Overcoming Resistance to Change and Enhancing Creative Performance

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Drawing on the sense-making perspective, the authors develop and test a cross-level model of individual creativity, integrating resistance to change and three human resource contextual factors to moderate the individual relationship. This cross-level study of working adults from a wide array of Chinese companies addresses one of the major challenges managers face in enhancing individual-level creativity: overcoming employees' resistance to change. The authors study the efficacy of three contextual factors that are important elements of the creative process—modernity climate, leadership style, and coworker characteristics—for helping managers overcome this challenge. The authors find that the three contextual variables moderate the negative relationship between resistance to change and creativity, and the pattern of results indicates that managing human resources practices may mitigate the detrimental effects of resistance to change on creativity.

Keywords: *employee creativity; resistance to change; climate; leadership; coworker; sense making*

Creativity has become one of the critical success factors for organizations in today's rapidly changing business environment (C. Ford, 1996; George, 2007; Runco, 2004; Woodman, Sawyer, & Griffin, 1993). Managers continue to focus increasing amounts of attention and resources on enhancing employee creativity as they strive to build organizations capable of

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responding effectively and innovatively to dynamic competitive conditions (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Drazin, Glynn, & Kazanjian, 1999; Frohman, 1997; Oldham & Cummings, 1996; Scott & Bruce, 1994; Shalley, Gilson, & Blum, 2009). Both research (e.g., Amabile et al., 1996; C. Ford, 1996; George, 2007; Mumford & Gustafson, 1988; Shalley, Zhou, & Oldham, 2004) and practitioner-oriented publications (e.g., Amabile, Hadley, & Kramer, 2002; Florida & Goodnight, 2005) frequently highlight the challenges and difficulties managers face as they strive to foster higher levels of employee creativity. One of the challenges that figures prominently in many of these articles is helping employees contend with the change and uncertainty that are inherent in creative efforts (Amabile et al., 1996; Amabile et al., 2002; C. Ford, 1996; George, 2007; Woodman et al., 1993).

Burns and Stalker (1961: 105) were among the first scholars to emphasize that change is an integral and essential part of creativity and to a broader set of situations that involve organizational adaptation and growth, yet they also highlighted the difficulties most people experience when they face change. They noted that while innovation requires a significant amount of change on the part of individual employees, including "the adjustment and continual re-definition of individual tasks through interaction with others," it is difficult for most people (and most organizations) to engage in this level of change. This point has continued to be emphasized by other scholars (Amabile et al., 1996; Drazin et al., 1999; Frohman, 1997; Oldham & Cummings, 1996; Scott & Bruce, 1994; Shalley et al., 2004; Shalley et al., 2009; Shin & Zhou, 2003; Woodman et al., 1993). Typically, people are inclined to resist change and instead prefer to maintain the status quo and adhere to routine and habitual behaviors (J. Ford, Ford, & D'Amelio, 2008; Oreg, 2003). More specific to our purposes, research indicates that people tend to be especially sensitive to the uncertainty, apparent riskiness, and potential for failure that accompany creative efforts, so they resist changing away from their normal way of thinking and doing that stymies creativity and inhibits innovation (Jermier, Knights, & Nord, 1994; Jones, 2001). Hence, researchers have argued that individual dispositional resistance to change is likely to be detrimental to individuals' creative performance because it prevents employees from taking appropriate risks, adopting new ways of thinking and doing, and initiating change, all of which are fundamental requirements of creative performance (Amabile et al., 1996; J. Ford et al., 2008; Frohman, 1997; Jermier et al., 1994; Woodman et al., 1993). However, Burns and Stalker (1961) posited that certain kinds of work environments might help overcome this tendency to resist change, and recent research supports this possibility. Wanberg and Banas (2000) found that individuals who tended to be dogmatic and close-minded were more willing to participate in an organizational change when the work environment supported or assisted them in accepting the change, for example, providing information about the change and allowing these employees to participate in the change process. Although scholars have suggested that features of the work environment might help mitigate the detrimental effects of employees' resistance to change, researchers have not yet explored this in the context of employee creative performance (George, 2007; Mumford & Gustafson, 1988; Woodman et al., 1993).

We use a sense-making perspective (Weick, 1995) to suggest how contextual cues—factors such as organizational climate and managers' leadership style—might help overcome the potential negative effects that employees' dispositional resistance to change can have on their creative performance. We suggest that these contextual cues both help employees to

understand the importance of change for fostering creativity and also provide employees with the social, emotional, and technical support they need to overcome their own tendency to resist change. Following Woodman et al.'s (1993) interactionist model, we adopt a multilevel approach that considers the possibility that contextual factors at the group level might moderate individual-level relationships between resistance to change and creative performance (e.g., Bliese, 2000; Hirst, Van Knippenberg, & Zhou, 2009; Hofmann, Griffin, & Gavin, 2000). In so doing, we seek to extend the resistance to change literature into the domain of employee creative performance and also extend the creativity literature by identifying cross-level contextual factors that might foster creative performance by mitigating the potential negative outcomes often associated with employees' dispositional resistance to change.

Theory and Hypotheses

Individual Resistance to Change and Creative Performance

For many years, creativity scholars have asserted that the essence of successful creative efforts is change (Burns & Stalker, 1961; Kanter, 1985; West, Hirst, Richter, & Shipton, 2004; Woodman, 1989; Woodman et al., 1993). Creativity, by definition, requires that people deviate from conventional wisdom and adopt new ways of thinking and doing, enact new patterns, and move away from the status quo so that they can develop novel and useful ideas (Shalley et al., 2009; Zhou & George, 2001). Creativity also requires a willingness to generate wildly different ideas that entail the very real possibility of mistakes and failure (George & Zhou, 2001; Miner, Bassoff, & Moorman, 2001). All of these involve changes: changes in ways of thinking and doing, changes away from established routines and practices, and, as Burns and Stalker (1961) emphasize, changes in the way people interact with each other. However, people are generally inclined to resist change and may at times engage in extreme measures to avoid it (C. Ford, 1996; Jermier et al., 1994; Jones, 2001; Piderit, 2000). Yet research also indicates that most people have a tendency to resist changes of these kinds because change is often associated with greater urgency, pressure, and risk than normal organization activities (J. Ford et al., 2008; Kotter, 1995). C. Ford (1996: 1116) emphasizes that "even in circumstances that favor creative action, people will likely choose familiar behavioral options that are relatively more attractive based on their past success, relative ease, and certainty." As a consequence, scholars have posited that resistance to change can stymie creative performance (George, 2007; Woodman et al., 1993), and so overcoming this tendency is usually viewed as a necessary prerequisite to creative performance (C. Ford, 1996; Goldsmith, 1984; Kirton, 1980; Woodman, 1989; Zhou & George, 2001).

