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Innovation Performance in New Product Development Teams in China's Technology Ventures: The Role of Behavioral Integration Dimensions and Collective Efficacy

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Abstract

In emerging markets, technology ventures increasingly rely on new product development (NPD) teams to generate creative ideas, and to mold these innovative ideas into streams of new products or services. However, little is known about how behavioral integration (a behavioral team process) and collective efficacy (a motivational team process) jointly facilitate or inhibit team innovation performance in emerging markets—especially in China, the world's largest emerging-market setting with collectivist and high power-distance cultures. Drawing on social cognitive theory and behavioral integration research, this article elucidates the relationships between behavioral integration dimensions (i.e., collaborative behavior, information exchange, and joint decision making) and innovation performance, and also examines how collective efficacy moderates these relationships in China's NPD teams.

Results from a sample of 96 NPD teams in China's technology ventures reveal that information exchange is positively associated with innovation performance. Collaborative behavior positively but marginally influences innovation performance, whereas joint decision making doesn't relate to innovation performance. Moreover, collective efficacy demonstrates an important moderating role. Specifically, both collaborative behavior and joint decision making are more positively associated with innovation performance when collective efficacy is higher. In contrast, information exchange is less positively associated with innovation performance when collective efficacy is higher.

This study makes important theoretical contributions to the literature on team innovation and behavioral integration in emerging markets by offering a better understanding of how behavioral and motivational team processes jointly shape innovation performance in China's NPD teams. This study also extends social cognitive theory by identifying collective efficacy as a boundary condition for the overall effectiveness of behavioral integration dimensions. In particular, this study highlights the condition under which behavioral integration dimensions facilitate or inhibit NPD team innovation performance in China.

Keywords behavioral integration, collective efficacy, emerging markets, new product development, team innovation, technology ventures

Introduction

Organizations increasingly rely on new product development (NPD) teams to generate creative ideas, and to mold these innovative ideas into streams of new products or services that are designed to be useful (Ernst, 2002; Lovelace, Shapiro, and Weingart, 2001; West, 2002). This is especially true for technology ventures in emerging markets such as China's, because they must successfully innovate to keep up with dynamic market conditions and never-ending technological changes (Dubiel and Ernst, 2012; Li and Atuahene-Gima, 2001). Scholars have theorized that *cognitive*, *motivational/affective*, and *behavioral* team processes play a pivotal role in *jointly* shaping team effectiveness (e.g., Kozlowski and Ilgen, 2006). It is widely recognized that behavioral integration (a behavioral team process) and collective efficacy (a motivational team process) represent two important types of team processes (Kozlowski and Ilgen, 2006). Behavioral integration is defined as the extent to which a team engages in mutual and collective interaction (Hambrick, 1994). Collective efficacy refers to a team's collective motivational belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments on a specific task (Bandura, 1997).

However, little is known about how the two different types of team processes jointly facilitate or inhibit NPD team innovation performance. Drawing on social cognitive theory (Bandura, 2001) and behavioral integration research, this article elucidates the relationships between behavioral integration dimensions (i.e., collaborative behavior, information exchange, and joint decision making) and innovation performance, and also examines how collective efficacy moderates these relationships in NPD teams in emerging markets. This article focuses on China, the world's largest emerging-market setting with collectivist and high power-distance cultures.

Two major motivations fuel this study. First, this article contends that it is especially relevant

and important to gain a deeper understanding of *separate* relationships between each dimension of behavioral integration and NPD team innovation performance in the context of Chinese culture. On one hand, scholars have suggested that each behavioral integration dimension has potential to improve innovation performance, but confronts negative influences of different aspects of Chinese culture that may frustrate innovation success in China's NPD teams (e.g., Tjosvold, Tang, and West, 2004; West, 2002). For example, traditional Chinese culture encourages superiors to behave differently toward their subordinates, and hence subordinates in NPD teams tend to display cooperative silence (i.e., withholding work-related ideas, knowledge, and opinions based on collective, cooperative motives) (Wang et al., 2012). Social face concerns in Chinese culture constitute a constraint on information exchange in NPD teams (Chow et al., 1999). Chinese culture highly emphasizes interpersonal harmony, and hence NPD teams have difficulty engaging in open-minded discussions of opposing views needed for effective joint decision making (Tjosvold et al., 2004).

On the other hand, empirical research that regards behavioral integration as a parsimonious metaconstruct has so far yielded inconsistent results on the effectiveness of behavioral integration in Chinese and Western cultural settings. For example, while Li and Zhang (2002) found that behavioral integration was positively related to product innovation intensity in China's new technology ventures, Ling et al. (2008) found that it was negatively but not significantly associated with corporate entrepreneurship in U.S. firms. One notable reason for these mixed findings, this article argues, is that three behavioral integration dimensions, though related, may vary independently of one another. Each dimension exerts a unique effectiveness separately in a given cultural context. In fact, empirical research has begun to examine each dimension's individual effectiveness (e.g., Boone and Hendriks, 2009).

Second, the link between each behavioral integration dimension and NPD team innovation performance could be cultural-context specific. This article contends that it is critical to understand the conditions under which behavioral integration dimensions contribute to versus detract from NPD team innovation performance in a Chinese cultural context. Scholars have argued that collective efficacy more pronouncedly affects behavior of Chinese people. As Lam, Chen, and Schaubroeck (2002) noted, for example, compared with Americans and other members of individualist societies, Chinese people have higher collective efficacy, which more readily guides their behavior within group contexts than does self-efficacy. Prior research has taken each behavioral integration dimension as key behavioral capabilities that influence team effectiveness (Kozlowski and Bell, 2008). The research of Wood and Bandura (1989) implied that to be innovative, a team must not only possess the required behavioral capabilities, but also a resilient sense of collective efficacy. Therefore, this article adopts an interactionist logic of motivation and capabilities (Anderson and Butzin, 1974), proposing that the role of each behavioral integration dimension in innovation performance is contingent on collective efficacy in China's NPD teams.

This study makes important theoretical contributions to the literature on team innovation and behavioral integration in emerging markets by offering a better understanding of how behavioral and motivational team processes jointly shape innovation performance in NPD teams in China. This study also highlights the boundary condition by delineating when each behavioral integration dimension and collective efficacy complement or substitute each other in China.

