

# How Humble Leaders Foster Employee Creativity: A Cross-Level Path Model

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## Abstract

Drawing on social information-processing theory and the status-and-engagement perspective, a field study investigated the pathways through which team leader humility leads to employee creativity. Using a sample of 347 high-tech workers nested in 95 teams and their supervisors, this research theorized a multilevel model with data from multiple waves and sources. The results indicated that, at the individual level, leader humility perceived by individual employees boosted the employees' self-perceived status, which then promoted employee creativity. At the team level, leader humility created a team voice safety climate, which then had a positive cross-level impact on team members' creativity. This bridges the creativity and the leader humility literature by extending the social information-processing perspective of leader humility to integrate this perspective with research on individuals' desire to develop and maintain a status and positive identity. Theoretical implications of these results and practical implications for management practices were discussed.

**Keywords:** Leader humility, employee creativity, voice safety

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Since humility was identified as a core virtue that is fundamental to the healthy functioning of organizations (e.g., Cameron, Dutton, & Quinn, 2003), there has been an increasing interest in understanding the effects of leader humility expressed by supervisors on their employees (Bharanitharan, Chen, Bahmannia, & Lowe, 2019; Chiu, Owens, & Tesluk, 2016; Mao, Chiu, Owens, Brown, & Liao, 2019; Owens, Johnson, & Mitchell, 2013; Rego et al., 2019; Wang, Owens, Li, & Shi, 2018). Leader humility refers to an interpersonal characteristic expressed by a leader that shows the leader's willingness to accurately view him- or herself, the leader's appreciation of others' strengths and contributions, and his or her teachability (Owens et al., 2013). It is intuitively appealing to believe that humility, as comprised of these characteristics, is a virtue for individuals; thus it is imperative to know whether and how being humble allows a front-line supervisor to be an effective leader in terms of eliciting outcomes that are valuable to their organizations (Ellinger, Ellinger, & Keller, 2003). Research is beginning to focus on the effects of leader humility on employee workplace outcomes and provides initial evidence that leader humility has a positive impact on individual employees, boosting their job satisfaction and reducing turnover (Owens et al., 2013), which are traditionally desired by organizations (Staw, 1984).

Little is known about whether and how leader humility can promote employee creativity. In this era of increased competition, creativity, an outcome that was not traditionally expected from rank-and-file employees (Staw, 1984), is now an essential asset that enables organizations to adapt to a dynamic environment (Anderson, Potocnik, & Zhou, 2014; Gong, Zhou, & Chang, 2013; Miron-Spektor, Gino, & Argote, 2011; Oldham & Baer, 2012). Defined as the generation of novel and useful ideas by employees (Amabile, 1996; Oldham & Cummings, 1996), creativity exhibited by employees who work in a wide variety of functional areas increases the likelihood that the organization can differentiate itself from the competition and create value for customers in

an effective and efficient fashion. When employees exhibit creativity, their novel and useful ideas may help the organization to discover new technologies, invent new products, and design new services or to cut costs and improve the efficiency of work processes and operations. Indeed, previous research has demonstrated that, to the extent that an organization devotes attention to harvesting the benefits of employees' creative ideas, employee creativity makes a positive contribution to firm innovation in terms of introducing new products to the market (Liu, Gong, Zhou, & Huang, 2017) and achieving better overall and competitive firm performance (Gong et al., 2013). Thus, to gain competitive advantage, organizations need to foster employee creativity.

The creativity literature suggests that employees' immediate supervisors play a key role in fostering creativity in their employees. Because the process of coming up with truly new and useful ideas is often ambiguous and uncertain, to make sense of and navigate the process, employees often need to pick up on cues from their immediate context (Drazin, Glynn, & Kazanjian, 1999). Notably, the supervisors constitute the most important aspect of the context in which the employees work (Anderson et al., 2014; Shalley, Zhou, & Oldham, 2004). Given the call for greater leader humility in contemporary organizations (Owens et al., 2013; Weick, 2001) and the important role that supervisors play in leading and fostering employee creativity, it is imperative to know whether and how leader humility can bring about creativity in their employees. To address this concern, we conducted a field study at a high-tech firm, using a sample of research and development (R&D) employees and their supervisors.

This research aimed to make three contributions to the literature. First, it contributes to the creativity literature by providing an investigation of whether and how leader humility fosters employee creativity. Although humility is considered a fundamental virtue (Cameron et al., 2003), little research has been devoted to understanding whether and how leader humility

is beneficial to employee creativity. By investigating this relationship, this research also adds to the rapidly growing body of work on the impact of leader humility on employees by expanding the type of outcomes examined in prior studies to a non-traditional one that is especially valuable for organizations today—employee creativity.

Second, only a few studies have revealed the mechanisms through which leader humility exerts its effects on employee outcomes. The present study thus makes another contribution to the literature through its use of a path analysis to reveal the psychological mechanisms through which leader humility affects individual employees' creativity. Our adoption of the multilevel path analysis enables the estimation of the individual-level, team-level and cross-level relationships between variables by decomposing the variance into with-group variance and between-group variance (Lüdtke, Marsh, Robitzsch, Trautwein, Asparouhov, & Muthén, 2008). Furthermore, the multilevel path analysis can examine multilevel mediation effects in an appropriate way because it can differentiate the indirect effect at different levels (Preacher, Zyphur, & Zhang, 2010). Similar to prior research into the effects of leader humility (e.g., Ou, Tsui, Kinicki, Waldman, Xiao, & Song, 2014), we use the social information-processing perspective (Salancik & Pfeffer, 1978) as the primary theoretical lens to guide the analysis of why humility expressed by leaders has an impact on their subordinates.