Although most people resist change to some extent, people appear to differ in their general tendency or disposition toward change, with some people exhibiting higher levels of resistance to change; some people resist even changes that are consonant with their interest (Judge, Thoresen, Pucik, & Welbourne, 1999; Oreg, 2003; Oreg et al., 2008). Who are the people who are most likely to resist change? What are the personal characteristics that drive such resistance? Oreg (2003) proposed that people are more likely to resist chance to the extent they exhibit six common manifestations of dispositional resistance to change: (a) a reluctance to

lose control (a fear that one might lose control after change), (b) cognitive rigidity (unwillingness to think differently and a tendency to be close-minded), (c) lack of psychological resilience (low ability to cope with change), (d) intolerance to the adjustment period involved in change (low ability to adjust to new situations), (e) preference for low levels of stimulation and novelty (ability to perform well within a well-defined and familiar framework, but tendency to perform poorly outside the given framework; Kirton, 1980), and (f) reluctance to give up old habits (tendency to experience stress when one encounters new stimuli). These manifestations appear to derive from fairly stable individual traits that represent the way a person typically approaches a variety of changes and change-related contexts, and so people can be distinguished by their trait or dispositional level of resistance to change (Oreg, 2003). Oreg (2003) developed a scale to measure dispositional resistance to change and found that higher levels were associated with resistance to innovation and voluntary change, among other important outcomes.

We predict that resistance to change will be negatively related to creative performance. Although this predication seems fairly straightforward given the predominant expectation in the creativity literature (e.g., Amabile et al., 2002; George, 2007; Woodman et al., 1993), there appears to be no empirical evidence about its accuracy. We expect that the more resistant an individual is to change, the less willing he or she will be to thinking differently, challenging the status quo, and adopting new ways of doing things. As a consequence, we expect that dispositional resistance to change will be detrimental to employees' creative performance.

Hypothesis 1: Employees' resistance to change will be negatively related to their creative performance.

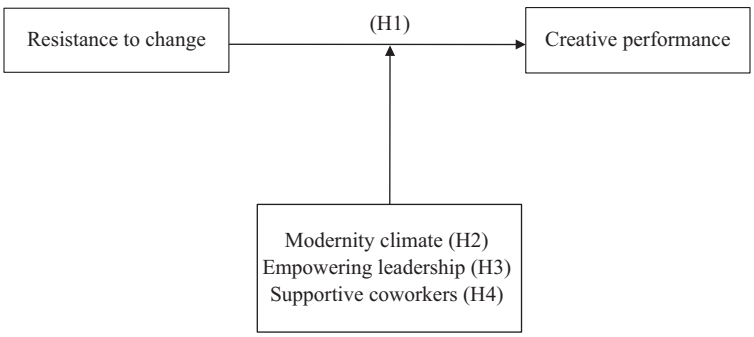
A Sense-Making Perspective on Overcoming Individual Resistance to Change

Assuming Hypothesis 1 is true, a central problem for organizations is, then, how to help people overcome their tendency to resist change so that they can adopt the mind-sets and behavioral styles that appear to be essential for creative performance. We suggest that important insights into resolving this problem can be obtained through adopting a sense-making perspective (Weick, 1995). The sense-making approach assumes that the issues and events surrounding change-oriented situations, including creative performance, are often ambiguous and fuzzy and that people engage in sense-making processes to construe the meaning of those issues and events (Lee, Edmondson, Thomke, & Worline, 2004; Weick, 1995). The central idea is that because creativity involves uncertainty, risk, and, ambiguity, people are usually unclear about whether and how their efforts to change and be creative will succeed (West et al., 2004; Wong & Weiner, 1981). When environmental cues signal that change is desired, creativity is encouraged, and failures experienced in pursuit of both are acceptable, employees will be more willing and capable of enacting change in service of creativity and, hence, to achieve higher levels of creative performance. Similarly, cues signaling that change is undesirable, creativity is discouraged, and failures are unacceptable are likely to trigger employees to act on their resistance to change and, hence, to be detrimental to their creative performance.

The sense-making approach also highlights that problems of resistance are not givens; they are constructed within a particular social context and are based on cues and information people obtain about the amount of uncertainty and the potential risks they face. These cues influence, for example, the anxiety and insecurity people associate with change (Ashforth & Lee, 1990; Jermier et al., 1994; Jones, 2001; Judge et al., 1999; Krantz, 1999; Lee et al., 2004). As such, the kinds of environmental cues that are present can either exacerbate or mitigate people's dispositional tendencies. For example, Brockner and Wiesenfeld (1996: 201) argued "when people are in a sense-making mode, external cues that address their informational needs should be particularly influential." Following this logic, we propose that social contextual cues that are diagnostic of the acceptability and legitimacy of contextual factors are able to moderate the negative response to change on creativity. In other words, if people who resist change can draw contextual factors as inferences, then its negative effects on creativity should be attenuated. People who resist change are thereby encouraged to engage in sense making that entails sloughing off responsibility by blaming difficulties on resistance or other factors.

Creativity scholars have emphasized that social contextual factors play a critical role in fostering or inhibiting employees' creative performance, but they have also highlighted the need to address social contextual factors at multiple levels—the individual, group, and work unit or organizational levels (Drazin et al., 1999; George, 2007; Woodman et al., 1993; Zhou & Shalley, 2008). Although sense-making cues may take many forms (e.g., Gioia, Thomas, Clark, & Chittipeddi, 1994; Lamertz, 2002), among those that are particularly relevant to our research, previous studies suggest that social contextual factors such as organizational climate, social relations, and leadership provide particularly important cues for employees to use as they interpret organizational events (Salancik & Pfeffer, 1978). In the present study, we seek to understand how environmental cues at these three levels might help overcome the potential negative effects that employees' dispositional resistance to change might have on their creative performance (Amabile et al., 1996; Amabile et al., 2002; George, 2007; Oldham & Cummings, 1996; Zhou & George, 2001). Specifically, we focus on (a) a team climate that supports openness and equality, (b) empowering leaders who encourage employees to be flexible, and (c) helpful and supportive coworkers who provide the social support and encouragement to be creative. We explore how these three contextual factors might enhance individual-level relationships. Briefly, a team climate that emphasizes modernity signals that equality, flexibility, openness, and moving beyond the status quo are important norms that employees should enact (Farh, Earley, & Lin, 1997), implying that creativity is accepted and encouraged in the organization. Empowering leadership involves team managers who share power with a view to enhance employees' motivation and investment in their work (Kirkman & Rosen, 1999; Zhang & Bartol, 2010). Supportive coworkers embody important elements of social relationships and provide a positive context for creativity through individuals providing help and supportive behavior to their coworkers (Zhou & George, 2001). We selected these three contextual factors not only because they appear to be important cues but also because they capture three distinct aspects of the context: one concerning organizational climate, one concerning leader behaviors, and the other concerning group relations. The distinctiveness of the effects associated with these three constructs also provided a cross-level test of our hypotheses. We present our model in Figure 1.

