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How does humble leadership influence employee improvisation? A motivational perspective

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In the era of variability, uncertainty, complexity, and ambiguity, organizations must improvise to deal with emergencies. Drawing on the proactive motivation model, we explored the connection between humble leadership and employees' improvisation, and its mechanism and boundary conditions. The participants were sourced from various enterprises located in Shanghai, Shandong, Heilongjiang, Hainan, and other regions. Through a scenario-based simulation experiment ($N = 91$) and a questionnaire survey ($N = 217$), we derived five key findings. First, humble leadership positively affects employee improvisation. Employees' positive emotions mediated the relationship, while both positive employee emotions and leader-member exchanges play a chain-mediating role. Moreover, power distance orientation negatively moderates the promotion effect. Finally, the indirect effect of humble leadership on improvisation via positive employee emotion is stronger for employees with low power distance orientations. Our study primarily focuses on individual-level improvisation, which enriches the knowledge of the connection between leadership style and improvised behaviors while also expanding upon the proactive motivation model framework. Additionally, practical insights are provided for promoting improvisation.

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Introduction

In the era of variability, uncertainty, complexity, and ambiguity, organizations are likely to be faced with unforeseen emergencies, which sometimes lead to pre-made plans that may not be consistent with the actual situation. Relying only on standardized arrangements makes it easy for an enterprise's development to run into a bottleneck (Wang and Zhang, 2020). Improvisation occurs when employees proactively integrate resources and adopt original ways to solve unexpected challenges if they cannot cope with unexpected environmental changes through pre-planning (Magni et al., 2009). As employees form the main body of an organization, their initiation of carrying out improvisation in the face of emergencies is conducive to the organization. Some researchers believe that the characteristics of innovation inherent in improvisation can positively predict innovation (Chen et al., 2021; Guoxiang et al., 2015). Organizations should explore ways to facilitate employee improvisation. Previous studies have predominantly focused on team-level improvisation, with only a few having examined individual-level improvisation. As employees constitute the fundamental component of an organization and play a crucial role in organization development, their significance should not be overlooked. Therefore, our study concentrated on individual-level improvisation and explored its influencing factors.

Leadership style is a significant and distinctive factor that influences employee improvisation. Effective communication and rapport between employees and their managers are vital for every employee. Chung et al. (2020) discovered that leaders' behaviors impact employees' attitudes and behaviors at work. Previous research has demonstrated that entrepreneurial leadership and inclusive leadership can exert varying degrees of influence on improvisation through different pathways (Liu et al., 2022; Wang and Zhang, 2020). With the continuous evolution of leadership theory, new styles such as ethical leadership (Brown et al., 2005), authentic leadership (Luthens and Avolio, 2003), and transformational leadership (Judge and Piccolo, 2004) have been proposed. The question about the influence of these different leadership styles on improvisation needs further exploration. Humble leadership was initially introduced by Morris and his colleagues (2005) and Owens and Hekman (2012) developed the concept further. Humble leaders possess objectivity when assessing their own weaknesses while appreciating others' strengths contributions, and they also remain open to new knowledge and perspectives. Surprisingly, little attention has been given to investigating the connection between humble leadership and employees' improvisational behavior thus far. Henceforth, we aimed to explore this association along with its underlying mechanisms using a quantitative approach.

Literature review and hypotheses development

The proactive motivation model. The proactive motivation model provides a theoretical framework for understanding impromptu behavior, which is considered a kind of proactive behavior. According to Parker et al. (2010), individuals require strong motivation (ability, reason, and energy) to engage in active behavior, and they can be driven by one or more motivations. Given that ability motivation is closely linked to individual characteristics while humble leadership falls under external situational factors, we argue that causal motivation and energy motivation play pivotal roles in this process.

Leader-member exchange (LMX) reflects the quality of the exchange relationships established between supervisors and subordinates at work (Hsiung and Bolino, 2018). Due to time and resource constraints, it is impossible for different leaders and subordinates to establish exactly the same relationship, and

leaders will thus establish different relationships with subordinates through a series of work-related communications (Graen and Uhl-Bien, 1995). Especially in China, Chinese society is more relationship-oriented, and interpersonal relations have a great influence on individuals' emotional perceptions and behaviors (Vasquez et al., 2021). The relationship with supervisors is one of the most important considerations for employees when making job decisions (Liao et al., 2019). In the face of emergencies, "insiders" who have a better relationship with the leader will have a stronger cause motivation to produce impromptu behaviors to help the leader solve problems, as this repays the leader's attention and appreciation while maintaining high-quality LMX. Moreover, studies have shown that high-quality LMX gives employees a stronger sense of responsibility, put more effort into their work, they are willing to take on extra-role behaviors (Hogan and Holland, 2003; Ionescu and Iliescu, 2021). Therefore, we introduced LMX plays a mediating role between humble leadership and improvisation as cause motivation.

Positive emotions refer to emotions associated with feeling happy (Dunn and Schweitzer, 2005). The more positive emotions individuals have, the more they will be in a state of high energy, concentration, and pleasure (Rodriguez-Munoz et al., 2021), which refers to the energy motivation for employees to implement active behaviors. When faced with unexpected situations, individuals with positive emotions are likelier to engage in improvisational behaviors to cope with the problems. Therefore, we introduced positive emotions that may play a mediating role as energy motivation.

