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RESEARCH REPORT

The Role of Team Goal Monitoring in the Curvilinear Relationship Between Team Efficacy and Team Performance

Tammy L. Rapp
GATS Group Consulting, Northport, Alabama

Daniel G. Bachrach and Adam A. Rapp
University of Alabama

Ryan Mullins
Clemson University

In this research, we apply a team self-regulatory perspective to build and test theory focusing on the relationships between team efficacy and 2 key team performance criteria: a performance behavior (i.e., team effort) and a performance outcome (i.e., objective team sales). We theorize that rather than having a linear association, the performance benefits of team efficacy reach a point of inflection, reflective of too much of a good thing. Further, in an effort to establish a boundary condition of the inverted-U shaped relationship we predict, we also test the moderating role played by team goal monitoring in the nonmonotonic relationship between team efficacy and team performance. The results from a lagged field test, in which we collect multisource data from 153 technology sales teams, reveal a significant curvilinear association that is moderated by team goal monitoring behavior. Implications for theory and practice are discussed.

Keywords: team efficacy, team goal monitoring, curvilinear relationship, lagged field study, sales teams

As the structure of organizational work has become increasingly team based (Sundstrom, De Meuse, & Futrell, 1990), researchers have sought to understand factors contributing to team performance (e.g., Kozlowski & Ilgen, 2006; Mathieu, Maynard, Rapp, & Gilson, 2008; Salas, Stagl, & Burke, 2004). Team efficacy—teams' shared perception of their capability to successfully perform specific tasks (Lindsley, Brass, & Thomas, 1995)—has emerged as an important determinant of team performance. These beliefs influence the effort teams devote toward tasks as well as perseverance in the face of obstacles (Bandura, 1977, 1997; Wood & Bandura, 1989a). Consistent with this characterization, meta-analytic research has largely supported the position that team efficacy facilitates team performance (e.g., Gully, Incalcaterra, Joshi, & Beaubien, 2002; Stajkovic, Lee, & Nyberg, 2009).

Emergent evidence, however, suggests that team efficacy may not always have beneficial consequences and that relationships with key outcomes may be more complex than originally thought. For example, research has reported weak or negative relationships between team efficacy and team performance (e.g., C. H. V. Chen & Lee, 2007; Goncalo, Polman, & Maslach, 2010; Katz-Navon & Erez, 2005; Kellett, Humphrey, & Sleeth, 2000). A number of researchers also have raised concerns that efficacious teams may become overconfident, exhibiting complacency and a lack of focus (e.g., Gist, 1987; Knight, Durham, & Locke, 2001; Lindsley et al., 1995). Such insights prompted Knight et al. (2001) to propose that "future studies need to identify where healthy confidence leaves off and foolish overconfidence begins" (p. 336).

In light of this emerging evidence, we propose that the *too-much-of-a-good-thing metaprinciple* (Pierce & Aguinis, 2013) may apply to the relationship between team efficacy and team performance—in terms of both team performance behaviors (i.e., effort) and outcomes (i.e., sales)—and that this relationship may best be characterized as nonmonotonic. We argue that the relationship between team efficacy and team performance may reach a point of inflection, after which their association becomes negative. Further, we seek to achieve a more fine-grained understanding of the relationship between team efficacy and performance by introducing team goal monitoring (Marks, Mathieu, & Zaccaro, 2001) as a moderator of this relationship. Team goal monitoring refers to tracking progress toward goals, assessing what needs to be accomplished for goal attainment, and communicating progress among members (Marks et al., 2001). These behaviors function as a means of team self-regulation (Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996), allowing teams to assess discrepancies between goals and goal progress.

In a review of the team performance literature, Kozlowski and Ilgen (2006) argued that "The supportive findings for team effi-

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Tammy L. Rapp, GATS Group Consulting, Northport, Alabama; Daniel G. Bachrach, Department of Management, University of Alabama; Adam A. Rapp, Department of Marketing, University of Alabama; Ryan Mullins, College of Business and Behavioral Science, Clemson University.

