


ARTICLE

Stretch Goals and Radical Creativity: Cognitive Flexibility as a Key Contingency

Zhiqiang Liu¹, Yuping Xu¹ , Ziyi Yu¹, Bingqing Wu², and Zijing Wang¹

¹School of Management, Huazhong University of Science and Technology, Wuhan 430074, China, and ²College of Business, Economics, and Computing, University of Wisconsin Parkside, Kenosha, WI 53144, USA

Corresponding author: Yuping Xu (xuyuping2007hit@163.com)

(Received 9 February 2023; accepted 3 January 2024)

Abstract

Although some organizations encourage employees to generate radical ideas by implementing stretch goals, the relationship between stretch goals and radical creativity is complicated. Unfortunately, existing research has not adequately addressed this issue. Therefore, we integrate signaling theory with creativity-related research and propose that the interaction between stretch goals and cognitive flexibility predicts employees' willingness to take risks, thereby influencing their engagement in radical creative activities and ultimately affecting their radical creativity. To test our hypotheses, we conduct two empirical studies. The results suggest that, for employees with high cognitive flexibility, stretch goals increase their willingness to assume risks, thus leading to improved engagement in radical creative activities and enhancing their radical creativity. Conversely, for employees with low cognitive flexibility, stretch goals decrease their willingness to take risks, which hampers their engagement in radical creative activities and their radical creativity. The theoretical contributions and practical implications of this study are also discussed.

摘要

尽管一些组织通过实施延展性目标来促使员工产生突破性想法，但延展性目标与突破性创造力之间的关系却十分复杂，现有的研究未能充分阐述。基于此，本研究通过整合信号理论与创造力相关的研究，提出延展性目标与员工认知灵活性交互影响员工冒险意愿，并进而影响他们的突破性创新参与、突破性创造力。为了验证这一观点，本文进行了两项实证研究。结果表明，对于认知灵活性高的员工，延展性目标增加了他们的冒险意愿，进而提高了他们的突破性创新参与和突破性创造力；对于认知灵活性低的员工，延展性目标降低了他们的冒险意愿，并对他们的突破性创新参与和突破性创造力产生抑制作用。研究具有一定的理论贡献和实践意义。

Keywords: cognitive flexibility; radical creative engagement; radical creativity; stretch goals; willingness to take risks

关键词: 延展性目标; 认知灵活性; 冒险意愿; 突破性创新参与; 突破性创造力

Introduction

In highly dynamic and changing environments, the ability to generate radical ideas is crucial for organizations to maintain a sustainable competitive advantage (Malik, Choi, & Butt, 2019; Venkataramani, Richter, & Clarke, 2014; Zhang, Zhang, Gu, & Tse, 2022). In response, organizations seek to foster employee radical creativity. One strategy that organizations employ is the establishment of stretch goals (Cunha, Giustiniano, Rego, & Clegg, 2017; Lemoine, Blum, & Roman, 2016; Yang, 2024). Stretch goals refer to organizational objectives that seem impossible to achieve given current capabilities but may be realized through breakthrough new approaches (Gary, Yang, Yetton, & Serman, 2017; Sitkin, See, Miller, Lawless, & Carton, 2011). Indeed, some companies, such as Southwest Airlines and Walmart, have successfully promoted breakthrough ideas with stretch goals (Ahmadi, Jansen, & Eggers, 2022). However, there have also been cases where the use of stretch goals did not yield the desired outcomes, as seen with Volkswagen (Gaim, Clegg, & Cunha, 2021). Therefore, the relationship between stretch goals and employee radical creativity may be complex.

© The Author(s), 2024. Published by Cambridge University Press on behalf of International Association for Chinese Management Research

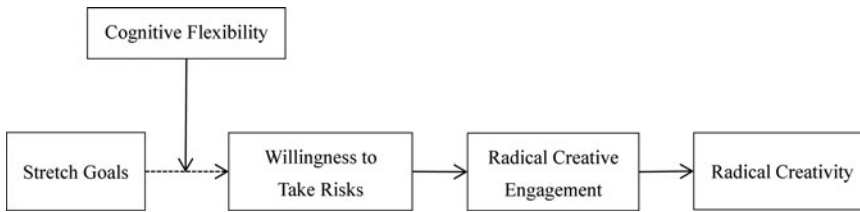


Figure 1. Theoretical model

Although scholars have begun to examine the impact of stretch goals on organizational members, empirical research in this area remains relatively limited. These investigations have predominantly centered on outcome variables, such as unethical behavior, relationship conflict, work-family conflict, task persistence, task accuracy, emotional exhaustion, and abusive supervision (e.g., Chen, Zhang, & Jia, 2019, 2020, 2021a, 2021b; Mawritz, Folger, & Latham, 2014; Roose & Williams, 2018; Zhang & Jia, 2013). Ahmadi et al. (2022) did explore the relationship between stretch goals and employee creativity, but their primary focus was on the fruitful and futile dimension of ideas (represented by whether the ideas are accepted by the organization) while neglecting the differences in the extent to which ideas can improve the status quo. As Gilson and Madjar (2011) have asserted, specific factors may influence distinct forms of creativity in various ways. Radical ideas deviate significantly from existing practices and are fraught with implementation challenges (Gilson & Madjar, 2011; Madjar, Greenberg, & Chen, 2011), aligning with the extremely novel and difficult characteristics of stretch goals (Sitkin et al., 2011). Therefore, a more detailed exploration of the impact of stretch goals on employee radical creativity is necessary.

We utilize signaling theory and draw on existing creativity-related research to address this foregoing gap. According to signal theory, signals can convey vital information about intent (Connelly, Certo, Ireland, & Reutzel, 2011; Elitzur & Gavious, 2003). From an organizational perspective, because stretch goals involve extremely high expectations, employees can only achieve stretch goals with dramatically new approaches (Gary et al., 2017; Sitkin et al., 2011). The difference between radical and incremental methods lies in their higher level of risk (Gilson & Madjar, 2011; Madjar et al., 2011). Therefore, the organization's intention in setting stretch goals should be to encourage employees to take risks and engage in radical creative activities.

However, not all employees can correctly interpret the organizational intention associated with the signals and act accordingly (Connelly et al., 2011). When confronted with unattainable goals, employees' brains often enter a survival mode, during which rational thinking becomes difficult, and employees tend to repeat familiar behaviors. In more extreme cases, employees may experience feelings of anger, fear, impulsiveness, or even desperation, which can lead to uncontrolled actions. Only when employees transition from this survival mode to a learning mode can they potentially think rationally and comprehend the organization's intent in setting stretch goals (Ford & Wortmann, 2013). Employees with high cognitive flexibility may be well-positioned to make this shift, as they are more inclined to perceive situations as controllable (Ratner, Burrow, Mendle, & Thoemmes, 2023) and possess the capacity to consider issues from various angles (Dheer & Lenartowicz, 2019; Nijstad, De Dreu, Rietzschel, & Baas, 2010). Therefore, we propose that the interplay between stretch goals and cognitive flexibility influences an employee's willingness to take risks, which subsequently affects their level of radical creative engagement and, ultimately, their radical creativity.

The proposed theoretical model is depicted in Figure 1. We conducted two field studies to validate this model. This research has three main contributions. First, examining the mechanisms and boundary conditions of stretch goals on a specific type of creativity – namely, radical creativity – this article provides further insights into the relationship between stretch goals and creativity. Second, in response to Chen et al.'s (2020) call to explore boundary conditions that can make stretch goals either advantageous or detrimental, we explore the role of cognitive flexibility in the relationship between stretch

goals and employee radical creativity. Last, the introduction of the concept of radical creative engagement should encourage further research on the creative process.

Theoretical Background and Hypotheses Development

Signaling Theory and Stretch Goals

Signaling theory centers on the process through which signalers disseminate signals to receivers and procure feedback from them (Connelly et al., 2011). In this process, signalers possess information specific to the quality or intention of their signals (Elitzur & Gavious, 2003; Venkataramani, Bartol, Zheng, Lu, & Liu, 2022), and they benefit from the effective transmission of this information when receivers respond accordingly (Connelly et al., 2011). Concurrently, though receivers may not yet possess this information, they are aware of its potential to support sound decision-making, thus providing an incentive for them to acquire it (Connelly et al., 2011; Ho & Astakhova, 2020).