The proactive motivation model tells us that personality and values are important factors that affect proactive behavior (Parker et al., 2010). In the process of leadership influencing employees, how employees interpret the leader's behavior plays an important role (Dong et al., 2020). Individual power distance orientation refers to the acceptability of individuals of the inequality of power distribution in an organization (Jeung and Yoon, 2018). This element of employee behavior determines how employees will be affected by leaders. Employees are likelier to recognize the authority of leaders if their power distance orientation is high. whereas, if their power distance orientation is low, employees believe that leaders and employees should get along equally and leaders should communicate more with employees (Peltokorpi, 2019). Therefore, employees with different power distance orientations may have different sensitivities to leaders' behaviors (Wang et al., 2018). Individuals with different power distances may have different perceptions of supervisors' behaviors, thus influencing the employees' impromptu behavior. Therefore, we included power distance orientation as moderating variable.

In short, we constructed a model of humble leadership and employee improvisation based on the proactive motivation model (as shown in Fig. 1). Our study has three major theoretical implications. First, we explored how humble leadership influences impromptu behavior, enriching the research on impromptu behavior from a micro perspective. Second, we extended the relations of different kinds of motivations in the proactive motivation model. Although Parker and his colleagues point out that individuals need strong motivation (ability, reason, and energy) to implement proactive behaviors, it does not specify the connection between the three kinds of motivation. We proposed that LMX can promote the production of positive emotions, which means that different kinds of motivations may interact with each other. Third, based on the proactive motivation model, we proposed power distance orientation as a moderating variable to enrich the boundary conditions of the influence of leadership style on impromptu behavior.

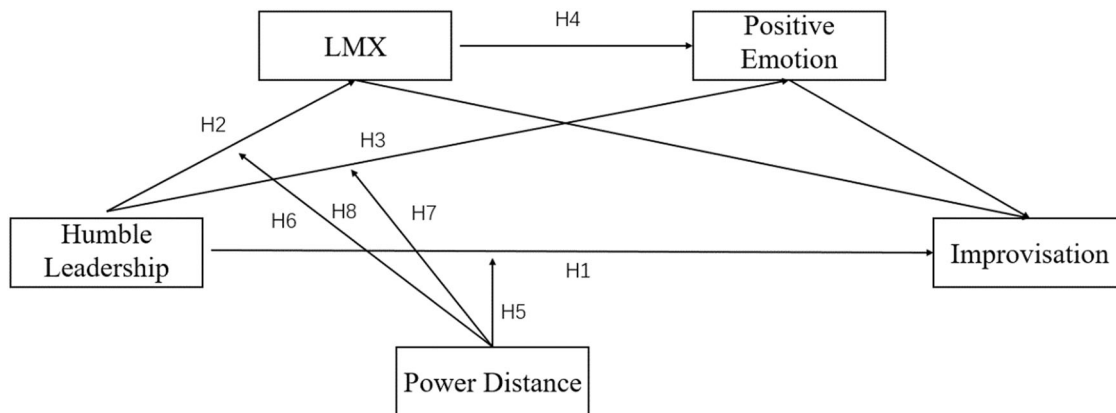


Fig. 1 Research framework of humble leadership towards employees’ improvisation. Humble leadership influences employees’ improvisation through LMX and positive emotion, and power distance orientation plays a moderating role.

Humble leadership and employees’ improvisation. Humble leaders view themselves objectively and maintain a good relationship with their subordinates through a series of behaviors, such as being honest about their own shortcomings and mistakes, praising the advantages and contributions of subordinates (Owens and Hekman, 2012). This helps to improve subordinates’ trust in and respect for leaders, bypassing the psychological defenses of subordinates and creating a relatively relaxed working atmosphere for employees so that they are less worried about the adverse consequences of impromptu behavior (Ali et al., 2020). Humble leaders give feedback on their employees’ work and recognize their contributions (Ou et al., 2014). They attribute the success of the organization to employees’ hardworking spirit, which makes employees feel more self-worth and find greater significance in their work and this could enhance their enthusiasm and initiative (Al Hawamdeh, 2022). In the face of unexpected situations, employees are thus willing to dare to improvise to help leaders and organizations solve problems.

Hypothesis 1: There is a positive relationship between humble leadership and employees’ improvisation.

The mediating role of LMX. In China, the relationship between supervisors and subordinates is one of the most basic interpersonal relationships (Chen et al., 2013). LMX refers to the interactive relationship between leaders and employees based on social exchange, its quality varies from high to low (Arshad et al., 2021). Because of their resources and power, leaders have an important influence on an organization’s LMX (Uhl-Bien et al., 2022). Humble leaders are good at creating an approachable atmosphere, finding the best in employees, listening to others’ opinions, and being able to take criticism and praise objectively. When leaders show this humanized side, they can narrow the distance between employees and leaders (Al Hawamdeh, 2023), and make employees feel that leaders are easy to get along with, thus forming high-quality LMX.

Based on the reciprocity principle, employees who become “insiders” are willing to assume more responsibilities and help leaders and organizations solve problems to repay leaders’ attention to them (Young et al., 2021). High-quality LMX enhances employees’ responsibility for their work so that they are willing to make a greater effort for the leadership and the organization (Gottfredson et al., 2020). Besides, forming a good relationship with the leader enhances the psychological security of employees (Mascareño et al., 2020), so they will not worry about the possible adverse consequences of impromptu behaviors. In addition, under high-quality LMX, individuals can receive resource and emotional support from supervisors (Gooty and

Yammarino, 2016; Sun et al., 2018), and develop a larger range of self-determination (Jawahar et al., 2019). As a result, employees experiencing high-quality LMX are likelier to engage in impromptu behavior.

Hypothesis 2: LMX mediates the association between humble leadership and employees’ improvisation.

The mediating role of positive emotions. Positive emotions include pride, satisfaction, and joy that people develop based on their understanding and evaluation of their current environment (Fredrickson, 2013). Diaz-Portugal et al. (2022) argued that individuals in an organization generate positive emotions when they are positively evaluated by others in the organization.