Correspondence concerning this article should be addressed to Daniel G. Bachrach, Department of Management, University of Alabama, Box 870225, Tuscaloosa, AL 35487. E-mail: dbachrac@cba.ua.edu

cacy likely stem from its role in the regulation of attention and effort in the team context" (p. 91). Their observation aligns with Locke's (1991) expectation that efficacy beliefs in conjunction with goals make up the "motivational hub," which represents the processes that most directly affect team actions. Thus, we apply a team self-regulatory lens (Kozlowski et al., 2006) and theorize that the relationship between team efficacy and performance depends on the extent to which teams monitor their goal progress.

With this theoretical framework as our point of conceptual departure, we seek to make two contributions to the literature. First, to achieve a more complete conception of the association between team efficacy and performance, we incorporate a focus on paradox (Grant & Schwartz, 2011; M. Lewis, 2000) and develop theory to integrate findings that suggest team efficacy may not always have beneficial performance consequences. We test the proposition that the relationship between team efficacy and performance may, in fact, be curvilinear and that it is at intermediate levels of efficacy that teams are likely to have the highest performance.

Consistent with conceptualizations advanced by both Beal, Cohen, Burke, and McLendon (2003) and Mathieu et al. (2008), we distinguish between two facets of team performance—behaviors (i.e., team effort) and outcomes (i.e., objective team sales)—allowing for a fine-grained consideration of how team efficacy relates to different team performance criteria. Second, in an effort to deepen our understanding of potential boundary conditions associated with this nonmonotonic association, we test the moderating role played by team goal monitoring in the curvilinear team efficacy–performance relationship. We theorize that goal monitoring diminishes the likelihood that teams will fall prey to the potentially debilitating negative consequences of team efficacy, such as complacency, overconfidence, or the propensity to devote insufficient resources to team tasks (e.g., Lindsley et al., 1995).

Background and Hypothesis Development

Team Efficacy and Team Performance

Perhaps because self-efficacy perceptions have been shown to predict individual performance and other work-related outcomes (Bandura, 1977), teams researchers have shown a great deal of interest in the team-level elaboration of the self-efficacy concept (G. Chen & Bliese, 2002; Edmondson, 1999; Gist, 1987; Jung & Sosik, 2003; Lindsley et al., 1995; Gibson, 1999; Mischel & Northcraft, 1997; Prussia & Kinicki, 1996; Porter, 2005; Tasa, Taggar, & Seijts, 2007). *Team efficacy* refers to team members' perceptions of task-specific team capability, which, it is important to note, are not simply the sum of individual team members' efficacy beliefs (Chan, 1998). Mischel and Northcraft (1997) observed that the interrogative cognition "can *we* do this task?" is substantively distinct from the cognition "can *I* do this task?" Arthur, Bell, and Edwards (2007) reported empirical evidence reflective of this distinction. In their study of the criterion-related validity associated with the operationalization of team efficacy, these authors reported that the referent-shift approach to operationalizing team efficacy was superior to the additive approach and should therefore more reliably predict team performance.

Researchers have largely tended to agree that team efficacy is an important determinant of team performance (Bandura, 1997; Gist, 1987; Mathieu et al., 2008). The sense of confidence generated by team efficacy helps motivate and direct team effort (Fuller, Hardin, & Davison, 2007) and also helps teams to persevere in the face of functional obstacles. Efficacious teams also tend to set challenging and difficult goals; fully engage in the team's tasks; experience high levels of trust and bonding within the team; and engage in task-related structuring, planning, and adaptive processes (DeRue, Hollenbeck, Ilgen, & Feltz, 2010). Thus, research evidence suggests that team efficacy can have beneficial team performance consequences (e.g., Gully et al., 2002; Stajkovic et al., 2009). It also is broadly accepted that outcomes generated by high performing teams are attributable in part to team efficacy.

