

Employee proactive goal regulation and job performance: The role modeling and interacting effects of leader proactive goal regulation

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Abstract

Given the critical role of leaders in managing employees' goal-setting, we theorized and examined how leader proactive goal regulation facilitates employee proactive goal processes and outcomes. Based on a sample of 74 leaders and 371 employees who work in research and development groups, we found that employees' three motivational states—role breadth self-efficacy, psychological ownership, and activated positive affect—were positively associated with job performance via employee proactive goal regulation. In addition, the effects of leader proactive goal regulation on this mediation model were twofold. First, there was a direct effect on employee proactive goal regulation, which, in turn, positively related to job performance. Second, there was a moderating effect of leader proactive goal regulation such that employees delivered high job performance when their leaders were high in proactive goal regulation, regardless of employees' own levels of proactive goal regulation. This study highlights the importance

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of not only employee but also leader proactive goal regulation in connecting employees' proactive motivational states with job performance.

Keywords

activated positive affect, employee proactivity, job performance, proactive goal regulation, psychological ownership, role breadth self-efficacy

To better adapt to a fast-changing, dynamic environment, organizations increasingly rely on proactive employees who engage in future-focused, self-initiated actions to change themselves and/or the situations that they encounter (Parker et al., 2006). Recent advancements in proactivity research (e.g., Bindl et al., 2012; Parker et al., 2010) highlight a goal-driven process (i.e., proactivity as a conscious, motivated, and goal-directed behavior) and propose *proactive goal regulation* as the central mechanism in eliciting proactive behaviors. Specifically, scholars have suggested that employees can deliberately generate and strive for goals that aim to change the status quo and realize desired future states. Extant studies have identified three types of motivational states that guide individuals to set proactive goals (i.e., "can do," "reason to," and "energized to"; Parker et al., 2010) as well as contextual factors that facilitate this goal-driven process (e.g., human resource management systems, empowering leadership, secure-base leader support; Hong et al., 2016; Wu and Parker, 2017). Moreover, there is evidence that proactive goal regulation positively relates to desired outcomes, such as employee innovative behavior (Montani et al., 2014, 2015, 2017) and voice behavior (Schilpzand et al., 2018).

This line of research emphasizes *employee* proactive goal regulation and the establishment of its nomological network. Limited scholarly attention, however, has been paid to *leader* proactive goal regulation as an immediate, important contextual factor that is able to shape employee proactive goal regulation and its outcomes. In organizational settings, leaders are expected to set the tone for goal setting in the units that they supervise, which has a considerable effect on the unit's and individual members' outcomes (Ilies et al., 2006; Kirkpatrick and Locke, 1996; Locke and Latham, 2002). We thus argue that leaders' proactive, self-regulatory actions, despite their initial self-focused nature, may establish a more conscientious, thoughtful norm for goal setting that facilitates employees' execution of work tasks (i.e., better job performance). This view is novel because the extant literature focuses mainly on how leaders shape employees' proactive motivational states (e.g., Hong et al., 2016; Wu and Parker, 2017), which serve as antecedents of employee proactive goal regulation. We extend this line of research by proposing that, when leaders themselves engage in activities to regulate their proactive goals, their cognitive thinking and behavioral patterns also generate an ambient stimulus, which affects employees' proactive goal-driven processes.

Drawing on the social learning and self-regulation perspectives (Bandura, 1991; Frese and Zapf, 1994; Gollwitzer, 1990; Kanfer and Ackerman, 1989), we theorize two distinct mechanisms by which leader proactive goal regulation facilitates employee proactive

processes and outcomes. Specifically, we propose a role modeling effect from leader to employee proactive goal regulation and a moderating effect on the relationship between employee proactive goal regulation and employee job performance. For the latter effect, leader proactive goal regulation may, as we propose in this study, be particularly useful for employees with low proactive goal regulation, supplementing any insufficiency in their self-initiated goal processes and enhancing their ultimate job-performance levels. We thus theorize a model in which role breadth self-efficacy, psychological ownership, and activated positive affect, which represent the “can do,” “reason to,” and “energized to” motivational states, respectively, relate to employee job performance indirectly through employee proactive goal regulation. We then propose that leader proactive goal regulation positively predicts employee proactive goal regulation and that leader proactive goal regulation moderates the second stage of the mediation model, altering the indirect effects of the motivational states on employees’ job performance through their proactive goal regulation.

By examining this moderated mediation model, we are able to make several important theoretical contributions to the proactivity literature. First, we extend current goal-driven proactivity theory (Parker et al., 2010) by identifying the important role of leaders in the process that converts employee proactive goal regulation into performance outcomes. Specifically, our empirical evidence further clarifies how leader proactive goal regulation both reinforces employee proactive goal regulation and strengthens its effect on employee job performance. Second, whereas existing studies have focused on the effect of goal regulation on proactive behaviors (Montani et al., 2014, 2015, 2017; Odoardi, 2015; Schilpzand et al., 2018), our focus on job performance broadens the scope of the extant proactive goal regulation literature. Our study also addresses the notion that the relationship between proactive behaviors and job performance is worth more research attention (Parker et al., 2019; Strauss et al., 2017). In addition, we answer the call for further investigation of the antecedents of employee proactive goal regulation (Bindl et al., 2012) by utilizing a complete set of proactive motivational states to fully validate Parker et al.’s (2010) theory. Simultaneous examination of all three motivational states offers more theory-testing power (Colquitt and Zapata-Phelan, 2007) and informs further research.

Theoretical background and hypotheses

Proactivity as a goal-driven process

Departing from earlier motivation theories that assume that employees are passive respondents to contextual stimuli, more recent theoretical perspectives stress that “proactive action is motivated, conscious, and goal directed” (Parker et al., 2010: 830). To realize the ideal future, proactive actors thoughtfully generate feasible plans and then act consistently with their plans. Thus, in addition to the influence of relatively stable personality tendencies to initiate change (e.g., proactive personality; Bateman and Crant, 1993), proactive goal-driven processes that involve various goal-regulatory mechanisms, such as anticipating, planning, and striving, can also improve the status quo and result in desirable changes (Grant and Ashford, 2008).

Drawing on self-regulation theory (Bandura, 1991; Frese and Zapf, 1994; Gollwitzer, 1990), Bindl et al. (2012) proposed a model of proactive goal regulation, which includes two broad goal-regulatory mechanisms: proactive goal generation and proactive goal striving. Proactive goal generation refers to individuals' cognitive efforts to anticipate a desired outcome and to develop effective strategies to reach it; this part of goal regulation involves both *envisioning* (i.e., imagining a future better than the imperfect present state) and *planning* (i.e., developing realistic alternatives for how to bring about the desired future). Further, proactive goal striving refers to mobilizing and monitoring daily activities to attain desired future states; *enacting* (i.e., engaging in overt proactive behaviors that bring about change) and *reflecting* (i.e., understanding the success, failure, or implications of proactive behaviors) are characteristics of this part of goal regulation.

Subsequent studies have demonstrated various favorable effects of employee proactive goal regulation on proactive behaviors at work. For example, Montani et al. (2014) found that proactive goal generation activities (i.e., envisioning and planning) significantly mediated the positive effects of learning goal orientation, climate for innovation, and task variety on employee innovative behavior. In addition, learning goal orientation strengthened the positive association between proactive goal planning and innovative behavior. Odoardi (2015) showed that proactive goal generation positively predicted employee innovative behavior, and that role breadth self-efficacy significantly strengthened the positive link between proactive goal generation and innovative behavior. Montani et al. (2017) further investigated the boundary conditions for the relationship between proactive goal generation and employee innovative behavior. Specifically, they found that the relationship between proactive goal generation and employee innovative behavior was stronger when employees showed higher affective commitment to their organization, exhibited a high level of production ownership, and received extensive support for innovation from their supervisors. Shifting the focus of attention from employee innovation to voice behavior, Schilpzand et al. (2018) conducted a diary study and demonstrated that empowering leadership enhanced employees' next morning risk-taking and voice behavior via proactive goal generation at the start of the working day. In addition, proactive goal regulation was particularly enhanced for those who experienced high levels of sleep quality.