In the workplace, the direct superior is the most critical figure in the social interactions of employees, and this leader’s behavior will affect the emotional experiences of employees (Uhl-Bien et al., 2022). A humble leader responds positively to employees, appreciates their strengths, and recognizes their contributions to the organization, which helps promote positive emotions among employees in the organization. The broaden-and-build theory of positive emotions proposed that positive emotions can expand a person’s ranges of attention, cognition, and action while making their thinking patterns flexible and creative (Fredrickson, 2013). Individuals with positive emotions are likelier to adopt novel ways to solve problems. In addition, in uncertain situations, decision-makers dominated by positive emotions have a higher possibility to choose risky alternatives, while decision-makers influenced by negative emotions prefer conservative alternatives (Brundin et al., 2022). Employees with higher levels of positive emotions are more confident and optimistic when faced with an unexpected situation because they see it as an opportunity rather than a crisis. Therefore, individuals with more positive emotions are likelier to engage in impromptu behavior.

Hypothesis 3: Positive emotion mediates the association between humble leadership and employee improvisation.

The chain mediation of LMX and positive emotion. According to affective event theory, specific events occurring in an organization that are related to the work subject and goal will alter the emotional states of employees (Weiss and Cropanzano, 1996). LMX is shaped by a series of pleasant or troubling events that accumulate during communications and interactions between leaders and employees. Therefore, LMX can be regarded as an important emotional event in the organization (Tse and Troth, 2013). When employees are subject to high-quality LMX, their thoughts and actions are likelier to be supported by their leaders, and their work is smoother (Han et al., 2021). Thus, they are

likelier to have positive emotions and engage in impromptu behavior.

Hypothesis 4: LMX and positive emotions play a chain mediating role between humble leadership and improvisation.

Power distance orientation as boundary condition. Power distance orientation refers to an individual's acceptance of unequal power distribution (at the individual level), which can effectively explain the different effects that leaders can have on subordinates' attitudes and behaviors (Richard et al., 2022). For high power distance-oriented employees, it is normal for leaders to be privileged, which means leaders should make their own decisions, and that they should not assigning important tasks to subordinates (Richard et al., 2020). However, for low power distance-oriented employees, employees are as indispensable members of the organization as leaders, and leaders should communicate and exchange opinions with employees more (Wang et al., 2021).

In consequence, high power distance-oriented employees are conservative at work and rarely take the initiative to perform tasks that are not assigned by their leaders (Zheng et al., 2022). In the face of uncertain emergencies, those with high power distance prefer to wait for instructions from the leader rather than actively thinking and solving problems, which weakens the promotion of humble leadership on improvisation. Low power distance-oriented employees are accustomed to the leadership style of humble leaders and are prone to improvisation.

Hypothesis 5: Power distance orientation moderates the relationship between humble leadership and improvisation, such that this positive association is stronger when power distance orientation is low rather than high.

LMX is a two-way interactive process, and the relationship quality is determined by both sides of the interaction. In the social interactions between leaders and subordinates, even if leaders show the same behaviors, they will have different effects on individuals with different power distance orientations (Li et al., 2020). Employees would like to establish formal working relationships with their leaders when their power distance orientation is high. In their opinion, leaders should keep a distance from their subordinates and should not have interactions outside of work (Hofer et al., 2021). As a result, they are less sensitive to the graciousness and approachability displayed by humble leaders and do not respond positively or give feedback. Employees believe that leaders are approachable if their power distance is low, they hope to establish interpersonal relationships with leaders outside of work (Liu et al., 2018), and they actively interact and communicate with leaders. This is a kind of positive feedback for leaders, which will make them pay more attention to and get closer to the employees, finally forming a higher-quality LMX.

Hypothesis 6: Power distance orientation moderates the positive relationship between humble leadership and LMX. It also moderates the indirect effect of humble leadership on improvisation through LMX such that employees with high power distance orientations weaken the positive effect.

High power distance-oriented employees believe that it's reasonable to have a power difference between themselves and leaders. And they consider this inequality part as their role positioning (Guo et al., 2020). The response of high power distance-oriented employees to a supervisor's behavior does not depend on how the leader treats them (Farh et al., 2007). They interpret their leader's behavior in terms of authority, and they accept both positive, caring and negative, scolding behaviors peacefully (Peltokorpi, 2019), so they are not made particularly happy by the praise and recognition of humble leaders. In addition, for high power distance-oriented employees, humble leadership is not in line with their expectations.

As a result, they will appear unaccustomed to their work (Graham et al., 2018). This will weaken the effect of humble leadership on employees' positive emotions, further weakening the promotion of improvisation.

Hypothesis 7: Power distance orientation moderates the positive relationship between humble leadership and positive emotion. It also moderates the positive indirect effect of humble leadership on improvisation through positive emotion, such that employees with high power distance orientations weaken the positive effect.

Hypothesis 8: Power distance orientation moderates the positive indirect effect of humble leadership on improvisation through the chain mediation of LMX and positive emotion, such that employees with high power distance orientations weaken the positive effect.

Overview of the current research

In study 1, 91 employees from different organizations were recruited. We explored the impact of humble leaders on LMX, positive employee emotions, and improvisation based on a situational simulation experiment. An independent sample *t*-test was used in Study 1. In study 2, we invited 217 employees and 61 of their supervisors from different organizations, the whole model was tested by a questionnaire survey. We used the regression approach and the bootstrapping approach to test our hypotheses.

Convenience sampling technique was used in two studies. In both studies, our participants were heterogeneous, coming from different regions and different types of organizations in China, and all the instruments used were found to be reliable and valid. To some extent, this solves the representative problem that may exist when using convenience sampling techniques (Kam et al., 2007).