Emerging theory and evidence, however, have led researchers to question the assumption that the consequences of team efficacy are exclusively beneficial. Research suggests that high levels of team efficacy may have disadvantageous consequences for team decision making, team processes, and team performance. For example, Whyte (1998) theorized that high levels of team efficacy impair decision making by inviting excessive risk taking, less vigilant information processing, and rejection of negative feedback and by discouraging teams from abandoning ineffective team performance strategies. In a laboratory study of students participating in a business simulation, Tasa and Whyte (2005) reported that team efficacy exhibited a curvilinear relationship with vigilant decision making, where moderate team efficacy was most strongly associated with vigilant problem solving. These authors argued that although team efficacy motivates behavior, it also stimulates complacency, which appears to overwhelm the benefits of team efficacy. Thus, they warned that excessive levels of team efficacy may be detrimental, noting that "Despite the benefits of [team] efficacy for team performance, these benefits are unlikely to continue unabated" (Tasa & Whyte, 2005, p. 121). Likewise, Marks (1999) reported that highly efficacious teams of students performed worse than less efficacious teams in terms of coordination processes in nonroutine situations.

Finally, Chou, Lin, and Chou (2012) proposed that the nonsignificant relationship they observed between transactive memory systems (i.e., a team's collective awareness of who knows what; Lee, Bachrach, & Lewis, 2014; K. Lewis & Herndon, 2011) and team performance was likely attributable to high levels of team efficacy. They argued that in highly efficacious teams, members may be overconfident in other members' expertise, overemphasize members' capabilities, and fail to acknowledge weaknesses. Here, we build from this early theoretical and laboratory-based empirical evidence. We propose that, rather than having a straightforward, linear character, the relationship between team efficacy and team performance is curvilinear, such that moderate levels of team efficacy are likely to yield the highest team performance.

We expect that teams characterized by efficacy levels falling below a critical threshold will exhibit relatively low levels of team effort and will generate lower levels of objective team performance (Bommer, Johnson, Rich, Podsakoff, & MacKenzie, 1995). Team efficacy motivates or demotivates team behavior (Tasa et al., 2007) and thus influences what teams do and their persistence in the face of adversity (Bandura, 1977, 1997; Wood & Bandura, 1989a). The feelings of self-doubt that accompany low team efficacy are likely to dispose less efficacious teams to visualize failure scenarios and to assume that effort is likely to be invested in vain (Vroom, 1964). Thus, low team efficacy is likely to undermine

performance behaviors (i.e., effort) and outcomes (Wood & Bandura, 1989b).

In contrast, teams characterized by high levels of team efficacy that rise above a critical threshold are likely to fall prey to overconfidence and complacency (Gist, 1987; Goncalo et al., 2010; Knight et al., 2001; Lindsley et al., 1995), as well as fail to plan and anticipate problems in advance (Bandura & Locke, 2003). This can lead to the allocation of insufficient resources toward task completion. Such teams are likely to assume that their (objectively substandard) level of effort will result in successful outcomes. These expectations are consistent with Karau and Williams's (1993) collective effort model with regard to expectations of coworker performance. The collective effort model maintains that team members will engage in social loafing (i.e., reduced motivation and effort when individuals work collectively) when they expect teammates to perform well. Further, these expectations also are consistent with the self-attention perspective of collective effort, which maintains that when working on collective tasks, people tend to engage in less self-regulation (i.e., decreased awareness of and attention to task demands and performance standards), which fosters reduced effort toward collective tasks.

The above suggests that at least some doubt regarding the likelihood of success may be beneficial, as it encourages comprehensive preparation and contribution toward team tasks. We propose that moderately efficacious teams are likely to believe that the team can be successful but also are likely to recognize that diligent preparation and hard work are necessary to achieve performance goals. In light of the negative consequences associated with both low and high team efficacy, we predict that teams are likely to be the most effective at intermediate levels where crippling self-doubt or overconfidence are less likely to emerge, leading to the following:

> *Hypothesis 1:* Team efficacy has an inverted U-shape relationship with team performance, in terms of (a) performance behavior and (b) performance outcome.