In the context of our study, stretch goals are defined as organizational goals with an objective probability of attainment that may be unknown but are seemingly impossible given current practices, skills, and knowledge (Sitkin et al., 2011). They differ from typical challenging goals in two fundamental ways: extreme difficulty and extreme novelty (Cunha et al., 2017; Zhang & Jia, 2013). Given the extreme novelty of stretch goals, there is no *known* path to achieving them using the organization's current capabilities. Consequently, to attain these goals, employees need to generate new ideas (Sitkin et al., 2011). Additionally, due to the extreme difficulty of stretch goals, incremental ideas will likely prove insufficient in helping organizations meet their ambitious expectations. Thus, the ideas that employees derive must be radical in nature (Gary et al., 2017; Sitkin et al., 2011). Radical ideas involve higher risk and uncertainty compared to incremental ideas (Gilson & Madjar, 2011; Madjar et al., 2011). Consequently, stretch goals may represent an organization's intention for employees to take risks and invest more effort in radical creative activities.

However, employees may not necessarily interpret the organizational intention associated with the signals and act accordingly, as the effectiveness of the signal depends on a range of factors (Connelly et al., 2011; Srivastava, 2001). Among these, the receiver's attributes are crucial (Connelly et al., 2011). We propose that cognitive flexibility of employees may be a crucial attribute related to how employees interpret signals.

Interactive Effect of Stretch Goals and Cognitive Flexibility on Employees' Willingness to Take Risks

According to Ford and Wortmann (2013), when individuals are exposed to high levels of stress, their brains enter a survival mode. In this state, individuals struggle to think rationally and tend to rely on repetitive, well-practiced actions. In more severe cases, individuals may become angry, impulsive, or even desperate, leading to uncontrolled behavior – such as engaging in unethical behavior. Rational thinking becomes possible only when the brain shifts from a survival mode to a learning mode.

Cognitive flexibility comprises awareness of the available options and alternatives in any situation, openness to adaptation, and self-efficacy in flexibility (Martin & Rubin, 1995). When employees possess high cognitive flexibility, they are more inclined to perceive situations as controllable (Ratner et al., 2023) and possess the capacity to consider issues from various perspectives (Dheer & Lenartowicz, 2019; Kapadia & Melwani, 2021; Nijstad et al., 2010; Zhu, Bauman, Young, & Schaubroeck, 2023). Therefore, when facing the high-pressure situation of stretch goals, employees with high cognitive flexibility are more likely to transcend their familiar, routine thinking and switch from survival mode to learning mode.

Furthermore, when employees think rationally in a learning mode, they are more likely to interpret the intention behind stretch goals accurately and willingly align their attitudes with the organization's intent. This is because they can tap into a broad range of cognitive categories (De Dreu, Baas, & Nijstad, 2008; Nijstad et al., 2010; Xu, Mehta, & Hoegg, 2022) and make novel connections among

different concepts (Kapadia & Melwani, 2021; Kundro, 2023). They also demonstrate a strong willingness to adapt to novel situations (Dheer & Lenartowicz, 2019; Martin & Rubin, 1995) and maintain an optimistic outlook concerning their ability to manage uncertainty (Dheer & Lenartowicz, 2019). Accordingly, we propose that, for employees with high cognitive flexibility, stretch goals positively influence their willingness to take risks (i.e., employees' proneness to engage in the cultivation of new ideas despite uncertain outcomes; Andrews & Smith, 1996).

In contrast, we propose that, when organizations implement stretch goals, employees with low cognitive flexibility are less inclined to take risks. This is because employees with low cognitive flexibility tend to have a narrow and focused scope of attention, making them less likely to entertain divergent perspectives (Kapadia & Melwani, 2021; Rothman & Melwani, 2017; Xu et al., 2022). These factors reinforce their preoccupation with survival concerns. In essence, their brains remain in survival mode, leading to irrational behavior where they rely on conventional strategies to achieve their goals or engage in uncontrolled behaviors (Ford & Wortmann, 2013).

Even when employees with low cognitive flexibility can shift to learning mode for rational thinking, their inclination to consider a limited number of alternatives (Rothman & Melwani, 2017) and their restricted ability to connect different concepts (Kapadia & Melwani, 2021; Xu et al., 2022) pose a challenge in accurately interpreting the organization's intentions. Their lack of confidence in their capacity to act effectively (Chung, Su, & Su, 2012; Martin & Rubin, 1995) reduces the likelihood of aligning their attitudes with the organization's intentions. Given limited attentional resources, when employees rely on conventional strategies to achieve their goals or engage in uncontrollable actions (such as resisting goals or engaging in deception), their willingness to take risks in proposing new ideas decreases. The foregoing disquisition leads to the following hypothesis:

Hypothesis 1 (H1a and H1b): The interaction of stretch goals and cognitive flexibility influences employees' willingness to take risks as follows: (a) for employees with high cognitive flexibility, stretch goals positively affect their willingness to take risks; (b) for employees with low cognitive flexibility, stretch goals negatively affect their willingness to take risks.

Mediating Role of Willingness to Take Risks

Attitudes usually influence behavioral outcomes through behavioral processes. Therefore, we further propose that the interaction of stretch goals and cognitive flexibility influences employees' willingness to take risks, thereby affecting their *level* of engagement in radical creative activities. Drawing on existing research on radical creativity and creative process engagement (e.g., Madjar et al., 2011; Zhang & Bartol, 2010), we define radical creative engagement as 'the extent to which employees' invest their time and effort in the process of generating radically novel ideas'. Because radical ideas are characterized as a departure from old routines and conventions, the associated radical creative activities involve significantly greater unanticipated risks and uncertain rewards (Alexander & Van Knippenberg, 2014; Liu, Ouyang, & Pan, 2023; Sung, Rhee, Lee, & Choi, 2020). Thus, employees need greater willingness to navigate such challenges (Madjar et al., 2011; Zhang et al., 2022). Willingness to take risks provides employees with the mindset necessary to engage in high-risk activities (Andrews & Smith, 1996; Dewett, 2006). Consequently, employees with a high willingness to take risks are more likely to accept the uncertainty and risk associated with radical creative activities and, as a result, become more engaged in them. However, employees with low willingness to take risks are reluctant to bear the high risks and uncertainty associated with radical creative activities, so they invest less effort in these activities.

Combining the hypothesis about the effect of the interaction of stretch goals and cognitive flexibility on employees' willingness to take risks (H1), we present the following hypothesis:

Hypothesis 2 (H2a and H2b): Employees' willingness to take risks mediates the effect of the interaction of stretch goals and cognitive flexibility on their radical creative engagement as follows: (a) for employees with high cognitive flexibility, stretch goals promote radical creative engagement by

enhancing their willingness to take risks; (b) for employees with low cognitive flexibility, stretch goals inhibit their radical creative engagement by reducing their willingness to take risks.

A Comprehensive Model

We also anticipate that the interaction of stretch goals and cognitive flexibility influences employees' willingness to take risks, which, in turn, influences their radical creative engagement – and ultimately their radical creativity. Creativity springs out of creative activities (e.g., Amabile, 1983; Mumford, 2000; Zhang & Bartol, 2010). As previously mentioned, radical creative engagement refers to individuals' self-assessment of their level of engagement vis-à-vis their time and effort in radical creative activities. Radical creativity, though, pertains to ideas that significantly deviate from existing routines (Gilson & Madjar, 2011; Gong, Wu, Song, & Zhang, 2017; Madjar et al., 2011). In essence, radical creative engagement emphasizes the process of generating radical ideas, but radical creativity represents the *tangible output* of this process (c.f., Gilson & Madjar, 2011; Shalley & Gilson, 2004; Zhang & Bartol, 2010). As employees dedicate more time and energy to radical creative activities, they are more likely to generate increasingly radical ideas. So, we further propose the following hypothesis:

Hypothesis 3 (H3a and H3b): Employees' willingness to take risks and undertake radical creative engagement sequentially mediate the effect of the interaction of stretch goals and cognitive flexibility on their radical creativity as follows: (a) for employees with high cognitive flexibility, stretch goals enhance their radical creativity by promoting their willingness to take risks and undertake radical creative engagement; (b) for employees with low cognitive flexibility, stretch goals impede their radical creativity by inhibiting their willingness to take risks and undertake radical creative engagement.