Study 1 Methods

Participants and procedures. We recruited 110 employees from three different regions (Shanghai, Shandong, and Heilongjiang) in China. We first asked the participants to look at a piece of material, and they were then asked to imagine themselves working under the leader in this text. The demographic information, LMX, positive emotions, and improvisations of the participants were measured. The final sample included 91 (82.7%) employees. Of the respondents, 29 were male, while 79 people had a bachelor's degree or above. Most employees (about 63.8%) were under 30 years old.

This study had a single-factor inter-subject design, and the manipulated variable was humble leadership, which was divided into high and low groups. The content was adapted from the material on benevolent leadership by Li et al. (2015), and the specific materials were as follows.

Humble Leadership (High): *You currently work for a communications equipment company. Your company's main business is researching, assembling, and selling mobile communication products. Over the past 10 years, your company has been developing steadily and increasing its market share. You have been working in your company for more than one year. Now, you are an employee of the customer service department. Your direct leader is Manager Zhang. Manager Zhang is usually willing to listen to subordinates' opinions and suggestions on work, including critical feedback. When Manager Zhang identifies subordinates' strengths or contributions, Zhang is willing to praise them. If they find that their subordinates have knowledge or skills that they lack, they are willing to learn from those subordinates.*

Humble Leadership (Low): *You currently work for a communications equipment company. Your company's main business is researching, assembling, and selling mobile communication*

products. Over the past 10 years, your company has been developing steadily and increasing its market share. You have been working in your company for more than one year. Now, you are an employee of the customer service department. Your direct leader is Manager Zhang. Manager Zhang usually does not want to hear subordinates' opinions and suggestions about work, especially critical feedback; when they identify subordinates' strengths or contributions, they will not praise them. If they find that subordinates have some knowledge or skills that they lack, Manager Zhang will not mention it or learn from the subordinates.

Measures

Humble leadership. To test whether the manipulated scenario was effective, the single item “Manager Zhang is a humble leader” was used to measure the humble leadership degree of the employees relative to Manager Zhang in the materials. We used a seven-point scale, from 1 “completely disagree” to 7 “completely agree”.

LMX ($\alpha = 0.97$). We measured LMX by adapting seven items from Graen and Uhl-Bien (1995). We used a seven-point scale, from 1 “completely disagree” to 7 “completely agree”. Sample items include “Manager Zhang can recognize my potential”; “I have a good working relationship with Manager Zhang.”

Positive emotion ($\alpha = 0.98$). We measured positive emotions by adapting the Positive and Negative Affective Scale revised by Qiu et al. (2008). We used a seven-point scale, from 1 “completely disagree” to 7 “completely agree”. Sample items include “I am inspired to work with him” and “Working with Manager Zhang makes me happy”.

Improvisation ($\alpha = 0.95$). We measured Improvisation by adapting seven items from Vera and Crossan (2005). We used a seven-point scale, from 1 “completely disagree” to 7 “completely agree”. Sample items include “I try new approaches to problems”; “I demonstrate originality in my work.”

Control variables. Refer to previous studies investigating employee improvisation (Chen et al., 2021; Wang and Zhang, 2020), gender, age, and educational level were controlled.

Analyses. First, we conducted a normal test on the data and found that each variable basically conforms to the normal distribution. Then, the validity of the manipulative variables was tested. Third, we conducted correlation analysis for each variable (humble leadership, LMX, positive emotion and improvisation). Fourth, we conducted an independent sample t-test with humble leadership as the independent variable, and LMX, employee positive emotions, and employee improvisation as the dependent variables separately; gender, age, and education level as the covariates. We used SPSS 22 to analyze the data.

Results

Manipulation checks. The results showed that the score of the high humility group was significantly higher than that of the low humility group ($M_{high} = 5.77, M_{low} = 1.63, t = 30.08, p < 0.001$). That means our manipulation is working.

Descriptive statistics. Table 1 shows that humble leadership is correlated with improvisation ($r = 0.37, p < 0.001$), LMX ($r = 0.60, p < 0.001$), and positive emotion ($r = 0.66, p < 0.001$) significantly; LMX ($r = 0.65, p < 0.001$) and positive emotion ($r = 0.56, p < 0.001$) are correlated with improvisation significantly.

Table 1 Means, standard deviations, and correlations among Study 1 variables.

Variable	M	SD	1	2	3	4
1. Humble leadership	3.68	2.19	-			
2. LMX	3.81	1.70	0.60***	-		
3. Positive emotion	3.57	2.06	0.66***	0.89***	-	
4. Improvisation	3.96	1.63	0.37***	0.65***	0.56***	-

n = 91.
****p* < 0.001.

Testing of hypotheses. Our hypothesis proposed that humble leadership promotes employees' improvisation. Through an independent sample t-test we found that humble leadership significantly influences employees' improvisation ($t = 17.24, p < 0.001, Cohen's d = 3.65$). Therefore, hypothesis 1 was verified. Our hypothesis suggested that LMX plays an intermediary role between humble leadership and employees' improvisation. The results showed that humble leadership significantly influences LMX ($t = 18.19, p < 0.001, Cohen's d = 3.85$). Therefore, hypothesis 2 was partially supported. Hypothesis 3 posited that the positive relationship between humble leadership and employees' improvisation would be mediated by employees' positive emotions. We found that humble leadership influences employees' positive emotion significantly ($t = 22.13, p < 0.001, Cohen's d = 4.69$), which means hypothesis 3 was partially supported.

