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RESEARCH REPORT

Leader Humility and Team Creativity: The Role of Team Information Sharing, Psychological Safety, and Power Distance

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In this study, we identify leader humility, characterized by being open to admitting one's limitations, shortcomings, and mistakes, and showing appreciation and giving credit to followers, as a critical leader characteristic relevant for team creativity. Integrating the literatures on creativity and leadership, we explore the relationship between leader humility and team creativity, treating team psychological safety and team information sharing as mediators. Further, we hypothesize and examine team power distance as a moderator of the relationship. We tested our hypotheses using data gathered from 72 work teams and 354 individual members from 11 information and technology firms in China using a multiple-source, time-lagged research design. We found that the positive relationship between leader humility and team information sharing was significant and positive only within teams with a low power distance value. In addition, leader humility was negatively related to team psychological safety in teams with a high power distance value, whereas the relationship was positive yet nonsignificant in teams with low power distance. Furthermore, team information sharing and psychological safety were both significantly related to team creativity. We discuss theoretical and practical implications for leadership and work teams.

Keywords: leader humility, team creativity, team information sharing, team psychological safety, power distance

Creativity, or the generation of novel and useful ideas (Oldham & Cummings, 1996), is regarded as vital for organizational survival (House, 2003). As a case in point, a study of 1,709 CEOs around the globe identified creativity as key to assuring future

success (IBM, 2012). Given the prevalence of teams in modern organizations (Mathieu, Maynard, Rapp, & Gilson, 2008), researchers have responded to this reality by investigating factors that not only facilitate *individual members'* creativity (Tierney & Farmer, 2004) but also the *overall teams'* creative performance (Hülshager, Anderson, & Salgado, 2009). Team creativity emerges from interactions among members to evaluate diverse perspectives to collectively generate novel and useful ideas for the team (Harvey & Kou, 2013; Zhou & Hoever, 2014).

Essential requirements for teams to be creative include members' attention to problems and flaws related to their work (Unsworth, 2001), openness to sharing and discussing new ideas and learning from others, and willingness to evaluate one's own and others' ideas objectively to find creative ways of improvement (Harvey & Kou, 2013). Among various possible contextual factors that could affect such team creative processes, team leaders play an especially important role (Amabile, 1988; Harvey & Kou, 2013; Shalley & Gilson, 2004). In modern organizations, fostering team creativity is no longer optional but is central to leadership effectiveness (Sternberg, 2007). To promote team creativity, it is critical for team leaders to create enabling conditions that raise team members' awareness of problems in existing work and guide them

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to view shortcomings in a positive light, and to be open to interacting with each other to develop novel ideas. Although previously examined leadership styles such as transformational leadership are helpful in motivating followers, they do not explicitly consider how leaders influence the way team members view their own limitations, respond to others' contributions and strengths, and absorb new information and ideas, which are key to team creativity. Indeed, as Mainemelis, Kark, and Epitropaki (2015) pointed out, "the empirical evidence for the role of transformational leadership in fostering team creativity and innovation is scarce and mixed" (p. 423). Thus, identifying the types of leaders who facilitate team creativity by motivating members to attend to internal problems and show openness to diverse and novel approaches (Mainemelis et al., 2015; Mumford, Scott, Gaddis, & Strange, 2002) fills a notable gap.

We propose that *leader humility*, or how a leader views own shortcomings and others' strengths and whether the leader is open to new ideas (Owens & Hekman, 2012), will facilitate team creativity. Leaders with humility view problems and mistakes as opportunities, and are appreciative of divergent ideas from members (Owens, Johnson, & Mitchell, 2013). We contend that leader humility will facilitate creativity-relevant team mechanisms. Based on Anderson and West's (1998) theory of team climate, we identify two interpersonally oriented team factors that connect leader humility to team creativity: (a) information sharing, the process of exchanging ideas and information among members (De Dreu, 2007); and (b) psychological safety, the extent to which members feel the team is interpersonally nonthreatening (Edmondson, 1999).

Furthermore, scholars have criticized studies of leadership and creativity for exhibiting low contextual sensitivity (Mainemelis et al., 2015; Mumford et al., 2002). Although humility is considered a virtue across cultures and philosophical traditions (Owens & Hekman, 2012), it may have downsides (Exline & Geyer, 2004; Judge, Piccolo, & Kosalka, 2009), and the extent to which humility benefits leaders and teams may be context specific. Indeed, Exline and Geyer (2004) noted that people might associate humility with low self-evaluation and lack of authority, and thus draw a negative picture of humility, especially when they expect leaders to be confident and dominant. Given the relational nature of leadership, humble leaders may not always be a force for team creativity, depending on member expectations. We propose that a key team value, *power distance*, the extent to which members see the distance between leaders and themselves as legitimate (Hofstede, 1980), may influence member reactions to leader humility.