This research extends the social information-processing perspective of leader humility by integrating this perspective with prior work on individuals' desire to develop and maintain a positive identity (Tyler & Blader, 2002). This theoretical integration allows us to identify self-status perception as the individual-level pathway that links leader humility to employee creativity. This research theorizes that, when an individual employee observes humility from his or her leader, the employee will perceive him- or herself as having high status and that this elevated self-status perception will propel the employee to

engage in creative activities. As such, this self-status perception serves as the psychological pathway that transmits leader humility to employee creativity at the individual level of analysis. This theorizing also adds to prior work on self-status perception by showing, for the first time, that leader humility is an antecedent of the employees' self-status perception.

Third, Anderson et al. (2014) pointed out that employee-team interface is a valuable and much needed direction for creativity research. Although teams have become the foundational building blocks of organizations, the cross-level effect of team climate on individual team members' creativity is still not well understood. In addressing this research need, the social information-processing perspective was again used to conduct a cross-level path analysis that links team-level leader humility to individual-level creativity. It is reasoned that team-level leader humility creates a team climate seen by team members to be safe in speaking up and expressing their ideas and voice. This team-level voice safety climate is at the center of the cross-level pathway that transmits team-level leader humility to the individual-level creativity exhibited by team members.

The following section presents more detailed theoretical analysis and hypothesis development.

## **Leader Humility and Employee Creativity: Individual- and Cross-level Pathways**

Leader humility is expressed by the focal leader during interactions with employees and, hence, is observable by employees (Owens et al., 2013; Vera & Rodriguez-Lopez, 2004). With regard to the three characteristics of leader humility, the willingness to accurately view oneself is manifested by behaviors such as seeking feedback and admitting when one does not know how to do something (Nielsen, Marrone, & Slay,

2010). The appreciation of others' strengths and contributions is manifested by behaviors such as complimenting others and expressing appreciation of others' contributions (Tangney, 2002). Teachability is manifested by behaviors such as being open to ideas and the advice of others and showing a willingness to learn from others (Templeton, 1997). In addition to its conceptual definition, the discriminant validity of the leader humility construct has been established empirically (e.g., Owens et al., 2013).

These characteristics of leader humility suggest that, in the workplace, humble leaders are not afraid of admitting what they do not know, are open-minded about learning new ways of doing things, show willingness to learn from their employees, are receptive to their employees' voice and suggestions, encourage their employees to fully use their strengths at work, and value their employees' new ideas and novel contributions. These attributes of humble leaders should facilitate their employees' engagement in creative activities because, as we will explain in the next section, they boost the employees' self-perceived status.

## **Individual-level Pathway between Leader Humility and Creativity: Self-perceived Status**

In any meaningful context or social group, individuals are interested in appraising their status in the context, as status indicates the prominence and respect that they garner, and status perception is at the core of individuals' self-concept and identity (Ridgeway & Berger, 1986; Tyler & Blader, 2002; van Dijke, De Cremer, Mayer, & Van Quaquebeke, 2012). Researchers have defined individuals' perceptions of the extent to which they have high status in a specific social group or context as autonomous respect (Tyler & Blader, 2002; Zhang, Huai, & Xie, 2015). Because autonomous respect represents individuals'

status in the eyes of others, following the logic of social information-processing theory (Salancik & Pfeffer, 1978), individuals develop the perception of their status from the cues generated by important others in their immediate context so as to reduce ambiguity and achieve accurate perception (Tyler & Blader, 2001). In their drive to appraise their status accurately, employees often draw information from people who are important to them in the specific context and use the information to form their perception of their status. To the extent that many organizations, including high-tech firms, use teams as the foundational organizing unit (Katzenbach & Smith, 1993), team leaders are important for employees because, as the direct supervisors of the employees, team leaders play an essential role in shaping how employees function in their teams and in coordinating the relationship between the employees and the organization (McGrath, 1962; Morgeson, DeRue, & Karam, 2010). Thus, individual employees often use information drawn from the leader of their work team to form their perceptions with regard to status.

The definition of leader humility indicates that, when a team leader expresses humility at work, first, the leader's willingness to accurately view him- or herself is manifested by behaviors such as seeking feedback from employees and admitting when he or she does not know how to do something (Nielsen et al., 2010). According to the social information-processing perspective (e.g., Ou et al., 2014), being at the receiving end of such humble behaviors from the team leader is likely to make the employees feel respected and that they have a prominent place in the team. Second, the leader's appreciation of his or her employees' strengths and contributions is manifested by behaviors such as complimenting the employees on their strengths and expressing appreciation for their contributions (Tangney, 2002). Processing such information from their leaders should lead the employees to feel important, valued, and respected. Finally, the humble leader also expresses teachability via his or her behaviors, such as being open to ideas

and the advice of his or her employees and showing a willingness to learn from the employees (Templeton, 1997). According to the social information-processing perspective, these behaviors from the humble leader are cues that the employees are likely to pick up and process, thereby making them feel that they have respect and high status on the team as they make important contributions by helping the team leader to learn new ideas and perspectives.