Study 2 Methods

Participants and procedures. 243 employees and 67 of their supervisors from four different regions (Shanghai, Shandong, Hainan, and Heilongjiang) in China were invited. Employees were asked to evaluate humble leadership and employees' LMX, positive emotions, and power distance orientation. At the same time, their supervisors were asked to rate the employees' improvisations. We also collected demographic information. The final sample included 217 employees and 61 of their supervisors. Of the 217 employee respondents, 136 (62.7%) were male, and 62.7% had a bachelor's degree or above. Most employees (75.9%) were under the age of 40.

Measures

Humble leadership ($\alpha = 0.95$). We measured humble leadership by adapting a nine-item scale (Owens et al., 2013). We used a seven-point scale, from 1 “completely disagree” to 7 “completely agree”. Sample items include “My supervisor is open to the advice of others” and “My supervisor is willing to learn from others.”

Power distance ($\alpha = 0.86$). We measured power distance by adapting six items from Dorfman and Howell (1988). We used a seven-point scale, from 1 “completely disagree” to 7 “completely agree”. Sample items include “Managers should avoid off-the-job social contacts with employees”; “Managers should not delegate important tasks to employees.”

LMX ($\alpha = 0.97$). We used sixteen items from Hui et al. (2004) to measure LMX. We used a seven-point scale, from 1 “completely disagree” to 7 “completely agree”. Sample items include “I'd like to get along with my manager” and “I'd like to go the extra mile for the benefit of my manager.”

Positive emotion ($\alpha = 0.97$). We used the version of the PANAS revised by Qiu et al. (2008) to measure positive emotions. We

used a seven-point scale, from 1 “completely disagree” to 7 “completely agree”. Sample items include “I am inspired to work with him” and “Working with Manager Zhang makes me happy.”

Improvisation ($\alpha = 0.96$). We used seven items from Vera and Crossan (2005) to measure improvisation. We used a seven-point scale, from 1 “completely disagree” to 7 “completely agree”. Sample items include “I try new approaches to problems”; “I demonstrate originality in my work.”

Control variables. Refer to previous studies investigating employee improvisation (Chen et al., 2021; Wang and Zhang, 2020), genders, ages, and educational levels were controlled.

Analyses. First, we conducted a normal test on the data and found that each variable basically conforms to the normal distribution. Second, we performed confirmatory factor analyses (CFA) to test the discriminant validity and convergent validity of the variables using Mplus 8. The CFA results (Table 2) show that our five-factor model exhibits a better fit to the data than other models ($\chi^2/df = 2.57$, SRMR = 0.08, CFI = 0.88, TLI = 0.87, RMSEA = 0.08). In addition, the measures possessed convergent validity in the five-factor model. Third, we conducted correlation analysis for each variable (humble leadership, LMX, positive emotion, improvisation, and power distance orientation). Fourth, we used regression analysis in SPSS22.0, and we used the bootstrapping approach to estimate the intervals of mediation and moderated mediation in Mplus 8. To alleviate the multicollinearity problem, variables were mean-centered (excluding the dependent variable).

Results

Descriptive statistics. Table 3 shows that humble leadership is correlated with improvisation ($r = 0.35$, $p < 0.001$), LMX ($r = 0.78$, $p < 0.001$), and positive emotion ($r = 0.72$, $p < 0.001$) significantly; LMX ($r = 0.30$, $p < 0.001$) and positive emotion ($r = 0.34$, $p < 0.001$) are correlated with improvisation significantly.

Testing of hypotheses. Our hypothesis proposed that humble leadership promotes employees’ improvisation. Table 4 shows that humble leadership significantly influences employees’ improvisation ($\beta = 0.35$, $p < 0.001$). Therefore, hypothesis 1 was verified.

Our hypothesis proposed that LMX plays an intermediary role between humble leadership and employees’ improvisation. Tables 4 and 5 show that humble leadership significantly influences LMX ($\beta = 0.79$, $p < 0.001$), but the relationship between LMX and improvisation are not significant. To observe if the indirect effect is significant, we bootstrapped 5000 samples to obtain a bias-corrected confidence interval (CI) (Edwards and Lambert, 2007). Table 6 shows that the indirect effect of humble leadership on employees’ improvisation via LMX was insignificant (95% CI [-0.04, 0.23]). Therefore, hypothesis 2 was not supported.

Hypothesis 3 posited that the positive relationship between humble leadership and employees’ improvisation would be mediated by positive emotion. Tables 4 and 5 show that humble leadership significantly influences positive emotion ($\beta = 0.43$, $p < 0.001$), also, positive emotion significantly influences employees’ improvisation ($\beta = 0.36$, $p < 0.05$). To observe if the indirect effect is significant, we bootstrapped 5000 samples to obtain a bias-corrected confidence interval (CI) (Edwards and Lambert, 2007). Table 6 shows that the indirect effect of humble leadership on employees’ improvisation via positive emotion was significant (95% CI [0.10, 0.24]). Therefore, hypothesis 3 was supported.

Our hypothesis proposed that LMX and positive emotion play a chain mediating role between humble leadership and improvisation. Table 5 shows that LMX significantly influences positive emotion ($\beta = 0.39$, $p < 0.001$). To observe if the indirect effect is significant, we bootstrapped 5000 samples to obtain a bias-corrected confidence interval (CI) (Edwards and Lambert, 2007). Table 6 shows that the indirect effect of humble leadership on employees’ improvisation via the chain mediation of LMX and positive emotion was significant (95% CI [0.05, 0.20]). Therefore, hypothesis 4 was supported.

Our hypothesis proposed that the relationship between humble leadership and employees’ improvisation is moderated by power distance orientation. Table 4 shows that the moderating effect of power distance orientation on the relationship between humble leadership and employees’ improvisation was significant ($\beta = -0.12$, $p < 0.05$). Figure 2 shows that the positive relationship between humble leadership and employees’ improvisation was stronger when power distance orientation was low (vs. high). Therefore, hypothesis 5 was supported.