Theoretical Background and Hypotheses

Behavioral Integration Dimensions and Innovation Performance

Collaborative behavior. Collaborative behavior includes the social aspects of the internally

collaborative work processes, such as task coordination, mutual support, backing up behavior, collective effort, and team cohesion within an NPD team (Hoegl, Ernst, and Proserpio, 2007). A majority of Western studies have suggested that collaborative behavior has positive effects on innovative performance in NPD teams for two reasons. First, collaborative behavior facilitates the cross-fertilization of new product ideas, which is desirable for innovativeness in NPD teams (West, 2002). Collaborative behavior stimulates not only the "requisite variety" of sparks from team leaders and members, but also the coalescence of those sparks into creative ideas (Schulze and Hoegl, 2008), thereby generating the synergistic benefits of having multiple perspectives in NPD teams (Boone and Hendriks, 2009). This is very important because the complexity of modern innovations necessitates a pooling and integration of multiple strands of the information, knowledge, and skills that dominantly reside within and are largely used by individuals (Subramaniam and Youndt, 2005). Second, collaborative behavior promotes the implementation of creative ideas, which is indispensible for NPD team innovation performance (Schulze and Hoegl, 2008). This is not only because collaborative behavior heightens NPD teams' mental capacity to process and interpret information and understand a complex innovation processes, but also because it increases their ability to tailor and provide the most appropriate response to threats and opportunities in external environments. In sum, strong collaborative behavior allows members to contribute their knowledge, skills and creativity to technical issues as well as matters of task planning and controlling, thereby increasing NPD teams' ability to produce new products on time and within budget (Hoegl, Weinkauf, and Gemuenden, 2004).

Recent Western studies have suggested that collaborative behavior has negative effects on team outcomes. Several scholars have noted the costs of collaborative behavior, such as backup providers' neglect of their own taskwork (Barnes et al., 2008) and social loafing (Weldon, Blair,

and Huebsch, 2000). Empirically, Barnes et al. (2008) found that backing up behavior led backup providers to neglect their own taskwork, especially when workload was evenly distributed, thereby undermining team performance. These findings are inconsistent with earlier findings that collaborative behavior is positively related to team performance (e.g., Porter, 2005). Consequently, more recent work has begun to pay attention to potential boundary conditions for the positive effects of collaborative behavior. For instance, Porter, Gogus, and Yu (2010) found that backing up behavior was positively associated with team performance only when teams had both a workload distribution problem and during early performance episodes.

Developing high levels of collaborative behavior can be quite challenging in NPD teams in the Chinese cultural context. Chinese people are considered collectivistic and group oriented, thereby highly valuing maintaining relationships (Tjosvold and Sun, 2003). In particular, team members must build collaborative relationships with their own leaders. Chinese culture is characterized by high power distance. As one dimension of cultural differences across countries, power distance is defined as the extent to which a society accepts the legitimacy of unequally distributed power in institutions and organizations (Hofstede, 1980). In high power-distance countries, "there is acceptance of a broad and unquestioned authority of the superior, and a regard for the superior as the most knowledgeable and the most intelligent member of the group" (Chow et al., 1999, p. 565). Team leaders are more likely to exert strong dominance such as closing down dissent among team members in the Chinese culture than in low power-distance cultures. Team members from China perceive their leaders to be more autocratic and paternalistic than those from low power-distance countries. As a result, subordinates, who see the risks of speaking up as outweighing the benefits, tend to exhibit cooperative silence to ensure the maintenance of collaborative relationships with their superiors in China's NPD teams. Although

cooperative silence is based on unselfish concern for others, it can still preclude a high level of collaborative behavior, thereby decreasing NPD innovation performance in China (Wang et al., 2012). Yet, NPD teams in China will place greater emphasis on team-wide objectives and make greater effort to facilitate collaboration in achieving their team goals than their counterparts in Western countries with individualist culture (Chen, Chen, and Meindl, 1998). This article thus expects that the positive streams of Chinese cultural influences on collaborative behavior outweigh negative ones. For these reasons, this article proposes that collaborative behavior facilities innovation performance in China's NPD teams. Hence, it is hypothesized:

H1a: Collaborative behavior will positively relate to innovation performance in NPD teams.

Information exchange. Information exchange refers to the extent to which an NPD team engages internally in frequent, rich, timely, and accurate interaction in information, knowledge, and ideas (Hambrick, 1994). Information exchange is vital not only for idea generation but also for the implementation of new ideas (Hülsheger, Anderson, and Salgado, 2009; Subramaniam and Youndt, 2005), and hence it is critical for innovation (Ernst, 2002; Subramaniam and Venkatraman, 2001). A majority of Western research has suggested that information exchange enhances innovation performance in NPD teams for two main reasons. First, open, timely, and accurate information exchange enables NPD teams to successfully identify and evaluate more new opportunities, and also to generate innovative ideas. Information exchange helps NPD teams gather substantial information about technology and market comprehensively, and interpret major environmental shifts quickly and accurately (Hambrick, 1998). NPD teams thus increases their receptiveness and alertness to potential innovation opportunities (Heavey et al., 2009; Subramaniam and Youndt, 2005). Meanwhile, information exchange enables NPD teams to acquire new knowledge for generating creative ideas, which are often prerequisites to innovation

performance.

Second, because effective information exchange has beneficial effect on NPD teams' confidence and coordination, it promotes more effective exploitation of these recognized opportunities—a vital process of implementing innovative ideas, which should be crucial for innovation performance. Effective information exchange not only increases NPD teams' understanding of the risks and uncertainties involved, but also enables them to consider alternative courses of action in considerably greater detail in the processes of new product design and business development (Heavey et al., 2009; Subramaniam and Venkatraman, 2001). As a result, effective information exchange offers increased confidence in seizing and acting on these recognized opportunities (Heavey et al., 2009). In addition, effective information exchange assists in the creation of shared mental models and development of transactive memory, thereby achieving better coordination of task or social processes within an NPD team during idea implementation (Srivastava, Bartol, and Locke, 2006).

Some Western research has held the view that information exchange hinders team outcomes. Several scholars have suggested the costs of information exchange. For example, as Smith et al. (1994) argued, while providing an important maintenance function, increased communication among team members likely consumed time and delayed decision making, which was apparently harmful in this high-velocity environment. Foo, Sin, and Yiong (2006) also argued that frequent communication was costly in terms of time and effort. Empirically, Smith et al. (1994) found the negative effects of communication frequency. This finding is inconsistent with other findings that information exchange positively predicts team outcomes (e.g., Hülsheger et al., 2009; Srivastava et al., 2006).

Motivating effective information exchange can be quite challenging in China's NPD teams for

two main reasons. On one hand, individuals within NPD teams lack the critical portion of knowledge, skills and creativity needed to innovate, thereby impeding effective information exchange. On the other hand, and perhaps of even greater importance, Chinese culture negatively influences information exchange in NPD teams, thereby hurting NPD team innovation performance. Specifically, every person must protect not only his or her own face, but also others' face in social encounters, especially the face of superiors in Chinese collectivist culture. Consequently, the nature and importance of face may constitute a constraint on information exchange within an NPD team. For example, team members are unwilling to seek information or knowledge or ask questions from their counterparts, because this behavior might be seen as revealing ignorance (Chow et al., 1999). Also, the high power-distance culture leads to the perception that subordinates' information, opinions, and questions are of lesser value than those of their superiors. Subordinates thus reduce the propensity to share and exchange their information and opinions or to ask questions, thereby weakening information exchange within an NPD team. Yet, because collectivist Chinese culture values teamwork more than individualist Western culture does (Tjosvold et al., 2004), NPD teams in China will be more inclined to stimulate the involvement of all members and their leaders in task-related processes, which should shape high levels of information exchange. As Chow et al. (1999) noted, for example, "a person in a collectivist society would be more likely to share that information than one in an individualist society" (p. 564). This article thus expects that the positive streams of Chinese cultural influences on information exchange outweigh negative ones. Following this logic, this article proposes that information exchange promotes innovation performance in China's NPD teams. Therefore, it is hypothesized:

H1b: Information exchange will positively relate to innovation performance in NPD teams.