Our review above indicates that because extant studies focused more on innovation behaviors, they mainly investigated proactive goal regulation and paid little attention to proactive goal striving (i.e., enacting and reflecting). Given that we attempt to extend the literature by examining employees' task-related performance as the outcome variable, which relies on not only idea generation but also successful implementation of ideas, it is necessary to examine a more complete content domain of proactive goal regulation. Because, theoretically, proactive goal regulation can be seen as a latent construct manifested in goal generation and striving behaviors (Bindl et al., 2012), and because we expect proactive goal generation and striving to have similar effects on job performance, we investigate proactive goal regulation as a whole without further dividing it into specific dimensions.¹

Employees' proactive motivational states and proactive goal regulation

Parker et al. (2010) proposed that three motivational states ("can do," "reason to," and "energized to") serve as antecedents of proactive goal regulation. The "can do" state

involves a deliberate evaluation process in which individuals assess the likely outcomes of proactive actions based on their self-efficacy perceptions, whereas the “reason to” state concerns the extent to which selecting or persisting with particular proactive goals is meaningful. The “energized to” state involves the “hot” affect-centered mechanism that enhances the likelihood of setting and striving for proactive goals.

Based on Parker et al.’s (2010) model, we focus on employees’ role breadth self-efficacy, psychological ownership, and activated positive affect, which represent the “can do,” “reason to,” and “energized to” states, respectively. We select these three indicators because they fit the research and development work settings in which our data collection took place (see the Methods section for details). Research and development tasks require relatively high levels of role breadth self-efficacy as well as the stimulation of positive affect (George and Zhou, 2007; Tierney and Farmer, 2002). In addition, organization-based psychological ownership is widely considered crucial for employee involvement and participation in decision making (Chi and Han, 2008; Liu et al., 2012), which characterizes research and development jobs.

Role breadth self-efficacy refers to one’s perceived capability to carry out a broader, more proactive set of tasks than those prescribed by job requirements (Parker, 1998). In work settings, being proactive often implies potential psychological risk, such as resistance and/or skepticism from others, which are likely to affect one’s self-image (Ashford et al., 2003; Parker et al., 2010). As a belief in one’s capability to engage in proactive actions, role breadth self-efficacy can promote the generation of proactive goals by encouraging employees to envision a different, better future state and to plan to successfully realize it. Moreover, high levels of role breadth self-efficacy are necessary for employees when they strive for proactive goals because they need persistence in overcoming obstacles (Bandura, 1997). Consistent with this line of reasoning, Bindl and Parker (2010) found role breadth self-efficacy to be positively associated with both proactive goal generation and striving.

Psychological ownership refers to a state of mind in which individuals feel that the target of ownership or a piece of it is “theirs” (Pierce et al., 1991, 2001). Employees with high levels of psychological ownership have a strong feeling of possessiveness and are psychologically tied to (at least a part of) their organizations (Van Dyne and Pierce, 2004). According to self-determination theory (Gagné and Deci, 2005), such an internalization process leads to a highly autonomous form of extrinsic, identified motivation, in which intended changes toward an organization are accepted or owned as personally important. Thus, employees with high psychological ownership recognize that changes directed toward their desired future are important both to themselves (i.e., owners) and to their organizations (i.e., the target), resulting in generation of and striving for proactive goals.

Finally, the circumplex model of affect (Russell, 1980, 2003) defines activated positive affect as an affective state with positive valence that leads to high levels of arousal, such as feeling enthusiastic and excited. Positive affect has been found to guide individuals’ cognitive activities by activating an approach–action tendency, broadening momentary action–thought repertoires, and increasing openness to feedback (Fredrickson, 1998; Gervey et al., 2005; Isen, 1999; Seo et al., 2004). Such effects are particularly beneficial in terms of imagining a different future and identifying more creative ways of realizing that future. Moreover, positive affect with a high degree of activation results in the

experience of energy (Brehm, 1999) that, in turn, tends to an increase in the amount of effort put into the achievement of a proactive goal and the follow-through in regard to the outcomes of past proactive efforts.

Hypothesis 1: (a) Role breadth self-efficacy, (b) psychological ownership, and (c) activated positive affect positively relate to employee proactive goal regulation.

Because we examine the three motivational states together in this study, we are able to detect possible interacting effects of these motivational states on employee proactive goal regulation. Parker et al. (2010) noted that one major difference among the three states is that the “can do” and “reason to” states need to align with some particular target, whereas the “energized to” state is more general in broadening cognition and promoting approach tendencies. However, they did not make clear predictions regarding whether the target-specific and/or the generalized states interact with each other to form more robust proactive goal regulation. Therefore, the three types of motivational states may contribute to employee proactive goal regulation either independently or synergistically by strengthening each other’s effect. We do not propose a hypothesis but a research question:

Research Question: Is there any form of interacting effect of role breadth self-efficacy, psychological ownership, and activated positive affect on employee proactive goal regulation?

Employees’ proactive goal regulation and job performance

We propose that employees’ proactive goal regulation enhances job performance, which is manifested as the execution of work tasks with quality, efficiency, and precision (Farh et al., 1991; Williams and Anderson, 1991). The self-regulation perspective suggests that individuals engage in goal-driven regulation activities to carefully allocate their time, effort, and energy for distinct behaviors/tasks according to a “road map” for action (Chen and Kanfer, 2006; Locke and Latham, 1990) and to enhance psychological purposiveness for the sake of goal accomplishment (Kanfer and Ackerman, 1989). Although proactive goal regulation focuses primarily on desired future states, it enhances employees’ cognitive preparedness and behavioral conscientiousness as well, either before or during task execution (Bandura, 1991; Gollwitzer, 1990; Kanfer and Ackerman, 1989; Parker et al., 2010). Accordingly, employees high in proactive goal regulation are more likely to accomplish tasks in a planned, careful manner and to deliver high-quality, error-free work outcomes.

Indeed, with the emphasis on desired future states, proactive goal regulation tends to produce various performance benefits (Griffin et al., 2007). For example, employees who take charge at work are likely to exert more effort to improve task procedures and eventual work outcomes (Morrison and Phelps, 1999). Likewise, employees who engage in voice behavior are more sensitive to potential ways to improve their tasks, and are thereby more likely to deliver high-quality performance (Van Dyne and LePine, 1998). In addition, although engaging in proactive behaviors in the workplace may deplete

psychological resources, high levels of proactive goal regulation should be able to enhance more autonomous motivation and inhibit more controlled types of motivation (Strauss et al., 2017). As a result, employees with high levels of proactive goal regulation should be able to better engage in their tasks and thereby enhance their job performance. We thus propose that:

Hypothesis 2: Employee proactive goal regulation positively relates to job performance.

Our preceding arguments and hypotheses combine to form an indirect effect model that connects proactive motivational states with job performance through employee proactive goal regulation. Specifically, role breadth self-efficacy, psychological ownership, and activated positive affect facilitate employees' deliberate generation as well as execution of proactive goals (i.e., proactive goal regulation), which promote a diligent cognitive working style beneficial for the delivery of high-quality job performance. Hence, we hypothesize:

Hypothesis 3: (a) Role breadth self-efficacy, (b) psychological ownership, and (c) activated positive affect indirectly relate to employee job performance through employee proactive goal regulation.