In this study, we integrate the historically disjointed literatures of humility and creativity to understand *why* and *when* leader humility relates to team creativity. We offer three contributions to leadership and creativity literatures. First, we introduce leader humility as a leadership characteristic that inspires team creativity. Compared with other leadership approaches, leader humility is likely to be more imitable (Owens & Hekman, 2016). Contrasting with the traditional "leading from the top" approaches such as transformational leadership, humble leaders focus on identifying the talents of others, view themselves more objectively, appreciate others' contributions, and display an openness to new viewpoints (Owens & Hekman, 2012), thereby serving as positive role models for employees. Seeing leaders display humility, followers are likely to emulate their behaviors, accept their own limitations, and

be open to novel information, making leader humility salient to team creativity. Thus, our research provides new insights into the role of leadership in team creativity (Anderson, Potočnik, & Zhou, 2014; Mainemelis et al., 2015) and contributes to the literature on leader humility in a team context. Second, we examine the mechanisms through which leader humility affects team creativity by identifying two creativity-relevant mediators (information sharing and psychological safety). Finally, we adopt a contingency view and introduce team power distance as a critical boundary condition for the effects of leader humility. Figure 1 depicts our theoretical framework.

Theory and Hypothesis Development

Promoting creative performance is often a key goal of team leaders (Shalley & Gilson, 2004; Sternberg, 2007). Amabile's (1988) early work on the componential theory of creativity has emphasized leaders' contributions to follower perceptions of the environment and their creative performance. Subsequent theoretical work suggests that leaders who are most likely to encourage creativity recognize each member's differing roles and guide them to form the right mindset toward problems to generate new solutions (Amabile, Schatzel, Moneta, & Kramer, 2004; Basadur, 2004; Mumford et al., 2002). Leaders who facilitate team creativity may not necessarily be idea generators themselves, but are those who are able to see strengths in others and foster them to learn from their shortcomings (Mainemelis et al., 2015). As such, to promote team creativity, leaders need to recognize others' contributions, be sensitive to internal shortcomings, and guide followers to incorporate new ideas to solve problems.

To explore the facilitating role of leaders for team creativity, it is critical to consider how leaders influence the processes associated with team creativity. We examine information sharing and psychological safety as key mechanisms linking leader humility to team creativity. Anderson and West (1998), in their theory of team climate, proposed that *vision*, *participative safety*, *task orientation*, and *support for innovation* are the four factors that facilitate team creativity. Among these factors, vision, task orientation, and support for innovation are more structural, and goal-focused elements: Vision depicts the clearly defined objectives and mission for the team, task orientation refers to the focus on producing quality task outcomes, and support for innovation is about the practical support for novelty that is often expressed in documents, policies, and statements as well as resources provided for innovation (Anderson

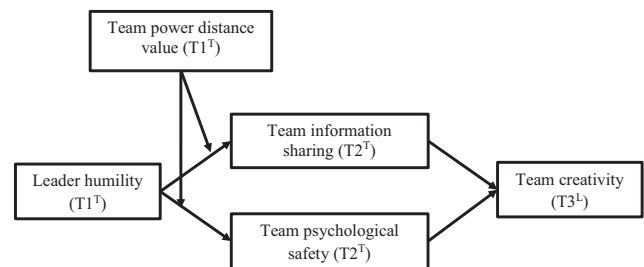


Figure 1. Theoretical model of leader humility and team creativity. $T1^T$ = variables rated by team members at Time 1; $T2^T$ = variables rated by team members at Time 2, three months after Time 1; $T3^L$ = variables rated by team leaders at Time 3, six months after Time 1.

& West, 1998). Participative safety is a more interpersonally oriented construct and captures the creativity-relevant environment in which “more people participate in decision making through having influence, interacting, and sharing information” and are filled with “non-threatening trust and support” (p. 240). That is, the interpersonal context for team creativity essentially captures two supportive processes: information sharing and exchange, and psychological safety climate. According to Mathieu et al.’s (2008) team effectiveness model, team information sharing is a behavioral process, and team psychological safety is a team emergent state, both of which are critical mediators linking team contexts such as leader humility to team performance outcomes. Given their relevance to the effects of leader humility, we focus on team information sharing and psychological safety as mediators that relate leader humility to team creativity.

Humility is an interpersonal trait that embodies three interdependent aspects: (a) willingness to view the self accurately and acknowledge limits, (b) appreciation of others’ strengths and contributions, and (c) teachability (Owens et al., 2013). Although humility is a personal quality, it is expressed behaviorally in interactions with followers (Davis, Worthington, & Hook, 2010). Team leaders are vital in shaping members’ interpretation of the interpersonal environment (Hackman, 2002; Schaubroeck, Lam, & Peng, 2011; Sy, Côté, & Saavedra, 2005) and driving their responses (Tyler & Lind, 1992; Yaffe & Kark, 2011; Zaccaro, Rittman, & Marks, 2001). Given their unique positions, leader actions send strong signals to members regarding which behaviors are welcomed (Zaccaro et al., 2001) and how they can work together effectively (Burke et al., 2006). Thus, we propose that leader humility is likely to influence the interpersonal climate in the team and contribute to the teams’ key processes for creativity.