Figure 1
A Cross-Level, Interactionist Model of the Relationships Among Resistance to Change, Context, and Employee Creativity



Modernity climate. A number of scholars have proposed that work climates can either promote or inhibit employee creativity by way of the values and norms of behavior the climate engenders (Amabile et al., 1996; Anderson & West, 1998; Baer & Frese, 2003; George, 2007; Shalley et al., 2004; Zhou & Shalley, 2003). Climate refers to perceptions and interpretations shared among employees about what organizational policies, practices, and procedures signal about the organization's norms, value system, and desired objectives (Carr, Schmidt, Ford, & DeShon, 2003; Reichers & Schneider, 1990). Climate is a social-cognitive construct that reflects sense making among a particular group of individuals (Denison, 1996; Katz & Kahn, 1978), what Zohar and Luria (2004: 324) describe as "a collaborative search for cues, and subsequent testing and validation leading to negotiated (i.e., socially construed) agreements that make an environment more understandable." Accordingly, we are interested in the degree to which a group of people shares common perceptions of work values and norms. Through ongoing social interaction and collective construal, employees interpret the organizational and management practices, policies, procedures, and behaviors as signals about what kinds of actions and decisions are expected, supported, and rewarded. These shared interpretations create a climate that, in turn, indicates the correct ways of enacting norms and values and achieving desired objectives (Reichers & Schneider, 1990; Schneider, 1990). Climates are conceptualized and measured at different levels, from the broad, organizational-level climate to the climate of smaller groups (Denison, 1996; Lindell & Brandt, 2000). We focus on team-level climate.

We also study climate in a particular cultural context—China—and we address values—modernity and traditionality—that are of particular relevance to both that context and, we argue, creativity (Farh et al., 1997; Leong & Chang, 2003; Yang, 1993, 1998). Climates always have a specific referent and occur in a specific context (Denison, 1996; Lindell & Brandt, 2000; Reichers & Schneider, 1990). Over the past several decades, China has undergone significant modernization, what Yang (1998: 75) calls "a continuous process of protest and change." Some organizations and individuals have responded by adhering to traditional

Confucian values and the *wu lan* system of deference to authority, emphasis on harmony, and formalistic interpersonal relationships (Farh et al., 1997; Yang, 1998). Other organizations and individuals have responded by shifting away from traditional values and toward modernity (cf. Yang, 1998) and values of open-mindedness, egalitarianism, and assertiveness. A growing literature suggests that, in a Chinese work context, these differences in adherence to traditionality versus modernity may have important implications for a variety of work phenomena including leadership, organizational justice, organizational citizenship behaviors, and perceived organizational support (Chen & Aryee, 2007; Farh et al., 1997; Farh, Hackett, & Liang, 2007). We explore their potential impact on resistance to change and creativity.

According to sense-making logic, climates that emphasize such things as tradition, adherence to rules, hierarchical interpersonal relationships, strict lines of authority, and stability are thought to inhibit creativity because they send a strong signal to employees that organizations do not welcome change and encourage employees' inherent tendency to resist change (West et al., 2004). On the other hand, climates that emphasize openness to new experiences, novelty, rejecting traditional authority, equality of members, freedom to move, and taking a rational, ambitious approach to work signal that change is welcome (C. Ford, 1996; Vera & Crossan, 2005; Woodman et al., 1993). One way this latter kind of climate is thought to promote creativity is through the powerful signals it sends that it is safe for employees to undertake the risky, exploratory, failure-prone activities that are integral to creative performance (Amabile et al., 1996; George, 2007; Shalley et al., 2004). This difference in climate for creativity is manifest in Chinese contexts through the concept of modernity that has been identified as an important social value in Chinese cultures (Farh et al., 1997; Leong & Chang, 2003; Yang, 1993, 1998). Modernity reflects an emphasis on open, forward-thinking mind-sets and progressive, improvement-oriented actions (Earley & Erez, 1997; Triandis, 1989). In organizations expressing modernity, each individual is assumed to have freedom of choice and the right to self-expression (Farh et al., 1997; Zhang, Zheng, & Wang, 2003). Modernity manifests itself in a preference for progress and a willingness to engage in strong, even revolutionary change to ensure progress (Zhang et al., 2003). As a consequence, we posit that work environments that emphasize modernity are likely to be more creative. Although we are aware of no research that has examined the degree to which modernity climates are associated with resistance to change, prior theory and research have provided indirect support for this idea (e.g., Farh et al., 1997; George, 2007; Yang, 1998). When work environments emphasize modernity, they encourage progressive thinking, opening discussions of problems and opportunities, exploring new ways of doing things, and challenging conventional wisdom and the status quo (Farh et al., 1997; Yang, 1993; Zhang et al., 2003). According to the sense-making perspective, this openness and progressive thinking may send powerful signals that change is good, that the risks of creativity are expected and accepted, and that an individual's efforts to be creative, including good-faith failures, will be supported and encouraged. The progressive orientation toward the future is likely to create positive expectations among employees about the outcomes of creativity and change. Employees in these work environments are likely to be encouraged to take initiative and try new and different approaches to work. Therefore, we expect that modernist climates will moderate some of the potential negative effects of resistance to change on creative performance.

Hypothesis 2: Modernist climates will moderate the effects of employees' resistance to change on creative performance such that the negative relationship between resistance to change and creativity will be lower in climates that emphasize modernity.