Our hypothesis posited that power distance orientation moderates the positive relationship between humble leadership and LMX, and then it also moderates the indirect effect of humble leadership on improvisation through LMX. As shown in Table 5, the moderating effect of power distance orientation on the relationship between humble leadership and LMX was not significant. We bootstrapped 5000 samples to obtain bias-corrected confidence interval (CI) to examine the moderated

Table 2 Confirmatory factor analyses.

Model	χ^2/df	RMSEA	SRMR	CFI	TLI
Five-factor	2.57	0.08	0.08	0.88	0.87
Four-factor	4.12	0.12	0.09	0.74	0.73
Three-factor	4.47	0.13	0.10	0.71	0.70
Two-factor	4.86	0.13	0.10	0.68	0.67
One-factor	5.08	0.14	0.09	0.66	0.65

CFI comparative fit index, TLI Tucker-Lewis index, RMSEA root-mean-square of approximation, CFA confirmatory factor analysis, SRMR standardized root mean square residual.

Table 3 Means, standard deviations, and correlations among Study 2 variables.

Variable	M	SD	1	2	3	4	5
1. Humble leadership	5.56	1.12	-				
2. Power distance	4.04	4.30	0.02	-			
3. LMX	5.47	1.09	0.78***	0.14*	-		
4. Positive emotion	5.26	1.20	0.72***	0.09	0.72***	-	
5. Improvisation	5.15	1.11	0.35***	0.14*	0.30***	0.34***	-

n = 217.
* $p < 0.05$, *** $p < 0.001$.

Table 4 Study 2 regression results.

Variable	IMP					
	M1	M2	M3	M4	M5	M6
Gender	0.11	0.03	0.03	0.03	0.03	0.03
Age	0.03	0.03	0.03	0.03	0.03	0.02
Education	0.19*	0.009	0.01	0.001	-0.02	-0.03
HUM		0.75***	0.75***	0.70***	0.50***	0.35***
POW			-0.08	-0.007	-0.04	-0.05
HUM × POW				-0.19***	-0.17***	-0.12*
LMX					0.26**	0.12
POS						0.36*
R ²	0.05	0.57	0.58	0.60	0.62	0.66
ΔR ²	0.05	0.52	0.01	0.02	0.02	0.04
ΔF	4.03*	256.41***	3.07	13.90***	10.69**	22.46**

n = 217.
 IMP improvisation, HUM humble leadership, POW power distance orientation, LMX leader-member exchange, POS positive emotion.
 *p < 0.05, **p < 0.01, ***p < 0.001.

Table 5 Study 2 regression results.

Variable	LMX				POS				
	M1	M2	M3	M4	M1	M2	M3	M4	M5
Gender	0.09	0.01	0.01	0.01	0.07	-0.01	-0.01	-0.01	-0.01
Age	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02
Education	0.27***	0.07	0.07	0.07	0.27***	0.08	0.08	0.08	0.05
HUM		0.81***	0.81***	0.79***		0.78***	0.78***	0.73***	0.43***
POW			0.10**	0.12**			0.01	0.07	0.02
HUM × POW				-0.06				-0.17**	-0.14**
LMX									0.39***
R ²	0.09	0.69	0.70	0.71	0.09	0.65	0.65	0.67	0.72
ΔR ²	0.09	0.61	0.01	0.01	0.09	0.56	0.00	0.22	0.05
ΔF	0.99***	419.49***	6.76**	2.24	6.70***	340.28***	0.03	13.74**	32.96***

n = 217.
 IMP improvisation, HUM humble leadership, POW power distance orientation, LMX leader-member exchange, POS positive emotion.
 p < 0.01, *p < 0.001.

Table 6 Study 2 PROCESS results.

Indirect effect	Coefficient	95%CI
HUM → LMX → IMP	0.10(0.08)	[-0.04,0.23]
HUM → POS → IMP	0.16***(0.04)	[0.10,0.24]
HUM → LMX → POS → IMP	0.12** (0.05)	[0.05,0.20]

n = 217. 95% confidence interval. Bootstrap sample size = 5000.
 IMP improvisation, HUM humble leadership, LMX leader-member exchange, POS positive emotion.
 p < 0.01, *p < 0.001.

mediation hypothesis (±1SD) (Edwards and Lambert, 2007). Table 7 shows that there is no significant difference between different power distance orientations (95% CI [-0.1, 0.01]). Therefore, hypothesis 6 was not supported.

Hypothesis 7 posited that power distance orientation moderates the positive relationship between humble leadership and positive emotion, then it also moderates the positive indirect effect of humble leadership on improvisation through positive emotion. Table 5 shows a significant moderating effect of power distance orientation on the positive relationship between humble leadership and positive emotion ($\beta = -0.14, p < 0.01$). Figure 3 shows that the positive relationship between humble leadership and positive emotion was stronger when power distance orientation was low (vs. high). We bootstrapped 5000 samples to obtain a bias-corrected confidence interval (CI) to examine the

moderated mediation hypothesis (±1SD) (Edwards and Lambert, 2007). Table 7 shows that the positive and indirect effect of humble leadership on improvisation via positive emotion was significantly stronger when power distance orientation was low than when it was high (95% CI [-0.27, -0.04]). Therefore, hypothesis 7 was supported.