Leader Humility and Team Information Sharing

We contend that humble leaders would influence team information sharing, a process through which members exchange information with each other (Ebadi & Utterback, 1984; Hülsheger et al., 2009; Perry-Smith & Shalley, 2003), because of three reasons. First, humble leaders have a healthy self-awareness, allowing them to be open to limitations and admitting problems (Owens & Hekman, 2012). As leader performance is largely determined by team performance (Kaiser, Hogan, & Craig, 2008), the teams’ problems are likely to be considered a core part of leaders’ own limits. As such, humble leaders will pay attention to problems internal to the team, and will guide members to proactively look for limitations of teamwork and actively exchange information to spark new insights (Owens & Hekman, 2016).

Second, humble leaders appreciate others’ contributions. Their understanding and appreciation of member contributions is expressed through their interactions with both individual members alone and whole teams together (Owens et al., 2013). Through daily events and interactions, humble leaders would not only let individual members know that their own strengths are appreciated but also be aware of others’ unique contributions. As such, when team members look for creative solutions, they are more likely to know whom to ask for help (Argote, McEvily, & Reagans, 2003) and are more willing to seek and exchange information with their teammates.

Third, humble leaders are open to different ideas (Owens et al., 2013). A mind-set favoring the status quo over new ideas is a major barrier to creativity (Amabile, 1996). Humble leaders show members how to be attentive to others’ ideas, and discover novel perspectives to revisit existing issues (Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004). Owens and Hekman (2016) demonstrated that humble leaders drive team members to be more open to others’ ideas through a social contagion process. Team members would gradually learn to attend to different viewpoints and realize the need to search for new perspectives (Tsoukas, 2009). As a result, team members are more likely to engage in information exchange for creative insights.

Hypothesis 1: Leader humility is positively related to team information sharing.

Leader Humility and Team Psychological Safety

In addition to team information sharing, humble leaders should foster another important creativity-relevant interpersonal element: psychological safety (Anderson & West, 1998). Team psychological safety, a shared belief that the team is a safe place for risk taking (Edmondson, 1999), captures the interpersonal environment that relates to creativity-related factors such as risks, obstacles, and uncertainties. We propose that humble leaders would facilitate a psychologically safe environment in the team for three reasons.

First, humble leaders show openness to facing their limitations and mistakes. Creativity often includes taking risks and facing uncertainties (George, 2007). One potential barrier to creativity is a fear of taking risks (Amabile, 1996). Humble leaders send signals to members that making mistakes and taking risks are acceptable. As such, team members are not afraid of owning mistakes, which helps generate a climate of safety in the team (Edmondson, 1999). Second, humble leaders recognize each member’s strengths. As a result, they convey that member contributions are appreciated, valued, and supported. This validation generates confidence (Exline & Geyer, 2004), allowing members to feel secure and capable of speaking up. Indeed, Owens and Hekman (2016) note that under humble leaders, team members would have a “risk-seeking bias” (p. 1092) and have the confidence to change through failures and risks. Third, humble leaders prioritize growth, not just for themselves but also for followers by encouraging them to embrace a learning attitude (Owens & Hekman, 2012). By observing how leaders recognize the importance of others’ ideas, members come to appreciate novel ways of thinking and display respect and support when teammates contribute to discussions (Owens & Hekman, 2016). This helps create a shared belief that members will not disrespect or embarrass someone for making new suggestions (Anderson & West, 1998). In support of this logic, Edmondson (1999) suggested that when team leaders emphasize learning-oriented behaviors and demonstrate that taking risks are appropriate, team psychological safety climate is enhanced.

Hypothesis 2: Leader humility is positively related to team psychological safety.

Team Power Distance Value as a Boundary Condition

Leader humility has potential implications for promoting information sharing and psychological safety. However, we expect this

positive influence only in some contexts. Although humility is considered a core virtue (Owens & Hekman, 2012; Vera & Rodriguez-Lopez, 2004), it might also be a weakness, as humility might be associated with less positive self-views and less concern with power and status (Roberts, 1982; Tangney, 2000; van Dierendonck & Patterson, 2015). Exline and Geyer (2004) pointed out that leader humility could be costly if the team “prefers people with flawless and highly confident self-presentations” (p. 98). Thus, the benefits of leader humility on creativity-relevant processes are contingent on whether members see humility as desirable. We propose that power distance is a team value that affects whether members perceive humility as a match with their expectations of how leaders should behave.

Although Hofstede’s (1980) original definition of power distance is at the societal level, subsequent studies have explored power distance at lower levels of analysis, including teams (e.g., Cole, Carter, & Zhang, 2013; Schaubroeck, Lam, & Cha, 2007). Team power distance is the extent to which most members accept the legitimacy of unequally distributed power in organizations (Hofstede, 1980). Power distance may directly influence leader–team relationships and has a documented influence on how employees perceive, interpret, and react to leaders (Kirkman, Chen, Farh, Chen, & Lowe, 2009; Lian, Ferris, & Brown, 2012). When team power distance is high, members expect leaders to be dominant, take charge, and give strong direction (Kirkman et al., 2009). In these contexts, humble leaders who have a modest self-view and actively seek advice to improve themselves might be met with doubt. If members are asked to give advice or share information, they may feel uncomfortable because of their belief that such decisions fall under the scope of leadership (Cole et al., 2013; Hu & Judge, 2017; Tyler, Lind, & Huo, 2000). As a result, they would not necessarily see leader humility as exemplary, weakening the effects of leader humility on team information sharing and psychological safety. In contrast, when teams have low power distance, most team members desire more power sharing (Earley, 1999). As such, humble leaders are best suited to work with members with low power distance, as they will be attentive to members’ input and enable individual members to share information and speak up (Ou et al., 2014; Owens & Hekman, 2016). Accordingly, team members should more willingly follow those leaders’ guidance, appreciate others’ strength, and feel safe to embrace risks, thereby enhancing team information sharing and psychological safety.