Empowering leadership. A number of research studies indicate that the quality of leadership that employees experience—especially empowering leaders—has a significant impact on their attitudes and behaviors (George, 2007; Srivastava, Bartol, & Locke, 2006; Zhang & Bartol, 2010). This research suggests that leader behaviors might also play an important role in overcoming employees' resistance to change. Empowering leaders foster trust-based and power-sharing relationships with subordinates, communicate a compelling vision of work to them, coach, show concern, and facilitate self-reliance in their followers (Arnold, Arad, Rhoades, & Drasgow, 2000; Bennis & Townsend, 1997). They encourage a strong sense of power sharing among their followers by promoting decision making, demonstrating their trust in subordinates, and providing followers with the freedom to be as flexible as circumstances warrant (Arnold et al., 2000; Seibert, Silver, & Randolph, 2004; Zhang & Bartol, 2010). According to the sense-making approach, providing greater decision-making autonomy to team members may signal to followers that it is acceptable to take the initiative and that employees are encouraged to exercise their own discretion under this leadership. These characteristics suggest that empowering leaders may also be effective in ameliorating employees' concerns about risk taking and overcoming their resistance to change.

Existing research indicates that employees who work for empowering leaders are more likely to feel encouraged to challenge the old ways of performing and take the risks necessitated by creative efforts (Lee et al., 2004; Oldham & Cummings, 1996; Zhang & Bartol, 2010; Zhou & George, 2003). The emphasis empowering leaders place on leading by example and self-reliance is likely to signal to subordinates that it is acceptable and even encouraged to be proactive, to take risks, and to engage in the kinds of creative change activities that are likely to lead to innovative new ideas (Lee et al., 2004; Srivastava et al., 2006; Zhang & Bartol, 2010). According to the sense-making process, the high-quality, trust-based relationships initiated by empowering leaders are likely to lead subordinates to believe that mistakes and failures made as a result of attempts to be creative will not be punished (Shalley et al., 2004; Zhang & Bartol, 2010). Finally, the concern for subordinates' personal well-being that is another hallmark of empowering leaders is likely to signal that these leaders will act to prevent or mitigate followers' hindrances to performance that might ensue from employees' creative efforts (Oldham & Cummings, 1996). In line with the sense-making perspective, we expect that empowering leadership will moderate the potential negative effects of employees' resistance to change on creativity.

Hypothesis 3: Empowering leadership will moderate the effects of employees' resistance to change on creative performance such that the negative relationship between resistance to change and creative performance will be lower under more empowering leaders.

Supportive coworkers. A final contextual variable that might mitigate employees' resistance to change is the support and help available from coworkers (George, 2007; Hargadon & Bechky, 2006; Madjar, 2005; Zhou & Shalley, 2003). Social support has long been recognized

as one of the most important factors in helping people deal with change, risk, and ambiguity (Baumeister & Leary, 1995). In a work context, recent research suggests that coworker support—the provision of desirable resources, including knowledge, help, and friendliness, by one employee to another—is one important manifestation of social support (Chiaburu & Harrison, 2008). Research indicates that supportive coworkers enhance employee creativity, and we submit that coworker support will also help overcome employees' resistance to change. For example, Hargadon and Bechky (2006) outline several ways that coworker support can enhance creativity, two of which—help seeking and help giving—may mitigate employees' resistance to change. Help seeking and help giving can include sharing knowledge and expertise, providing encouragement, offering support, and assisting recovery efforts after mistakes or failures have occurred (Amabile et al., 1996; George, 2007; Oldham & Cummings, 1996; Shalley & Gilson, 2004). The sense-making approach suggests that these helping behaviors among coworkers are likely to be interpreted by people who resist change that immediate assistance is available and to create perceptions for a social and instrumental safety net they can rely on during future creative efforts (George, 2007; Hargadon & Bechky, 2006).

Supportive coworkers may also provide a safety-in-numbers mentality via help seeking and giving such that individuals who resist change do not think that they face the risks and uncertainty associated with creativity on their own, and, as such, they may be more likely to engage in creative efforts and more willing to participate in an organizational change (Wanberg & Banas, 2000). In such situations coworkers may share their knowledge and expertise when the employee is faced with a difficult task for which solutions are not readily available. This will likely signal to employees that coworkers or other colleagues are helpful and supportive; it would be relatively easy for employees to use coworkers as a sounding board for new ideas (Farr, 1990), minimizing the chances of errors occurring. Prior research on creativity has found that team members' helping and supportive behaviors can also increase individuals' confidence in their own capabilities and their ability to change things (Amabile et al., 1996; Zhou & Shalley, 2003). According to the sense-making approach, this increase in confidence may help employees who resist change to try different ways of doing and performing and overcome their reluctance to engage in creative efforts. In sum, we expect that support and help from coworkers will moderate the effects of employees' resistance to change on their creative performance.

Hypothesis 4: Coworker help and support will moderate the effects of employees' resistance to change on employee creative performance such that the negative relationship between resistance to change and creative performance will be lower when employees receive more help and support from their coworkers.

Method

Sample and Procedures

Individual-level data for this study were collected from three main industries in Shanghai, People's Republic of China: the high-technology, manufacturing, and service sectors. Jobs

in these industries require employee creativity to generate new ideas about services or products, among other creative outcomes. We distributed questionnaires to 80 leaders from 80 companies that participated in a part-time MBA program at a Shanghai university. The leaders held positions ranging from upper-level manager to team leader. A total of 68 leaders (an 85% response rate) completed our surveys. The team leaders distributed surveys to all of the individual members of their teams, and employees were allowed to decide whether or not they would participate in the study. Surveys were distributed to a total of 608 employees. Each survey packet included a cover letter explaining the general purpose of the study and stating that participation was voluntary. Respondents were instructed to complete the survey individually and to use the preaddressed envelope to mail the survey directly to the MBA office. The final sample consisted of 452 employees (a 74% response rate) who were supervised by the 68 team leaders, each representing one of the 68 organizations. The sample size at each organization ranged from 5 to 12, with a mean of 6.5, which is typical for multilevel research (Hofmann et al., 2000). In the employee sample, about 53% of the participants were male. The age distribution was 38% between 20 and 29, 37% between 30 and 49, and the rest older than 49. Most participants (64.3%) had a college degree or higher and were low or midlevel employees (90%). Functional affiliations included marketing and customer services (46%), manufacturing and R&D (27%), human resource management and administration (23%), and finance or accounting (4%). Among team leaders, most were college educated (90%), males (80%), and between 30 and 49 years of age (74%). Organizations represented the high-technology (56%), manufacturing (23%), and marketing services (21%) industries. Organization size ranged from small (23% had fewer than 100 employees) to fairly large (31% had more than 1,000 employees).