Team Goal Monitoring: A Moderating Effect

Although we predict that teams with moderate levels of team efficacy will achieve the highest levels of performance, we propose that this pattern of association depends on team goal monitoring behaviors. Goal monitoring is a team self-regulatory tactic through which teams track progress toward goals, assessing what needs to be accomplished for goal attainment and communicating progress to team members (Marks et al., 2001). Locke (1991) argued that goals and efficacy are the most direct and immediate motivational drivers of performance. These factors constitute the motivational hub, or the processes closest to and most directly affecting teams' task-focused action. Recognizing that "what people do is powerfully . . . influenced by their goals . . . and by their perceived confidence in being able to take the actions in question" (Locke, 1991, p. 296), we apply a self-regulatory lens (Austin & Vancouver, 1996) to examine the interplay between goal monitoring and teams' perceived capability to perform their task(s).

By definition, teams are composed of members working interdependently toward common goals (Ilgen, 1999). The constraint that members rely on one another to work collectively toward team goals implies the need for some level of awareness of others, in terms of their actions and contributions toward team tasks (Gully et al., 2002). Although confidence in the team's ability provides the motivation to work toward team goals, actively monitoring progress is likely to determine how team efficacy translates into team performance. Team goal monitoring offers a means of self-regulation, ensuring that teams are aware of goal progress and that members are accountable for contributions to team tasks and meeting established performance standards (Marks & Panzer, 2004; Salas, Prince, Baker, & Shrestha, 1995).

Monitoring has seen increased recent attention in the literature (e.g., De Jong & Elfring, 2010; Langfred, 2004; Porter, Gogus, & Yu, 2010; Rousseau & Aubé, 2010). Recognized as an important goal-based regulatory process (Marks et al., 2001), monitoring is a crucial element of teamwork (Dickinson & McIntyre, 1997; Salas, Sims, & Burke, 2005) that enhances coordination, creates a heightened awareness of members activities (Marks & Panzer, 2004; Weldon, Jehn, & Pradhan, 1991), fosters situation awareness (Bolman, 1979; Salas et al., 1995), and facilitates evaluation of the instrumentality of members' behaviors (Marks, 1999). Monitoring also helps teams identify performance–goal discrepancies and facilitates the generation of feedback on team effort and performance strategies (Marks et al., 2001). Teams that fail to monitor goal progress tend to "drift, procrastinate, or stray off task and lose track of their purpose for extensive periods of time" (Marks et al., 2001, p. 367).

Because monitoring serves an important team self-regulatory function, we expect that team goal monitoring moderates the inverted U-shaped team efficacy–performance relationship. Specifically, highly efficacious teams that engage in monitoring will be less likely to fall prey to potentially debilitating complacency or overconfidence (Knight et al., 2001). Monitoring should increase teams' focus on information search and attention (Lindsley et al., 1995; Sitkin, 1992), planning (Bandura & Locke, 2003), and devotion of resources to team tasks (Lindsley et al., 1995). When teams engage in monitoring, they are better positioned to identify performance gaps, synchronize contributions (Marks & Panzer, 2004), and respond to deviations from optimal performance strategies (Gaddy & Wachtel, 1992; Weldon et al., 1991).

When teams actively engage in goal monitoring, members are aware that teammates are assessing team performance and members' contributions toward team goals. This helps to focus team actions toward the realization of goals, draws attention to member contributions, and serves as a disincentive to social loafing behavior (Karau & Williams, 1993). Self-regulatory processes such as monitoring also channel attentional resources toward goal attainment (Kanfer & Ackerman, 1989). Thus, whereas the relationship between team efficacy and performance may be characterized by an inverted U shape among teams exhibiting fewer monitoring behaviors, we expect a positive relationship between team efficacy and performance among teams that actively engage in such behaviors, leading to the following prediction:

> *Hypothesis 2:* Team goal monitoring moderates the relationship between team efficacy and team performance, such that (a) there is an inverted U-shaped relationship between these variables among teams that engage in low levels of monitoring and (b) a positive relationship in teams that engage in high levels of monitoring.