Joint decision making. Joint decision making refers to the extent to which individuals within an NPD team participate in team decision making (West, 2002). A majority of Western studies have suggested that joint decision making facilitates innovative performance in NPD teams for two major reasons. First, joint decision making helps NPD teams make effective strategic decisions. Joint decision making is a team task process in which information and influence over decision making are shared, and there is a high level of interaction among individuals within an NPD team (West, 2002). NPD teams can thus effectively scan environmental shifts, identify opportunities, and integrate different knowledge, ideas, and perspectives into shared strategic decisions, which are vital to innovation performance (Brodbeck et al., 2007; Hambrick, 1998; West, 2002). Second, joint decision making enhances NPD teams' collective commitment to shared strategic decisions. Research suggests that joint decision making increases perceptions of fairness and the acceptance of the decisions made, allows for higher identification with the decision, and reduces resistance to change, thereby shaping stronger commitment to shared strategic decisions for innovation (Brodbeck et al., 2007; Ernst, 2002; West, 2002). When NPD team leaders and members participate in joint decision making, they tend to invest in the outcomes of their shared strategic decisions, thereby contributing to innovation performance (West, 2002).

A minority of Western studies have suggested that joint decision making hampers team outcomes. Several scholars have emphasized the costs of joint decision making. For example, Lengnick-Hall and Lengnick-Hall (1992) argued that joint decision making led to groupthink or undue pressure to conform to team members' opinions. Minson and Mueller (2012) argued that joint decision making not only required greater human capital, money, and time than individual decision making did, but also gave rise to an accuracy cost, i.e., a team's losing the accuracy of

final decisions because of rejection of the needed information from outside sources.

Actuating effective joint decision making can be quite challenging in NPD teams in China. The most important reason is that Chinese cultural influences may limit effective joint decision making, thereby detracting from NPD team innovation performance. Specifically, in the high power-distance Chinese culture, decision making may be perceived as a privilege of management, and delegation may be avoided. Meanwhile, the "inequality" belief may create not only dependency of subordinates on their superiors, but also fear of punishment if employees question, challenge, or disagree with management decisions (Sagie and Aycan, 2003). As a result, to maintain harmony relationships, NPD teams have a strong tendency toward alignment with the majority views in their teams, avoiding open, conflictive discussions needed for effective joint decision making (Leung, 1997; Tjosvold et al., 2004). Yet, because collectivist Chinese culture places more emphasis on group harmony than individualist Western culture does (Tjosvold et al., 2004), NPD teams in China will be more willing to embrace and energize joint decision making. This article thus expects that the positive streams of Chinese cultural influences on joint decision making outweigh negative ones. For these reasons, this article proposes that joint decision making fosters innovation performance in China's NPD teams. Hence, it is hypothesized:

H1c: Joint decision making will positively relate to innovation performance in NPD teams.

Moderating Role of Collective Efficacy

Collective efficacy is one of the core constructs of social cognitive theory, which is rooted in an agentic perspective in which people function as anticipative, purposive, and self-evaluating proactive regulators of their motivation and actions (Bandura, 2001). Collective efficacy is critical in predicting a wide array of team behavior and effectiveness. For example, Locke (1991) theorized that collective efficacy, in conjunction with team goals, constitutes the "motivational

hub", which represents the processes that most directly affect action. Collective efficacy is thus associated with traditional motivational mechanisms such as direction, effort, and persistence in teams. Ample empirical studies have supported the positive relationship between collective efficacy and goal commitment, goal difficulty, and performance in teams (e.g., Gully et al., 2002; Mulvey and Klein, 1998). For these reasons, this article contends that collective efficacy can strengthen the positive influences of Chinese culture on each behavioral integration dimension while dampening its negative influences in China's NPD teams.

Moreover, collective efficacy has long been argued as a critical enabler of shared goal commitment that contributes to a high team willingness to innovate and perform (Hoegl et al., 2004; Mulvey and Klein, 1998). Collective efficacy thus can motivate two major sets of behavioral tasks (i.e., idea generation and idea implementation), which result in innovation performance in NPD teams in the Chinese cultural context. Therefore, this article further argues that collective efficacy promotes both the generation of creative ideas and their successful implementation, and hence, moderates the relationships between each behavioral integration dimension and innovation performance in NPD teams in China. Below this article will examine how collective efficacy moderates the relationships.

As argued earlier, collaborative behavior is important for NPD team innovation performance. Yet collaborative behavior alone may be insufficient to lead to innovation performance in China's NPD teams. Simultaneously possessing high collective efficacy along with collaborative behavior may help NPD teams overcome the limitations of Chinese culture, such as superiors' and subordinates' high power-distance orientation, social face concerns, unwillingness to engage in open, conflictive discussions, and also reduce the costs of collaborative behavior. This article proposes that high collective efficacy tends to boost the positive relationship between

collaborative behavior and innovation performance in China's NPD teams. An NPD team with high collective efficacy generally holds strong goal commitments, implying that members and their leader are psychologically linked and committed to the generation and implementation of innovative ideas. Highly efficacious NPD teams can thus heighten the positive influences of Chinese culture on collaborative behavior while depressing its negative influences. Therefore, when they have high levels of collective efficacy, NPD teams with strong collaborative behavior can be better equipped to gain the cross-fertilization of creative ideas and their successful implementation, thereby increasing innovation performance (Brodbeck et al., 2007). Additionally, such NPD teams are more likely to overcome cooperative silence, and to generate, host, and manage constructive conflict and minority dissent, thereby building a suitable environment for the generation of creative ideas and their effective implementation (West, 2002). In summary, high collective efficacy will play a crucial role in deepening the benefits of collaborative behavior on innovation performance in China's NPD teams. Therefore, it is hypothesized:

H2a: The positive relationship between collaborative behavior and innovation performance will increase with collective efficacy in NPD teams.

As argued earlier, information exchange is vital to NPD team innovation performance. Yet information exchange alone may be not enough to facilitate innovation performance in NPD teams. Simultaneous possession of high collective efficacy along with information exchange may help NPD teams overcome the limitations of Chinese culture and decrease the costs of information exchange. This article proposes that high collective efficacy amplifies the positive link between information exchange and NPD team innovation performance in China. NPD teams with high levels of collective efficacy can generate a strong motivational hub to carry out effective information exchange. Highly efficacious NPD teams can thus fortify the positive

influences of Chinese culture on information exchange while decreasing its negative influences.