Measures

A 7-point Likert-type scale was used for all study measures, with 1 representing *strongly disagree* and 7 representing *strongly agree*. Two different questionnaires were prepared for team managers and their subordinates. Employees were asked to answer questions covering resistance to change, and members of a team responded to measures of organizational modernity, empowering leadership, and coworkers' supportive behaviors. Team managers were asked to rate employees' creative performances. Resistance to change and employee creativity were measured at the individual level, while the three contextual factors were measured at the unit or team level. With the exception of an indigenous modernity scale, all measures used were originally developed in English and were then translated into Chinese by two bilingual professional experts. The back-translation method was used to ensure correct translation (Brislin, 1986). The two translators worked independently to translate from English to Chinese and Chinese to English. Then discrepancies between the English and Chinese versions were identified, discussed, and revised by the two bilingual experts to ensure semantic equivalence.

Resistance to change. Oreg's (2003) 16-item scale was used to measure employees' responses to change. The 16 items formed four dimensions: (a) routine seeking (e.g., "I generally consider

changes to be a negative thing"), (b) emotional reaction to imposed change (e.g., "When I am informed of a change of plans, I tense up a bit"), (c) short-term focus (e.g., "Changing plans seems like a real hassle to me"), and (d) cognitive rigidity (e.g., "I don't change my mind easily"). The fit indexes for four first-order factors plus one second-order factor fell within an acceptable range ($\chi^2 = 137.22$, $p < .001$; comparative fit index [CFI] = .97, incremental fit index [TLI] = .96, root mean square error of approximation [RMSEA] = .07), suggesting that the dimensions reflected the overall construct. We averaged the four subscales to yield a single composite measure, with a high score indicating a high resistance to change. Coefficient alpha for this scale was .85.

Modernity climate. We assessed modernity climate using the five-item scale originally developed by Yang, Yu, and Yeh (1991) and validated by Farh and his colleges (1997) in a study conducted in Taiwan. Consistent with our conceptualization of modernity climate, this scale assesses egalitarianism and open-mindedness (Yang et al., 1991). Sample items are "In this company, if a senior person makes a mistake, we may criticize him or her openly" and "In this company, anyone who creates a new idea to change should have the right to hold open discussions with others." Coefficient alpha for this scale was .81.

Empowering leadership. We measured empowering leadership by using the 15-item scale developed by Arnold et al. (2000). This scale includes five dimensions: leading by example (e.g., "Sets a good example by the way he/she behaves"), participative decision making (e.g., "Gives all team members a chance to voice their opinions"), coaching (e.g., "Teaches our team members how to solve problems on our own"), informing (e.g., "Explains rules and expectations to team members"), and showing concern and interacting with the team (e.g., "Shows interest in team members' success"). A confirmatory factor analysis (CFA) for the 15-item scale indicated a single second-order factor solution with an acceptable fit ($\chi^2 = 154.04$, $p < .001$; CFI = .96, TLI = .96, RMSEA = .08). We averaged the 15 items to create a single index measuring empowering leadership. The average score of responses from team members was used to compute this measure. Coefficient alpha for this scale was .88.

Coworker helping and supportive behaviors. We measured coworker helping and support using four items adapted from Podsakoff, Ahearne, and MacKenzie (1997). Sample items are "In our team, we are willing to share our expertise and knowledge with each other" and "In our team, we help each other out if someone falls behind in his/her work schedule." Coefficient alpha for this scale was .90.

Employee creativity. Team leaders were familiar with subordinates' work behavior and were asked to assess employees' creative performance using Zhou and George's (2001) 13-item scale. Example items include "Suggests new ways to achieve goals or objectives" and "Comes up with new and practical ideas to improve performance." Coefficient alpha of this scale was .94.

Control variables. To reduce potential confounding effects, we controlled for several common background variables known to affect various work-related attitudes and behaviors.

At the individual level, we controlled for age, gender (0 = *male*, 1 = *female*), tenure, education level (0 = *bachelor's degree or above*, 1 = *below bachelor's degree*), respondent's functional affiliation (R&D is the comparison category), and the industry in which the firm operates (high technology is the comparison industry). At the team level, we controlled for group size (0 = *5 or fewer members on a team*, 1 = *6 or more members*) and organization size (0 = *500 or fewer employees*, 1 = *more than 500*).

Analytic strategy. Before data aggregation, we performed two CFAs to investigate the discriminant validity of the factor structures of the three contextual constructs with the unit and group referent (modernity climate, empowering leadership, and coworkers support). Overall model fit was assessed by CFI, TLI, and RMSEA (Browne & Cudeck, 1992). Because we measured all three contextual variables at the team level, we also conducted an analysis of the level of agreement among team members for each construct. Specifically, we compared the median interrater agreement (r_{wg}) scores and the intraclass correlation coefficient (ICC[1] and ICC[2]) statistics, expecting higher agreement on the unit-focused climate and group-focused leadership scales than on the individual-focused variables. Bliese (2000) suggested that ICC(1) values close to or greater than .20 indicate a desirable level, and Glick (1985) suggested that ICC(2) values should be greater than .60.

Results

Confirmatory Factor Analysis

To assess discriminant validity, we first conducted a CFA on the items composing the contextual variables. These three constructs are at the unit or group level, and we expected them to be distinct from constructs at the individual level. Three baseline models were computed ($N = 452$). Results showed good fit for the three-factor model, where all items loaded on their intended constructs ($\chi^2 = 529.27$, $df = 102$, $p < .01$; CFI = .93, TLI = .93, RMSEA = .07). In this analysis, all 15 items for empowering leadership were constrained to load on the second-order construct. All factor loadings were significant at the .05 level. Next, we computed a two-factor model that combined the items for empowering leadership and supportive coworkers, the two variables with the highest correlation ($r = .41$, $p < .01$) among the team-level constructs. This two-factor model yielded a poorer fit to these data ($\chi^2 = 988.31$, $df = 132$, $p < .01$; CFI = .78, TLI = .77, RMSEA = .10). Finally, a one-factor model—where all items were constrained to load on a single factor—yielded a poor fit ($\chi^2 = 3641.34$, $df = 135$, $p < .01$; CFI = .52, TLI = .53, RMSEA = .16). The hypothesized three-factor model better fit these data than both the two-factor model ($\Delta\chi^2 = 459.04$, $\Delta df = 30$, $p < .01$) and the one-factor model ($\Delta\chi^2 = 3112.07$, $\Delta df = 33$, $p < .01$).