Hypothesis 8 posited that power distance orientation moderates the positive indirect effect of humble leadership on improvisation through the chain mediation of LMX and positive emotion. We bootstrapped 5000 samples to obtain a bias-corrected confidence interval (CI) to examine the moderated mediation hypothesis (±1SD) (Edwards and Lambert, 2007). Table 7 shows that there is no difference in the indirect effect of humble leadership on improvisation via the chain mediation of LMX and positive emotion whether the power distance orientation was low or high (95% CI [-0.1, 0.01]). Therefore, hypothesis 8 was not supported.

Discussion and conclusions

In order to enrich the research on the influence of different leadership styles on employees' improvisation at the individual level, we investigated the connection between humble leadership and improvisation. We investigated LMX and employees' positive emotions as intervening mediators to reveal internal mechanisms. Moreover, we probed the influence of power distance orientation.

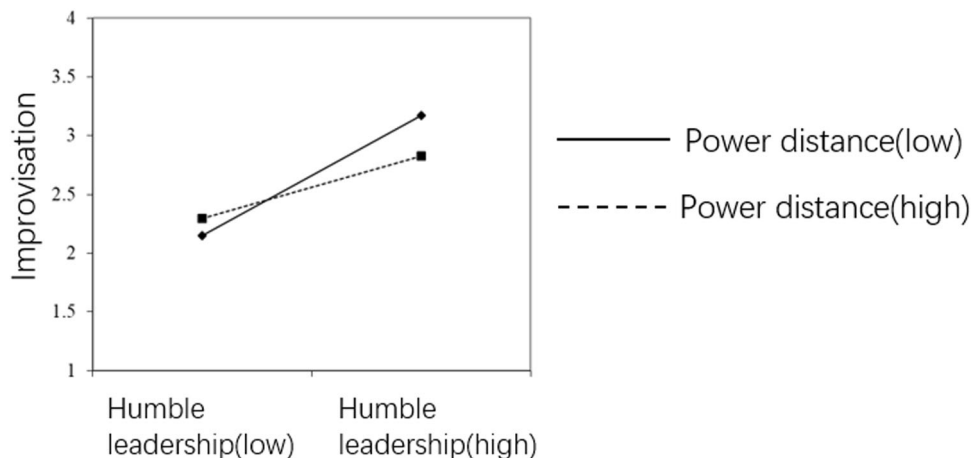


Fig. 2 The effects of the interaction between power distance orientation and humble leadership on improvisation in Study 2. The positive association between humble leadership and employees' improvisation is stronger when power distance orientation is low rather than high.

Table 7 Study 2 PROCESS results.

POW(high)-POW(low)	Coefficient	95% CI
HUM → POS → IMP	-0.13* (0.06)	[-0.27, -0.04]
HUM → LMX → IMP	-0.02 (0.03)	[-0.1, 0.01]
HUM → LMX → POS → IMP	-0.03 (0.02)	[-0.1, 0.01]

n = 217. 95% confidence interval. Bootstrap sample size = 5000.
 IMP improvisation, HUM humble leadership, LMX leader-member exchange, POS positive emotion.
 **p* < 0.05.

We found that there is a positive relationship between humble leadership and improvisation, which is similar to previous research on the relationship between entrepreneurial leadership and improvisation (Liu et al., 2022). This enriched the research on the influence of different leadership styles on employees' improvisation at the individual level. Moreover, the mediating role of positive emotion and the chain mediating roles of LMX and positive emotion were supported, which revealed the internal mechanism and extended the relations of different kinds of motivations in the proactive motivation model. In addition, we found that power distance orientation has a moderating effect on the relationship between humble leadership and employee improvisation, and the moderating effect is also significant between humble leadership and positive emotion, such that the positive relationships are both stronger when power distance orientations are low. This is similar to the moderating effect of power distance orientation on transformational leadership and employee voice (Ehrnrooth et al., 2022). Furthermore, our moderated mediation analyses indicated that positive emotion mediates the relationship between humble leadership and improvisation. These results enriched the boundary conditions of the influence of leadership style on improvisation.

However, LMX as the separate mediating role was not supported because LMX influences improvisation through positive emotion. As shown in Table 4, when positive emotion is not added to the model, LMX significantly influences employees' improvisation, which is similar to the mediating effect of LMX between empowering leadership and innovative behavior (Arshad et al., 2021). Furthermore, the relationship becomes insignificant when positive emotion is added to the model, and the chain-mediating effects of LMX and positive emotion are significant.

The moderating effect of power distance orientation on the relationship between humble leadership and LMX was not supported, which is different from the moderating role of power

distance orientation on spiritual leadership and employee innovative behavior (Zhang and Yang, 2021). A plausible explanation is that although employees with high power distance orientations do not interact positively with leaders, they can still feel an affinity for humble leaders or experience those leaders being humanized (Peng et al., 2017). In the face of such a leader, employees with high power distance perceive their relationship with their leader as good. Since leader-member exchange is rated by employees, employees with high power distance also have higher scores, which results in the expected moderating effect being insignificant.

Theoretical implications. Our work makes several contributions. First, most previous research on improvisation has focused on organizations or teams (Secchi et al., 2019), and only a few focus on employees. We explored the influence of humble leadership on improvisation, which enriching the research on impromptu behavior from a micro perspective. In an era of rapid change, it is important for organizations to respond quickly to unexpected situations and seize fleeting opportunities. As a basic part of their organization, employees can fully mobilize existing resources to actively solve problems when encountering emergencies, which is conducive to the development of the organization.

Second, leaders are generally expected to be authoritative, decisive, and dominant (Chen and Weng, 2022). However, we found that humble leaders, who learn from subordinates actively and seek job-related advice and suggestions, encourage employee improvisation via positive emotion and the chain mediation of LMX and positive emotion. Studies have shown that employee-centered leadership is an effective way to motivate employees (Kelemen et al., 2022). Considering the characteristics of the current era and the new generation of employees, perhaps this kind of employee-centered leadership is more appropriate.