A critical portion of knowledge, skills and creativity resides within and is used by NPD team leader and members (Subramaniam and Youndt, 2005). When NPD teams have high collective efficacy, members and their leaders are more motivated to enhance information exchange to identify and evaluate more new opportunities, and also to generate new ideas, which are crucial for superior innovation performance (Hambrick, 1998; Heavey et al., 2009). When they have high collective efficacy, NPD teams with strong information exchange can more effectively act on recognized opportunities, and also coordinate tasks or social processes for idea implementation, thereby promoting superior innovation performance (Srivastava et al., 2006). Moreover, when NPD teams have high collective efficacy, members and their leaders are motivated to conduct open and fluid communications, thereby creating an innovation-friendly team climate for the generation of innovative ideas and their effective implementation (Ernst, 2002; West, 2002). Overall, high collective efficacy will play a pivotal role in reinforcing the benefits of information exchange on innovation performance in China's NPD teams. Hence, it is hypothesized:

H2b: The positive relationship between information exchange and innovation performance will increase with collective efficacy in NPD teams.

As argued earlier, joint decision making is crucial for NPD team innovation performance. Yet joint decision making alone may be insufficient to contribute to innovation performance in NPD teams in China. Simultaneous high collective efficacy and joint decision making may help NPD teams overcome the limitations of Chinese culture and diminish the costs of joint decision making. This article proposes that high collective efficacy magnifies the extent to which joint decision making is positively related to innovation performance in China's NPD teams.

NPD teams with high collective efficacy can shape a strong motivational hub to conduct joint decision making for innovation. When NPD teams have high collective efficacy, members and their leaders are more focused on task requirements and less distracted by the "inequality" belief, off-task cognitions, and performance anxiety (Bandura, 1997; West, 2002). Highly efficacious NPD teams can thus invigorate the positive influences of Chinese culture on joint decision making while diluting its negative influences. Thus, NPD teams with high collective efficacy and strong joint decision making are more likely to formulate and commit to a set of shared strategic decisions during idea generation and idea implementation, thereby leading to superior innovation performance (Brodbeck et al., 2007; West, 2002). In addition, such NPD teams are more likely to reduce members' tendency toward conformity, and to conduct open, conflictive discussions needed for effective joint decision making (Leung, 1997; Tjosvold et al., 2004), thereby building a suitable environment for both idea generation and idea implementation (West, 2002). In sum, high collective efficacy will play a vital role in intensifying the benefits of joint decision making on innovation performance in China's NPD teams. Therefore, it is hypothesized:

H2c: The positive relationship between joint decision making and innovation performance will increase with collective efficacy in NPD teams.

Methods

Sample and Data Collection

Data were collected as a part of a larger research project on innovative behavior in technology ventures. Seventy-five of China's technology ventures (15 each in Zhejiang, Shanghai, Guangdong, Hunan and Sichuan Provinces) were selected from these regions' technology-based business directories according to two criteria. First, the technology ventures were small and medium-sized, and privately owned. Other types of firms were excluded because empirical

testing of the determinants of behavioral integration are likely to be more robust in this setting than in large state- or collective-owned firms (Simsek et al., 2005), and also because this setting has a critical impact on China's emerging economies. Second, the technology ventures were manufacturing firms with NPD activities.

Letters were firstly sent to CEOs of these selected technology ventures. The purpose of the study was explained, and their participation was invited. A survey package was sent to each NPD team leader whose team had completed a specific NPD project over the last three years. Each package contained five copies of a team member questionnaire and one copy of a team leader questionnaire. Following the sampling approach in NPD research suggested by Ernst (2002), this study used multiple informants in each NPD team. All the informants were team leaders that were formal or designated, and the other team members whom the team leaders identified as being very familiar with the generation of NPD ideas and their implementation, thereby helping ensure that our sampling plan captured the most relevant data effectively.

This study used two types of questionnaires to collect data on different variables from different respondents. This study has included measures of innovation performance, team size, team age, and the length of time acting as team leader in the team leader questionnaire, which was filled out by team leaders. This study included measures of collaborative behavior, information exchange, joint decision making, collective efficacy, team tenure, and length of leader-follower relationship in the team member questionnaire, which was filled out by team members. All 571 informants in 117 NPD teams were invited to participate in the survey, and 479 (84%) of them provided responses after several rounds of phone, email, and personal follow-ups. This study eliminated questionnaires with excessive missing data, and included in our final sample only the teams with both the team leader's completed questionnaire and at least

three team members' completed questionnaires. Thus, this study retained a final sample of 96 NPD teams from 33 Chinese technology ventures in three high-technology industries (i.e., optical instruments, pharmaceuticals, and computer and telecommunications), for a response rate of 82 percent (96 of 117 NPD teams).

Sixty-nine percent of the informants in the final sample were male, with seventy-two percent having bachelor's or postgraduate (master's and Ph.D.) degrees. Of the responding teams, 27 (28%), 30 (31%), and 39 (41%) of them were from optical instruments, pharmaceuticals, and computer and telecommunications industries, respectively. The average team size was 15.05 (S.D. = 7.52), and the average team age was 7.49 years (S.D. = 3.33). The average team tenure is 3.37 (S.D. = 1.91), and the average length of leader-follower relationship is 1.74 (S.D. = 0.89). A *t*-test showed no significant differences between early and late responding teams in terms of team size, team age, and average team tenure.

Measures, Reliability, and Validity

This study adapted our questionnaires to the Chinese language following the commonly-used back-translation procedure (Brislin, 1986). The questionnaires were then pilot-tested through in-depth interviews with 10 NPD managers in six Chinese technology ventures to determine the face validity, clarity, and relevance of the measures in the Chinese context. All the items of behavioral integration dimensions and collective efficacy were on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree), and the items of innovation performance were on a 7-point Likert scale (1 = much worse; 7 = much better). A complete list of items used in the questionnaires is reported in Appendix.

Behavioral integration dimensions. This study adapted the measures of three behavioral integration dimensions from Li and Hambrick (2005) and Simsek et al. (2005). Each dimension

was measured using three items. The Cronbach's alphas for collaborative behavior, information exchange, and joint decision making were 0.77, 0.74 and 0.82, respectively.

Collective efficacy. To measure collective efficacy, this study adapted the widely used seven-item scale developed by Riggs and Knight (1994). Our measure assessed individual perceived efficacy of NPD teams. NPD team members were asked to answer in reference to the team's shared belief about its capabilities to successfully perform NPD tasks when measuring collective efficacy. The Cronbach's alpha for this scale was 0.82.

Innovation performance. To measure innovation performance in NPD teams, this study used eight items from Lovelace et al. (2001) and Li and Atuahene-Gima (2001). Our measure assessed innovation performance of an NPD team relative to other NPD teams of principal competitive firms over the last three years in eight areas, i.e., the innovativeness of the team's products, the number of innovations or new ideas introduced by the team, the team's overall technical performance, the team's adaptability to environmental change, market share growth, sales growth, profit growth, and cash flow from market operations of the team's products. The Cronbach's alpha for innovation performance was 0.84.