Taken together, this research has integrated the social information-processing perspective of leader humility and the status-and-engagement perspective to reason that leader humility cues employees that they are important and respected. Processing such information from their leaders is likely to result in the employees' perceiving themselves as having high status in the team. Thus, we predict:

**Hypothesis 1:** Leader humility is positively related to employee self-perceived status.

The status-and-engagement perspective posits that individuals seek to develop, maintain, and enhance a positive self-perception of status in a given context because it is at the core of their self-concept and the sense of self-worth (Tyler & Blader, 2002). Once they perceive that they have high status—that they are being respected and valued at work—they are motivated to maintain and enhance the high status that they desire. The drive to maintain and enhance their high status often leads employees to be deeply engaged in the context in which they enjoy high status, proactively making unique and valuable contributions that demonstrate their distinctive strengths and value, such as generating new and useful ideas (Janssen & Gao, 2015; Tyler & Blader, 2002; Zhang et al., 2015). The generation of new and useful ideas concerning products, services, and processes is commonly defined as employee creativity (e.g., Amabile, 1996; Oldham & Cummings, 1996; Shalley et al., 2004). In other words, there is a positive relationship between self-perceived status and employee creativity such that the self-perception of being respected and holding

prominent status in a context will drive employees to engage in generating creative ideas for the workplace. Thus,

**Hypothesis 2:** Employee self-perceived status is positively related to employee creativity.

Thus far, the argument here has relied on the social information-processing perspective in regard to the impact of leader humility on employees (e.g., Ou et al., 2014) to suggest that greater humility expressed by leaders will lead employees to perceive that they enjoy high status at work. This perspective allowed us to identify leader humility as a key antecedent to employees' perceptions of their status at work. The status-and-engagement perspective (Tyler & Blader, 2002) is also used to argue that the self-perception of high status or autonomous respect will lead employees to proactively engage in the workplace and demonstrate creativity. Insights from this perspective have led us to identify creativity as an important consequence of self-perceived status. Integrating these two theoretical perspectives enables us to extend both perspectives and to develop a fuller understanding of how leader humility is linked to employee creativity.

More specifically, self-perceived status can serve as the individual-level pathway that links leader humility and employee creativity. When team leaders exhibit humility, the individual team members will experience high levels of self-perceived status because the expressed leader humility makes them feel valued and respected at work and that they enjoy high status. This elevated self-perception of status will propel employees to be deeply engaged at work so as to make distinctive contributions by using the unique strengths and qualities for which their leaders have shown appreciation (e.g., Janssen & Gao, 2015; Tyler & Blader, 2002). To the extent that organizations need new and useful ideas from their employees to produce new products and services and to make the work process more efficient and cost effective, employees' developing creative ideas concerning products, services, and processes makes a valuable contribution.

Thus, this research theorizes self-perceived status as the individual-level pathway that links leader humility to employee creativity. Here is the hypothesis:

**Hypothesis 3:** Employee self-perceived status mediates the relation between leader humility and employee creativity.

## Cross-level Pathways that Link Team-level Leader Humility to Employee Creativity: Team Voice Safety Climate

Work teams have become the building blocks of contemporary organizations (Kozlowski & Ilgen, 2006). While at work, team leaders influence team members not only by having dyadic interactions with them but also through shaping the overall climate of the team (Ehrhart, 2004; Liao & Chuang, 2007). Prior theoretical and empirical work on leader humility suggests that it can function as a team-level construct, defining team-level leader humility as team members' consensus perception of how their leader demonstrates humility (Chiu et al., 2016). Recent research also demonstrated that leader humility could enhance team processes through the lens of social information processing theory (Wang, Li, & Yin, 2020). It implies that team-level leader humility is potentially suitable for creating a voice safety climate, defined as team members' shared belief about the extent to which it is safe to speak up in their teams (Morrison, Wheeler-Smith, & Kamdar, 2011). When the leader of a team expresses humility, he or she seeks feedback from the employees, admits when he or she does not know something, compliments the employees on their strengths, expresses appreciation of their contributions, is open to ideas and advice from employees, and shows a willingness to learn from the employees (Nielsen et al., 2010; Owens et al., 2013; Tangney, 2002; Templeton, 1997), all of which

contribute to a voice safety environment. All of these behaviors, which manifest humility, are likely to serve as cues that make employees feel that it is safe for them to speak up, identifying problems when problems occur, proposing solutions to fix the problems, and making suggestions about how to do things better. The expressed leader humility implies that the team leader is open to ideas and suggestions and that the leader wants employees to fully utilize their strengths to help the leader to learn what he or she does not know and to help the team to succeed by expressing their ideas and voice. Processing the information and cues conveyed by leader humility should facilitate the employees on a team to develop a shared belief that it is safe to speak up. Thus, we predict:

**Hypothesis 4:** Team-level leader humility is positively related to a team voice safety climate.

The climate of the work teams to which individual employees belong is important to employees. This is because each employee is embedded in the team day in and day out and needs to interact constantly with other members and because his or her success or failure at work is often influenced by the climate within the team and, as such, is tied closely to the team (Baer & Frese, 2003). Thus, the voice safety climate transmits what is valued in the team and provides social cues for team members. In a team that has the shared belief that it is safe for the team members to speak up in regard to problems that need to be fixed or new ways of doing things, individual team members are likely to feel that they are respected and their contributions are valuable. As such, they are likely to feel that they enjoy high status. Hence, we posit:

**Hypothesis 5:** Team voice safety climate is positively related to employee self-perceived status.

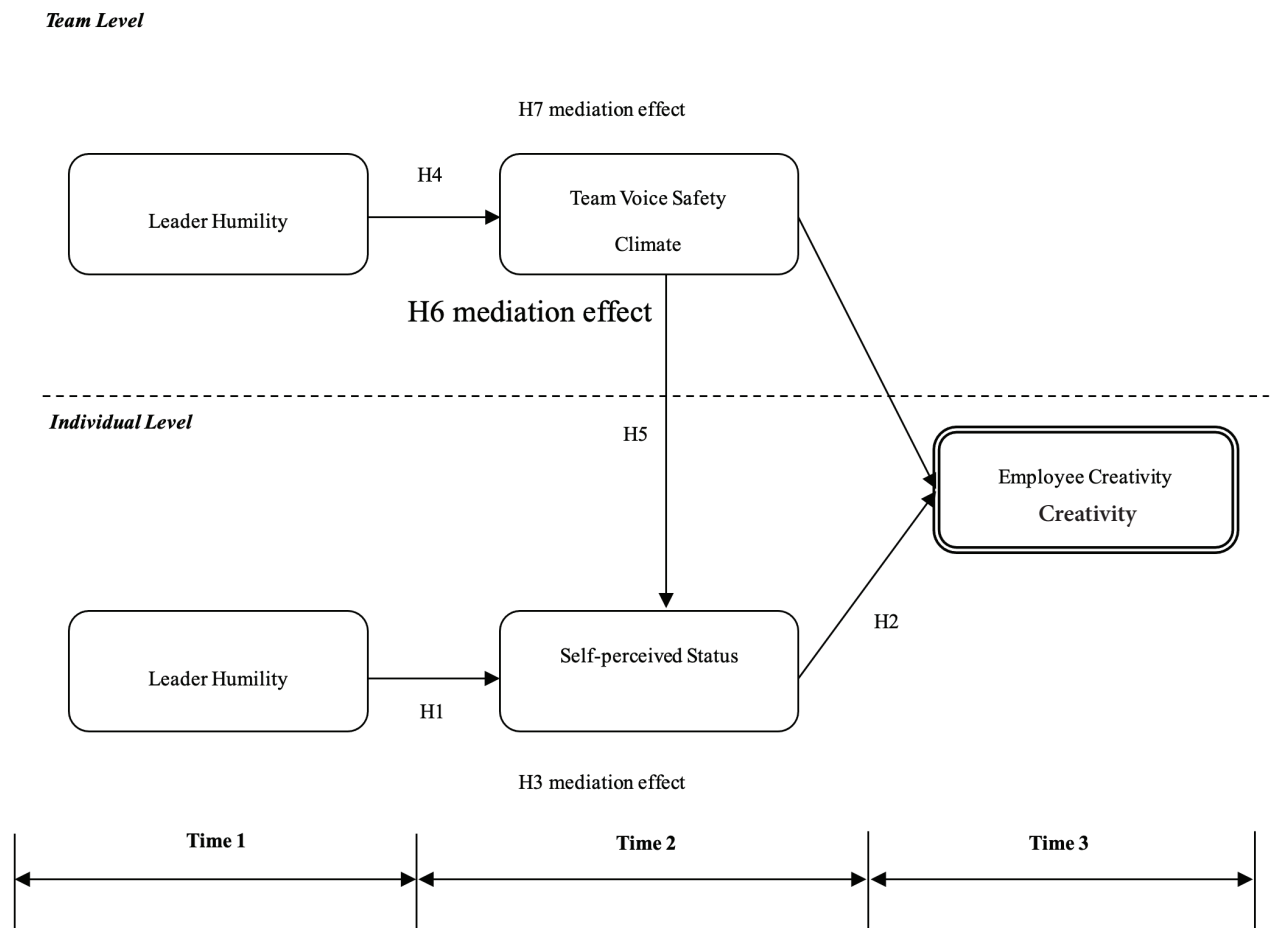
By building on the social information-processing perspective of leader humility, the preceding theoretical analysis demonstrates that team-level leader humility leads to a team's voice safety climate, which then boosts individual team members'

perceptions of their status (Tyler & Blader, 2002). This line of reasoning suggests that a team voice safety climate mediates the cross-level relationship between team-level leader humility and individual employees' self-perceived status. This cross-level mediation is formally stated in the following hypothesis:

**Hypothesis 6:** Team voice safety climate mediates the cross-level relation between team-level leader humility and employee self-perceived status.

When individual team members work in a team

that has a climate in which it is safe to speak up, team members feel that their ideas, concerns, and perspectives are valuable and important for the team's success (Morrison et al., 2011; Zhou & Pan, 2015). Encouraged and supported by such a safe climate, the team members are likely to immerse themselves in their work and be on the lookout for opportunities of continuous improvement. Those team members will not just do what they are told but, rather, to use their skills or strengths to identify existing problems and propose new and useful ways of solving these problems. Immersion in the work and an orientation



**Figure 1.** Hypothesized Model of the Research Framework

Note: The variable rated by the employee was denoted by a single-frame line, and the variable rated by the supervisor was denoted by a double-frame line.

toward continuous improvement and newer and better ways of doing things often result in employee creativity—the generation of new and useful ideas for helping their organization to improve and prosper (Hirst, Van Knippenberg, & Zhou, 2009; Zhou & George, 2001). Thus, having previously argued that team-level leader humility is associated with a voice safety climate, this climate serves as the cross-level pathway between team-level leader humility and individual creativity. Thus, we posit:

**Hypothesis 7:** Team voice safety climate mediates the cross-level relation between team-level leader humility and employee creativity.

Figure 1 shows the cross-level path model that this research has developed. We now turn to reporting a field study in which we tested the model.

## Method

### *Participants & procedure*

This research tested the proposed framework using data collected at three points in time from a sample of research and development (R&D) employees and their team leaders in a large information technology company in Taiwan. The study obtained full support from top management for the purpose of our research. The reason we selected R&D employees was that developing creative products is crucial for high-technology firms (Collins & Smith, 2006). Online questionnaires were used to survey the R&D employees (Time 1 and Time 2) and their team leader (Time 3). Before we sent the web link of the survey to employees at Time 1 and leaders at Time 3, the company's human resources department helped us inform them of this research. Participation in the current study was voluntary.