Method

Participants and Data Collection

The sales teams participating in this research worked in a medium-sized high technology firm and were required to sell to and service territories as a collective unit. These teams were staffed by approximately five members ($M = 5.31$ members, $SD = 1.4$) with varying responsibilities, including making customer contacts, scheduling appointments, engaging in needs discovery, recommending technology solutions, and outlining implementation processes and procedures. Teams worked interdependently, sharing information and resources and coordinating activities and client responsibilities. Team members called on customers both independently and in conjunction with other team members. Because of their functional interdependence, it was critical that members coordinated their sales calls, shared competitive intelligence and information about customer needs, crafted and shared sales strategies, cross-sold product solutions, and followed up on visits by other team members. On the basis of these patterns of interaction within the teams, sales team members' compensation was, in part, dependent on the achievement of team sales goals. On average, 15% of their compensation was based on teams' sales-to-target ratios. Thus, the teams were characterized by task, goal, and reward interdependence (Campion, Medsker, & Higgs, 1993).

Our data collection involved three time periods over an 8-month span. Time 1 involved the survey administration, which consisted of distributing the survey and then sending reminders 1 month later (Months 1–2). Time 2 represented the collection of archival team performance behavior data (i.e., call activity), which were collected over a 3-month period (Months 3–5). At Time 3, we collected archival team performance outcome data (i.e., percentage of quota) over a 3-month period (Months 6–8). We administered the survey to the members of 256 sales teams and received responses from 205 teams (80% response rate). We paired survey data with archival company data and were left with complete information from 750 members of 153 sales teams (approximately 4.9 members per team, $SD = 1.3$), or just under 75% of responding teams. Incomplete data were attributable to incomplete survey or performance data or employee turnover. Supplemental analyses revealed that the subsample did not differ significantly from the total sample on any of the study variables. Potential late-response bias was assessed by dividing our sample into thirds, on the basis of their response times (early, moderate, and late responders). We found no significant differences in demographics or responses between early and late survey responders. The sample had an average of 10 years in sales ($SD = 4.17$), 5.8 years ($SD = 3.58$) company tenure, and 3.23 years ($SD = 2.44$) experience in the specific sales territory.

Measures

Table 1 displays the means, standard deviations, and correlations for all study variables. As expected, team efficacy ($r = .33$; $r = .38$) and team goal monitoring ($r = .27$; $r = .23$) were positively related to both team performance outcome (i.e., objective team sales) and to team performance behavior (i.e., effort), respectively. Both of the constructs were measured using 7-point Likert-type scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Survey items appear in the Appendix.

Team efficacy. We used five items adapted from Jex and Bliese's (1999) scale to capture each individual's perception of efficacy within their own team ($\alpha = .88$). Individual sales team member responses were averaged and then aggregated to the team level.

Team goal monitoring. Team goal monitoring was operationalized using five items developed from the work of Marks et al. (2001) ($\alpha = .91$). Again, individual sales team members' responses were averaged and aggregated to the team level.

Controls. Previous research reveals that team composition factors such as team size are likely to play a role in explaining sales team outcomes (Shaw et al., 2011). Thus, we controlled four team composition variables—team size, average sales experience (i.e., number of years working in sales), average company tenure, and average territory experience (i.e., number of years working in current sales territory)—associated with team effectiveness. The latter three variables were aggregated to the team-level mean.

Team performance. We operationalize team performance in this research (Beal et al., 2003; Mathieu et al., 2008) using two criteria: a performance behavior (i.e., team effort) and a performance outcome (i.e., objective team percentage-of-quota). Both variables were collected from archival organizational records.

Team performance behavior was indexed as an objective measure captured by aggregating each sales team's archived monthly sales calls (captured via the customer relationship management system) and averaging these monthly totals to reflect performance across the quarter. In a similar fashion, the *team performance outcome* criterion was indexed as an objective measure of each

Table 1
Correlations Between Study Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Team efficacy	5.76	0.87	(.88)							
2. Team goal monitoring	4.21	0.47	.36*	(.91)						
3. Team size	4.87	1.29	.05	−.09	—					
4. Performance behavior	153.79	35.91	.38*	.23*	−.05	—				
5. Sales experience	9.97	4.17	−.11	−.09	.13	−.31*	—			
6. Company tenure	5.78	3.58	−.18*	−.18*	.13	−.33*	.78*	—		
7. Territory experience	3.23	2.44	.04	−.13	.05	−.02	.40*	.42*	—	
8. Performance outcome	1.21	0.22	.33*	.27*	.18	.07	.08	.03	−.03	—

Note. Aggregate level coefficient alphas appear along the diagonal.
* $p < .05$.

sales team's archived monthly sales totals, relative to an established sales target, also called *percentage of quota*, which were averaged to reflect performance across the quarter.