Role modeling and moderating effects of leader proactive goal regulation

Similar to employees high in proactive goal regulation, leaders with high levels of proactive goal regulation tend to envision a desired future state that changes the status quo and to make specific plans to achieve proposed goals. Owing to the critical role that leaders play in group-level goal setting (Ilies et al., 2006; Kirkpatrick and Locke, 1996; Locke and Latham, 2002), leaders' proactive goal-generation behaviors not only direct their own proactive actions but also influence the units they lead by encouraging employees to demonstrate mindfulness and thoughtfulness when making work plans. In addition, such leaders deliberately engage in proactive behaviors, carefully monitor the progress of the behaviors, and regularly reflect on their true meanings. Together with leaders' position power and available resources, these proactive goal-striving behaviors greatly promote a conscientious working atmosphere for employees (Bandura, 1991; Gollwitzer, 1990; Kanfer and Ackerman, 1989; Parker et al., 2010). As a result, leader proactive goal regulation can serve as a contextual factor that shapes employees' cognitions and behaviors, thereby facilitating a high-performing climate characterized by cognitive rigor, goal persistence, and prompt adaptation.

We propose that the effects of leader proactive goal regulation on the mediation model proposed above are twofold: a role modeling effect and a moderating effect. First, based on the social learning perspective (Bandura, 1991), we expect that leader proactive goal regulation positively relates to employee proactive goal regulation. Social learning theory suggests that human behaviors can be learned through role modeling. Employees

tend to model their supervisors' behaviors because leaders' power and position in the organizational hierarchy make them observable and capable of directing employees' attention (Wood and Bandura, 1989). To complete assigned missions and manage social relationships, leaders often have certain expectations toward their direct reports. One way for employees to better meet those expectations is to emulate leader behaviors, as these behaviors are typically viewed as accepted behavioral norms. Thus, leaders' proactive goal regulation behaviors are likely to facilitate a proactive behavioral norm for employees to follow. The preceding discussion also suggests that leader proactive goal regulation may have an indirect effect on job performance via employee proactive goal regulation. Accordingly, we propose:

Hypothesis 4: Leader proactive goal regulation positively relates to employee proactive goal regulation.

Hypothesis 5: Leader proactive goal regulation indirectly and positively relates to job performance through employee proactive goal regulation.

In addition, we propose that leader proactive goal regulation serves as a substitute for employee proactive goal regulation in eliciting employee job performance. When leaders are high in proactive goal regulation, their proactive goal-oriented behaviors help them better establish both cognitive rigor and behavioral conscientiousness in their units, particularly when they implement changes or face challenges. Such an endeavor may be incorporated into formal rules or performance standards because leaders' cognitive efforts to regulate their personal goals may have a spillover effect on their goal setting for the units that they lead. Accordingly, employees may face institutional pressure to conform to the established behavioral norms. That is, regardless of employees' own level of proactive goal regulation, they are urged to catch up with their leaders' cognitive preference for thoughtfulness, follow their leaders' persistence in the face of potential obstacles, and adapt to a more proactive, change-oriented working pace (Crossley et al., 2013). More importantly, such influence should be more pronounced for those low in proactive goal regulation by changing their original, less thoughtful thinking style (e.g., Bandura, 1991). In contrast, when leaders have low levels of proactive goal regulation, employees' own proactive goal regulation mainly determines the level at which they engage in proactive goal-generation and striving activities.

Hypothesis 6: Leader proactive goal regulation moderates the relationship between employee proactive goal regulation and job performance such that this relationship becomes stronger when leader proactive goal regulation is low rather than high.

The preceding arguments lead us to propose a second-stage moderated mediation model (Edwards and Lambert, 2007), whereby leader proactive goal regulation, as a second-stage moderator, moderates the indirect effects of the three motivational states on job performance through employee proactive goal regulation (see Figure 1 for a graphical presentation). Specifically, such indirect effects would be stronger when leaders' proactive goal regulation is low rather than high. Therefore, we propose:

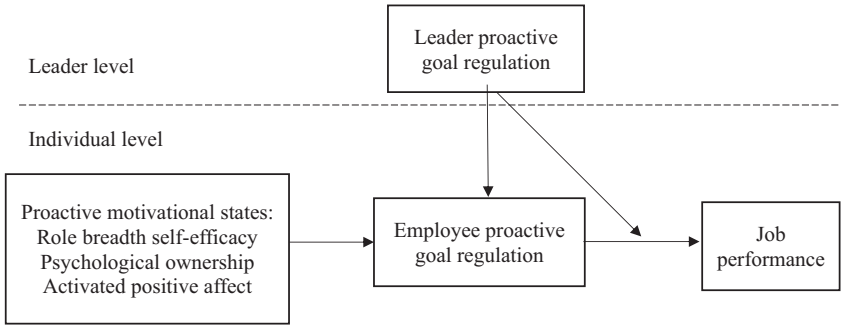


Figure 1. Hypothesized model that links proactive motivational states to job performance through proactive goal regulation.

Hypothesis 7: Leader proactive goal regulation moderates the indirect effects of (a) role breadth self-efficacy, (b) psychological ownership, and (c) activated positive affect on employee job performance through employee proactive goal regulation such that these indirect effects become stronger when leader proactive goal regulation is low rather than high.

Method

Procedures and participants

We obtained data from multiple teams, most of which engaged in research and development (R&D) work, of three firms—two pharmaceutical manufacturers and an IT service company—located in Eastern China. R&D professionals in the two pharmaceutical firms were engaged in biological screening and pharmacodynamics validation experiments as well as audited instrument use records to ensure the quality and safety of the R&D sites. Likewise, R&D personnel of the IT service company were responsible for developing new products and further improving product functions; major tasks included designing, testing, and maintaining software programs. The R&D tasks in all three companies require considerable cooperation and exchange of information among members, which makes the goal regulation process dynamic when delivering service and solutions to customers.

To minimize common method variance, we collected data from team members and team leaders at different points in time. At Time 1, team members responded to a survey that included their proactive motivational state variables as well as demographic information. One month later (Time 2), team members reported their proactive goal regulation, and team leaders reported their demographic data and proactive goal regulation. Team leaders also rated the job performance of each subordinate in their team. All data were collected on-site by a group of researchers during working hours.

Initial invitations were sent to 92 teams in the three companies. After matching member surveys with leader surveys for both times, we followed previous studies (e.g., Chou et al., 2008) that retained only teams with a high within-team response rate to capture

more complete information within a team. By retaining teams with a 75% or higher within-team response rate, we obtained a final sample of 74 teams. Among them, team size ranged from 4 to 10 (average = 6.16). We then deleted nine more cases because they did not respond to the key study variables, resulting in the final sample size of 371 at the level of employees. Among sampled employees, 69.0% were male, the mean age was 36.60 years ($SD = 7.06$), and the mean organizational tenure was 12.89 years ($SD = 7.40$). Most of them (72.0%) had an undergraduate or master's degree. Of the 74 team leaders, 80.6% were male, the mean age was 40.43 years ($SD = 5.46$), and their mean organizational tenure was 15.18 years ($SD = 6.42$).

Measures

We initially developed the surveys in English and then translated into Chinese following Brislin's (1986) back-translation procedure. During the back-translation process, a few words or phrases in the Chinese version that were not exactly matched with those in the English version were revised based on the agreement between the translators.

Role breadth self-efficacy. To assess employees' role breadth self-efficacy, following Wu et al.'s (2018) suggestion, we adopted four items from Parker's (1998) measure that obtained the highest factor loadings in her study to assess employees' role breadth self-efficacy ($\alpha = 0.84$). Based on a seven-point Likert-type scale (1 = not at all confident, 7 = very confident), we asked the respondents to assess their efficacy beliefs about the proactive aspects of their work. A sample item is, "Making suggestions to management about ways to improve the working of your section."