Hypothesis 3: Team power distance value moderates the relationships between leader humility and (a) team information sharing, and (b) team psychological safety, such that the positive relationships are stronger when team power distance value is low than when team power distance value is high.

Linking Team Information Sharing and Psychological Safety to Team Creativity

We further propose that the creativity-relevant interpersonal processes cultivated by humble leaders would relate to team creative performance. Humble leaders recognize and appraise each member’s unique expertise, which allows members to appreciate others’ unique knowledge and encourages them to share their ideas. This facilitates a two-way information exchange for expos-

ing diverse information and perspectives, sparking new insights, and generating creative ideas (Amabile, 1996; Leung & Wang, 2015; Perry-Smith & Shalley, 2003). As such, information sharing broadens the scope of team skills, inspires them to look for novel solutions to problems, and provides fresh and useful thinking (Cross & Sproull, 2004; Walter, Levin, & Murnighan, 2015), promoting team creativity (Gong, Kim, Lee, & Zhu, 2013).

The enhanced psychological safety climate that humble leaders facilitate will, in turn, serve as a supportive social context for team members to respectfully manage diverse and even conflicting creative perspectives (Bradley, Postlethwaite, Klotz, Hamdani, & Brown, 2012), and to effectively integrate alternative courses of actions that contribute to team creativity (Baer & Frese, 2003; Edmondson, 2002; Harvey, 2014; Paulus & Dzindolet, 2008). Furthermore, knowing their voices will be respected, team members are more likely to not just attend to others’ suggestions but also carefully evaluate the effectiveness of new ideas in their teamwork. This evaluation process of diverse ideas can facilitate the cognitive process of generating creative ideas for the team and contribute to team creativity (Harvey & Kou, 2013).

Hypothesis 4: (a) Team information sharing and (b) team psychological safety are positively related to team creativity.

Integrated Model

To integrate these relationships, we propose a moderated mediation model in which team power distance moderates the indirect relationship between leader humility and team creativity. That is, when team power distance is high, humble leaders will have weaker influence on shaping team information sharing and psychological safety, and indirectly on team creativity. When team power distance is low, leader humility becomes more desirable for team members, which promotes information sharing and psychological safety, and, subsequently, team creativity.

Hypothesis 5: Team power distance value moderates the indirect relationship between leader humility and team creativity through (a) team information sharing, and (b) team psychological safety, such that the positive indirect relationships become stronger when team power distance value is low than when team power distance value is high.

Method

Sample and Procedure

We collected data from work teams and team leaders from 11 information and technology companies in a major city in Northern China.¹ Each team had a common function, such as project management or customer service. Data were collected via web-based surveys at three time points over 6 months as part of a larger data collection that resulted in a previously published article (Hu et al., 2015). At Time 1, of 631 invited members in 135 teams, 515

¹ In conducting the primary study in our research, even though the institutional review board is unavailable in China, we complied with all guidelines for the ethical treatment of human subjects. The data were collected by one author from the team, who is affiliated with a university in Beijing but not affiliated with the participating companies.

members in 106 teams rated their leaders' expressed humility and transformational leadership, and their own power distance. At Time 2, 3 months after Time 1, 376 members in 79 teams rated team process variables. At Time 3, 6 months after Time 1, 73 leaders rated their teams' creativity. The final matched sample consisted of 354 members from 72 teams, with a response rate of 56% for individuals and of 53% for teams. Among members, the average age was 29 years, 55% were female, 89% had a college degree, and the average team tenure was 21 months. The average team size was five members. Among leaders, the average age was 33 years, 53% were female, most (99%) had a college degree, and the average tenure in leadership was 35 months ($SD = 11.79$).

Measures

Survey items were back-translated following Brislin's (1986) procedure. We used a response format of 1 = *strongly disagree* to 7 = *strongly agree*, unless otherwise noted.

Leader humility. At Time 1, members rated their leaders' humility with six items with highest factor loadings from Owens et al.'s (2013) scale² (e.g., "Our team leader is open to the advice of others"; $\alpha = .94$). Because leader humility is a leader-level construct, we justified aggregation to team level by obtaining a high mean r_{wg} value of .96 (James, Demaree, & Wolf, 1984), adjusting for a slight negative skewness in the expected variance to reduce potential leniency in ratings (Biemann, Cole, & Voelpel, 2012). The intraclass correlation (ICC1) was .38, and reliability of group mean (ICC2) was .75, indicating support for aggregation (Bliese, 1998).