Percentage of quota is a strong measure of sales performance because it controls potential contaminating factors such as territory size (Churchill, 1979). Quotas were established by an external consulting company and on the basis of a combination of factors including territory size, team size, past performance, and so on, which inherently control for a number of extraneous factors. Using the average month-to-month correlations, we calculated a reliability (i.e., stability) coefficient of .80 for the call activity data and .75 for the performance data. We then averaged the three monthly quota and call values to serve as our performance criteria, respectively.

Results

Aggregation of Measures and Reliability

Because the focus of our study is on the team-level outcomes of efficacy, we aggregated each team member's subjective ratings to form measures for each team. Because team efficacy and team monitoring reflect referent shift composition models (G. Chen, Mathieu, & Bliese, 2004), we measured these variables using items that referenced the team rather than the individual (e.g., G. Chen & Bliese, 2002). To determine whether aggregation was justified, we assessed within-team agreement, $r_{wg(j)}$, and interrater reliability, ICC(2) (G. Chen & Bliese, 2002). Team efficacy was indexed as the average rating of efficacy across the members of each team and exhibited a high degree of consistency, $r_{wg(j)} = .80$, and reliability, ICC(2) = .80 ($F = 4.95$, $p = .000$). Team goal monitoring was indexed using the same approach and also exhibited high consistency, $r_{wg(j)} = .89$, and reliability, ICC(2) = .76 ($F = 4.21$, $p = .000$). Although several teams had $r_{wg(j)}$ values below the recommended .70 threshold, we followed G. Chen et al. (2004) and retained all available cases for analysis. Hypothesis testing with and without those teams yielded equivalent results. Control variables, with the exception of team size, also were indexed using the average value derived from each team, on the basis of the aggregated responses of all team members. We adopted a summary index model to aggregate these variables (G. Chen et al., 2004), which aligns with similar research (G. Chen & Bliese, 2002; Weinstein & Mullins, 2012).

Hypothesis Testing

We performed a series of hierarchical regression analyses for the team performance criteria. Because the linear relationships between the focal constructs are more broadly accepted than our hypothesized curvilinear relationships, we adopted a hierarchical regression approach. This approach facilitates assessment of the incremental impact associated with the addition of the curvilinear relationships we propose to each model, following the linear terms (Singh, 1998). In addition, we mean centered all of the independent variables in the regression models to ease interpretation of the interactions (Preacher, Curran, & Bauer, 2006) and avoid issues associated with multicollinearity (Aiken & West, 1991).

We began our hierarchical regression analyses for each outcome with a main-effects-only model that included all controls and linear effects (Model 1). The second model included the linear interaction between team efficacy and monitoring (Model 2). To assess the curvilinear relationship between team efficacy and team performance, we then added a quadratic team efficacy term (Model 3). The final model included the interaction between monitoring and the quadratic team efficacy term (Model 4). As each successive model includes all variables from earlier models, we are able to draw more robust inferences substantiating the curvilinear relationships in the final model (Ganzach, 1997). In addition, we added the performance behavior (i.e., team effort) outcome as a control in the performance outcome (i.e., objective team sales) model to best align our results with the likely causal sequence of outcomes (Rapp, Ahearne, Mathieu, & Schillewaert, 2006).

Team performance. Table 2 presents the results from the analysis pertaining to team performance behavior. In Model 1, we found a positive linear association between team efficacy and performance behavior ($\beta = .27$, $p = .001$). The addition of the linear interaction in Model 2 was not significant and provided no incremental increase in model fit. Results from Model 3 confirm a significant negative association between quadratic team efficacy and team performance behavior ($\beta = -.21$, $p = .020$, $\Delta R^2 = .03$), supporting Hypothesis 1a, which predicts an inverted U-shaped relationship between team efficacy and team performance behavior. Model 4 revealed a nonsignificant relationship for the interaction between quadratic team efficacy and team monitoring ($\beta = -.01$, $p = .936$), providing no support for Hypothesis 2a.