Hierarchical Linear Modeling Results

Since employees were "nested" in work units, we used hierarchical linear and nonlinear modeling (HLM) to conduct the cross-level analyses (Hofmann et al., 2000; Raudenbush,

Bryk, Cheong, & Congdon, 2004). Because an organization-level variable can explain only differences between groups, the first task of a hierarchical analysis is to show significant within-group agreement on the three contextual variables. The median interrater agreement coefficients (r_{wg}; James, Demaree, & Wolf, 1993) for the three firm-level variables—modernity climate (.91), coworker helping and support (.95), and empowering leadership (.90)—indicated high interrater agreement. A one-way analysis of variance for each of these variables indicated that the between-group mean square was significantly higher than the within-group mean square. The ICC(1) values were as follows: modernity climate (.20), coworker helping and support (.26), and empowering leadership (.15). The test statistics (F ratios) associated with the ICC(1) values of all three variables were statistically significant. The ICC(2) values were as follows: modernity climate (.63), coworker helping and support (.70), and empowering leadership (.64). These values supported aggregating the three contextual variables to the unit and group levels. Taken together, results supported the discriminant validity of the three contextual factors and the individual scales. Table 1 presents the means, standard deviations, and correlations among all the variables.

Null model. Before any cross-level effects were examined, we needed to establish that there was significant between-group variance in the dependent variable. We examined a null model with no Level 1 or Level 2 predictors for creative performance ($\tau = .11$, $p < .01$). The significant effect justified the examination of firm-level effects for creativity. In addition, ICC(1) values indicated that 25% of the variance in creative performance resided between groups ($\chi^2 = 183.63$, $p < .001$). A series of hierarchical linear models was then evaluated to test the cross-level hypotheses.

Individual-level predictors. Hypothesis 1 predicted that employees' resistance to change would be negatively related to creative performance. We estimated a Level 1 model for the dependent variable, with no Level 2 predictors (Table 2, Model 1). Consistent with Hypothesis 1, results indicate resistance to change was negatively related to creative performance ($\gamma = -.33$, $p < .001$). A supplementary analysis using the four subscales comprising the measure revealed consistent results, with all four dimensions having a negative and significant parameter estimate. These parameter estimates were as follows: routine seeking = –.41 ($t = -4.23$, $p < .01$), emotional reaction to change = –.33 ($t = -3.61$, $p < .01$), short-term focus = –.28 ($t = -3.01$, $p < .01$), and cognitive rigidity = –.26 ($t = -2.98$, $p < .01$).

Contextual variables. We estimated a set of intercepts-as-outcomes models to test the main effects of the three contextual variables (Table 2, Model 2). Employees' resistance to change was treated as a Level 1 predictor, and the intercept coefficients obtained from Level 1 were regressed onto the three contextual variables. Our data yielded main effects for each of our contextual variables: Organizational modernity ($\gamma = .49$, $p < .01$), supportive coworkers ($\gamma = .61$, $p < .01$; Table 2, Model 4), and empowering leadership ($\gamma = .42$, $p < .01$; Table 2, Model 6) were significantly and positively related to creative performance. Organizational modernity, supportive coworker, and empowering leadership accounted for 26%, 27%, and 30% of the between-group variance in creative performance, respectively.

Table 1
Means, Standard Deviations, and Correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Resistance to change	2.85	1.07	—								
2. Creative performance	5.05	0.82	–.34**	—							
3. Modernity climate	4.04	1.07	–.06	.28**	—						
4. Supportive coworkers	5.14	0.96	–.19*	.31**	.27**	—					
5. Empowering leadership	5.21	1.03	–.21**	.33**	.39**	.41**	—				
6. Age	28.88	8.59	–.00	–.10	–.06	–.04	–.10	—			
7. Gender	0.47	0.45	.20	.07	.12	.28**	.19	.02	—		
8. Education	0.38	0.66	–.01	.06	.05	–.11	–.18	–.39**	–.22*	—	
9. Organization tenure	5.32	7.97	–.10	–.06	–.05	–.09	.08	–.66**	.01	–.41**	–
10. Sales and marketing	0.13	0.30	.06	.21*	.09	.03	.08	–.02	.04	–.06	.21*
11. Production management	0.06	0.22	.09	.22*	.07	.05	.21*	.07	–.13	–.03	.04
12. Engineering and maintenance	0.11	0.29	.02	–.05	–.10	–.10	–.09	.07	.02	.05	.18
13. HR and training	0.03	0.17	.04	.04	–.03	–.04	–.04	–.03	.05	–.04	–.04
14. Finance and accounting	0.15	0.32	–.11	–.04	–.03	–.03	.07	–.08	–.07	–.13	–.08
15. Administrative management	0.12	0.25	.15	.06	.11	.15	.06	.21*	–.17	–.10	.15
16. Manufacturing	0.05	0.21	.05	–.08	–.09	–.05	–.07	–.03	–.06	.03	.04
17. Service	0.23	0.50	–.09	–.07	–.05	–.02	–.09	–.10	.08	.05	.01

Variable	10	11	12	13	14	15	16	17
1. Resistance to change								
2. Creative performance								
3. Modernity climate								
4. Supportive coworkers								
5. Empowering leadership								
6. Age								
7. Gender								
8. Education								
9. Organization tenure								
10. Sales and marketing	—							
11. Production management	–.05	—						
12. Engineering and maintenance	.25**	–.22*	—					
13. HR and training	–.10	–.10	–.07	—				
14. Finance and accounting	–.03	–.16	–.21*	–.04	—			
15. Administrative management	–.06	–.12	–.23*	–.06	–.24**	—		
16. Manufacturing	–.08	.10	.12	–.05	–.13	.01	—	
17. Service	–.05	.06	–.08	–.03	–.18	–.04	.05	—

Note: $N = 452$.
*$p < .05$. **$p < .01$.

Table 2
Hierarchical Linear and Nonlinear Modeling Results for the Moderating Effects of the Three Contextual Variables and Resistance to Change on Employee Creativity