At Time 1, 811 questionnaires were administered to employees from 216 R&D teams and asked them to

rate their team leader's humility and provide their own demographics. Of the participants, 618 returned completed questionnaires, resulting in a response rate of 76%. Two weeks later, at Time 2, after excluding 7 participants who left the company and 1 team with 5 members in which the team leader left, we distributed 606 questionnaires to those who responded at Time 1 and asked them to provide their perceptions of the voice safety climate and their self-perceived status. We received 586 questionnaires, constituting a response rate of 97%. One month later, at Time 3, we instructed 215 team leaders to assess their members' creativity and their own demographics. Of the leaders, 160 responded (74%), providing ratings on a total of 591 employees. To determine the final sample, we deleted unmatchable employee and leader surveys, teams with only one employee response (for the sake of calculating climate scores), and teams with rwg values lower than .80 or higher than 1. The final sample consisted of 347 employees from 95 teams; most of the attrition resulted from the unmatched participants across the three time points and unmatched employee and leader pairs. The number of employees per team ranged from 2 to 15 (mean = 3.65). Of the employee respondents, 77% were men who were, on average, 29.07 years old. Sixty one percent had at least a master's degree, and 74% had been employed at the company for at least one year. Of the team leaders, 93% were men who were, on average, 35.40 years old. Fifty eight percent had at least a master's degree, and 75% had been employed at the company for at least two years.

### *Measures*

**Individual-level leader humility.** To measure leader humility, Owens et al.'s (2013) 9-item Expressed Humility Scale was used. Participants responded using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Sample items are, "The team leader actively seeks feedback, even if it is critical" and "The team leader often compliments others on their strengths."



**Team-level leader humility.** Chan's (1998) suggestion of generating direct consensus measures for shared group-level constructs and the procedures utilized in previous research (e.g., Jiang, Chuang, & Chiao, 2015; Liao & Chuang, 2007) were followed. For each team, the team members' evaluations of their team leader's humility to form a shared team-level leader humility construct were averaged.

**Team voice safety climate.** Following Morrison et al.'s (2011) method for generating a group voice climate measure, the referent shift consensus model of aggregation was applied (Chan, 1998) to the 10 employee-voice items in Liang, Farh, and Farh (2012). We asked employees to evaluate the extent to which they agreed that their team members felt safe when engaging in behaviors such as "Proactively develop and make suggestions for issues that may influence the unit" and "Proactively report coordination problems in the workplace to the management." Respondents answered on a 7-point scale, ranging from 1 = strongly disagree to 7 = strongly agree.

**Self-perceived status.** Self-perceived status was assessed using the 7-item measure (1 = strongly disagree to 7 = strongly agree) developed by Tyler and Blader (2002). Sample items are, "Other members value my ideas" and "Most members of my team respect me."

**Employee creativity.** George and Zhou's (2001) 13-item scale was adapted to assess employees' creativity. Team leaders evaluated how characteristic each of the 13 items was of each of the team members. Sample items are, "Comes up with new and practical ideas to improve performance" and "Suggests new ways to achieve goals or objectives." Participants responded using a 5-point scale (1 = not at all characteristic to 5 = very characteristic).

**Control variables.** Team size was controlled. Research has shown that larger teams should be more creative due to their having more viewpoints and perspectives

(Hülsheger, Anderson, & Salgado, 2009). At the individual level, employees' education was controlled (1 = senior high school or less to 5 = Ph.D.), tenure with the company (in years), and work experience in the IT industry (in years). When the dependent variable was creativity, we also controlled for tenure with the team leader (in years) because leaders were asked to rate employees' creativity. When modeling the relationship between individual-level leader humility and self-perceived status, we also controlled for leader-member exchange (LMX) because employees who are in a good relationship with the team leader may perceive themselves as having a higher status in the team. We adopted the 7-item scale from Graen and Uhl-Bien (1995) to measure LMX. A sample item is, "How well does your leader understand your job problems and needs?"

### *Analysis strategy*

Because the employee respondents were nested in teams and our theoretical model included constructs at multiple levels, following past research (e.g., Jensen, Patel, & Messersmith, 2013; Leroy, Ansel, Gardner, & Sels, 2015; Sun, Zhang, Qi, & Chen, 2012), a multilevel path analysis (with Mplus 7.0; Muthén & Muthén, 1998–2012) was adopted to test the proposed hypotheses. As a multilevel path analysis can decompose the variance of our individual-level variables into a within component (within-group variance) and a between component (between-group variance) (Lüdtke et al., 2008), it can estimate the relationships between team-level variables, between team-level variables and individual-level variables, and between individual-level variables. In addition, when testing multilevel mediation effects, it can unconfound the between and within components of indirect effects (Preacher et al., 2010) and can estimate the indirect effects simultaneously rather than the researcher's having to use stepwise procedures. In addition, bias-corrected bootstrap confidence intervals were used to examine the mediation effect in our hypotheses

**Table 1**

<i>Comparison of Measurement Models</i>												
										Change from Model 1		
Model	Description	$\chi^2$	df	$\chi^2/df$	RMSEA	CFI	IFI	NFI	NNFI	$\Delta\chi^2$	$\Delta df$	p-value
1	Four-factor model <sup>a</sup> (Hypothesized model)	2230.84	734	3.04	.08	.96	.96	.94	.96			
2	One-factor model <sup>b</sup>	20153.07	740	27.23	.28	.78	.78	.76	.77	17922.23	6	.000
3	Two-factor model <sup>c</sup>	7953.56	739	10.76	.17	.89	.89	.87	.88	5722.72	5	.000
4	Three-factor model <sup>d</sup>	5223.28	737	7.09	.13	.93	.93	.91	.92	2992.44	3	.000
5	Three-factor model <sup>e</sup>	5044.96	737	6.85	.13	.92	.92	.91	.92	2814.12	3	.000
6	Three-factor model <sup>f</sup>	6188.21	737	8.40	.15	.91	.91	.89	.91	3957.37	3	.000

N = 347. RMSEA = Root Mean Square Error of Approximation; CFI = comparative fit index; IFI = incremental fit index; NFI = normed fit index; NNFI = non-normed fit index.