Psychological ownership. We assessed psychological ownership with Van Dyne and Pierce's (2004) seven-item measure ($\alpha = 0.80$), on a seven-point Likert-type scale (where 1 = "Strongly disagree" and 7 = "Strongly agree"). Example items include, "I feel a very high degree of personal ownership for this organization" and "I sense that this is my company."

Activated positive affect. We measured activated positive affect with the following items: "Enthusiastic," "Excited," "Inspired," and "Joyful," following Warr (1990). We asked the respondents to indicate their feelings at work over the past month on a seven-point Likert-type scale (where 1 = "Never" and 7 = "Always"). Cronbach's alpha is 0.89.

Proactive goal regulation. To assess employees' and leaders' proactive goal regulation (Time 2), we adopted Bindl et al.'s (2012) 12-item scale. Employees were asked to assess their proactive goal regulation on a seven-point Likert-type scale (1 = "Not at all," 7 = "A great deal") after reading the following statement: "Thinking about how you have carried out your core job over the past month, to what extent have you . . ." Example items include, "thought about ways to improve services to customers (envisioning)," "gone through different scenarios in your head about how to best bring about a work change (planning)," "sought feedback from others regarding the effects of your change-related actions (reflecting)," and "initiated better ways of doing your core tasks

(enacting).” Cronbach’s alphas for employee and leader proactive goal regulation are 0.93 and 0.87, respectively.

Job performance. At Time 2, leaders rated their subordinates’ job performance using Williams and Anderson’s (1991) five-item in-role job performance measure on a five-point Likert-type scale (where 1 = “Strongly disagree” and 5 = “Strongly agree”). Example items include “Performs tasks that are expected of him/her” and “Meets formal performance requirements of the job.” Cronbach’s alpha is 0.76.

Control variables. Following other scholars (e.g., Kim et al., 2015; Van Dyne and Pierce, 2004), we controlled for employees’ age (in years), gender (0 = male, 1 = female), organizational tenure (in years), and education level (i.e., three dummies were created for high school, undergraduate, and master’s degrees). We also controlled for the tenure with the leader (in years) because it may affect the leaders’ evaluation for their employees’ job performance. Beyond the individual level, we controlled for team size (in number of team members) at the team level because it could affect the extent to which team leaders were visible and approachable, and team leaders supervising smaller teams might be able to facilitate a proactive climate more easily. In addition, we added two dummy variables to our models to account for possible confounding effects of firm-level differences.

Analysis

Using *Mplus 7.3* (Muthén and Muthén, 2012), we tested two-level models with leader proactive goal regulation at the leader level and all other variables at the employee level.² Our research model implies a second-stage moderated mediation model (Edwards and Lambert, 2007), in which the three motivational states have indirect effects on job performance via employee proactive goal regulation, and leader proactive goal regulation moderates the second stage of the effects. To test the cross-level moderating effects, we used group-mean centering for employee proactive goal regulation and grand-mean centering for leader proactive goal regulation to interpret the proposed effects more accurately (Enders and Tofighi, 2007; Hofmann and Gavin, 1998). We used a Monte Carlo simulation with 20,000 replications to generate asymmetric confidence intervals (Preacher and Selig, 2012; Preacher et al., 2010).

Results

Construct distinctiveness and descriptive statistics

To test the distinctiveness of the key variables, we conducted confirmatory factor analyses. To adequately assess the model with an appropriate parameter-to-sample size ratio (Little et al., 2002), we employed an item-to-construct-balance method to make three parcels for the measures with more than three items, and used the four dimensions as indicators for both employee and leader proactive goal regulation to adequately assess the model with an appropriate parameter-to-sample size ratio (Little et al., 2002). The six-factor baseline model fit the data well [$\chi^2(96, N = 371) = 203.77, \chi^2/\text{d.f.} = 2.12,$

RMSEA = 0.06; CFI = 0.96; TLI = 0.95], with all indicators as loading on their respective factors significantly, ranging from 0.58 to 0.91. Correlations among the six latent factors ranged from -0.01 to 0.62 .

We also examined an alternative four-factor model, wherein role breadth self-efficacy, psychological ownership, and activated positive affect were collapsed into a single factor. This model obtained poor fit indices [χ^2 (103, $N = 371$) = 737.35, $\chi^2/\text{d.f.} = 7.16$, RMSEA = 0.13; CFI = 0.76; TLI = 0.71; χ^2 difference test, χ^2 (7, $N = 371$) = 533.58, $p < 0.01$], suggesting that the baseline model offered a better fit. In addition, we ran another model that included only the four employee-assessed variables (i.e., role breadth self-efficacy, psychological ownership, activated positive affect, and employee proactive goal regulation). The four-factor baseline model fit the data satisfactorily [χ^2 (59, $N = 371$) = 141.03, $\chi^2/\text{d.f.} = 2.39$, RMSEA = 0.06; CFI = 0.96; TLI = 0.95]. The results above provided good support for the distinctiveness of our study variables.

Table 1 shows the results for descriptive statistics, reliability, and correlations among the variables. As predicted, role breadth self-efficacy, psychological ownership, and activated positive affect all related to employee proactive goal regulation positively ($r = 0.49, 0.37, \text{ and } 0.46$, respectively, $p < 0.01$). Employee goal regulation also had a positive association with job performance ($r = 0.12, p < 0.05$). In addition, role breadth self-efficacy was positively correlated with job performance ($r = 0.10, p < 0.05$), whereas psychological ownership and activated positive affect were not significantly related to job performance ($r = 0.07 \text{ and } 0.07$, n.s., respectively).

Hypotheses testing

Before conducting our hypothesis testing, we ran two-level null models with employee proactive goal regulation and job performance as the dependent variables. The results showed sufficient within- and between-team variance for employee proactive goal regulation (0.39 and 0.08, respectively, $p < 0.01$) and a significant ICC(1) (0.18, $p < 0.01$), all of which justified the use of our cross-level design. Similarly, job performance also had significant within- and between-team variance (0.17 and 0.16, respectively, $p < 0.01$; ICC(1) = 0.49, $p < 0.01$). These results suggest that it is appropriate to employ a cross-level analysis for the dependent variables.

Hypotheses 1a–c propose that the three motivational states positively relate to employee proactive goal regulation. As shown in Model 2 in Table 2, after all Level-1 and Level-2 variables were controlled for, role breadth self-efficacy, psychological ownership, and activated positive affect independently predicted employee proactive goal regulation ($\beta = 0.21, p < 0.01$; $\beta = 0.12, p < 0.05$; $\beta = 0.16, p < 0.01$, respectively). Moreover, the substantial increase in Pseudo- R^2 from Model 1 (0.02) to Model 2 (0.34) indicated the unique value of using the three motivational states to predict employee proactive goal regulation.

In addition to these linear effects of the three motivational states, regarding our Research Question, it may be plausible that they interactively affected employee proactive goal regulation. Additional analyses revealed no significant two-way interaction (i.e., role breadth self-efficacy \times psychological ownership: $\beta = -0.05$, n.s.; role breadth

Table 1. Means, standard deviations, and correlations among individual (N = 371) and team (N = 74) variables. Individual variables (N = 371).