Table 3 displays the results for the team performance outcome model. In Model 1, team efficacy exhibited a positive linear association with team performance outcome ($\beta = .29$, $p = .001$). The addition of the linear interaction in Model 2 was not significant ($\beta = -.15$, $p = .169$). The results from Model 3 revealed a significant negative association between quadratic team efficacy and the team performance outcome ($\beta = -.35$, $p = .002$, $\Delta R^2 = .05$), providing support for Hypothesis 1b. Model 4 shows a significant positive interaction between quadratic team efficacy and monitoring ($\beta = .37$, $p = .012$, $\Delta R^2 = .03$), providing support for Hypothesis 2b, which predicts that the curvilinear team efficacy–performance relationship is moderated by team goal monitoring.

To help illustrate the character of the significant relationships in our model, we followed procedures outlined by Dawson and Richter (2006). As Figures 1 and 2 depict, for team performance behavior and team performance outcome, respectively, there is an initial positive slope in the relationship with team efficacy that reaches a point of inflection, after which further increases in performance are no longer apparent. Figure 3 illustrates the moderating impact of team goal monitoring on the curvilinear relationship between team efficacy and the team performance outcome. In teams exhibiting a high level of monitoring, team efficacy is strongly positively associated with the team performance outcome. This suggests that the more efficacious the team, the better the team's performance outcomes are likely to be. In contrast, in teams engaged in a low level of monitoring, the highest levels of the team performance outcome are evident at intermediate (rather than high or low) levels of team efficacy.

Finally, to provide more illustrative evidence regarding the mechanics underlying the relationships depicted in Figures 1 and 2, we calculated the first derivative of the regression (e.g., Mahajan & Muller, 1986) and equated it to zero to determine where

Table 2
Summary of Regression Analyses Results for Team Performance Behavior

	Team performance behavior											
	Model 1			Model 2			Model 3			Model 4		
Variable	*B*	β	*SE*	*B*	β	*SE*	*B*	β	*SE*	*B*	β	*SE*
Constant	153.96**		2.62	155.13**		2.75	160.35**		3.50	160.39**		3.54
Controls												
Team size	−0.86	−.02	2.76	−1.13	−.03	2.76	−1.93	−.05	2.73	−1.92	−.05	2.75
Sales experience	−1.66	−.20	1.02	−1.75	−.21	1.02	−1.97	−.23	1.01	−1.96*	−.23	1.01
Company tenure	−1.57	−.16	1.22	−1.58	−.16	1.22	−1.60	−.16	1.20	−1.59	−.16	1.20
Territory experience	1.74	.12	1.21	1.80	.12	1.21	1.69	.12	1.19	1.69	.12	1.20
Independent variables												
Team efficacy	11.61**	.27	3.43	10.86**	.25	3.46	6.24	.14	3.94	6.30	.14	4.02
Team goal monitoring	6.93	.09	6.34	7.79	.10	6.36	8.00	.10	6.26	8.43	.11	8.24
Team Efficacy × Team Goal Monitoring				−10.11	−.10	7.38	−5.40	−.06	7.54	−5.83	−.06	9.25
Team efficacy quadratic							−8.36*	−.211	3.56	−8.38*	−.21	3.58
Team Efficacy Quadratic × Team Goal Monitoring										−0.60	−.01	7.40
df	146			145			144			143		
F	6.79**			6.12**			6.22**			5.49**		
R^2	.22			.23			.26			.26		
ΔR^2				.01			.03*			.00		

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

the point of inflection emerged between team efficacy and the team performance criteria. We find that team behavior outcomes reach an inflection point at team efficacy ratings of 6.14, whereas team performance outcomes reach an inflection point at team efficacy ratings of 5.76. These values fall less than half a standard deviation above the team efficacy mean, indicating that the separation between healthy efficacy and too much efficacy may be thin.