Team power distance value. At Time 1, individuals reported power distance using Lee, Pillutla, and Law's (2000) three-item measure (e.g., "When a performance appraisal made by the supervisor does not fit with subordinates' expectations, the employees should feel free to discuss it with the supervisor"; reverse coded; $\alpha = .82$). The mean r_{wg} value with a negative skewness adjustment was .94, the ICC1 was .31, and the ICC2 was .69, supporting aggregation.

Team information sharing and psychological safety. At Time 2, members rated their teams' information sharing with De Dreu's (2007) six-item scale (e.g., "I get new facts, insights, and ideas from my colleagues; $\alpha = .90$) and psychological safety with four items with the highest item correlations² from Edmondson's (1999) scale (e.g., "If you make a mistake on this team, it is often held against you; reverse-coded item, $\alpha = .82$). The aggregation to the team level was supported by high interrater agreement and within group variance (for team information sharing, r_{wg} adjusted for a negative skewness = .97, ICC1 = .38, ICC2 = .75; for team psychological safety, r_{wg} adjusted for a negative skewness = .96, ICC1 = .33, ICC2 = .70).

Team creativity. At Time 3, team leaders provided ratings on team creativity using Shin and Zhou's (2007) four-item scale (1 = *poorly* to 7 = *very much*, e.g., "How well does your team produce new ideas?"; $\alpha = .91$).

Control variables. Leader gender was controlled, as female leaders may demonstrate more humble behaviors than their male counterparts (Eagly & Johnson, 1990). Team size and tenure were controlled for their potential impact on creativity (Hirst, van Knippenberg, & Zhou, 2009). We included transformational leadership as a control (Multifactor Leadership Questionnaire [MLQ] 20-item

scale from Bass & Avolio, 1995, $\alpha = .97$; $r_{wg} = .98$, ICC1 = .34, ICC2 = .71)³ because of its potential influence on team creativity (Eisenbeiss, van Knippenberg, & Boerner, 2008). Further, we controlled for team learning (four-item scale from Bresman (2010), e.g., "Members in our team reflect on the team's work progress"; $\alpha = .94$; $r_{wg} = .97$, ICC1 = .31, ICC2 = .69) and team empowerment (12-item scale from Kirkman, Rosen, Tesluk, & Gibson, 2004, e.g., "My team makes a difference in this organization"; $\alpha = .93$; $r_{wg} = .97$, ICC1 = .19, ICC2 = .53) because of their relationships with leader humility (Owens & Hekman, 2016) and creativity (Zhang & Bartol, 2010).⁴

Results

Table 1 shows the means, standard deviations, and intercorrelations. Before testing our hypotheses, we conducted confirmatory factor analyses via LISREL 8.72 to determine the distinctiveness of member-rated variables (i.e., leader humility, power distance, transformational leadership, team information sharing, psychological safety, learning, and empowerment). As shown in Table 2, the hypothesized seven-factor model was a better fit to data, $\chi^2(1409) = 3546.64$, $p < .001$, Comparative Fit Index = .97, Normed Fit Index = .96, Root Mean Square Error of Approximation = .07, Standardized Root Mean Square Residual = .05, than alternative models.

All hypotheses were tested in path-analytic models via LISREL 8.72. As summarized in Table 3, after including the controls, leader humility was positively related to information sharing ($b = .56$, $p < .01$) but not to psychological safety ($b = .08$, *ns*), thereby supporting Hypothesis 1 but not Hypothesis 2. As shown in Table 4, there was a negative interaction between leader humility and team power distance on information sharing ($b = -.58$, $p < .001$) and psychological safety ($b = -.39$, $p < .01$). We plotted the relationships between leader humility, team information sharing, and psychological safety at high and low levels of team power distance (1 *SD* above and below the mean). In Figure 2, the simple slope tests showed that the relationship between leader humility and team information sharing was more positive in teams with low power distance ($b = .85$, $p < .001$) than in teams with high power distance ($b = -.07$, *ns*), supporting Hypothesis 3a. Although the interaction term between leader humility and team power distance was significantly negative, as Figure 3 reveals, the patterns of the relationship between leader humility and team psychological safety at high and low team power distance conditions were not aligned with our expectations. Leader humility and team psychological safety were not related when team power distance was low

² To further validate our use of the shortened scale of leader humility and psychological safety, we obtained a separate sample of 170 employees working at various organizations and found that the six-item shortened scale of leadership humility was highly correlated with the nine-item full scale ($r = .98$, $p < .001$); and the four-item shortened scale of team psychological safety scale was highly correlated with the seven-item full scale ($r = .83$, $p < .001$). The data collection was approved by the institutional review board (Protocol ID: 16-09-3372) at the University of Notre Dame, with which the first author was affiliated during the data collection period.

³ The MLQ scale (Bass & Avolio, 1995) and its copies were purchased through Mind Garden.

⁴ We thank the editor and an anonymous reviewer for the suggestion to account for the potential effects of team learning and team empowerment.