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Firm dummy 1	0.66	0.47	—													
2. Firm dummy 2	0.23	0.42	-0.77	—												
3. Age (years)	36.60	7.06	-0.03	0.11	—											
4. Sex (0 = male, 1 = female)	0.31	0.46	0.12	-0.09	0.05	—										
5. EI (0 = others, 1 = high school)	0.13	0.34	0.06	-0.04	0.06	0.12	—									
6. E2 (0 = others, 1 = undergraduate)	0.41	0.49	-0.01	-0.04	-0.01	-0.13	-0.33	—								
7. E3 (0 = others, 1 = master)	0.31	0.46	-0.02	-0.01	-0.13	0.03	-0.26	-0.56	—							
8. Organizational tenure (years)	12.89	7.40	-0.03	0.10	0.88	0.04	0.07	0.03	-0.14	—						
9. Tenure with leader (years)	5.51	4.93	0.07	0.04	0.39	0.00	0.05	0.04	-0.12	0.54	—					
10. Role breadth self-efficacy	5.22	0.99	0.07	0.05	-0.03	-0.01	-0.03	-0.05	0.08	-0.03	-0.04	(0.84)				
11. Psychological ownership	5.39	0.89	0.11	-0.10	0.02	0.02	-0.01	-0.12	0.12	0.04	0.02	0.36	(0.80)			
12. Activated positive affect	5.55	1.00	0.04	0.01	-0.11	0.05	0.04	-0.12	0.08	-0.11	-0.09	0.54	0.38	(0.89)		
13. Employee proactive goal regulation	5.83	0.69	0.05	0.00	0.02	-0.05	-0.05	-0.04	0.08	-0.01	-0.04	0.49	0.37	0.46	(0.93)	
14. Job performance	4.13	0.57	0.10	0.07	0.02	-0.09	0.06	0.02	-0.01	0.03	0.11	0.10	0.07	0.03	0.12	(0.76)

Note: Reliabilities are in parentheses. For all correlations above |0.10|, $p \leq 0.05$; and above |0.13|, $p \leq 0.01$.

Team variable and key studied variables aggregated to the team level (N = 74).

	M	SD	1	2	3	4	5	6	7
1. Team size	5.01	0.85	—						
2. Role breadth self-efficacy	5.22	0.59	0.09	—					
3. Psychological ownership	5.39	0.53	0.22	0.51	—				
4. Activated positive affect	5.55	0.51	0.10	0.58	0.51	—			
5. Employee proactive goal regulation	5.83	0.40	0.05	0.58	0.62	0.60	—		
6. Leader proactive goal regulation	5.99	0.57	0.16	-0.03	0.26	0.02	0.23	(0.87)	
7. Job performance	4.13	0.45	0.10	0.24	0.16	0.06	0.12	0.04	—

Note: Reliabilities are in parentheses. For all correlations above |0.17|, $p \leq 0.05$.

Table 2. Effects of proactive motivational states and proactive goal regulation on job performance.

Predictors	Employee proactive goal regulation			Job performance				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	5.21** (0.37)	2.78** (0.05)	1.87** (0.64)	3.48** (0.29)	3.05** (0.35)	3.41** (0.35)	3.55** (0.30)	3.71** (0.35)
Firm dummy 1	0.18** (0.19)	0.01** (0.12)	0.02** (0.10)	0.41** (0.14)	0.40** (0.14)	0.41** (0.14)	0.42** (0.13)	0.44** (0.13)
Firm dummy 2	0.14** (0.20)	-0.02** (0.13)	0.03** (0.11)	0.44** (0.15)	0.43** (0.16)	0.45** (0.16)	0.45** (0.15)	0.47** (0.16)
Age (years)	0.01** (0.01)	0.02** (0.01)	0.02** (0.01)	0.00** (0.01)	0.00** (0.01)	0.00** (0.01)	0.00** (0.01)	0.00** (0.01)
Sex (0 = Male, 1 = Female)	-0.11** (0.09)	-0.11** (0.08)	-0.09** (0.08)	-0.06** (0.07)	-0.05** (0.07)	-0.05** (0.07)	-0.06** (0.07)	-0.06** (0.07)
E1 (0 = others, 1 = college)	-0.02** (0.12)	-0.03** (0.10)	-0.03** (0.09)	0.17** (0.08)	0.17** (0.08)	0.17** (0.09)	0.18** (0.09)	0.18** (0.09)
E2 (0 = others, 1 = master's)	-0.01** (0.10)	0.05** (0.08)	0.06** (0.08)	0.04** (0.07)	0.04** (0.07)	0.04** (0.07)	0.04** (0.07)	0.04** (0.07)
E3 (0 = others, 1 = doctorate)	0.10** (0.12)	0.05** (0.10)	0.05** (0.10)	0.09** (0.07)	0.08** (0.07)	0.09** (0.08)	0.08** (0.08)	0.09** (0.08)
Organizational tenure (years)	-0.01** (0.01)	-0.01** (0.01)	-0.01** (0.01)	0.00** (0.01)	0.00** (0.01)	0.00** (0.01)	0.00** (0.01)	0.00** (0.01)
Tenure with leader (years)	-0.01** (0.01)	0.00** (0.01)	0.00** (0.01)	0.01** (0.01)	0.01** (0.01)	0.01** (0.01)	0.01** (0.01)	0.01** (0.01)
Role breadth self-efficacy	0.21** (0.04)	0.22** (0.04)	0.22** (0.04)	-0.04** (0.03)	-0.04** (0.03)	-0.04** (0.03)	-0.04** (0.03)	-0.04** (0.03)
Psychological ownership	0.12** (0.05)	0.11** (0.05)	0.11** (0.05)	0.00** (0.03)	0.00** (0.03)	0.00** (0.03)	0.01** (0.02)	0.01** (0.02)
Activated positive affect	0.16** (0.05)	0.16** (0.05)	0.16** (0.05)	-0.01** (0.03)	-0.01** (0.03)	-0.01** (0.03)	0.08** (0.04)	0.10** (0.04)
Employee proactive goal regulation (EPG)				0.12** (0.05)	0.08** (0.04)	0.12** (0.05)	0.08** (0.04)	0.10** (0.04)
Team size	0.03** (0.05)	-0.02** (0.06)	-0.04** (0.06)	0.04** (0.04)	0.03** (0.04)	0.03** (0.04)	0.03** (0.04)	0.03** (0.04)
Leader proactive goal regulation (LPG)			0.16** (0.05)				0.04** (0.09)	0.04** (0.09)
EPG × LPG								
Pseudo-R ²	0.02**	0.34**	0.35**	0.08**	0.09**	0.09**	0.10**	0.10**
-2*log-likelihood	750.0	616.8	610.7	498.3	492.8	498.2	485.6	483.5
Diff -2*log-likelihood		133.1**	6.1*		5.5**	-5.4**	7.3**	7.4**
Level 1 intercept variance	0.38**	0.28**	0.28**	0.16**	0.16**	0.16**	0.15**	0.15**
Level 2 intercept variance	0.08**	0.03**	0.03**	0.14**	0.14**	0.14**	0.14**	0.15**

Note: (N = 371 individuals, 74 teams). Unstandardized coefficients are used. * p < 0.05, ** p < 0.01. For Pseudo-R², we compared each model with their null model, respectively.