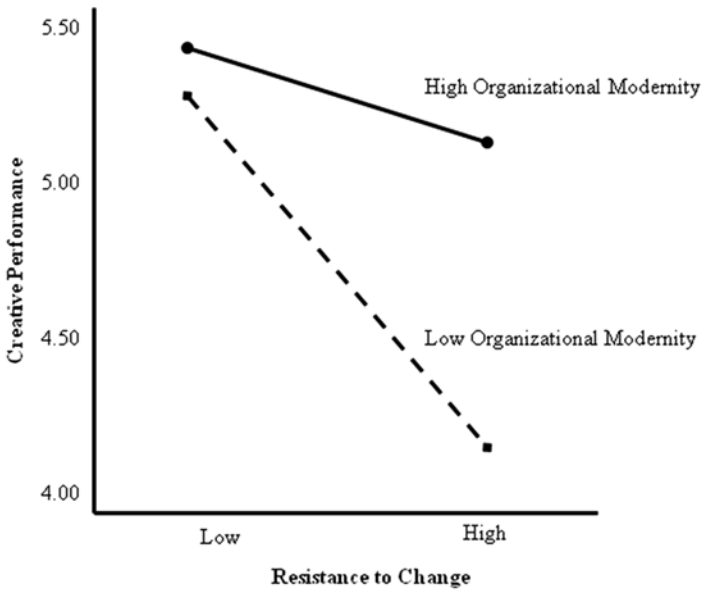
Variable	Model 1		Model 2		Model 3	
Level 1						
Intercept	5.86	(0.05)***	6.01	(0.04)***	6.05	(0.04)***
Age	–0.32	(0.03)*	–0.28	(0.04)*	–0.27	(0.04)*
Gender	0.23	(0.04)	0.18	(0.05)	0.18	(0.05)
Education	–0.10	(0.06)	–0.09	(0.05)	–0.10	(0.05)
Organizational tenure	–0.32	(0.04)	–0.28	(0.04)	–0.29	(0.04)
Sales and marketing	0.10	(0.05)	0.15	(0.05)	0.15	(0.05)
Production management	–0.12	(0.06)	–0.14	(0.06)	–0.14	(0.06)
Engineering and maintenance	–0.08	(0.05)	–0.10	(0.05)	–0.10	(0.05)
HR and training	0.06	(0.04)	0.08	(0.04)	0.07	(0.04)
Finance and accounting	0.01	(0.03)	0.02	(0.03)	0.02	(0.03)
Administrative management	0.03	(0.03)	0.03	(0.03)	0.03	(0.03)
Manufacturing	0.21	(0.04)	0.22	(0.04)	0.22	(0.04)
Service	0.02	(0.04)	0.06	(0.05)	0.06	(0.05)
Resistance to Change	–0.33	(0.05)***	–0.32	(0.05)***	–0.32	(0.05)***
Level 2						
Team size			–0.03	(0.03)	–0.03	(0.02)
Firm size			–0.05	(0.11)	–0.05	(0.11)
Organizational modernity			0.49	(0.10)**	0.47	(0.10)**
Supportive coworkers			0.61	(0.13)**	0.60*	(0.13)**
Empowering leadership			0.42	(0.12)**	0.41	(0.12)**
Cross-level effects						
Resistance × Modernity					0.31	(0.04)*
Resistance × Coworkers					0.40	(0.13)*
Resistance × Leadership					0.31	(0.12)*
Total R^2	.27		.51		.62	

Note: N (individuals) = 452; N (organizations) = 68. Values are parameter estimates, with standard errors in parentheses.
*$p < .05$. **$p < .01$. ***$p < .001$.

Cross-level interactions. A set of slopes-as-outcomes models was examined to evaluate the cross-level interactions (Table 2, Model 3). Hypotheses 2, 3, and 4 predicted that contextual variables would buffer the negative relationships between employees' resistance to change and their creative performance. Because resistance to change was a significant Level 1 predictor and the three firm-level variables were significant Level 2 predictors, we proceeded to test the cross-level interactions. Results indicate that organizational modernity does moderate the effects of resistance to change on employee creativity. Consistent with Hypothesis 2, the Level 2 predictor for the effects of organizational modernity on the slope of resistance to change was significant for creative performance ($\gamma = .31$, $p < .05$). Organizational modernity explained 23% of the between-group variance in the effects of resistance to change for creative performance. Figure 2 presents this moderating effect in which high and low levels are depicted as one standard deviation above and below the mean, respectively.

Hypothesis 3 predicted that supportive coworkers would buffer the negative relationship between resistance to change and creativity performance (see Figure 3). Results are consistent with Hypothesis 3: The coefficient for supportive coworkers as a Level 2 predictor of

Figure 2
Moderating Effect of Organizational Modernity on the Relationship Between Resistance to Change and Creative Performance



the slope of resistance to change was significant when creative performance was the dependent variable ($\gamma = .40$, $p < .05$). Supportive coworkers explained 19% of the between-group variance in the effects of resistance to change on creative performance.

Finally, our results were consistent with Hypothesis 4. Empowering leadership was a significant Level 2 predictor of the slope of resistance to change on creative performance ($\gamma = .41$, $p < .05$), explaining 32% of the between-group variance in the slope of resistance to change for creative performance. The negative relationship between resistance to change and employee creativity was weaker when empowering leadership was high (Figure 4).

Discussion

We examined relationships among creativity, resistance to change, and social context in Chinese organizations. We proposed that differences in employees' dispositional resistance to change would be related to their creative performance, and our data are consistent with this hypothesis. Drawing from a sense-making perspective, we hypothesized that three social-contextual factors—climate for modernity, empowering leaders, and supportive coworkers—might help overcome the effects of resistance change, and our data supported these predictions.

The sense-making perspective has some important theoretical implications for creativity and resistance to change. Creativity scholars have suggested that resistance to change is

Figure 3
Moderating Effect of Supportive Coworker on the Relationship Between Resistance to Change and Creative Performance

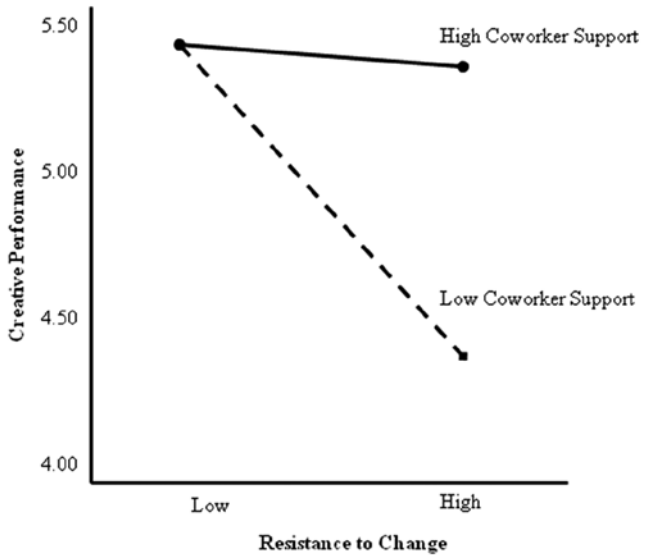
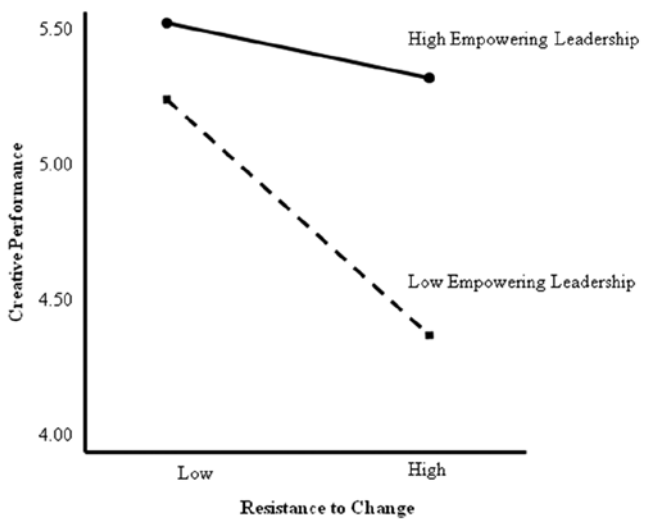