Table 1
Descriptive Statistics and Correlations Among Study Variables

Variable name	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Leader gender	1.53	.50	—										
2. Team tenure	20.58	12.98	.03	—									
3. Team size	4.88	.84	-.06	-.05	—								
4. TFL (T1 ^T)	4.81	.52	-.01	-.12	.12	(.97)							
5. Leader humility (T1 ^T)	4.52	.49	.02	.04	.14	.62**	(.94)						
6. Team power distance (T1 ^T)	3.29	.79	.08	.03	-.21	-.19	-.12	(.82)					
7. Information sharing (T2 ^T)	5.23	.61	-.24*	-.02	.17	.22	.40**	-.16	(.90)				
8. Psychological safety (T2 ^T)	4.66	.59	-.14	-.07	.12	.59**	.46**	-.20	.46**	(.82)			
9. Team learning (T2 ^T)	5.31	.66	-.16	-.00	-.06	.72**	.56**	-.20	.53**	.61**	(.94)		
10. Team empowerment (T2 ^T)	3.67	.33	-.11	.07	.19	.47**	.64**	-.21	.76**	.38**	.57**	(.93)	
11. Team creativity (T3 ^L)	4.65	.74	-.09	-.11	.02	.32**	.48**	-.14	.45**	.40**	.48**	.22	(.91)

Note. $N = 72$ teams. Leader gender was coded as 1 = male, 2 = female. Team tenure is in months. Team size is the number of individual members in a team. Reliabilities of the study variables are listed in the parentheses. TFL = Transformational leadership; T1^T = variables rated by team members at Time 1; T2^T = variables rated by team members at Time 2, three months after Time 1; T3^L = variables rated by team leaders at Time 3, six months after Time 1.

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

($b = .29$, ns) but were negatively associated when team power distance was high ($b = -.33$, $p < .05$). Thus, Hypothesis 3b was not supported. Furthermore, Table 4 shows that both team information sharing ($b = .44$, $p < .01$) and team psychological safety ($b = .37$, $p < .05$) were positively related to team creativity, supporting Hypotheses 4a and 4b. For Hypothesis 5, we followed a Monte Carlo-based resampling approach in R (Selig & Preacher, 2008) to test the conditional indirect effect of leader humility on team creativity via information sharing and psychological safety under high and low team power distance. The indirect effect of leader humility on team creativity via information sharing was more positive at low team power distance ($b = .37$, 95% bias-corrected confidence interval [CI] = [.13, .66], excluding zero) than at high team power distance ($b = -.03$, 95% bias-corrected CI = [-.17, .09], including zero), supporting Hypothesis 5a. However, inconsistent with our expectation, the indirect relationship between leader humility on team creativity via psychological

safety was nonsignificant in low power distance teams ($b = .11$, 95% bias-corrected CI = [-.00, .26], including zero) but was significantly negative in high power distance teams ($b = -.12$, 95% bias-corrected CI = [-.29, -.01], excluding zero), failing to support Hypothesis 5b.

Discussion

One key contribution of our study is connecting the team creativity and leader humility literatures to demonstrate that the characteristics of humble leaders are particularly relevant to the core requirements of team creativity. Scholars theorized that to support team creativity, leaders first need to be willing to see their own problems and limitations (Unsworth, 2001) and to be open to new ideas and perspectives (Amabile et al., 2004; Basadur, 2004); however, traditional leadership approaches such as transformational leadership do not explicitly stress

Table 2
Results of Confirmatory Factor Analysis of Study Variables

Model	χ^2	df	$\Delta\chi^2$	Δdf	CFI	NFI	RMSEA	SRMR
1. 7-factor	3,546.64	1,409			.97	.96	.07	.05
2. 6-factor	6,112.17	1,415	2,565.53	6	.96	.94	.10	.10
3. 4-factor	7,474.17	1,424	3,927.53	15	.95	.93	.11	.11
4. 2-factor	10,753.50	1,429	7,206.86	20	.92	.91	.14	.14
5. 1-factor	19,406.39	1,431	15,859.75	22	.90	.89	.19	.16

Note. df = degrees of freedom; $\Delta\chi^2$ = chi-square differences; Δdf = degrees of freedom differences; CFI = Comparative Fit Index; NFI = Normed Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual. $N = 354$ team members. Model 1 (7-factor model) includes all study variables rated by team members (leader humility, transformational leadership, team power distance, at Time 1; and team information sharing, team psychological safety, team learning, and team empowerment at Time 2) being treated as seven independent factors. Model 2 (6-factor model) combines leader humility and transformational leadership as one factor and treats the other five variables as five independent factors. Model 3 (4-factor model) combines team process variables (team information sharing, team psychological safety, team learning, and team empowerment) as one factor and considers the other three variables three independent factors. Model 4 (2-factor model) combines variables rated at Time 1 (leader humility, team power distance, and transformational leadership) as one factor, and variables rated at Time 2 (team information sharing, team psychological safety, team learning, and team empowerment) as another factor. Model 5 (1-factor model) combines all seven variables as one factor. $\Delta\chi^2$ and Δdf reflect differences of χ^2 and df between the corresponding model and Model 1. All χ^2 s and $\Delta\chi^2$ s are significant at $p < .001$ level.