Third, based on proactive motivation model, we explored the mediating effects of LMX and positive employee emotions. Parker et al. (2010) point out that employees need strong motivation (ability, reason, and energy) to implement proactive behaviors, such as impromptu behaviors, but it does not specify the connection between these three kinds of motivation. In this study, LMX corresponds to causal motivation, while positive emotions correspond to energy motivation. We found that LMX can promote the production of positive emotions, which means that different kinds of motivations may interact with each other.

Finally, we proposed power distance orientation as a moderating variable to enrich the boundary conditions of the influence of

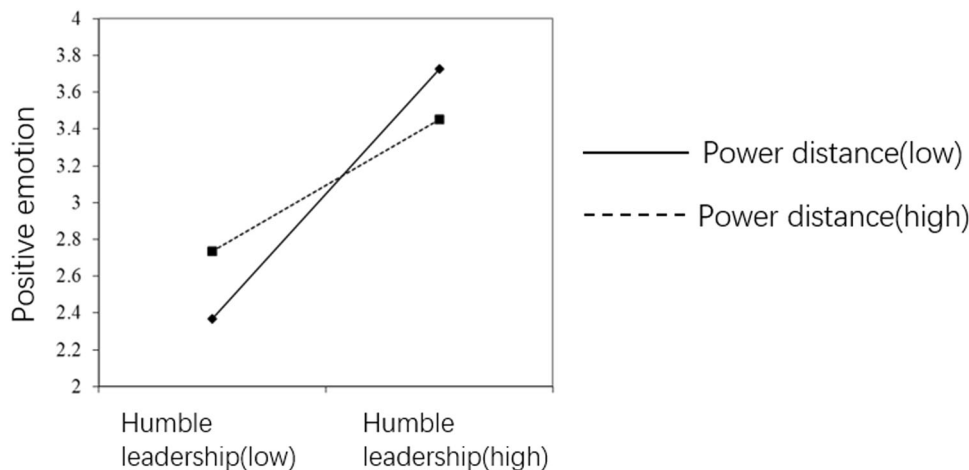


Fig. 3 The effects of the interaction between power distance orientation and humble leadership on positive emotion in Study 2. The positive association between humble leadership and employees' positive emotion is stronger when power distance orientation is low rather than high.

leadership style on impromptu employee behavior. Employees with low power distance orientations believe that leaders should respect employees and get along with them equally (Richard et al., 2022). The characteristics of humble leaders are consistent with their expectations of leaders, so they have high levels of positive emotions and are more prone to improvisation. Whereas, for employees with high power distance orientations, humble leadership is inconsistent with their inner expectations, which makes them feel at a loss (Graham et al., 2018), discourages their positive emotions, and makes them less likely to exhibit impromptu behaviors.

Practical implications. First, our findings suggest that Organizations should understand the benefits of humble leadership at work and use it strategically. The characteristics of humble leadership can improve LMX and positive emotions in employees, thus making them willing to invest more in the organization. Therefore, organizations should emphasize the importance of humble leader behaviors and cultivate such behavioral style. In addition, humble leadership behaviors could be taken into consideration when recruiting and selecting leaders.

Second, we should be careful about how we approach employees with different characteristics when encouraging humble leadership. We found that humble leadership was less effective for those with high power distance orientations. Therefore, leaders facing employees with low power distance orientations could show more humble leadership behaviors, while when encountering employees with high power distance, using other effective leadership styles might be a better choice.

Limitations and future research directions. First, for the measurement of impromptu behavior, we adopted a method of self-evaluation in Study 1 and a method of other-evaluation in Study 2, and both of them have been used in previous studies. However, there are still limitations. Although the leader's ratings were objective, they may have ignored some employees' impromptu behavior; employee self-evaluations, conversely, may have been influenced by social approval. Therefore, more accurate measurements should be attempted in future studies.

Second, Study 2 used cross-sectional data and could not directly infer causality. Although the combination with the situational simulation of Study 1 can still shed some light, future studies should try to collect longitudinal tracking data to facilitate the inference of causality.

Third, as mentioned above, the results showed that the cause motivation in the proactive motivation model can enhance energy motivation, but the study did not explore the internal logic of this process in detail. This effect should be repeated in future studies to test whether it is universal and to explore the specific reasons behind it.

Fourth, Hypothesis 6 was not verified, which was, that power distance orientation did not moderate the promoting effect of humble leadership on LMX. The possible reason is high power distance-oriented employees can still feel an affinity for humble leaders or experience them as humanized (Peng et al., 2017). LMX was evaluated by employees, and employees with high power distance orientations scored higher on this subject, which ultimately suggests that power distance orientation does not play a negative moderating role, as expected. Future studies can focus on this issue and explore possible ways around it, such as measuring LMX among both leaders and employees.

Conclusions. Humble leadership improves employees' positive emotions directly (or through the mediating effects of LMX), thus making employees more prone to impromptu behaviors. However, this enhancement effect is weak for high power distance-oriented employees.

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request. The supplementary files contain data.

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Author contributions

CL: Project administration, funding acquisition, supervision, investigation. LS: Conceptualization, methodology, validation, formal analysis, investigation, writing—original draft. CH: Data curation, investigation. ZW: Writing—review & editing.

Competing interests

The authors declare no competing interests.

Ethical approval

Approval was obtained from the ethics committee of Shanghai Normal University (No. 2023081). The survey process and procedures used in this study adhere to the tenets of the Declaration of Helsinki.

Informed consent

The informed consent was obtained from all participants before the study started.

Additional information

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1057/s41599-023-02499-9>.

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