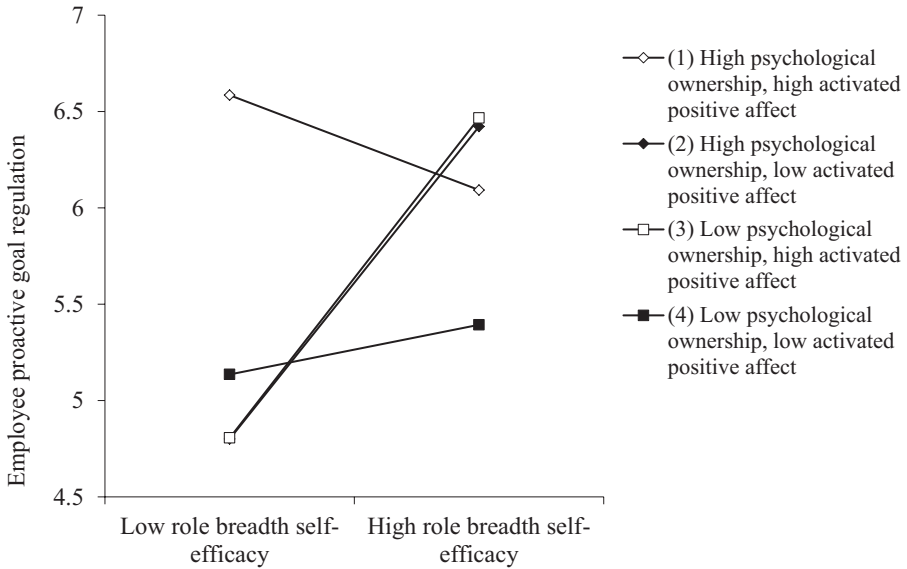


Figure 2. Simple slopes of the three-way interactions among the three proactive motivational states as related to employee proactive goal regulation.

self-efficacy \times activated positive affect: $\beta = -0.02$, n.s.; psychological ownership \times activated positive affect: $\beta = 0.04$, n.s.). We obtained, however, a significant three-way interaction ($\beta = -0.11$, $p < 0.01$). To better interpret such an effect, we plotted simple slopes for different conditions at both high and low levels (i.e., one standard deviation above and below the mean). As shown in Figure 2, when both psychological ownership and activated positive affect were low, employee proactive goal regulation remained relatively low regardless of the level of role breadth self-efficacy (simple slope = 0.08, n.s.). When either psychological ownership or activated positive affect was high (and the other was low), role breadth self-efficacy positively predicted employee proactive goal regulation (simple slopes = 0.50, $p < 0.001$ and 0.52, $p < 0.001$, respectively). When both psychological ownership and activated positive affect were high, employee proactive goal regulation was high regardless of the level of role breadth self-efficacy (simple slope = -0.15 , n.s.). These results indicate that at least two of the three motivational states should be activated to enhance employees' engagement in proactive goal regulation, as sole reliance on only one of the three states would be ineffective.

Hypothesis 2 states that employee proactive goal regulation is positively related to job performance. This is supported by Model 5, which indicates that employee proactive goal regulation is positively related to job performance ($\beta = 0.08$, $p < 0.05$).

Hypotheses 3a–c propose that the three motivational states significantly and indirectly relate to job performance through employee proactive goal regulation. Consistent with the

hypotheses, the Monte Carlo simulation results show that the three proposed indirect effects were all significant (0.03 for role breadth self-efficacy, 95% CI = [0.006, 0.052]; 0.02 for psychological ownership, 95% CI = [0.001, 0.037]; and 0.02 for activated positive affect, 95% CI = [0.004, 0.041]). All CIs reported above did not include 0).

Hypothesis 4 states that leader proactive goal regulation would positively relate to employee proactive goal regulation. To test the effect of leader proactive goal regulation on employee proactive goal regulation more rigorously, the three proactive motivational states were entered as additional controls in Model 3. Consistent with this hypothesis, we found a significant effect of leader proactive goal regulation on employee proactive goal regulation ($\beta = 0.16, p < 0.01$). It is noteworthy that adding leader proactive goal regulation to the model did not significantly change the coefficients of the three motivational states, suggesting that both leader proactive goal regulation and the three motivational states contribute to employee proactive goal regulation independently and significantly.

To test the indirect effect of leader proactive goal regulation on job performance through employee proactive goal regulation (Hypothesis 5), we used a Monte Carlo simulation and bias-corrected percentile method to estimate the confidence intervals. The results indicate that the proposed indirect effect was not significant at 95% CI (indirect effect = 0.012, 95% CI [-0.0002, 0.0321]). The indirect effect was, however, significant at 90% CI [0.001, 0.027]. Although a 90% CI may be less rigorous, one-tailed statistics are appropriate to test a directional research hypothesis, such as Hypothesis 5, and have been applied in multilevel studies with many research variables (Gross et al., 2011; Kang et al., 2016), which was the case in our study.

Hypothesis 6 states that leader proactive goal regulation moderates the relationship between employee proactive goal regulation and job performance such that this relationship becomes stronger when leader proactive goal regulation is low rather than high. Consistent with Hypothesis 4, Model 7 shows that the interaction term between leader proactive goal regulation and employee proactive goal regulation was negative and significant ($\beta = -0.17, p < 0.05$). The relationship between employee proactive goal regulation and job performance was not significant when leader proactive goal regulation was high (one standard deviation above the mean; simple slope = -0.02 , n.s.), but became significant when leader proactive goal regulation was low (one standard deviation below the mean; simple slope = $0.18, p < 0.01$). Figure 3 provides a graphic presentation, indicating support for Hypothesis 6.

Finally, we followed Edwards and Lambert's (2007) procedures to test the proposed second-stage moderated mediation model (Hypothesis 7). The Monte Carlo simulation results show that the indirect effects of role breadth self-efficacy and activated positive affect on job performance via employee proactive goal regulation varied significantly as a function of leader proactive goal regulation (the moderated mediation for role breadth self-efficacy = -0.03 , 95% CI = [-0.052, -0.002]; -0.02 for activated positive affect, 95% CI = [-0.051, -0.001]).³ Specifically, the indirect effect for role breadth self-efficacy was not significant when leader proactive goal regulation was high (0.00, 95% CI = [-0.014, 0.016]), but was significant when leader proactive goal regulation was low (0.03, 95% CI = [0.013, 0.044]). Similarly, the indirect effect for activated

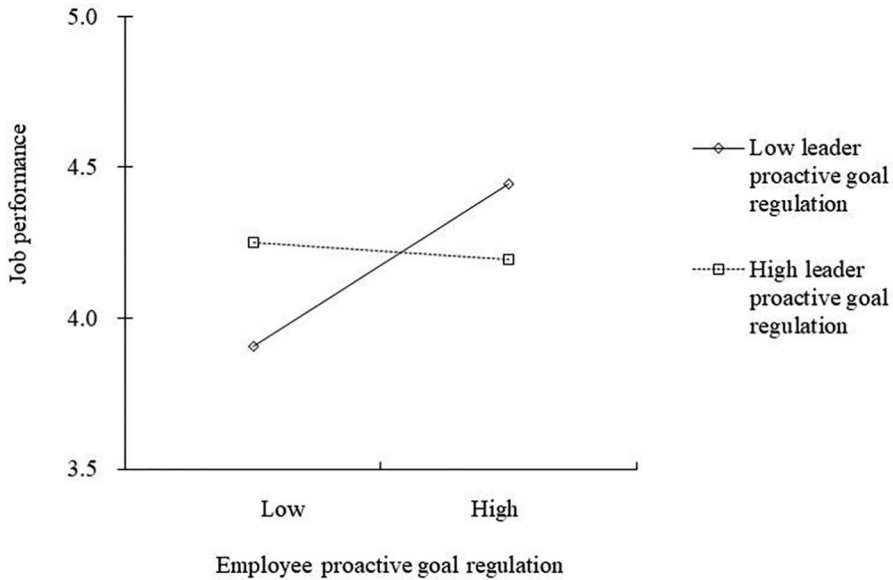


Figure 3. Simple slopes of employee proactive goal regulation as related to job performance at levels of leader proactive goal regulation.

positive affect was not significant when leader proactive goal regulation was high (0.00, 95% CI = [-0.013, 0.016]), but was significant when leader proactive goal regulation was low (0.03, 95% CI = [0.010, 0.043]). The indirect effect of psychological ownership on job performance via employee proactive goal regulation, however, did not vary significantly as a function of leader proactive goal regulation (the moderated indirect effect = -0.00, 95% CI = [-0.026, 0.010]).