Study 1

Sample and Procedure

Study 1 was executed in research and development (R&D) departments in China (it was conducted as part of a larger data collection effort and was not preregistered). The departments were contacted through MBA students from a central university, and respondents (i.e., R&D employees) completed all measures through mail questionnaires. R&D departments constituted an appropriate sample for our study because they provided employees with ample opportunity to undertake radical creative activities.

We chose to have employees report on the study variables for two reasons. First, individuals perceive goal difficulty differently, and self-assessment of stretch goals is especially in line with the context of our study and is consistent with current methods of measuring stretch goals (e.g., Chen et al., 2020; Mawritz et al., 2014; Zhang & Jia, 2013). Second, since cognitive flexibility, willingness to take risks, and radical creative engagement all emphasize individual internal states, it is logical to collect the data from participants themselves (Andrews & Smith, 1996; Martin & Rubin, 1995; Zhang & Bartol, 2010).

Our final sample consisted of 346 participants, with a response rate of 67% (after excluding incomplete questionnaires). Among these respondents, 38.4% were female, and 91% held at least one college degree. The average age was 32.03 years ($SD_{\text{age}} = 7.62$), and mean organizational tenure was 5.01 years ($SD_{\text{tenure}} = 4.32$). Respondents belonged to a variety of industries: transportation (28.3%), biomedicine (12.4%), manufacturing (13.3%), and finance (46.0%). We assessed potential nonrespondent bias and found no significant differences in gender ($\chi^2(1) = 1.82, p > 0.05$) or age ($t(470) = -0.98, p > 0.05$) between respondents and nonrespondents.

Measures

Unless otherwise specified, all items were taken from established scales originally developed in English. To ensure consistency in meaning, we followed Brislin's (1986) translation and back-translation

procedure. All variables were assessed using 7-point Likert-type scales, with responses ranging from 1 (strongly disagree) to 7 (strongly agree).

Stretch goals

We measured stretch goals using a six-item scale from Zhang and Jia (2013). A sample item is, 'I find that the goal in my work unit is too high'. Cronbach's α was 0.932.

Cognitive flexibility

We assessed cognitive flexibility using Martin and Rubin's (1995) 12-item scale. A sample item is, 'I have the self-confidence necessary to try different ways of behaving'. Cronbach's α was 0.914.

Willingness to take risks

We evaluated willingness to take risks using a three-item scale adapted from Andrews and Smith's (1996) risk-taking scale. A sample item is, 'I like to play it safe when I am developing new ideas' (reverse scored). Cronbach's α was 0.793.

Radical creative engagement

We developed and validated a five-item scale to assess radical creative engagement using Hinkin's (1998) scale development procedure. First, we examined Zhang and Bartol's (2010) creative process engagement scale and Sheng and Chien's (2016) radical innovation scale to create seven initial items for radical creative engagement. Four creativity and innovation experts (i.e., professionally educated university instructors) assayed these seven items for redundancy and clarity, resulting in deletion of two of them. The remaining five items were as follows: 'I spend considerable time inventing completely new products and services', 'I strive to generate entirely new alternatives before I choose the final solution', 'I try to devise potential solutions that are completely different from the established ways of doing things', 'I look for connections in seemingly completely different fields', and 'I experiment with completely new approaches at work'.

We then examined content validation of this measure. Fourteen experts in organizational behavior – five professors and nine doctoral students – were asked to assess the extent to which the five items matched the definitions that we provided, using a 7-point scale ranging from 1 (the item is an extremely bad match) to 7 (the item is an extremely good match). The results indicated strong definitional correspondence (i.e., 6.11; Colquitt, Sabey, Rodell, & Hill, 2019), and the interrater agreement among the experts was high ($\text{rwg} = 0.89$; James, Demaree, & Wolf, 1984); these values provided evidence of content validity.

In addition, we utilized two independent samples from Credamo (i.e., a data-collection platform) to examine the reliability and validity of our radical creative engagement measure. Sample 1 ($n = 296$; 62.5% female; $M_{\text{age}} = 31.64$ years; $M_{\text{tenure}} = 5.89$ years) was used in an exploratory factor analysis (EFA) using principal axis factoring. One factor was found with an eigenvalue greater than 1.0 accounted for 70.43% of the variance. The factor loadings were satisfactory (i.e., ranging from 0.81 to 0.86), and internal consistency was high (Cronbach's $\alpha = 0.919$), hence supporting the reliability and factor structure of our measure.

We examined convergent, discriminant, and nomological validity of the newly developed scale using Sample 2 ($n = 294$; 66.0% female; $M_{\text{age}} = 34.36$ years; $M_{\text{tenure}} = 6.75$ years). We assessed employees' radical creativity (Madjar et al., 2011; Cronbach's $\alpha = 0.883$), which was positively correlated with our newly developed scale ($r = 0.24$, $p < 0.01$). Confirmatory factor analysis (CFA) confirmed that a two-factor model fit the data significantly better than a one-factor model ($\Delta\chi^2(1) = 444.66$, $p < 0.001$). We also measured employees' openness to experience, agreeableness, and neuroticism (Gosling, Rentfrow, & Swann, 2003). These results showed a significant positive correlation between our scale and openness to experience ($r = 0.25$, $p < 0.01$), a significant negative correlation with neuroticism ($r = -0.30$, $p < 0.01$), and no correlation with agreeableness ($r = 0.07$, $p > 0.05$).

Additionally, we measured perceived organizational valuing of creativity (Farmer, Tierney, & Kung-McIntyre, 2003; Cronbach's $\alpha = 0.932$); it had a significant positive correlation with our radical

creative engagement scale ($r = 0.24, p < 0.01$). CFA confirmed that a two-factor model fit the data significantly better than a one-factor model ($\Delta\chi^2(1) = 532.89, p < 0.001$). These findings, therefore, supported the discriminant, convergent, and criterion validity of our measure. Accordingly, in Study 1, we measured radical creative engagement with the newly developed five-item scale. The scale exhibited high reliability (Cronbach's $\alpha = 0.909$).

Control variables

We controlled for employees' gender (0 = male, 1 = female), organizational tenure (in years), and education (1 = college degree and lower to 4 = doctorate degree) in the analysis. We did so, owing to their potential association with our mediation and outcome variables (Madjar et al., 2011; Sung et al., 2020). To account for differences across industries, we also created three dummy variables to control for the industry in which data were collected. Although age was also a potential confounding variable, we did not include it in our analysis due to the possibility of collinearity with organizational tenure. However, we conducted further analyses controlling for age instead of tenure and found that the significance patterns remained consistent. We also retested the model after deleting all control variables and determined that the significance of the results did not change.

Analytic Strategy

Data analysis was conducted using Mplus8 and RStudio. We performed path analysis to validate the hypotheses. Given the nested structure of the data (i.e., employees were nested in 101 units), we employed a mixed-effects regression model to account for any nonindependent influences within groups (Muthén & Muthén, 2009). To evaluate the conditional effects, we plotted the interaction effect and conducted a simple slope test (Aiken & West, 1991). To test the conditional indirect effects, we examined the 95% CIs for the indirect effects at the 'higher' and 'lower' values of cognitive flexibility using the Monte Carlo simulation approach (with 20,000 repetitions).

Results

Confirmatory factor analysis

The CFA results showed that the four-factor model (i.e., stretch goals, willingness to take risks, cognitive flexibility, and radical creative engagement) indicated a good fit with the data ($\chi^2 = 216.094$; $df = 113$; CFI = 0.974; TLI = 0.968; RMSEA = 0.051; SRMR = 0.036) and exhibited a better fit than other alternative models. These findings demonstrated that the selected measures offered satisfactory discriminant validity.

Common method variance check

The self-reported data in this study may introduce potential common method biases. Thus, we incorporated a latent common method factor into the hypothesized four-factor model to examine the potential issue of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We found that its addition improved the fit ($\Delta\chi^2(17) = 84.847, p < 0.001$). However, the change in all fit indices was less than 0.02 (Chen, Zhang, & Jia, 2021b; Li, Ling, & Liu, 2012), and the variance extracted by the common methods factor was only 0.044, far lower than the critical value of 0.5 (Dulac, Coyle-Shapiro, Henderson, & Wayne, 2008; Hair, Anderson, Tatham, & Black, 1998). Therefore, common method bias was unlikely to affect the findings of this study significantly.

Hypothesis testing

Shown in Table 1 are the descriptive statistics and correlations among the main variables. Path analysis results are depicted in Table 2.