Control variables. This study included several control variables suggested by prior research. First, this study measured team age as the NPD team's number of years of operation, and measured team size as the number of full-time team leaders and members. Second, this study measured average team tenure as the average number of years of working in the current NPD team by team leader and members. Third, because the duration of a leader-follower relationship might affect incumbent leaders' ratings of their followers, this study measured the average length of leader-follower relationship as the average number of years of the duration of the incumbent leader-follower relationship by NPD team members. Finally, as noted earlier, because our

sample consisted of NPD teams in three industries, this study effect-coded variables for pharmaceuticals, and computer and telecommunications industries.

To assess the model's goodness of fit, this study used confirmatory factor analyses and the following goodness-of-fit indices: the chi-square goodness-of-fit statistic (χ^2), the root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR), the Tucker-Lewis index (TLI), and the confirmatory fit index (CFI). The upper bounds for good fit for the RMSEA and the SRMR are considered to be 0.08 and 0.10, respectively, and the lower bound of good fit for the TLI and the CFI is considered to be 0.90. This study used AMOS 18 and maximum likelihood-based parameter estimates to conduct confirmatory factor analyses in our study. The fit indices showed that the measurement model fit the data reasonably well (χ^2(df = 242) = 308.06, $p < 0.01$; RMSEA = 0.05; SRMR = 0.08; TLI = 0.90; CFI = 0.91).

For each of the latent constructs in our study, all the standardized factor loadings in confirmatory factor analyses were significantly different from zero at the 0.001 level, and all items loaded substantively on their corresponding latent constructs, thereby providing evidence of convergent validity. It was found that no confidence interval of the intercorrelation between two constructs in our study included 1.0. The unconstrained model was also compared with the constrained model in which the correlation between two latent constructs was set to one. For every pair of latent constructs in our study, a significant chi-square difference was found. In sum, these statistics offered evidence of discriminant validity (Anderson and Gerbing, 1988).

Assessment of Common Method Variance

Although collected from different sources, our data were self-reported by informants. This study took several precautions to minimize the magnitude of common method variance (CMV) by following the procedures recommended by Podsakoff, MacKenzie, and Lee (2003). First, as

noted above, this study measured the different variables from different respondents by adopting different questionnaires. Second, this study assured the respondents that their answers were confidential to reduce socially desirable responses and to increase respondent candidness. This study also ensured the respondents that there were no right and wrong answers to the questions in the survey to decrease evaluation apprehension. Third, this study incorporated reverse-coded items and hid variable names on the questionnaire. Finally, this study carefully pretested the questionnaire.

To determine the extent of the influence of CMV in our current data, this study conducted a post hoc examination with the statistical test that controlled for the effects of a single unmeasured latent method factor (Podsakoff et al., 2003).[1] Results of that analysis showed that the method factor accounted for only 14 percent of the total variance. This level of method variance is much less than 25 percent, which is the median value of method variance observed by Williams, Cote, and Buckley (1989). This study thus believes that CMV did not largely influence the results.

Data Analysis

Aggregation. As noted earlier, our data of the variables (i.e., collaborative behavior, information exchange, joint decision making, and collective efficacy) were gathered from multiple team members. This study aggregated the data to the team level by averaging the score on the items. To justify aggregation to the team level, this study calculated the within-group agreement index—$r_{wg(j)}$ (James, Demaree, and Wolf, 1984) with a moderate skew null distribution (Biemann, Cole, and Voelpel, 2012). Although no strict decision rules exist for the $r_{wg(j)}$ statistic, a common rule of thumb suggests that $r_{wg(j)}$ values should be greater than or equal to 0.70. As shown in Table 1, the lowest value in the median $r_{wg(j)}$ for the constructs was 0.84,

suggesting adequate inter-rater agreement for the aggregation.

Evaluating the dimensions and validation of behavioral integration. Because our samples come from China, it is needed to contextualize the all-encompassing theoretical model of behavioral integration developed in America. Following Bagozzi and Yi (1988), this study first used confirmatory factor analyses to evaluate the goodness of fit of four competing models of behavioral integration from three aspects including preliminary fit criteria, overall model fit criteria, and fit criteria of internal structure of the model, thereby identifying the best model that obtains the goodness of fit to the sample data. [2] Second, this study determined whether the three dimensions of the best model may vary independently of one another.

Hypothesis testing strategy. Moderated regression analyses were used to test the hypotheses. This study mean-centered the independent variables and the moderating variable prior to the creation of interaction terms to reduce multicollinearity (Aiken and West, 1991). The variance inflation factors associated with each of the regression coefficients ranged from 1.03 to 1.73, suggesting that multicollinearity was not a problem.

Results

Dimensions and Validation of Behavioral Integration in China

According to the test results of preliminary fit of the four competing models, five factor loadings (i.e., 0.38, 0.38, 0.41, 0.42, and 0.44) of the one-factor model, and one factor loading (i.e., 0.33) of the second-order single-factor model were less than 0.50. Two error variations of the second-order single-factor model did not reach the 0.05 significance level. Therefore, the two models did not meet the preliminary fit criteria. In contrast, the orthogonal three-factor and oblique three-factor models met the preliminary fit criteria. Thus, it is appropriate to continue to check the test results of those two models' overall fit.

In terms of the overall model fit criteria, the oblique three-factor model (χ^2(df = 24) = 29.36, p > 0.10; RMSEA = 0.05; SRMR = 0.06; TLI = 0.97; CFI = 0.98) fit the data significantly better than the orthogonal three-factor model (χ^2(df = 27) = 44.38, p < 0.05; RMSEA = 0.08; SRMR = 0.14; TLI = 0.91; CFI = 0.93). Moreover, the $\Delta\chi^2$ test for the two models supported this result ($\Delta\chi^2$(3) = 15.02, p < 0.01). Additionally, our test results demonstrated that the fit of internal structure of the oblique three-factor model was good. Thus, the oblique three-factor model obtained the best goodness of fit to the sample data according to the preliminary fit criteria, the overall model fit criteria, and the fit criteria of internal structure of the model. [3] Furthermore, the results of confirmatory factor analyses showed the correlation between any two dimensions of the oblique three-factor model ranged from 0.17 to 0.44. The unshared amount of common variance between any two dimensions ranged from 80.64 percent to 97.11 percent; each of them was greatly larger than 50 percent. Thus, the three dimensions did not covary.

Hypotheses Testing

Table 1 reports the descriptive statistics and correlation matrix of measures. Table 2 shows the results of moderated regression analyses. Model 1 includes only the controls, and Model 2 also includes three independent variables and one moderating variable. In Models 3, 4, and 5, collective efficacy's interactions with collaborative behavior, information exchange, and joint decision making are respectively added. Finally, Model 6 includes all interaction terms simultaneously. This study uses the results in Model 2 to test our hypotheses 1a, 1b, and 1c. Because all of the models are significant, and the results are consistent across models, the results in Model 6 (the full model) are used to test our hypotheses 2a, 2b, and 2c.