- a. Four factors: leader humility, voice safety, self-perceived status, and employee creativity.
- b. One factor: all four variables combined.
- c. Two factors: leader humility, voice safety, and self-perceived status combined; employee creativity.
- d. Three factors: leader humility and voice safety combined; self-perceived status; employee creativity.
- e. Three factors: leader humility; voice safety and self-perceived status combined; employee creativity.
- f. Three factors: leader humility and self-perceived status combined; voice safety; employee creativity.

(Cheung & Lau, 2008; Lau & Cheung, 2012). There is evidence showing the distribution of mediation effect is not normal; hence, it would not be appropriate to use the Sobel test due to its assumption of a normal distribution of mediation effect (Cheung & Lau, 2008).

## Results

Since the data were collected at three points in time, several sampling bias tests were conducted on all

study variables and demographics. First of all, the employee sample that completed both the Time 1 and 2 surveys were compared (n = 586) with the sample that finished only the Time 1 survey (n = 32). A significant difference between the two samples in participants' gender was found. The employee final sample (n = 347) was compared with the sample that finished the Time 1 and 2 surveys (n = 239). Significant differences were found between the two samples in gender, education, and work experience. Those whom we only had Time 1 and 2 data with did not self-select out of Time 3 – they were dropped due

to unmatched pairs, low rwg, and the fact that they were in a group with only one member's data. Hence, the sampling bias concern is alleviated.

In terms of the internal consistency reliability of our study variables, Cronbach's alpha was .93, .94, .92, and .96 for leader humility, team voice safety climate, self-perceived status, and employee creativity respectively. To test the distinctiveness of our major study variables (leader humility, voice safety, self-perceived status, and creativity), a series of confirmatory factor analyses (CFA) were performed to compare the hypothesized four-factor model with five alternative models. Table 1 shows that the hypothesized four-factor model appeared to have the best model fit (standardized root mean square residual [RMSEA] = .08; comparative fit index [CFI] = .96; incremental fit index [IFI] = .96; normed fit index [NFI] = .94; non-normed fit index [NNFI] = .96). The chi-square difference test demonstrated a significant difference between the chi-square value of the hypothesized model and that of each of the alternative models. In addition, we followed Anderson and Gerbing's (1988) procedure for additional evidence of discriminant validity. The

results showed that (a) the chi-square value of the unconstrained model was significantly lower than that of all constrained models ( $\phi = 1$ ); (b) none of the confidence intervals of the estimated correlation parameter ( $\phi$ ) of each pair of these four constructs included the value of 1; and (c) none of the values of  $\phi$  was larger than .85 (Jöreskog & Sörbom, 2001). All of the evidence displayed good discriminant validity among our study variables.

To examine the concern of common method variance (CMV) (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), two models were compared: the four-factor model that provided the best fit in the CFA analysis and a competing model where a CMV factor was added and where all indicators were allowed to load on this CMV factor (Podsakoff et al., 2003; van Vianen, Shen, & Chuang, 2011). The results showed that the model with the CMV factor inevitably had better model fit (RMSEA = .06, CFI = .98, IFI = .98, NFI = .97, NNFI = .98) than the four-factor model (RMSEA = .08, CFI = .97, IFI = .97, NFI = .95, NNFI = .96). However, across the two models, the significance of the corresponding estimated coefficients remained the same and the

**Table 2**

Descriptives, Intercorrelations, and Interpersonal Consistency Reliability <sup>a,b</sup>							
Variable	Mean	SD	1	2	3	4	5
1. Team-level leader humility <sup>b</sup>	3.85	.38	-				
2. Team-level voice safety climate <sup>b</sup>	5.09	.46	.53***	.94			
3. Individual-level leader humility	3.85	.58	.65***	.35***	.93		
4. Self-perceived status	5.12	.70	.17**	.31***	.31***	.92	
5. Employee creativity	3.36	.72	.10†	.18***	.12*	.19***	.96

a. Cronbach's alpha is on the diagonal of the table.

b. We assigned team means of this variable to employees of the same team to calculate the individual-level correlations; individual level, n = 347; team level, n = 95.

†p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001.

magnitudes of the corresponding coefficients were largely similar. Thus, we are positive that CMV might not be a serious concern in the current study.

Table 2 presents the means, standard deviations, reliabilities, and correlations for all study variables. Within-group agreement was computed (rwg(j)), the intra-class correlation (ICC1), and reliability of group means (ICC2) to justify the aggregation of team-level constructs. For rwg(j), a small negative skew was chosen for the expected variance to adjust the potential response bias (James, Demaree, & Wolf, 1984; LeBreton & Senter, 2008). We obtained mean

rwg(j) values of .94 and .95 for leader humility and team voice safety climate, respectively, indicating high agreement among employee responses with teams. In addition, the ICC1 value was .21 for leader humility, .11 for team voice safety climate, .07 for self-perceived status, and .40 for employee creativity. Finally, the reliability of group mean value (ICC2) was .47 for leader humility and .30 for team voice safety climate.