As illustrated in Table 2, the interactive effect of stretch goals and cognitive flexibility significantly predicted employees' willingness to take risks ($\beta = 0.551, p < 0.001$). We visualized this interaction effect in Figure 2 and conducted a simple slope test. Consistent with our hypotheses, when employees'

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

Variables	M	SD	1	2	3	4	5	6	7
1. Gender	0.380	0.487	1.000						
2. Education	2.470	0.865	−0.005	1.000					
3. Organizational tenure	5.008	4.320	−0.123*	0.076	1.000				
4. Stretch goals	4.621	1.126	0.030	−0.133*	0.068	1.000			
5. Willingness to take risks	3.478	1.143	−0.029	−0.007	0.014	0.046	1.000		
6. Cognitive flexibility	4.133	0.560	−0.075	−0.068	0.022	0.061	0.237**	1.000	
7. Radical creative engagement	3.589	0.954	−0.011	0.133*	−0.022	0.068	0.230**	0.095	1.000

Notes: $N = 346$; all variables are unstandardized. Gender: 0 = male; 1 = female. Education: 1 = college degree or lower; 2 = bachelor's degree; 3 = master's degree; 4 = doctorate degree. * $p < 0.05$, ** $p < 0.01$.

Table 2. Path analysis results (Study 1)

Variables	Willingness to take risks		Radical creative engagement	
	β	SE	β	SE
Gender	-0.099	0.151	-0.028	0.112
Education	0.012	0.088	0.172**	0.062
Organizational tenure	0.006	0.017	-0.015	0.011
Industry 1	0.320	0.210	-0.240	0.154
Industry 2	-0.130	0.261	-0.458*	0.183
Industry 3	-0.061	0.232	-0.535***	0.131
Stretch goals	0.122*	0.059	0.121	0.066
Cognitive flexibility	0.214	0.144	0.058	0.112
Stretch goals*Cognitive flexibility	0.551***	0.090	0.003	0.121
Willingness to take risks			0.182**	0.063

Notes: $N = 346$; β coefficients are unstandardized. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

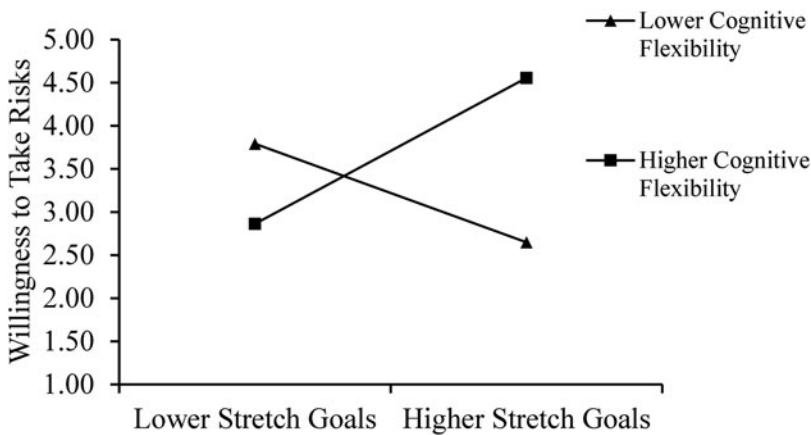


Figure 2. Interactive effect of stretch goals and cognitive flexibility on employees' willingness to take risks (Study 1)

cognitive flexibility was high, the relationship between stretch goals and employees' willingness to take risks was positive and significant ($\beta = 0.430, p < 0.001$). However, when their cognitive flexibility was low, the relationship was negative and significant ($\beta = -0.187, p < 0.01$). These findings, therefore, supported both H1a and H1b.

As depicted in Table 2, there was a positive relationship between employees' willingness to take risks and their engagement in radical creative activities ($\beta = 0.182, p < 0.01$). The bootstrapping analysis results, presented in Table 3, indicated that, when employees' cognitive flexibility was high, the indirect effect of stretch goals on employees' radical creative engagement through their willingness to take risks was significant and positive (indirect effect = 0.078, 95% CI = [0.023, 0.145]). However, when their cognitive flexibility was low, this indirect effect was significant and negative (indirect effect = -0.034, 95% CI = [-0.078, -0.004]). The difference between these indirect effects was also significant (difference = 0.112, 95% CI = [0.034, 0.205]). Therefore, both H2a and H2b were supported.

Table 3. Summary of conditional direct and indirect effects (Study 1)

Dependent variable	Interaction variable	Stage		Effect	
		First (P _{x-m})	Second (P _{m-y})	Indirect (P _{x-m} × P _{m-y})	95% CI of indirect effect
Radical creative engagement	High (+1 SD)	0.430***	0.182**	0.078	[0.023, 0.145]
	Low (−1 SD)	−0.187**	0.182**	−0.034	[−0.078, −0.004]
	Difference (high- low)	0.617***		0.112	[0.033, 0.206]

Notes: N = 346. P_{x-m} = stretch goals on willingness to take risks; P_{m-y} = willingness to take risks on radical creative engagement. Confidence intervals (CIs) are derived from the Monte Carlo simulation (with 20,000 repetitions). **p* < 0.05, ***p* < 0.01, ****p* < 0.001.

Discussion of Study 1 Findings

Study 1 found that the interaction of stretch goals and cognitive flexibility influenced employees' willingness to take risks, which then affected their radical creative engagement. For employees with high cognitive flexibility, stretch goals increased their willingness to assume risks and thus foster their radical creative engagement. For employees with low cognitive flexibility, stretch goals impaired their willingness to take risks and hence their radical creative engagement. Consequently, the findings in Study 1 lent support for our theoretical propositions.

However, Study 1 had certain limitations. First, cross-sectional study designs do not afford drawing firm conclusions regarding the causal ordering among studied variables. Second, the study examined only the effect of the interaction between stretch goals and cognitive flexibility on employees' radical creative engagement through their willingness to take risks. Therefore, whether this effect extended to employees' radical creativity (as hypothesized in H3a and H3b) was unclear. To address these limitations and test our model further, we conducted Study 2. Doing so conformed to LePine, Zhang, Crawford, and Rich's (2016) practice of replicating interaction patterns in a new sample.

Study 2

Sample and Procedure

Study 2 entailed a survey of full-time employees and their direct supervisors in the information technology industry in China. This industry was selected, owing to its high need for innovation. To recruit participants, we contacted senior managers or human resources managers across various companies through our established social networks. To minimize the potential for common method bias, we collected data at four different time points, per Podsakoff et al. (2003). Research assistants conducted all data collection on-site during work hours. They also stressed the importance of confidentiality to participants prior to administering the survey. We preregistered this study at the following link: <https://doi.org/10.17605/OSF.IO/UEZKG>.

At Time 1, employees provided information on stretch goals and their cognitive flexibility, as well as on their demographic data. We received 704 completed questionnaires, an 88% response rate. At Time 2, approximately four weeks later, these 704 employees were asked to report their willingness to take risks. We received 612 completed questionnaires, an 87% response rate. At Time 3, approximately four weeks later, the remaining 612 employees were asked to record their radical creative engagement. We obtained 514 completed questionnaires, an 84% response rate. Finally, at Time 4, approximately four months later, we asked 155 direct supervisors to rate the radical creativity of their matched subordinates. After excluding incomplete or nonmatching questionnaires, the final sample consisted of 460 subordinates matched with 139 direct leaders.

Almost 44% of the subordinates were female, and 85.9% held at least one college degree. Their average age was 31.52 years (SD_{age} = 7.54), and mean organizational tenure was 5.79 years (SD_{tenure} = 5.50). Among the supervisor sample, 33.1% were female, and 72.7% held at least one college degree. Their average age was 38.47 years (SD_{age} = 7.53), and mean organizational tenure was 8.91 years (SD_{tenure} = 7.08).

We tested for potential nonrespondent bias and found no significant differences between Time 2 respondents and nonrespondents regarding their gender, age, education, organizational tenure, stretch goals, or cognitive flexibility. Similarly, there were no significant differences between Time 3 respondents and nonrespondents concerning their willingness to take risks. Additionally, we found no significant differences in radical creative engagement between employees who received a supervisor rating of radical creativity at Time 4 and those who did not.

Measures

Unless otherwise specified, all items were derived from established scales originally developed in English. As in Study 1, to translate the measures from English to Chinese, we followed Brislin's (1986) translation and back-translation procedure. The scale anchors used were 1 (strongly disagree) to 7 (strongly agree).