[Insert Tables 1 and 2 about here]

In Model 2, collaborative behavior has a positive, but only marginally significant relationship

with innovation performance (b = 0.31, p < 0.10), and information exchange has a significantly positive relationship with innovation performance (b = 0.29, p < 0.05). Joint decision making is not significantly associated with innovation performance (b = 0.04, *n.s.*). Therefore, Hypothesis 1b is supported, but Hypotheses 1a and 1c are not. Hypothesis 2a predicts that the positive relationship between collaborative behavior and innovation performance will be stronger when collective efficacy is higher. In Model 6, ΔR^2 is significant (ΔF = 9.44, p < 0.001). The interaction of collaborative behavior and collective efficacy is positively and significantly associated with innovation performance (b = 1.66, p < 0.001), supporting Hypothesis 2a. Hypothesis 2b predicts that the positive relationship between information exchange and innovation performance will be stronger when collective efficacy is higher. In contrast to our predictions, however, the interaction of information exchange and collective efficacy is negatively and significantly associated with innovation performance (b = -1.57, p < 0.001). Hypothesis 2c predicts that the positive relationship between joint decision making and innovation performance will be stronger when collective efficacy is higher. The interaction of joint decision making and collective efficacy is significantly and positively associated with innovation performance (b = 0.76, p < 0.05), supporting Hypothesis 2c.

To advance further interpretations, this study plotted these interaction roles for two levels of collective efficacy, defining the low level as minus one standard deviation from the mean and the high level as plus one standard deviation from the mean. Meanwhile, this study performed a simple slope analysis (Aiken and West, 1991) for each regression line to test whether its slope was significantly different from zero. Figure 1 shows a significant positive relationship between collaborative behavior and innovation performance when collective efficacy is high (simple slope: b = 0.89, p < 0.001), but this relationship is not significant when collective efficacy is low

(simple slope: b = -0.13, *n.s.*), in further support of Hypothesis 2a. Figure 2 reveals a significant positive relationship between information exchange and innovation performance when collective efficacy is low (simple slope: b = 0.79, $p < 0.001$), but this relationship becomes insignificant when collective efficacy is high (simple slope: b = -0.19, *n.s.*). Therefore, these findings further contradict to our prediction of Hypothesis 2b. Figure 3 shows a nonsignificant relationship between joint decision making and innovation performance when collective efficacy is high (simple slope: b = 0.24, *n.s.*) or low (simple slope: b = -0.24, *n.s.*). Although neither of the simple slopes are significantly different from zero, they are significantly different from each other ($p < 0.05$). In addition, the plots shown in Figure 3 indicate a crossover interaction role. The relationship between joint decision making and innovation performance is more positive when collective efficacy is high than when collective efficacy is low. Thus, these findings further support Hypothesis 2c.

[Insert Figures 1, 2 and 3 about here]

Discussion

Our study yields two major findings. First, information exchange is positively associated with innovation performance. Collaborative behavior positively but marginally influences innovation performance, whereas joint decision making doesn't relate to innovation performance. Second, both collaborative behavior and joint decision making are more positively associated with innovation performance when collective efficacy is higher. In contrast, information exchange is less positively associated with innovation performance when collective efficacy is higher in China's NPD teams.

Theoretical Implications

Our study offers several theoretical implications. First, this study provides a more nuanced understanding of the roles of behavioral integration dimensions in innovation performance in NPD teams. Previous studies on behavioral integration have dominantly been limited to top

management teams in Western developed countries with individualist and low power-distance cultures (e.g., Hambrick, 1998; Simsek et al., 2005). While insightful, they tended to parsimoniously recast the three dimensions of behavioral integration into an all-encompassing metaconstruct. The underlying rationale can be ascribed to their supposition that the three dimensions contribute equally in constituting a team's behavioral integration. Conversely, this study focused on whether each dimension independently contributes to NPD team innovation performance. This study finds that the three behavioral integration dimensions vary independently of one another in China's NPD team setting. Our findings demonstrate that there are differential relationships between the three dimensions and innovation performance.

An unexpected result concerns the nonsignificant association between joint decision making and innovation performance. There are two possible reasons for the lack of relationship. On one hand, the high power-distance Chinese culture has negative influences on joint decision making, thereby decreasing NPD team innovation performance. On the other hand, the nonsignificant relationship suggests that joint decision making alone is insufficient to enhance NPD team innovation performance in China. The secondary reason is verified by our findings that the interaction role of joint decision making and collective efficacy is positively associated with innovation performance.

Second, this study has important implications for collective efficacy research. Our findings reveal that the role of each behavioral integration dimension in innovation performance is contingent on collective efficacy. This study finds that the positive relationships between collaborative behavior and innovation performance and between joint decision making and innovation performance will strengthen as collective efficacy increases. These findings demonstrate that both collaborative behavior and joint decision making are complementary with

collective efficacy in NPD teams. In addition, this study unexpectedly finds that the positive relationship between information exchange and innovation performance will decrease as collective efficacy increases. These findings demonstrate that collective efficacy acts as a substitute for information exchange in NPD teams in China.

Three explanations are possible for these unexpected findings. The first possible explanation is that overconfidence caused by high collective efficacy depresses the extent to which information exchange actually contributes to innovation performance in China's NPD teams. Specifically, compared to those with low collective efficacy, NPD teams with high collective efficacy are more likely to be overconfident, thereby persisting in undertaking on too many risky projects (Bandura, 1997; Whyte, 1998). NPD teams with high collective efficacy also consult with, or listen to outside peers less willingly (Goncalo, Polman, and Maslach, 2010; Minson and Mueller, 2012), thereby being deeply involved in internal information exchange. In fact, because most members in China's NPD teams lack cutting-edge information, technical know-how, and unique perspectives, such information exchange may be ineffective, and hence eventually fail to facilitate the success of the risky projects.

The second possible explanation is that a lack of vigilance resulting from high levels of early collective efficacy diminishes the extent to which information exchange ultimately fosters innovation performance in China's NPD teams. Specifically, NPD teams high in early collective efficacy are more likely than those low in early collective efficacy to display the lack of vigilance in dealing with matters of the utmost importance in the early stages of a project (Goncalo et al., 2010; Janis, 1982; Whyte, 1998). NPD teams with high levels of early collective efficacy thus heavily decrease *proactive* search for and attention to alternative approaches for completing tasks, thereby experiencing less *early* process conflict. The early process conflict

refers to early-stage controversies over how an NPD team should go about completing a shared task; in effect, it is positively associated with team performance (Goncalo et al., 2010). In this case, each such NPD team high in early collective efficacy has to undertake an inflated information exchange in the middle and late stages of the project. Yet, such information exchange is apparently detrimental to innovation performance. This is because such information exchange causes NPD teams to consume much time and energy in an attempt to resolve conflicts related to how their tasks will be completed, leaving insufficient time and energy to share and communicate substantive issues, knowledge, and expertise related to the task itself (Goncalo et al., 2010).

The third possible explanation is that concurrence-seeking pressures rendered by high collective efficacy tends to constrict the extent to which information exchange really enhances innovation performance in China's NPD teams. Specifically, relative to those with low levels of collective efficacy, NPD teams with high levels of collective efficacy are more likely to engage in concurrence-seeking behavior (Janis, 1982; Whyte, 1998). To maintain team harmony and unity, each member in NPD teams with high collective efficacy thus engages in conforming to the majority of the team or its leader, and strives to avoid voicing his or her doubts and misgivings (Janis, 1982; Whyte, 1998). As a result, team leaders and members dodge critical questions or respond equivocally, and are reluctant to inquire, share and exchange diverse information and unconformable opinions. Obviously, under these conditions information exchange in such NPD teams may be fruitless, thereby diminishing innovation performance.