Table 3
Summary of Path-Analytic Results of Hypotheses 1 and 2

Variables	Team information sharing (T2 ^T)			Team psychological safety (T2 ^T)			Team creativity (T3 ^L)		
	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β
Controls									
Leader gender	-.24	.13	-.20	-.15	.12	-.13	-.02	.15	-.01
Team size	-.04	.06	-.08	-.04	.05	-.08	.12	.07	.18
Team tenure	-.01	.08	-.02	-.03	.07	-.05	-.05	.09	-.06
Transformational leadership (T1 ^T)	-.08	.16	-.07	.50***	.14	.44**	-.11	.19	-.08
Team learning (T2 ^T)	.22	.11	.24	.20*	.10	.22*	.16	.13	.14
Team empowerment (T2 ^T)	-.19	.27	-.11	.02	.24	.01	-.35	.30	-.16
Independent variable									
Leader humility (T1 ^T)	.56**	.20	.45**	.08	.17	.07	.31	.23	.21
Mediators									
Information sharing (T2 ^T)							.44**	.13	.37**
Psychological safety (T2 ^T)							.37*	.15	.30*
<i>R</i> ²	.27***	.05		.40***	.04		.41***	.06	

Note. *N* = 72 teams. Leader gender was coded as 1 = male, 2 = female. Team tenure is in months. Team size is the number of individual members in a team. The moderation and moderated mediation hypotheses were tested simultaneously. All continuous predictors were mean-centered (Edwards & Lambert, 2007). Model fit statistics: $\chi^2(1) = 8.70$, $p < .01$, CFI = .96, NFI = .97, SRMR = .04. *b* = unstandardized coefficient; *SE* = standard error; β = standardized coefficient; T1^T = variables rated by team members at Time 1; T2^T = variables rated by team members at Time 2, three months after Time 1; T3^L = variables rated by team leaders at Time 3, six months after Time 1.

* $p < .05$. ** $p < .01$. *** $p < .001$.

those essential requirements. To fill this gap, we proposed that unlike other leadership styles, humble leaders explicitly emphasize the importance of learning from mistakes, see limitations as an opportunity to foster change, and show appreciation of strengths of each member. All of these characteristics may create a supportive context for leading the teams to be more

creative (Basadur, 2004; Unsworth, 2001). We found that by displaying a modest self-view and showing appreciation and openness to others' ideas, humble leaders enhanced information exchange in the team to promote team creativity. Our findings showed that leader humility makes a unique contribution in explaining team creativity through information sharing. Thus,

Table 4
Summary of Path-Analytic Results of Hypotheses 3 to 5

Variables	Team information sharing (T2 ^T)			Team psychological safety (T2 ^T)			Team creativity (T3 ^L)		
	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β
Controls									
Leader gender	-.22	.12	-.18	-.14	.11	-.12	-.02	.15	-.01
Team size	-.02	.06	-.04	-.03	.05	-.05	.12	.07	.18
Team tenure	.03	.08	.04	.00	.07	-.01	-.05	.09	-.06
Transformational leadership (T1 ^T)	-.02	.15	-.01	.54***	.14	.48***	-.11	.19	-.08
Team learning (T2 ^T)	.07	.11	.07	.09	.10	.10	.16	.13	.14
Team empowerment (T2 ^T)	-.19	.25	-.11	.01	.23	.01	-.35	.30	-.16
Independent variable									
Leader humility (T1 ^T)	.39*	.19	.31	-.02	.17	-.02	.31	.23	.21
Moderator									
Team power distance (T1 ^T)	-.01	.08	-.01	-.03	.07	-.04			
Interaction term									
Leader Humility \times Team power distance	-.58***	.15	-.43***	-.39**	.14	-.30**			
Mediators									
Information sharing (T2 ^T)							.44**	.14	.36**
Psychological safety (T2 ^T)							.37*	.16	.30**
<i>R</i> ²	.41***	.04		.47***	.03		.42***	.06	

Note. *N* = 72 teams. Leader gender was coded as 1 = male, 2 = female. Team tenure is in months. Team size is the number of individual members in a team. The moderation and moderated mediation hypotheses were tested simultaneously. All continuous predictors were mean-centered (Edwards & Lambert, 2007). Model fit statistics: $\chi^2(3) = 13.40$, $p < .01$, CFI = .96, NFI = .96, SRMR = .03. *b* = unstandardized coefficient; *SE* = standard error; β = standardized coefficient; T1^T = variables rated by team members at Time 1; T2^T = variables rated by team members at Time 2, three months after Time 1; T3^L = variables rated by team leaders at Time 3, six months after Time 1.

* $p < .05$. ** $p < .01$. *** $p < .001$.

our study enriches the understanding of the role of leadership in team creativity (Mainemelis et al., 2015).