Stretch goals

(T1). Consistent with Study 1, we measured stretch goals using Zhang and Jia's (2013) six-item scale. Cronbach's α was 0.929.

Cognitive flexibility

(T1). We assessed cognitive flexibility using the same 12-item scale used in Study 1. Cronbach's α was 0.916.

Willingness to take risks

We used the same items from Study 1 to assess willingness to take risks. Cronbach's α was 0.824.

Radical creative engagement

(T3). We measured radical creative engagement using the same 5-item scale used in Study 1. Cronbach's α was 0.867.

Radical creativity

(T4). We measured radical creativity using the 3-item scale from Madjar et al. (2011). A sample item on radical creativity is, 'This employee is a good source of highly creative ideas.' Cronbach's α was 0.831.

Control variables

(T1). Consistent with Study 1, we included employees' gender (0 = male, 1 = female), organizational tenure (in years), and education (1 = college degree and lower to 4 = doctorate degree) as control variables in the analysis. Sensitivity analyses were also conducted by controlling for age instead of tenure or deleting all control variables, and the significance patterns remained unchanged.

Analytic Strategy

The analytical strategy of Study 2 was identical to that of Study 1.

Results

Confirmatory factor analysis

CFA results showed that the five-factor model (i.e., stretch goals, willingness to take risks, cognitive flexibility, radical creative engagement, radical creativity) had an acceptable fit ($\chi^2 = 328.580$; $df = 160$; CFI = 0.970; TLI = 0.965; RMSEA = 0.048; SRMR = 0.045) and a better fit than the alternative models. These results supported the distinctiveness of the measures used.

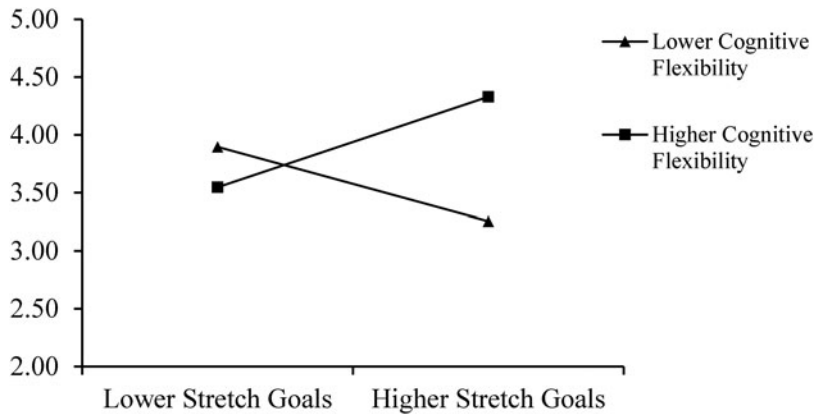


Figure 3. Interactive effect of stretch goals and cognitive flexibility on employees' willingness to take risks (Study 2)

Common method variance check

Because all the variables except radical creativity were employee-based, we tested for common method bias (Podsakoff et al., 2003). We added a latent common method factor to the same-source four-factor model and found that the addition of a latent factor improved the fit ($\Delta\chi^2(17) = 97.032, p < 0.001$). However, the change in all fit indices was less than 0.02 (Chen et al., 2021b; Li et al., 2012), and the variance extracted by the common methods factor was only 0.103, far lower than the critical value of 0.5 (Dulac et al., 2008; Hair et al., 1998). Accordingly, common method variance was unlikely to pose a significant threat to the findings of this study.

Hypothesis testing

Shown in Table 4 are the descriptive statistics and correlations of the variables. The results of the path analysis are depicted in Table 5.

As revealed in Table 5, the interaction between stretch goals and cognitive flexibility significantly and positively influenced employees' willingness to take risks ($\beta = 0.566, p < 0.001$). To enhance understanding of this effect, we illustrated this interaction in Figure 3. Further analysis using simple slope tests indicated that, when employees' cognitive flexibility was high, the relationship between stretch goals and employees' willingness to take risks was positive and significant ($\beta = 0.348, p < 0.001$). However, when employees' cognitive flexibility was low, the relationship became significantly negative ($\beta = -0.284, p < 0.01$). Therefore, both H1a and H1b were supported.

Furthermore, these results aligned with our expectations that employees' willingness to take risks positively influenced their radical creative engagement ($\beta = 0.145, p < 0.01$). As the bootstrapping analysis results in Table 6 demonstrated, when employees' cognitive flexibility was high, the indirect effect of stretch goals on radical creative engagement via willingness to take risks was significant and positive (indirect effect = 0.050, 95% CI = [0.012, 0.104]). However, when employees' cognitive flexibility was low, this effect became significant and negative (indirect effect = -0.041, 95% CI = [-0.089, -0.007]). The difference between these indirect effects was also significant (difference = 0.092, 95% CI = [0.023, 0.185]). As such, these findings supported H2a and H2b.

Finally, the analysis revealed that employees' radical creative engagement induced a positive effect on their radical creativity ($\beta = 0.420, p < 0.01$). Bootstrapping analysis exhibited a significant and positive indirect effect of stretch goals on employees' radical creativity through their willingness to take risks and radical creative engagement when their cognitive flexibility was high (indirect effect = 0.021, 95% CI = [0.004, 0.046]) (Table 6). However, when employees' cognitive flexibility was low, a significant and negative indirect effect was observed (indirect effect = -0.017, 95% CI = [-0.040, -0.003]). The difference between the two indirect effects was also significant (difference = 0.039, 95% CI = [0.009, 0.083]). These findings, therefore, supported H3a and H3b.

Table 4. Means, standard deviations, and correlations among variables (Study 2)

Variables	M	SD	1	2	3	4	5	6	7	8
1. Gender	0.440	0.497	1.000							
2. Education	2.220	0.779	0.007	1.000						
3. Organizational tenure	5.793	5.497	-0.124**	-0.352**	1.000					
4. Stretch goals	3.466	1.125	-0.118*	0.071	-0.102*	1.000				
5. Willingness to take risks	3.728	0.941	0.038	-0.076	-0.030	-0.077	1.000			
6. Cognitive flexibility	4.311	0.559	0.040	0.053	0.062	-0.310**	0.243**	1.000		
7. Radical creative engagement	4.531	0.853	-0.004	0.113*	0.034	0.010	0.176**	0.479**	1.000	
8. Radical creativity	4.484	1.102	-0.017	0.094*	0.023	0.062	0.000	0.231**	0.342**	1.000

Notes: N = 460; all variables are unstandardized. Gender: 0 = male; 1 = female. Education: 1 = college degree or lower; 2 = bachelor's degree; 3 = master's degree; 4 = doctorate degree. * $p < 0.05$, ** $p < 0.01$.

Table 5. Path analysis results (Study 2)

Variables	Willingness to take risks		Radical creative engagement		Radical creativity	
	β	SE	β	SE	β	SE
Gender	0.077	0.093	0.015	0.085	-0.009	0.109
Education	-0.133*	0.057	0.161**	0.055	0.077	0.075
Organizational tenure	-0.010	0.008	0.013	0.009	0.006	0.013
Stretch goals	0.032	0.053	0.107*	0.053	0.050	0.068
Cognitive flexibility	0.324*	0.146	0.603***	0.090	0.221	0.118
Stretch goals*Cognitive flexibility	0.566***	0.147	0.056	0.196	0.389	0.259
Willingness to take risks			0.145**	0.052	-0.084	0.076
Radical creative engagement					0.420***	0.077

Notes: $N = 460$; β coefficients are unstandardized. * $p < 0.05$, ** $p < 0.01$, *** $p < .001$.

Discussion of Study 2 Findings

The results of Study 2 replicated as well as extended the findings of Study 1. They revealed that the indirect effect of stretch goals on employees' radical creative engagement was contingent on their cognitive flexibility. Moreover, this effect improved employees' radical creativity. Specifically, for employees with high levels of cognitive flexibility, stretch goals increased their willingness to take risks, which, in turn, improved their radical creative engagement and ultimately enhanced their radical creativity. For employees with low levels of cognitive flexibility, however, stretch goals decreased their willingness to take risks, which ultimately hindered their radical creative engagement and radical creativity.