Supplemental analysis

Because in Bindl et al.'s (2012) framework, proactive goal regulation consists of two main components (i.e., proactive goal generation and proactive goal striving), we conducted supplemental analyses to differentiate and compare between the effects of the two components. These analyses are meaningful because although Schilpzand et al. (2018) theoretically suggested a positive connection between proactive goal generation and proactive goal striving, no study has compared the effects of proactive goal generation with those of proactive goal striving. We found that a two-factor model that separated proactive goal generation from proactive goal striving fit the data well [$\chi^2(53, N = 371) = 164.21$, $\chi^2/d.f. = 3.10$, RMSEA = 0.08; CFI = 0.94; TLI = 0.92]; the correlation between the two factors was 0.44 ($p < 0.01$). An alternative model, in which the two factors were freely loaded onto a latent, higher-order factor, also obtained an acceptable fit [$\chi^2(52, N = 371) = 161.11$, $\chi^2/d.f. = 3.10$, RMSEA = 0.08; CFI = 0.94; TLI = 0.92], and the standardized higher-order factor loadings for proactive goal generation and proactive goal striving are 0.95 and 0.93, respectively. These results justify our use of a single

index for proactive goal regulation in the main findings and suggest that it is worthwhile to distinguish between proactive goal generation and proactive goal striving for supplemental analyses.

The subsequent analyses show that role breadth self-efficacy, psychological ownership, and activated positive affect were all positively and significantly related to both proactive goal generation ($\beta = 0.17, p < 0.01$; $\beta = 0.15, p < 0.01$; $\beta = 0.20, p < 0.01$, respectively) and proactive goal striving ($\beta = 0.26, p < 0.01$; $\beta = 0.10, p < 0.05$; $\beta = 0.13, p < 0.01$, respectively). Interestingly, role breadth self-efficacy had a stronger effect on proactive goal striving than did psychological ownership and activated positive affect (differences = 0.16, $p < 0.05$ and 0.13, $p < 0.05$, respectively). Both proactive goal generation and striving were positively and significantly related to job performance ($\beta = 0.11, p < 0.01$; $\beta = 0.08, p < 0.05$, respectively).

In addition, proactive goal generation significantly mediated the relationships between the three predictors and job performance (indirect effect = 0.02 for role breadth self-efficacy, 95% CI = [0.002, 0.038]; indirect effect = 0.02 for psychological ownership, 95% CI = [0.001, 0.034]; indirect effect = 0.02 for activated positive affect, 95% CI = [0.005, 0.040]). Proactive goal striving also significantly mediated the relationships between role breadth self-efficacy and job performance (indirect effect = 0.02, 95% CI = [0.001, 0.049]), but the other two indirect effects were not significant (indirect effect = 0.02 for psychological ownership, 95% CI = [-0.006, 0.025]; indirect effect = 0.02 for activated positive affect, 95% CI = [-0.003, 0.027]). For the interactions between employee and leader proactive goal regulation's sub-dimensions, both leader proactive goal generation and striving significantly moderated the effects of employee proactive goal generation on job performance (interaction coefficients = -0.23, $p < 0.01$ and -0.12, $p < 0.05$, respectively); the interaction patterns were similar to what we found in the main study. Neither leader proactive goal generation nor striving, however, significantly moderated the effects of employee proactive goal striving on job performance (interaction coefficient = -0.13, n.s.; -0.07, n.s., respectively).

Discussion

Our field study enabled us to demonstrate the mediation model, in which the three types of employee motivational states—role breadth self-efficacy, psychological ownership, and activated positive affect—positively and significantly related to job performance through employee proactive goal regulation. Moreover, we investigated the role of leader proactive goal regulation by testing its role modeling and the moderating effects on the proposed mediation model. Our findings suggest that leaders play an important role in enhancing employees' internal regulation to generate and strive for proactive goals as well as compensating employees' deficiency in transforming their proactive goal regulation efforts into job performance.

Theoretical contributions

Our study provides several important theoretical implications. First, our findings suggest that leaders can further affect employees' goal-driven processes and outcomes in addition to fostering employee proactive motivational states, which subsequently enhance

employees' proactive goal regulation (e.g., Hong et al., 2016; Wu and Parker, 2017). This can be achieved via either role modeling (i.e., the role modeling effect from leader to employee proactive goal regulation) or a spillover of leaders' cognitive styles (i.e., the moderating effect that alters the association between employee proactive goal regulation and job performance). Regarding the latter, we found that, for employees who are low in proactive goal regulation compared to other group members, and thus are less likely to achieve high job performance, the role of leader proactive goal regulation (promotion of cognitive rigor and behavioral conscientiousness) is particularly salient. Interestingly, our supplementary analyses reveal that this moderating effect exists primarily in the relationship between employee proactive goal generation and job performance. That is, leader proactive goal regulation compensates mainly employees' deficiency in envisioning proactive goals and planning how to achieve them. We encourage future research to replicate our findings and to further clarify the interaction of leader and employee proactive goal regulation on employee outcomes.

It is also noteworthy that the simple slopes reported in Figure 3 suggest that leaders with high levels of proactive goal regulation may curb (or at least do not enhance) job performance of employees high in proactive goal regulation. Notwithstanding the possibility that we observed this pattern because the average job performance rating was quite high (i.e., an average of 4.13 on a five-point response scale), we surmise that this result might occur because leaders' attempt to promote cognitive rigor and behavioral conscientiousness (through their proactive goal regulation) may demotivate employees who have relatively high levels of proactive goal regulation (cf. Deci et al., 2017). We encourage future research to test our speculation and to further explore how other types of supervisory practices and situational factors may moderate the relationship between employee proactive goal regulation and job performance.⁴

In addition, we extend the current proactivity literature by connecting proactive goal regulation with employee performance, particularly for job tasks that require innovative behaviors. Indeed, predicting a positive association between proactive goal regulation and job performance is aligned with prior theorizing that engaging in a proactive goal-driven process can facilitate a conscientious cognitive style that benefits task accomplishment and efficiency (Bandura, 1991; Chen and Kanfer, 2006; Gollwitzer, 1990; Kanfer and Ackerman, 1989; Locke and Latham, 1990). However, being proactive at work may come at a cost to employees' functionality, such as increased job strain (Fay and Hüttes, 2017; Strauss et al., 2017). It is thus important to provide empirical evidence on the positive effect of proactive goal regulation on performance outcomes. Our findings thus extend the prior research that focused mainly on the effects of proactive goal generation, instead of proactive goal regulation that captures both goal generation and goal striving, on employees' innovative work behaviors (Montani et al., 2014, 2015, 2017) and voice behavior (Schilpzand et al., 2018). Our supplemental analyses also reveal that proactive goal generation and proactive goal striving contributed to job performance simultaneously and independently.

Another important contribution of this study is that our examining the full set of motivational states offered us an opportunity to explore the interactions among them and to compare the strengths of individual effects with each other. The significant three-way interaction among the three motivational states beyond the significant main

effects suggests that, although each state may contribute to proactive goal regulation independently, the co-presence of at least two of the three states can result in a stronger effect. We recommend that future research further develop theoretical arguments for such an interaction effect, and replicate our findings with additional samples.