We underscore critical team mechanisms linking leader humility to team creativity. Results of our study show that leader humility had a nonsignificant overall main effect on team creativity ($b = .31, p > .05$). Although leader humility is theoretically relevant to team creativity, it may be distant to team creative outcomes and thus may not exert a strong direct influence on team creativity. This is consistent with the team effectiveness framework (Mathieu et al., 2008), in which leaders' characteristics and behaviors are considered as an input of team effectiveness and may influence team performance through the mediating roles of team processes and emergent states. We found that leader humility indirectly contributes to team creativity through promoting team members' information exchange but not through psychological safety climate. It seems that although humility guides leaders to behave in a manner that welcomes new and diverse ideas, it may not necessarily make members comfortable with risk taking. However, the nonsignificant link does not mean that leader humility does not matter to team psychological safety. In fact, we found the relationship depended on team power distance value.

We also make a contribution by identifying team power distance as a key contingency. Interestingly, we found differences in how leader humility relates to team information seeking and psychological safety depending on team power distance. Specifically, in teams with low power distance, leader humility was positively related to team information seeking but had no significant relation to team psychological safety. This may suggest that psychological safety in low power distance teams has drivers other than leader humility, and simply working with a humble leader is not sufficient to feel safe. In contrast, in high power distance teams, leader humility was not related to team information sharing ($b = -.07, p > .05$) but negatively related to team psychological safety ($b = -.33, p < .05$). One reason might be the differences in the constructs of information sharing and psychological safety. Humble leaders working with teams who expect leaders to be dominant could result in anticomplementarity in the leader–team relationship and may trigger negative emotional experiences such as dissatisfaction and frustration with the leader (Hu & Judge, 2017). Different from sharing of task-related information and resources, team

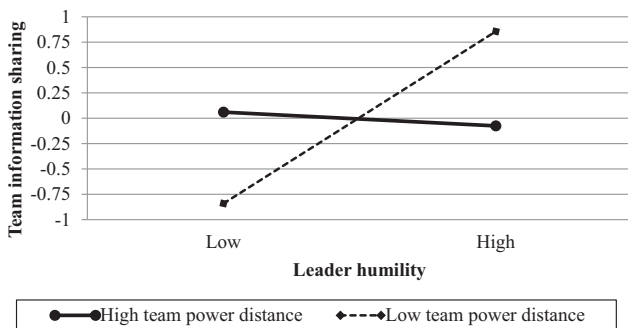


Figure 2. The effect of leader humility on team information sharing at high and low levels of team power distance. The simple slope tests showed that relationship between leader humility and team information sharing was more positive for teams with low power distance values ($b = .85, p < .001$) than for teams with high power distance ($b = -.07, ns$).

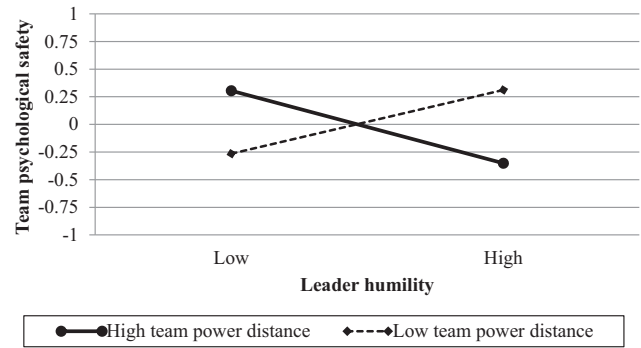


Figure 3. The effect of leader humility on team psychological safety at high and low levels of team power distance. Simple slope tests showed that leader humility and team psychological safety was positively yet nonsignificantly related when team power distance was low ($b = .29, ns$) but was negatively and significantly associated when team power distance was high ($b = -.33, p < .05$).

psychological safety captures members' shared emotional reactions to risk taking and the extent to which they should be afraid of speaking up. As such, members' negative emotions about their leaders resulting from the mismatch between leader humility and power distance values may cause more detrimental effects on their psychological safety feelings. We encourage future research to further explore the differentiated relationships between leader humility and team information sharing and psychological safety.

Practical Implications

Companies value creative teams for their contributions to long-term survival (Shalley, Zhou, & Oldham, 2004). Because humble leaders show followers how to view shortcomings positively and look for new information, they can benefit team creativity through facilitating information sharing. Behavioral patterns of humble leaders can be taught (Owens et al., 2013). Thus, companies can provide training that allows leaders to see shortcomings as starting points, and to identify and appreciate members' strengths and contributions. Managers should also be aware that humility may make a bigger difference in teams with low power distance values, suggesting that they should pay particular attention to express humility in such contexts.

Potential Limitations and Future Directions

Despite our contributions, our research has potential limitations that offer promising directions for future research. First, although we collected data from multiple sources and time periods, reverse causality is still a possibility. For example, teams with prior high creative performance may become more engaged in an effective exchange of unique information. Second, even though we included two theoretically chosen mediators, there may be other processes (e.g., reflections on current thinking) that explain the leader-humility/team-creativity relationship, necessitating future work. Third, it is worth considering to what extent the study findings are culturally specific. Leader humility in our sample shows a mean rating of 4.52 out of 7, which is comparable with previous studies using U.S. samples (e.g., Owen & Hekman, 2016). However,

guided by the Confucius value of interpersonal harmony, Chinese leaders are more likely than Western leaders to act humble and avoid hubris. We encourage future research to test societal cultural differences in the role of leader humility.

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