General Discussion

Summary of Findings

We sought to clarify under what circumstances stretch goals can enhance or inhibit employees' willingness to take risks, thus influencing their radical creative engagement and radical creativity. Consistent evidence from two surveys shows that employees' cognitive flexibility plays a key role in the above relationship. For employees with high cognitive flexibility, we find a positive effect of stretch goals on their willingness to take risks and subsequent radical creative engagement and radical creativity. For employees with low cognitive flexibility, we observe a negative influence of stretch goals on their willingness to take risks and subsequent radical creative engagement and radical creativity. In sum, our findings indicate that employees with high cognitive flexibility can benefit more from stretch goals than employees with low cognitive flexibility. This is because of their differential willingness to assume risks and undertake radical creative engagement.

Theoretical Contributions

Our research offers several theoretical contributions. First, our overall contribution is that we have built and tested a conceptual model that uniquely integrates stretch goals with radical creativity. Although Ahmadi et al. (2022) empirically investigated the impact of stretch goals on employee creativity, they overlooked differences in the extent to which ideas can improve the status quo. As Gilson and Madjar (2011) have argued, radical creativity and incremental creativity are related to different antecedents and processes. By uncovering the impact of stretch goals on employee radical creativity under different conditions (i.e., cognitive flexibility), as well as the specific attitude (i.e., willingness to take risks) and behavioral mechanism (i.e., radical creative engagement) involved, we provide enhanced nuanced understanding of the relationship between stretch goals and creativity.

Table 6. Summary of conditional direct and indirect effects (Study 2)

Dependent Variable	Interaction Variable	Stage			Effect			
		First (P _{x-m1})	Second (P _{m1-m2})	Three (P _{m2-y})	Indirect1 (P _{x-m} × P _{m1-m2})	95% CI of Indirect effect1	Indirect2 (P _{x-m} × P _{m1-m2} × P _{m2-y})	95% CI of Indirect effect2
Radical creativity	High (+1 SD)	0.348***	0.145**	0.420***	0.050	[0.012, 0.104]	0.021	[0.004, 0.046]
	Low (−1 SD)	−0.284**	0.145**	0.420***	−0.041	[−0.089, −0.007]	−0.017	[−0.040, −0.003]
	Difference (high- low)	0.632***			0.092	[0.023, 0.185]	0.039	[0.009, 0.083]

Notes: N = 460. P_{x-m} = stretch goals on willingness to take risks; P_{m1-m2} = willingness to take risks on radical creative engagement; P_{m2-y} = radical creative engagement on radical creativity. Confidence intervals (CIs) are derived from the Monte Carlo simulation (with 20,000 repetitions). *p < 0.05, **p < 0.01, ***p < .001.

Second, our study contributes to the literature on stretch goals by validating cognitive flexibility as a central catalyst for the relationship between stretch goals and employee' radical creativity. Scholars believe that not all employees respond to goals in a similar manner (Niven & Healy, 2016). Although prior research has examined the impact of employees' previous success experiences, organizational tenure, organizational status, perspective taking, creative self-efficacy, a paradoxical mindset, and perceived organizational climate on the relationship between stretch goals and outcomes (Ahmadi et al., 2022; Chen et al., 2019, 2020, 2021a, 2021b; Zhang & Jia, 2013), our study confirmed that stretch goals either promote or inhibit employee radical creativity for employees with dissimilar levels of cognitive flexibility. We thus respond to Chen et al.'s (2020) call to explore boundary conditions that render stretch goals either advantageous or detrimental.

Finally, our study introduces the concept of radical creative engagement, which is a distinctive aspect of our research. Though scholars have highlighted the distinction between creative process engagement and creativity (Zhang & Bartol, 2010), they have also recognized that creativity can be categorized into radical creativity and incremental creativity (Gilson & Madjar, 2011; Madjar et al., 2011). However, there has been a lack of differentiation between radical creative engagement and incremental creative engagement. Radical creativity involves innovative ideas that can substantially reshape existing practices (Gilson & Madjar, 2011; Madjar et al., 2011), and its associated activities are notably more complex compared to those concomitant with incremental creativity (Gong et al., 2017). For instance, based on our research findings, when employees display a high willingness to take risks in generating new ideas, they tend to invest more in radical creative activities. However, owing to limited resources, employees' engagement in incremental creative activities may decrease. By introducing the concept of radical creative engagement, we set the stage for further exploration of the creative process.

Practical Implications

Our findings have several practical implications. First, we reveal that organizations can benefit or suffer from stretch goals vis-a-vis their effects on employees' radical creativity. Therefore, we recommend that organizations consider whether stretch goals are necessary and, if so, how to implement them to augment their positive impact. Second, when organizations consider applying stretch goals to motivate employees' engagement in radical activities, we encourage managers to foster employees' cognitive flexibility. Specific actions can be taken, such as presenting information in unstructured ways (Kim & Zhong, 2017) or encouraging employees to engage in counterstereotype exercises (Goćłowska, Crisp, & Labuschagne, 2013). Third, given that stretch goals can serve as signals and that signals can play a prominent role in organizations, managers can use strategies to create a context that values risk taking and leads employees to engage in radical creative actions.

Limitations and Future Research Directions

This research has certain limitations. First, employees provided information on stretch goals, cognitive flexibility, willingness to take risks, and radical creative engagement. This raises the possibility that common method bias influenced our estimates. Although Siemsen, Roth, and Oliveira's (2010) have averred that interaction effects are less likely to be due to common method variance and that the convergent results from our two studies alleviate this concern, we still recommend that future scholars adopt different methods and measures to test our hypothesis. In addition, although we tested the hypotheses using two different samples, our studies were not experimental (i.e., they were limited in their ability to assess causality). Therefore, future studies should assess our hypotheses with a more rigorous design.

Second, this study underscored the influence of a single receiver characteristic – namely, cognitive flexibility – on signal effectiveness. Although this variable is theoretically grounded in signaling theory, we acknowledge that other factors may affect receivers' interpretations of signals. For example, Wee, Derfler-Rozin, and Carson Marr (2023) have argued that individuals of different status levels react differently to 'task-based jolts'. Moreover, Jeong, Gong, and Zhong (2023) has proposed that implicit theories interact

with employee-experienced crises (e.g., perhaps stretch goals) to impact employee creativity. Therefore, scholars should continue to explore critical variables that effectuate the effectiveness of stretch goals as signals.

Third, this study utilized employees' willingness to take risks and undertake radical creative engagement to explain the impact of the interaction between stretch goals and cognitive flexibility on employees' radical creativity. Although these mediators are theoretically sound, the role of other potential mediators should not be overlooked. For instance, amid a stretch goal, employees with high cognitive flexibility might experience positive affect (Sitkin et al., 2011), which could further enhance their radical creativity. Further research exploring other potential mediators is warranted.

Finally, we only examined the influence of stretch goals on employees' radical creativity. However, in achieving stretch goals, employees not only need to be extremely creative, but they also need to expend keen effort (Ahmadi et al., 2022; Cunha et al., 2017; Zhang & Jia, 2013); such augmented effort is beneficial for employees' incremental creativity (Gilson & Madjar, 2011). Thus, we encourage future research to explore the impact of stretch goals on employees' incremental creativity.

Conclusions

Drawing on signaling theory and creativity-related research, our results support a ripple effect whereby the interaction between stretch goals and cognitive flexibility predicts employees' willingness to take risks. Their willingness to take risks enhances employees' radical creative engagement, a prerequisite for their radical creativity. These findings hopefully advance understanding of stretch goals and help organizations achieve improved results amid fierce competition.

Data availability statement. In line with the current standards of methodological transparency, we have made the data, syntax, and results available at <https://osf.io/ek4tb/>

Acknowledgments. The authors acknowledge the financial support from the National Natural Science Foundation of China (Grants 71832004, 72202096, 72302112) and the Key Project on Philosophy and Social Science Research of the Ministry of Education (Grant 21JZD056).