For these reasons, this article contends that collective efficacy negatively moderates the positive relationship between information exchange and innovation performance in China's NPD teams. Our study documents that information exchange can be either an asset or a liability for

innovation performance, depending on the intensity of collective efficacy in NPD teams. Clearly, more studies are needed to fully describe the role of collective efficacy in the relationship between information exchange and NPD team innovation performance. All these findings emphasize the importance of introducing moderators for the overall effectiveness of each behavioral integration dimension. Overall, our study moves toward synthesizing the literature on behavioral integration and collective efficacy, identifying collective efficacy as an important boundary condition for when each behavioral integration dimension is more effective.

Third, this study advances team innovation research in emerging markets. Our study is among the first efforts to examine how behavioral integration dimensions and collective efficacy jointly facilitate or inhibit innovation performance in NPD teams in China. Our findings suggest that it may be reasonable and necessary for scholars to investigate the unique contribution of each behavioral integration dimension to NPD team innovation performance in emerging markets. This study highlights the unique and previously under-explored behavioral (i.e., collaborative behavior, information exchange, and joint decision making) and motivational (i.e., collective efficacy) drivers of NPD team innovation performance in China. In particular, our findings reveal the conditions under which behavioral integration dimensions foster or hinder NPD team innovation performance in China. Our findings demonstrate the importance of examining the separate relationships between each behavioral integration dimension and team outcomes. Future research should consider this approach when exploring other boundary conditions for the overall effectiveness of each behavioral integration dimension in emerging markets.

Practical Implications

This study provides two practical implications. First, managers should consciously pay attention to the overall role of each behavioral integration dimension in fostering or hindering NPD team

innovation performance. Given the increasing importance of innovativeness in NPD teams in emerging markets, managers need to inspire the positive influences of culture on each behavioral integration dimension while depressing its negative influences. By so doing, managers may invigorate the benefits of each behavioral integration dimension on NPD teams' innovativeness while mitigating any costs. Managers should promote clarity of and commitment to shared team objectives, and enable NPD teams to generate, host, and manage constructive conflict and minority dissent to produce successful streams of innovation. Particularly, managers need to help NPD teams in collectivist and high power-distance cultures build a good climate for encouraging the open-minded discussion of divergent views required for the success of new products.

Second, managers need to pay great attention to the relationships between collective efficacy and each behavioral integration dimension when investigating the drivers of innovation performance in NPD teams. Although high collective efficacy is generally favored, it can also lead to overconfidence, a lack of vigilance, and concurrence-seeking pressures. Thus, managers should be cautious about monitoring NPD teams' efficacious belief in themselves. For example, when NPD teams in emerging markets lack the critical portion of knowledge, skills and creativity, mangers should build appropriately high collective efficacy for their NPD teams. Overall, managers who fine-tune an NPD team's collective efficacy to the team's behavioral capabilities can help the team acquire superior innovation performance in emerging markets.

Limitations and Future Research

Our study has limitations that may offer significant opportunities for future research on this important topic. First, this study employed a cross-sectional design and thus the direction of causality is a concern. This study based the arguments on theoretical logic, but the possibility of reverse causation might exist. Following Landis and Dunlap (2000), this study performed

additional analysis and ruled out the possibility that innovation performance affects individual behavioral integration dimensions. Specifically, using innovation performance as the independent variable, this study took three behavioral integration dimensions respectively as dependent variables, and collective efficacy as the moderator. This study found no significant reverse interaction effects, thereby alleviating concerns about reverse causality. Even so, future research is encouraged to use longitudinal data to investigate the relationships between behavioral integration dimensions and innovation performance. Longitudinal data may better allow for testing these relationships because levels of collaborative behavior, information exchange, joint decision making, and collective efficacy may be somewhat dynamic, and their influences on innovation performance may require time to materialize (Lam et al., 2002).

Second, this study relied mainly on perceptual measures. Immense use of perceptual measures in team behavior research as well as the practical difficulties of data collection in China necessitated our approach. Since the soft nature of behavioral integration dimensions and collective efficacy will probably continue to warrant the use of perceptual measures, obtaining relative objective measures for NPD team innovation performance from archival sources may improve the rigor of the results in future studies. Finally, a potential limitation stems from the study's sample. This study sampled NPD teams in small and medium-sized technology ventures in China's high-technology industries, and thus our results might not generalize to other functional team settings (e.g., sales and finance teams). Future research using samples from different settings is needed to ascertain the generalizability.

Notes

[1] Detailed procedure and results of the post hoc examination are available from the first author upon request.

[2] The four models consisted of three first-order factor models (i.e., one-factor, orthogonal three-factor, and oblique three-factor models), and a second-order single-factor model. The one-factor model hypothesized a first-order factor (i.e., behavioral integration) accounting for all the common variance among the nine items. The orthogonal three-factor model hypothesized that the nine items constituted into three uncorrelated first-order factors (i.e., the three dimensions of behavioral integration). The oblique three-factor model hypothesized that the three first-order factors were correlated with each other. The second-order single-factor model hypothesized three first-order factors and a second-order factor (i.e., behavioral integration).

[3] Detailed test results of the overall fit of orthogonal three-factor and oblique three-factor models are available from the first author.

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Appendix. Questionnaire Items

Collaborative Behavior

Please indicate the extent to which you agree with the following items:

1. NPD team leader and members are ready to cooperate closely and support mutually.
2. NPD Team members are flexible about switching responsibilities to make things easier for each other.
3. NPD Team members are willing to help each other complete jobs and meet deadlines.

Information Exchange

Please indicate the extent to which you agree with the following items:

1. NPD team leader and members often share and exchange information, experience, and expertise.
2. NPD team leader and members engage in rich, timely, and accurate interactions regarding their special knowledge.
3. Communication among NPD team leader and members can best be described as open and fluid.

Joint Decision Making

Please indicate the extent to which you agree with the following items:

1. NPD team leader and members have a voice in major decisions on NPD.
2. When major decisions are made affecting the whole NPD team, the team leader and members collectively exchange their points of view.
3. NPD team members have high degree of influence in most important team decisions.

Collective Efficacy

Think about the NPD team in which you work. Please indicate the extent to which you agree with the following items. When responding to them, answer in reference to this team's shared belief about its capabilities to successfully perform NPD tasks.

1. This NPD team has above average ability.
2. This NPD team is poor compared to other teams doing similar work (*reverse-coded*).
3. This NPD team is not able to perform as well as it should (*reverse-coded*).
4. The members of this NPD team have excellent job skills.
5. Some members of this NPD team should be fired due to lack of ability (*reverse-coded*).
6. This NPD team is not very effective (*reverse-coded*).
7. Some members in this NPD team cannot do their jobs well (*reverse-coded*).