Lastly, our supplemental analysis showed that, whereas all three motivational states similarly contributed to *proactive goal generation*, role breadth self-efficacy was the strongest indicator of *proactive goal striving*. These results indicate that, whereas “can do,” “reason to,” and “energized to” states are all associated with proactive goal generation (i.e., envisioning and planning), it is beliefs about one’s capabilities that drive individuals to persist in attaining their goals (i.e., enacting and reflecting). Indeed, among the three motivational states, the “can do” motivation represents an individual’s deliberate assessment of the likely outcomes of his or her behaviors (e.g., “Can I do it?” “How feasible or risky is it?”) (Parker et al., 2010). It is thus likely that the “can do” motivation, represented by role breadth self-efficacy in our model, more strongly relates to proactive goal striving, which is the more behavior- or execution-oriented part of the goal regulation process. We encourage future studies to cross-validate our findings with different samples or in varying contexts.

Practical implications

Our results suggest that organizations and managers who wish to maximize employee proactive goal regulation should take various actions to facilitate all three proactive motivational states simultaneously. For example, human resource management practices should be related to employees’ role breadth self-efficacy (Hong et al., 2016). In addition, organizations need to identify a clear purpose and strategic goals supported by their culture and practices, which build the foundation of psychological ownership and activated positive affect (Martin et al., 1993; Pierce et al., 2001). Based on our results, the successful stimulation of at least two of the three motivational states may lead to higher levels of employee proactive goal regulation. Further, because we find that the “can do” motivational state was the primary predictor of proactive goal striving, employees’ deficiency in enacting and reflecting on their proactive goals may be best overcome with capability development, offering of necessary information and resources, and the creation of a psychologically safe environment (Morrison and Phelps, 1999; Parker et al., 2006).

In addition, cultivating leaders with high levels of proactive goal regulation is important to compensate for employees low in proactive goal regulation, particularly those who are reluctant to envision proactive goals and develop realistic plans to achieve them. With their own proactive goal regulation, leaders can urge employees who lack initiative in goal regulation to craft high-quality, efficient, and error-free performance outcomes. To better develop leaders’ proactive goal generation and striving, organizations should enhance leaders’ sensitivity to desired future states and their discrepancies with the status quo (Strauss and Parker, 2018). Training and reward programs should be aligned with the development of leaders’ proactive goal regulation as well. Such compensation and aid from the leader side, however, may not be very helpful in transforming proactive endeavors into performance outcomes for employees who have relatively high proactivity

potentials. Based on both the self-determination and self-regulation theories, an autonomous environment with more decision discretion should be offered to fully utilize their proactive behaviors at work.

Limitations and future research opportunities

We tested our hypotheses with teams sampled mainly from research and development units, where employee proactivity is particularly welcome. As such, whether our findings are generalizable to more general settings needs further examination. This concern should not be serious, however, given that prior research has shown that proactivity can be widely observed in various settings (Griffin et al., 2007; Strauss and Parker, 2018). Another generalizability issue is that we collected our sample in China, wherein leader–follower exchange relationships tend to be relatively vertical (Takeuchi et al., 2020). It is likely that leader proactive goal regulation in such a cultural setting is more visible than it may be in other more horizontal cultures, such as the United States; future research that reexamines our framework in other cultural settings is recommended.

Regarding the establishment of the mediation model, we admit that our research design was sub-optimal; that is, although the three motivational states were measured at Time 1, both the mediator (i.e., employee proactive goal regulation) and the outcome (i.e., job performance) were rated simultaneously at Time 2. It would have been better if we had collected data for the outcome at a later time point. In addition, to better consolidate the mediating role of employee proactive goal regulation, we encourage future research to examine whether employee proactive goal regulation mediates the effects of the motivational states on various forms of proactive behaviors, such as taking charge and seeking feedback. It is also likely that proactive goal regulation has an indirect effect on job performance through certain proactive behaviors. For example, proactive goal regulation may facilitate taking charge, seeking feedback, and engaging in voice behavior, all of which can benefit job performance (Kim et al., 2015). Future research is encouraged to explore this possibility. Our proposed hypotheses for leader proactive goal regulation also suggest a possibility that leader proactive goal regulation influences employees by fostering the creation of a group-level high-performance climate. We suggest future research to examine both group- and individual-level mediators simultaneously.

Moreover, although we found a significant relationship between employee proactive goal regulation and job performance, the effect size was relatively small. Hence, it would be worthwhile to examine other contextual factors that may enhance or mitigate the relationship between employee goal regulation and job performance as well as other types of employee outcomes. For example, employees' capability of making a situational judgment may enhance the positive relationship between proactive goal regulation and job performance because those high in situational judgment are more likely to align their proactive effort with not only their desires but others' needs (Parker et al., 2019) and thus tend to gain necessary social support to utilize their proactive efforts to enhance their outcomes at work.

Finally, we chose role breadth self-efficacy, psychological ownership, and activated positive affect to serve as the indicators of “can do,” “reason to,” and “energized to” states, respectively, proposed in Parker et al.'s (2010) model. Our choice fit our research

setting (i.e., research and development units) well, but other relevant variables may be used when testing samples from different settings. For example, identified motivation may be a substitute for psychological ownership when investigating workers with less job autonomy than research and development personnel. Parker et al. (2010) also proposed a reverse feedback link in addition to the main causal relationship from proactive motivational states to proactive goal regulation. We could not test such reciprocal relationships in this study because we collected data for proactive motivational states at a single time point prior to that of measuring proactive goal regulation. A panel design is recommended to clarify the reciprocal relationships.

Conclusion

Whereas employee proactivity has received substantial research attention for decades, proactive goal regulation represents a relatively new line of research that can help researchers as well as practitioners to gain insight into fostering not only proactive behaviors but also job performance. The present study provides an initial step in the direction of better understanding the role of leader proactive goal regulation in connecting follower proactive endeavors with job performance. We call for future research to replicate our findings and to extend our model by identifying more employee outcomes and contextual factors that jointly shape such goal processes. These research efforts will shed light on managing proactive behaviors and processes in the workplace.

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Notes

- 1 As shown in the Results section, we treated proactive goal regulation as a whole in the analyses because this analytic approach better fit our theory. In addition, to further explore what we obtained in our data, we offered supplemental analyses in which proactive goal generation and striving were considered separate variables.
- 2 One reviewer noted that companies could be considered another level and that our analyses were across three levels. Although this view might be reasonable, methodologically, the ideal cluster size of the highest level in multilevel models should be greater than 30 in order to avoid biased estimates of standard errors (Mass and Hox, 2005); the highest cluster size

for our sample was only three. Still, we conducted three-level analyses using HLM 6.08 to examine the potential influence of level of analysis. The three-level models generated similar coefficients obtained from our two-level *Mplus* modeling, suggesting that level issues may not be a serious concern. Detailed results are available upon request.

- 3 These two effects became insignificant at the 95% CI level when all control variables were removed from the models. They were marginally significant at the 90% CI level: the moderated indirect effect for role breadth self-efficacy = -0.02 , 90% CI $[-0.045, -0.003]$ and for activated positive affect = -0.02 , 90% CI $[-0.042, -0.002]$. All other reported effects in this section remained unchanged when the controls were removed from the models. Detailed results are available from the authors. In sum, the inclusion of all control variables affected only these two effects, which were based on the most complicated method. This, in general, indicated the robustness of our findings.
- 4 One reviewer indicated that this interacting effect can be interpreted as a “substitutes for leadership” effect, showing that follower characteristics may substitute for leadership construct (Kerr and Jermier, 1978). We acknowledge that empirically, the same result also supports an alternative model wherein the predictor (employee proactive goal regulation) and the moderator (leader proactive goal regulation) switch places. However, the two models are quite different in terms of theory development: whereas our framework highlights that having leaders with high levels of proactive goal regulation can make up for the deficit of employee proactive goal regulation, the alternative perspective would suggest the opposite. Research design with stronger capability of making causal inferences may be needed to further compare between the two.

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