References

- Ahmadi, S., Jansen, J., & Eggers, J. P. 2022. Using stretch goals for idea generation among employees: One size does not fit all! *Organization Science*, 33(2): 671–687. <https://doi.org/10.1287/orsc.2021.1462>
- Aiken, L. S., & West, S. G. 1991. *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage.
- Alexander, L., & Van Knippenberg, D. 2014. Teams in pursuit of radical innovation: A goal orientation perspective. *Academy of Management Review*, 39(4): 423–438. <https://doi.org/10.5465/amr.2012.0044>
- Amabile, T. M. 1983. The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology*, 45(2): 357–376. <https://doi.org/10.1037/0022-3514.45.2.357>
- Andrews, J., & Smith, D. C. 1996. In search of the marketing imagination: Factors affecting the creativity of marketing programs for mature products. *Journal of Marketing Research*, 33(2): 174–187. <https://doi.org/10.1177/002224379603300205>
- Brislin, R. W. 1986. A culture general assimilator: Preparation for various types of sojourns. *International Journal of Intercultural Relations*, 10(2): 215–234. [https://doi.org/10.1016/0147-1767\(86\)90007-6](https://doi.org/10.1016/0147-1767(86)90007-6)
- Chen, C., Zhang, Z., & Jia, M. 2019. An empirical study of the influencing mechanism of stretch goals over emotional exhaustion: Based on transactional theory of stress. *Journal of Industrial Engineering/Engineering Management*, 33: 1–8.
- Chen, C., Zhang, Z., & Jia, M. 2020. Effect of stretch goals on work-family conflict: Role of resource scarcity and employee paradox mindset. *Chinese Management Studies*, 14(3): 737–749. <https://doi.org/10.1108/CMS-06-2019-0240>
- Chen, C., Zhang, Z., & Jia, M. 2021a. Research on the dark side of stretch goals: A moderated mediation model based on psychological licensing theory. *Journal of Industrial Engineering/Engineering Management*, 35: 72–80. <https://doi.org/10.13587/j.cnki.jieem.2021.04.007>
- Chen, C., Zhang, Z., & Jia, M. 2021b. Stretch goals and unethical behavior: Role of ambivalent identification and competitive psychological climate. *Management Decision*, 59(8): 2005–2023. <https://doi.org/10.1108/MD-04-2019-0433>
- Chung, S. H., Su, Y. F., & Su, S. W. 2012. The impact of cognitive flexibility on resistance to organizational change. *Social Behavior and Personality*, 40(5): 735–745. <https://doi.org/10.2224/sbp.2012.40.5.735>
- Colquitt, J. A., Sabey, T. B., Rodell, J. B., & Hill, E. T. 2019. Content validation guidelines: Evaluation criteria for definitional correspondence and definitional distinctiveness. *Journal of Applied Psychology*, 104(10): 1243–1265. <https://doi.org/10.1037/apl0000406>
- Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. 2011. Signaling theory: A review and assessment. *Journal of Management*, 37(1): 39–67. <https://doi.org/10.1177/0149206310388419>

- Cunha, M. P. E., Giustiniano, L., Rego, A., & Clegg, S. 2017. Mission impossible? The paradoxes of stretch goal setting. *Management Learning*, 48(2): 140–157. <https://doi.org/10.1177/1350507616664289>
- De Dreu, C. K., Baas, M., & Nijstad, B. A. 2008. Hedonic tone and activation level in the mood-creativity link: Toward a dual pathway to creativity model. *Journal of Personality and Social Psychology*, 94(5): 739–756. <https://doi.org/10.1037/0022-3514.94.5.739>
- Dewett, T. 2006. Exploring the role of risk in employee creativity. *The Journal of Creative Behavior*, 40(1): 27–45. <https://doi.org/10.1002/j.2162-6057.2006.tb01265.x>
- Dheer, R. J. S., & Lenartowicz, T. 2019. Cognitive flexibility: Impact on entrepreneurial intentions. *Journal of Vocational Behavior*, 115: 10339. <https://doi.org/10.1016/j.jvb.2019.103339>
- Dulac, T., Coyle-Shapiro, J. A., Henderson, D. J., & Wayne, S. J. 2008. Not all responses to breach are the same: The interconnection of social exchange and psychological contract processes in organizations. *Academy of Management Journal*, 51(6): 1079–1098. <https://doi.org/10.5465/amj.2008.35732596>
- Elitzur, R., & Gavious, A. 2003. Contracting, signaling, and moral hazard: A model of entrepreneurs, ‘angels,’ and venture capitalists. *Journal of Business Venturing*, 18(6): 709–725. [https://doi.org/10.1016/S0883-9026\(03\)00027-2](https://doi.org/10.1016/S0883-9026(03)00027-2)
- Farmer, S. M., Tierney, P., & Kung-McIntyre, K. 2003. Employee creativity in Taiwan: An application of role identity theory. *Academy of Management Journal*, 46(5): 618–630.
- Ford, J., & Wortmann, J. 2013. *Hijacked by your brain: How to free yourself when stress takes over*. Naperville, Illinois: Sourcebooks, Inc.
- Gaim, M., Clegg, S., & Cunha, M. P. E. 2021. Managing impressions rather than emissions: Volkswagen and the false mastery of paradox. *Organization Studies*, 42(6): 949–970. <https://doi.org/10.1177/0170840619891199>
- Gary, M. S., Yang, M. M., Yetton, P. W., & Sterman, J. D. 2017. Stretch goals and the distribution of organizational performance. *Organization Science*, 28(3): 395–410. <https://doi.org/10.1287/orsc.2017.1131>
- Gilson, L. L., & Madjar, N. 2011. Radical and incremental creativity: Antecedents and processes. *Psychology of Aesthetics, Creativity, and the Arts*, 5(1): 21–28. <https://doi.org/10.1037/a0017863>
- Gocłowska, M. A., Crisp, R. J., & Labuschagne, K. 2013. Can counter-stereotypes boost flexible thinking? *Group Processes & Intergroup Relations*, 16(2): 217–231. <https://doi.org/10.1177/1368430212445076>
- Gong, Y., Wu, J., Song, L. J., & Zhang, Z. 2017. Dual tuning in creative processes: Joint contributions of intrinsic and extrinsic motivational orientations. *Journal of Applied Psychology*, 102(5): 829–844. <https://psycnet.apa.org/doi/10.1037/apl0000185>
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B. Jr 2003. A very brief measure of the big-five personality domains. *Journal of Research in Personality*, 37(6): 504–528. [https://doi.org/10.1016/S0092-6566\(03\)00046-1](https://doi.org/10.1016/S0092-6566(03)00046-1)
- Hair, J. H. Jr, Anderson, R. E., Tatham, R. L., & Black, W. C. 1998. *Multivariate data analysis*, 5th ed. Upper Saddle River, NJ: Prentice Hall.
- Hinkin, T. R. 1998. A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, 1(1): 104–121. <https://doi.org/10.1177/109442819800100106>
- Ho, V. T., & Astakhova, M. N. 2020. The passion bug: How and when do leaders inspire work passion? *Journal of Organizational Behavior*, 41(5): 424–444. <https://doi.org/10.1002/job.2443>
- James, L. R., Demaree, R. G., & Wolf, G. 1984. Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, 69(1): 85–98. <https://doi.org/10.1037/0021-9010.69.1.85>
- Jeong, I., Gong, Y., & Zhong, B. 2023. Does an employee-experienced crisis help or hinder creativity? An integration of threat-rigidity and implicit theories. *Journal of Management*, 49(4): 1394–1429. <https://doi.org/10.1177/01492063221082537>
- Kapadia, C., & Melwani, S. 2021. More tasks, more ideas: The positive spillover effects of multitasking on subsequent creativity. *Journal of Applied Psychology*, 106(4): 542–559. <https://doi.org/10.1037/apl0000506>
- Kim, Y. J., & Zhong, C. B. 2017. Ideas rise from chaos: Information structure and creativity. *Organizational Behavior and Human Decision Processes*, 138: 15–27. <https://doi.org/10.1016/j.obhdp.2016.10.001>
- Kundro, T. G. 2023. The benefits and burdens of work moralization on creativity. *Academy of Management Journal*, 66(4): 1183–1208. <https://doi.org/10.5465/amj.2021.0273>
- Lemoine, G. J., Blum, T. C., & Roman, P. M. 2016. Detrimental effects of stretch goals in specialty substance use disorder treatment organizations. *Journal of Substance Abuse Treatment*, 64: 13–23. <https://doi.org/10.1016/j.jsat.2016.02.006>
- LePine, M. A., Zhang, Y., Crawford, E. R., & Rich, B. L. 2016. Turning their pain to gain: Charismatic leader influence on follower stress appraisal and job performance. *Academy of Management Journal*, 59(3): 1036–1059. <http://dx.doi.org/10.5465/amj.2013.0778>
- Li, R., Ling, W.-Q., & Liu, S.-S. 2012. The antecedents and outcomes of psychological ownership for the organization: An analysis from the perspective of person-situation interactions. *Acta Psychologica Sinica*, 44: 1202–1216. <https://doi.org/10.3724/sp.J.1041.2012.01202>
- Liu, Z., Ouyang, X., & Pan, X. 2023. Experiencing tensions, regulatory focus and employee creativity: The moderating role of hierarchical level. *Chinese Management Studies*, 17(1): 178–196. <https://doi.org/10.1108/CMS-03-2021-0094>
- Madjar, N., Greenberg, E., & Chen, Z. 2011. Factors for radical creativity, incremental creativity, and routine, noncreative performance. *Journal of Applied Psychology*, 96(4): 730–743. <https://doi.org/10.1037/a0022416>
- Malik, M. A. R., Choi, J. N., & Butt, A. N. 2019. Distinct effects of intrinsic motivation and extrinsic rewards on radical and incremental creativity: The moderating role of goal orientations. *Journal of Organizational Behavior*, 40(9–10): 1013–1026. <https://doi.org/10.1002/job.2403>