Figure 4
Moderating Effect of Empowering Leadership on the Relationship Between Resistance to Change and Creative Performance



problematic because it can inhibit creative performance and hamper innovation (Amabile et al., 1996; Oldham & Cummings, 1996; West et al., 2004; Woodman, 1989). As Woodman et al. (1993: 293) emphasize, creativity represents "a dramatic aspect of organizational change," and so fostering employee creativity requires helping people accept, even embrace, change. While resistance to change may be fairly ubiquitous, its detrimental effects on creativity may be particularly damaging because resistance makes it less likely people will take the risks and engage in the new ways of thinking and doing that may be critical for creative performance (C. Ford, 1996). The sense-making perspective emphasizes that organizations can influence employee creativity by shaping employees' social constructions of work environments (Lee et al., 2004; Weick, 1995). Under this view, people do not respond directly to specific practices or policies but rather interpret those contextual factors in terms of the values, norms, and objectives such factors appear to represent. These interpretations create a particular mind-set in employees about specific areas of activity, such as creativity. For our study, the sense-making logic suggests that people draw inferences from contextual factors about whether creativity and change are expected, supported, and rewarded in their work environment. In turn, those inferences are expected to influence employees' creativity-relevant actions.

Our results support this view, indicating that modernity climate, empowering leadership, and supportive coworkers serve as important contextual cues for shaping employee creativity. Supportive coworkers are important beyond their utilitarian effects because they help other employees to perceive that change, risk taking, and creativity are expected, valued, and supported. Similarly, contextual factors such as leadership and climate influence creativity by shaping how employees come to construct their work environment. We found that an organizational climate that encourages equality, freedom to move, and new ways of performing may be one important source of social cues associated with overcoming the detrimental effects of resistance to change. We also found that leaders who foster trust-based relationships and promote employees' sense of autonomy and coworkers who provide support and assistance also help ameliorate the negative effects resistance to change might have on employees' creative performance. We believe that this perspective could be very useful for understanding the effects of other contextual variables, including some that have been more difficult to understand such as conflict, psychological safety, and deadlines (George, 2007).

Our study also supports the importance of taking a cross-level approach to studying employee creativity (Drazin et al., 1999; Weick, 1995; Woodman et al., 1993). We found that group-level and work-unit-level variables appear to influence individual-level creativity. Our data indicate that contextual factors can buffer the negative effects of resistance to change and thereby enhance employees' creative performance. These multilevel findings suggest that researchers should focus on how factors operating at several levels might converge to influence employee creativity. For example, psychological safety could be studied as a group-level contextual factor that influences employee-level creativity.

Managerial Implications

Resistance has long been considered a detrimental construct in the world of work; when employees are unwilling to let go of the status quo, negative outcomes are expected

(Amabile et al., 1996; C. Ford, 1996; George, 2007; Piderit, 2000). Our study presents empirical evidence that one such outcome is lower levels of creativity. For managers, this suggests that resistance may trigger a bias against new ways of thinking and performing that are vital parts of the creative process (J. Ford et al., 2008; Kirton, 1980; Zhou & George, 2001). To respond, managers should address several contextual factors that our study indicates are associated with mitigating or lessening the negative relationship between resistance and creativity. Managers can foster a climate that encourages risk taking, accepts challenges to the status quo, and is open to progressive thinking and action, and they can adopt an empowering leadership style that is based on trust, autonomy, and self-direction. Our results also indicate that managers may be well served by placing employees with higher levels of dispositional resistance on supportive work groups. Such a team context may provide both tangible (e.g., advice on specific creative process issues) and psychological (positive affect from a supportive safety net) advantages. Managers need to learn how to encourage knowledge sharing and contribution to benefit from the buffering effects of coworker helping and support. Most importantly, our study suggests that managers can be most effective in overcoming resistance to change and fostering creativity by focusing on several interventions.

Limitations and Future Research

This research has several limitations that should be addressed in future research. First, the cross-sectional study raises the issue of causality. A longitudinal design would be preferable to a cross-sectional design because it would allow researchers to trace patterns of change over time, causal direction, and reciprocal relationships (Williams & Podsakoff, 1989). Second, although supervisors rated employees' creative performance, the contextual measures were self-reports at the unit level. Future studies may include additional objective measures of contextual variables. Third, we did not include other individual difference factors, such as openness to experience or creative self-efficacy, which also appear to be related to creative performance. Oreg's (2003) research indicates that resistance to change is distinct from these and other individual difference factors, but there is a need for studies that measure multiple dispositional factors to see whether and how they might be related to each other and creative performance. Fourth, our control for the creativity requirements of employees' work was very coarse, and a better measure may have led to results that showed some of these relationships vary according to the amount of creativity inherent in a job. Fifth, it is possible that modernity climate is strongly related to other manifestations of climate such as empowerment or risk taking, and this potential for overlap represents an area for future research to explore. Similarly, our measure of modernity may not have adequately tapped the construct of an open-minded, forward-thinking climate, and improvements in measurement are worthy of research attention. Finally, these data were collected in China, and we cannot address generalizability. While our theorizing is not tied to any specific organizational or cultural context, it is important to replicate our findings in different contexts.

Both research (e.g., Amabile et al., 1996; C. Ford, 1996; George, 2007; Shalley et al., 2004) and business practitioners (e.g., Amabile et al., 2002; Amabile & Khaire, 2008; Frohman, 1997) frequently highlight the challenges and difficulties managers face as they strive to overcome resistance to change and foster higher levels of employee creativity. Our

study provides theoretical insights for a sense-making perspective and directly addresses this challenge and introduces cross-level modeling to this research area. Managers of companies engaged in significant creative efforts should develop an open and modern environment, foster empowering leadership styles, and ensure that coworkers are willing to support each other and share knowledge. In so doing, these managers are likely to foster higher levels of creative performance among their employees.

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