Table 3 presents the direct and indirect effects of our hypothesized model. Hypothesis 1 posited that leader humility was positively related to employee self-perceived status. The results showed that individual-

**Table 3**

Tests of Direct and Indirect Effects of the Hypothesized Model <sup>a</sup>			
Path	Estimate	Std. Error	p-value
Direct effects			
Within-group direct path			
Individual-level humility→self-perceived status	.20	.09	.022
Self-perceived status →employee creativity	.20	.06	.001
Between-group direct path			
Team-level leader humility→ team voice safety climate	.64	.12	.000
Cross-level direct path			
Team voice safety climate→self-perceived status	.28	.08	.001
Team voice safety climate→employee creativity	.24	.12	.041
Indirect effects (Delta method)			
Individual-level leader humility→self-perceived status →employ- ee creativity	.04	.02	.065
Team-level leader humility→ team voice safety climate→employ- ee creativity	.16	.08	.064
Team-level leader humility→ team voice safety climate→ self-perceived status	.18	.06	.002

a. The results were analyzed by two-level path analysis. Model fit: CFI = .98; RMSEA = .04. Individual level, n = 347; team level, n = 95.

level leader humility was significantly associated with employee self-perceived status ( $b = .20, p < .05$ ). Therefore, Hypothesis 1 was supported. Hypothesis 2 proposed that employee self-perceived status was positively related to employee creativity. The results indicated that self-perceived status was significantly related to employee creativity ( $b = .20, p < .01$ ), providing support to Hypothesis 2. Hypothesis 3 posited that employee self-perceived status mediated the relation between leader humility and employee creativity. The results showed that the bias-corrected bootstrapping confidence interval (using 1,000 re-samples) did not include zero (.007, .091), thus corroborating a significant indirect effect. Hence, Hypothesis 3 was supported.

For the hypotheses for team effects, Hypothesis 4 proposed that team-level leader humility was positively related to team voice safety climate. The results showed that team-level leader humility was significantly associated with team voice safety climate ( $b = .64, p < .001$ ) meaning Hypothesis 4 was supported. Hypothesis 5 suggested that team voice safety climate was positively related to employee self-perceived status. The results revealed that team-level voice safety was significantly associated with self-perceived status ( $b = .28, p < .01$ ), showing that Hypothesis 5 was supported. Hypothesis 6 posited that team voice safety climate mediated the cross-level relationship between team-level leader humility and employee self-perceived status. The bias-corrected bootstrapping confidence interval (using 1,000 re-samples) did not include zero (.10, .28), indicating a significant indirect effect. Thus, Hypothesis 6 was supported. Hypothesis 7 proposed that team voice safety climate mediated the cross-level relationship between team-level leader humility and employee creativity. The results showed that the bias-corrected bootstrapping confidence interval (using 1,000 re-samples) did not include zero (.06, .25), thus corroborating a significant indirect effect. Therefore, Hypothesis 7 was supported.

## Discussion

Research suggests that leaders need to express humility in the workplace, as it is a core virtue (e.g., Cameron et al., 2003; Owens et al., 2013). Nevertheless, little is known about whether and how leader humility leads to an employee outcome essential for organizations in the 21st century: the generation of creative ideas to design products and services and to improve work methods and processes. To provide an in-depth answer to the issue of whether and how leader humility promotes employee creativity, this investigation examined the individual- and team-level pathways through which team leader humility leads to individual team members' creativity. Drawing on a sample of 347 R&D employees embedded in 95 teams in an information technology company, the analyses uncovered that, at the individual level, leader humility was positively related to team members' self-perceived status, which, in turn, was positively related to employee creativity. The results also show that, at the team level, leader humility is positively related to team voice safety climate, which, in turn, is positively related to team members' self-perceived status and creativity.

### *Theoretical implications*

The results are consistent with the theoretical analysis that was developed by integrating the social information-processing perspective of leader humility (e.g., Ou et al., 2014) and the status-engagement perspective (Tyler & Blader, 2002) in regard to self-perceived status. More specifically, in the research stream on the impact of leader humility on employee outcomes, researchers have used the social information-processing perspective to predict the effects of humility expressed by leaders on those who report to them (Ou et al., 2014). According to this perspective, the humility expressed by leaders serves as an informational cue that employees pick up on from their social context. Humble leaders seek feedback due to their desire to accurately view

themselves, compliment others on their strengths and contribution, and show willingness to learn from others. Receiving and processing such information from their humble leaders tend to lead employees to make positive contributions, as measured by traditional outcomes, such as job satisfaction and turnover (e.g., Owens et al., 2013). This line of research was extended to employee creativity, a nontraditional outcome that has become increasingly important in the 21st-century organization (e.g., Anderson et al., 2014). This extension was made possible by bridging the leader humility research stream with that of status engagement. Separate from the leader humility research stream, that of status engagement posits that, because individuals' self-perceived status is an essential element of their self-identity, their desire to maintain an elevated self-perceived status will propel them to deeply engage in the context that allows them to experience the elevated status so as to make great contributions to it.