- Martin, M. M., & Rubin, R. B. 1995. A new measure of cognitive flexibility. *Psychological Reports*, 76(2): 623–626. <https://doi.org/10.2466/pr0.1995.76.2.623>
- Mawritz, M. B., Folger, R., & Latham, G. P. 2014. Supervisors' exceedingly difficult goals and abusive supervision: The mediating effects of hindrance stress, anger, and anxiety. *Journal of Organizational Behavior*, 35(3): 358–372. <https://doi.org/10.1002/job.1879>
- Mumford, M. D. 2000. Managing creative people: Strategies and tactics for innovation. *Human Resource Management Review*, 10(3): 313–351. [https://doi.org/10.1016/S1053-4822\(99\)00043-1](https://doi.org/10.1016/S1053-4822(99)00043-1)
- Muthén, B., & Muthén, B. O. 2009. *Statistical analysis with latent variables*. New York: Wiley.
- Nijstad, B. A., De Dreu, C. K., Rietzschel, E. F., & Baas, M. 2010. The dual pathway to creativity model: Creative ideation as a function of flexibility and persistence. *European Review of Social Psychology*, 21(1): 34–77. <https://doi.org/10.1080/10463281003765323>
- Niven, K., & Healy, C. 2016. Susceptibility to the 'dark side' of goal-setting: Does moral justification influence the effect of goals on unethical behavior? *Journal of Business Ethics*, 137: 115–127. <https://doi.org/10.1007/s10551-015-2545-0>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5): 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Ratner, K., Burrow, A. L., Mendle, J., & Thoemmes, F. 2023. Derailment and depression in college: Tests of 3-year predictive capacity and moderation by self-reflection, brooding, perfectionism, and cognitive flexibility. *Journal of Counseling Psychology*, 70(2): 212–222. <https://doi.org/10.1037/cou0000649>
- Roose, K. M., & Williams, W. L. 2018. An evaluation of the effects of very difficult goals. *Journal of Organizational Behavior Management*, 38(1): 18–48. <https://doi.org/10.1080/01608061.2017.1325820>
- Rothman, N. B., & Melwani, S. 2017. Feeling mixed, ambivalent, and in flux: The social functions of emotional complexity for leaders. *Academy of Management Review*, 42(2): 259–282. <https://doi.org/10.5465/amr.2014.0355>
- Shalley, C. E., & Gilson, L. L. 2004. What leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *The Leadership Quarterly*, 15(1): 33–53. <https://doi.org/10.1016/j.leaqua.2003.12.004>
- Sheng, M. L., & Chien, I. 2016. Rethinking organizational learning orientation on radical and incremental innovation in high-tech firms. *Journal of Business Research*, 69(6): 2302–2308. <https://doi.org/10.1016/j.jbusres.2015.12.046>
- Siemsen, E., Roth, A., & Oliveira, P. 2010. Common method bias in regression models with linear, quadratic, and interaction effects. *Organizational Research Methods*, 13(3): 456–476. <https://doi.org/10.1177/1094428109351241>
- Sitkin, S. B., See, K. E., Miller, C. C., Lawless, M. W., & Carton, A. M. 2011. The paradox of stretch goals: Organizations in pursuit of the seemingly impossible. *Academy of Management Review*, 36(3): 544–566. <https://doi.org/10.5465/amr.2008.0038>
- Srivastava, J. 2001. The role of inferences in sequential bargaining with one-sided incomplete information: Some experimental evidence. *Organizational Behavior and Human Decision Processes*, 85(1): 166–187. <https://doi.org/10.1006/obhd.2000.2936>
- Sung, S. Y., Rhee, Y. W., Lee, J. E., & Choi, J. N. 2020. Dual pathways of emotional competence towards incremental and radical creativity: Resource caravans through feedback-seeking frequency and breadth. *European Journal of Work and Organizational Psychology*, 29(3): 421–433. <https://doi.org/10.1080/1359432X.2020.1718654>
- Venkataramani, V., Richter, A. W., & Clarke, R. 2014. Creative benefits from well-connected leaders: Leader social network ties as facilitators of employee radical creativity. *Journal of Applied Psychology*, 99(5): 966–975. <https://doi.org/10.1037/a0037088>
- Venkataramani, V., Bartol, K. M., Zheng, X., Lu, S., & Liu, X. 2022. Not very competent but connected: Leaders' use of employee social networks as prisms to make delegation decisions. *Journal of Applied Psychology*, 107(3): 458–480. <https://doi.org/10.1037/apl0000902>
- Wee, E. X. M., Derfler-Rozin, R., & Carson Marr, J. 2023. Jolted: How task-based jolts disrupt status conferral by impacting higher and lower status individuals' generosity. *Journal of Applied Psychology*, 108(5): 750–772. <https://doi.org/10.1037/apl0001047>
- Xu, L., Mehta, R., & Hoegg, J. 2022. Sweet ideas: How the sensory experience of sweetness impacts creativity. *Organizational Behavior and Human Decision Processes*, 172: 104169. <https://doi.org/10.1016/j.obhdp.2022.104169>
- Yang, M. M. 2024. Stretch goals, factual/counterfactual reflection strategies, and firm performance. *Journal of Management Studies*, 61(1): 141–177. <https://doi.org/10.1111/joms.12931>
- Zhang, X., & Bartol, K. M. 2010. Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal*, 53(1): 107–128. <https://doi.org/10.5465/amj.2010.48037118>
- Zhang, Y., Zhang, J., Gu, J., & Tse, H. H. M. 2022. Employee radical creativity: The roles of supervisor autonomy support and employee intrinsic work goal orientation. *Innovation: Organization & Management*, 24(2): 272–289. <https://doi.org/10.1080/14479338.2021.1885299>
- Zhang, Z., & Jia, M. 2013. How can companies decrease the disruptive effects of stretch goals? The moderating role of interpersonal- and informational-justice climates. *Human Relations*, 66(7): 993–1020. <https://doi.org/10.1177/0018726713483630>
- Zhu, L. Y., Bauman, C. W., Young, M. J., & Schaubroeck, J. M. 2023. Unlocking creative potential: Reappraising emotional events facilitates creativity for conventional thinkers. *Organizational Behavior and Human Decision Processes*, 174: 104209. <https://doi.org/10.1016/j.obhdp.2022.104209>

Zhiqiang Liu (zqliu@hust.edu.cn) is a Professor of Management at the Management School, Huazhong University of Science and Technology, China. His current research interests include status competition in organizations, creativity, breakthrough innovation and LMX.

Yuping Xu (xuyuping2007hit@163.com) is currently pursuing a PhD degree in management at the School of Management, Huazhong University of Science and Technology, Wuhan, China. Her research interests include leadership, creativity, and the impact of Artificial Intelligence on employees.

Ziyi Yu (1119579300@qq.com) is currently pursuing a master's degree in management at the School of Management, Huazhong University of Science and Technology, Wuhan, China. Her research interests focus on goal management and creativity.

Bingqing Wu (wub@uwp.edu) is an Assistant Professor of Management at the University of Wisconsin, Parkside. She received her PhD in Business Administration from the University of Illinois, Chicago. Her research interests include leadership, creativity, and ambivalence.

Zijing Wang (tiewzj@163.com) is currently working toward a PhD degree in management with the School of Management, Huazhong University of Science and Technology, Wuhan, China. Her research interests include leadership, organizational ethics, and creativity.