Innovation Performance

Relative to principal competitive firms' NPD teams, please rate your NPD team's innovation performance over the last three years on the following indicators:

1. Innovativeness of the team's products
2. Number of innovations or new ideas introduced by the team
3. Team's overall technical performance
4. Team's adaptability to environmental change
5. Market share growth of the team's products
6. Sales growth of the team's products
7. Profit growth of the team's products
8. Cash flow from market operations of the team's products

Table 1. Descriptive Statistics and Correlation Matrix

Variables	Mean	S.D.	$r_{wg(j)}$	1	2	3	4	5	6	7	8	9	10
1. Innovation performance	5.03	0.48											
2. Collaborative behavior	5.41	0.32	0.87	0.34**									
3. Information exchange	5.54	0.36	0.84	0.36***	0.28**								
4. Joint decision making	5.68	0.36	0.92	0.15	0.11	0.21*							
5. Collective efficacy	5.58	0.31	0.92	0.18	0.28**	0.10	0.43***						
6. Team size	15.05	7.52		-0.09	-0.08	-0.09	-0.06	0.04					
7. Team age	7.49	3.33		-0.27**	-0.14	-0.07	0.01	0.01	0.08				
8. Average team tenure	3.37	1.91		0.01	0.05	-0.05	-0.08	0.02	0.09	0.39***			
9. Average length of leader-follower relationship	1.74	0.89		-0.15	-0.05	-0.15	-0.09	-0.22*	0.16	0.30**	0.21*		
10. Pharmaceuticals	0.03	0.77		-0.13	-0.14	-0.29**	-0.07	0.23*	-0.06	-0.21*	-0.18	-0.19	
11. Computer and telecommunications	0.13	0.82		-0.11	0.10	-0.17	-0.06	0.06	-0.02	-0.24*	-0.00	-0.23*	0.44***

N = 96. S.D. = standard deviation.

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed tests).

Table 2. Results of Moderated Regression Analyses with Innovation Performance Dependent Variable

Variables	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
Constant	5.05***	(0.05)	5.05***	(0.04)	5.02***	(0.05)	5.06***	(0.04)	5.00***	(0.05)	4.98***	(0.04)
Controls												
Team size	-0.00	(0.01)	-0.00	(0.01)	-0.00	(0.01)	0.00	(0.01)	-0.00	(0.00)	0.00	(0.01)
Team age	-0.05**	(0.02)	-0.05**	(0.02)	-0.05**	(0.02)	-0.05**	(0.02)	-0.04**	(0.02)	-0.05**	(0.01)
Average team tenure	0.04	(0.03)	0.03	(0.03)	0.04	(0.03)	0.04	(0.03)	0.04	(0.03)	0.05*	(0.02)
Average length of leader-follower relationship	-0.07	(0.06)	-0.03	(0.06)	-0.02	(0.06)	-0.03	(0.06)	-0.05	(0.06)	-0.03	(0.05)
Pharmaceuticals	-0.08	(0.07)	-0.03	(0.07)	-0.00	(0.07)	-0.04	(0.07)	-0.03	(0.07)	-0.01	(0.07)
Computer and telecommunications	-0.10	(0.07)	-0.10	(0.06)	-0.09	(0.06)	-0.10	(0.06)	-0.09	(0.06)	-0.09	(0.06)
Independent variables and moderator												
Collaborative behavior			0.31†	(0.16)	0.36*	(0.16)	0.30†	(0.16)	0.30†	(0.16)	0.38**	(0.16)
Information exchange			0.29*	(0.14)	0.28*	(0.14)	0.30*	(0.14)	0.28*	(0.14)	0.30*	(0.14)
Joint decision making			0.04	(0.14)	0.05	(0.14)	0.01	(0.14)	0.04	(0.14)	-0.00	(0.12)
Collective efficacy (CE)			0.15	(0.18)	0.13	(0.18)	0.24	(0.18)	0.17	(0.18)	0.28†	(0.16)
Interactions												
Collaborative behavior × CE					0.91*	(0.42)					1.66***	(0.43)
Information exchange × CE							-0.86*	(0.38)			-1.57***	(0.39)
Joint decision making × CE									0.84*	(0.36)	0.76*	(0.32)
R^2	0.16		0.29		0.33		0.33		0.33		0.47	
Adjusted R^2	0.10		0.21		0.24		0.24		0.25		0.39	
F	2.77*		3.46**		3.71***		3.76***		3.82***		5.64***	
ΔR^2			0.13		0.04		0.04		0.04		0.18	
ΔF			3.96**		4.71*		5.09*		5.51*		9.44***	

N = 96. Unstandardized regression coefficients are reported with standard errors in parentheses.

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed tests).

Figure 1. Moderating Role of Collective Efficacy on the Relationship between Collaborative Behavior and Innovation Performance

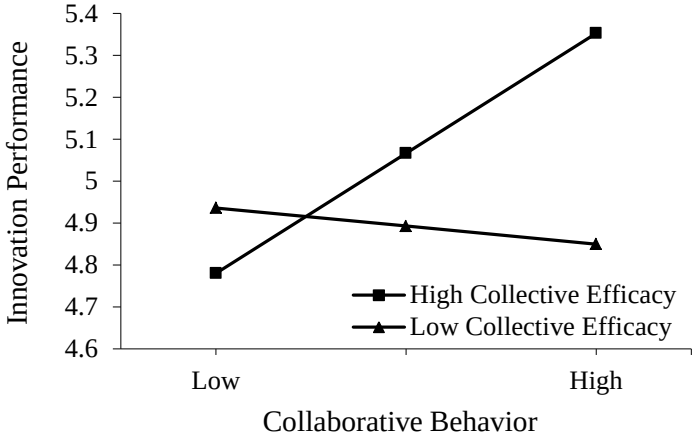

Figure 2. Moderating Role of Collective Efficacy on the Relationship between Information Exchange and Innovation Performance

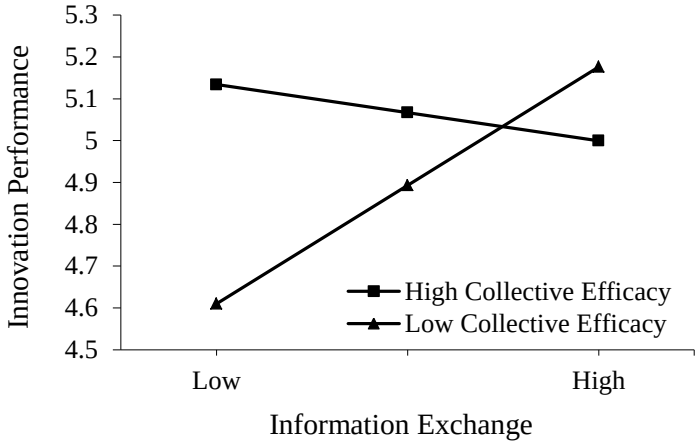

Figure 3. Moderating Role of Collective Efficacy on the Relationship between Joint Decision Making and Innovation Performance