Drawing on insights from both research streams, this research integrates the social information-processing perspective of leader humility with the status-engagement perspective in identifying employees' self-perceived status as a psychological consequence of leader humility. We reason that, because the leaders of teams are the prominent aspect of the social context in which the employees are embedded, the employees are likely to pick up on cues from the leaders in forming their perceptions of their status at work. When humble leaders seek feedback from their employees, compliment the employees' strengths and contributions, and show a willingness to learn from the employees, employees are likely to feel being valued and respected, thereby perceiving that they have high status. The desire to maintain this high status motivates employees to be greatly engaged in their work activities and to strive to make substantial contribution, thereby leading them to demonstrate high levels of creativity, especially in a R&D setting. Our results support these theoretical analyses. As such, our theorizing contributes to the information-processing perspective of leader humility by

adding employees' self-perceived status elevation as a psychological consequence, and creativity as a behavioral consequence, of processing the social information expressed by humble leaders. The theorizing also contributes to the status-engagement perspective by adding leader humility as an important exogenous variable that influences employees' self-perceived status at work. Because self-perceived status is fundamental for employees' self-identity at work, and employee creativity is crucial for organizational effectiveness, that our theoretical additions were supported by our empirical results allows us to contribute to the leader humility literature and further attests the positive differences that humble leaders make. These theoretical additions also allow us to contribute to the creativity literature by identifying not only leader humility as an important antecedent of employee creativity but also its individual-level pathway.

In addition, this study addresses the belief that, as teams are becoming the fundamental unit of organizing in the workplace, to understand individual-level creativity, it is useful to examine both individual- and team-level antecedents (e.g., Hirst et al., 2009; Zhou & Hoever, 2014). Thus, it also examined the influences of team-level leader humility. Again, building on the social information-processing perspective by integrating it with that of status engagement, this research theorizes that, when team leaders express humility, it helps to create a team voice safety climate. When humble leaders show a willingness to accurately view themselves by seeking feedback from others, compliment others, and learn from others by valuing others' ideas and viewpoints, team members are likely to feel that it is safe to voice their ideas and suggestions. This overall climate, indicating employees' ideas are valued and that it is safe to voice them, is likely to make individual employees feel respected and that they have high status. Hence, a safe team-level voice climate serves as the cross-level link between team leader humility and team members' creativity. This cross-level theoretical integration enriches our theoretical understanding of

how and why team-level leader humility influences individual-level creativity, thereby contributing to the research streams on leader humility and creativity.

### *Strengths, limitations, & future research*

The current research has several methodological strengths and limitations. First, data were collected from multiple time points (three phases) and multiple sources (employees and team leaders) and examined a multilevel theoretical model. That the data were from different time points and sources could minimize the problem of common method variance. In addition, as reported in the Results section, the model comparison results demonstrated similar coefficients between the four-factor model and the one with an additional CMV factor. Thus, with the multi-period and multi-source design and the evidence from the model comparison results, CMV was not a serious issue in this study.

Second, the relatively low ICC2 values of leader humility and team voice safety climate implied that it might be difficult to detect the relationships between these aggregated constructs and the other study variables, which means that the corresponding results could be conservative. LeBreton and Senter (2008) argued, however, that, when between-target variance is restricted, it is likely that ICC2 is attenuated. In this case, rwg could serve as a better justification for aggregation. In addition, ICC2 is sensitive to group size; it is small when the group size is small. Research (Chen & Bliese, 2002; Kozlowski & Hattrup, 1992) has demonstrated that, if aggregation is justified by theory and supported by high rwg values and significant between-group variances, one could proceed with the aggregation.

Third, the research sample was from Taiwan, where a larger power distance between employees and supervisors was found as compared to people from the West (Hofstede, 1980). Research has indicated

that humility is less common and expected for managers in a high power distance culture (Oc, Bashshur, Daniels, Greguras, & Diefendorff, 2015). It is thus possible that, when managers demonstrate humility behaviors, employees would not have been expecting this, which will likely lead to a higher level of employees' feeling respected. In other words, a high power distance may strengthen the positive effects of leader humility on variables such as those examined in this study (i.e., voice, respect, and creativity). Thus, future research should include samples from countries with low power distance to compare the hypothesized relationships proposed in the current study.

### *Practical implications*

The results of this study show that leader humility influences employee creativity via a voice safety climate and individual-level perceived status. Thus, it is imperative that organizations train their leaders to be humble, including how to accurately view themselves, to appreciate other people's strength and contribution, to be willing to learn from others, and to be open to others' advice. Research has shown that it is possible to educate people to be positive. For example, Seligman et al. (1995) found that the effect of optimism training on reducing depression could last for two years. Research also shows that leadership can be taught. Barling et al. (1996) noted that managers who were trained as, and perceived by their subordinates as, transformational leaders had an effect on subordinates' organizational commitment and branch-level financial performance. Therefore, it is likely that leaders can be taught to demonstrate humble behaviors. This is especially important for our research, as it shows that, when leaders were humble, their followers had higher creativity, which is a crucial performance indicator for employees in the creative industry.

This research also showed that leaders with humility could help foster a voice safety climate for employees to voice their views and to develop their self-

perceived status—two mechanisms that facilitate employee creativity. A voice safety climate is critical for knowledge workers, such as R&D employees, because, more often than not, those types of employees learn from their peers (Brock, Zmud, Kim, & Lee, 2005). A voice safety climate can promote knowledge exchange and sharing among employees. Therefore, organizations should develop institutional procedures that make employees feel safe and educate leaders to be humble to strengthen the perception of a voice safety climate. Another reason for organizations to have humble leaders is that they can help instill higher perceived status on the part of their followers. Organizations can teach leaders to consult employees in decision making, to compliment employees on their contributions, and to appreciate the ideas and advice of employees, all of which make employees feel respected. In this regard, organizations can encourage idea generation through competitions or pay raises, which also could stimulate creativity.

In conclusion, by extending theories on how leader humility expressed by supervisors has an effect on the traditional variables of subordinates' attitudes and behaviors, this research has shown that, for individual employees' creativity, leader humility is instrumental by developing employees' self-perceived status and advancing a voice safety climate. The findings underscore the importance of voice and respect as two critical elements for the effect of leader humility on employee creativity. We call for more theoretical investigations that aim to understand the effectiveness of leader humility.

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