The results from our analysis reflect this, revealing that of 153 teams, 85 fall beyond the point of the team performance inflection. This would initially suggest 56% of the teams might have been overly confident. In addition, it is important to note there is a small window in which team performance outcome begins to decrease while team performance behavior continues to increase, indicative of decreasing returns on the team's efforts. However, to refine

Table 3
Summary of Regression Analyses Results for Team Performance Outcome

	Team performance outcome											
	Model 1			Model 2			Model 3			Model 4		
Variable	*B*	β	*SE*	*B*	β	*SE*	*B*	β	*SE*	*B*	β	*SE*
Constant	1.214**		0.016	1.225		0.017	1.264**		0.021	1.248**		0.021
Controls												
Team size	0.037*	.172	0.016	0.031	.143	0.017	0.020	.093	0.017	0.015	.071	0.016
Sales experience	0.005	.100	0.006	0.004	.075	0.006	0.001	.027	0.006	0.001	.018	0.006
Company tenure	0.003	.042	0.008	0.003	.051	0.008	0.003	.057	0.007	0.004	.072	0.007
Territory experience	−0.008	−.084	0.008	−0.007	−.084	0.007	−0.009	−.097	0.007	−0.010	−.109	0.007
Performance behavior	−0.001	−.029	0.001	−0.001	−.048	0.001	−0.001	−.092	0.001	−0.001	−.077	0.001
Independent variables												
Team efficacy	0.071**	.288	0.021	0.062**	.250	0.022	0.025	.102	0.024	0.020	.079	0.024
Team goal monitoring	0.092*	.194	0.039	0.094*	.199	0.039	0.090*	.189	0.038	0.017	.035	0.047
Team Efficacy × Team Goal Monitoring				−0.073	−.148	0.040	−0.010	−.021	0.043	0.078	.158	0.055
Team efficacy quadratic							−0.063**	−.345	0.020	−0.046*	−.250	0.021
Team Efficacy Quadratic × Team Goal Monitoring										0.087*	.368	0.034
df	145			144			143			142		
F	4.85**			4.73**			5.58**			5.87**		
R^2	.19			.21			.26			.29		
ΔR^2				.03			.05**			.03*		

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

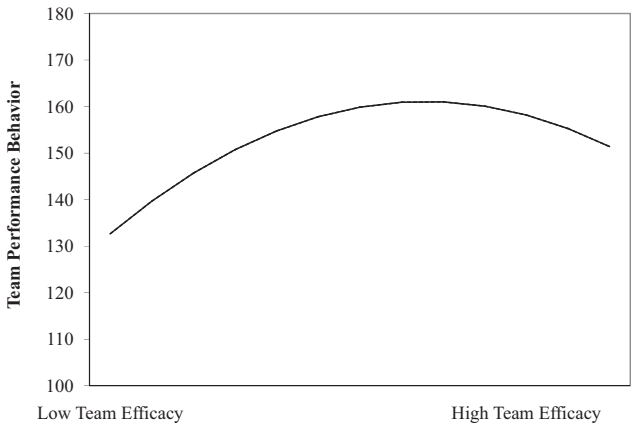

Figure 1. Curvilinear relationship between team efficacy and team performance behavior (i.e., team effort or sales call activity), indicating that there is an initial positive slope in the relationship that reaches a point of inflection after which no further increases are apparent.

these estimates, we examined the performance of teams engaged in both high and low levels of monitoring that exhibited too much efficacy, reflective to the moderated quadratic function we test. Of these teams, 37% engaged in a high level of goal monitoring, providing for an increase in the team performance outcome criterion, whereas the other 63% of highly efficacious teams were engaged in a low level of goal monitoring, leading to a decrease in the team performance outcome. Thus, just over 35% of the sample (i.e., 56% of teams beyond the point of inflection × 63% of these teams engaged in low monitoring = 35.2% of total sample) may have been too confident in their own abilities relative to their focus on team goal monitoring.

Discussion

In this lagged, multisource, team-level field study, our focus was on deepening insight into the nature of the relationship between

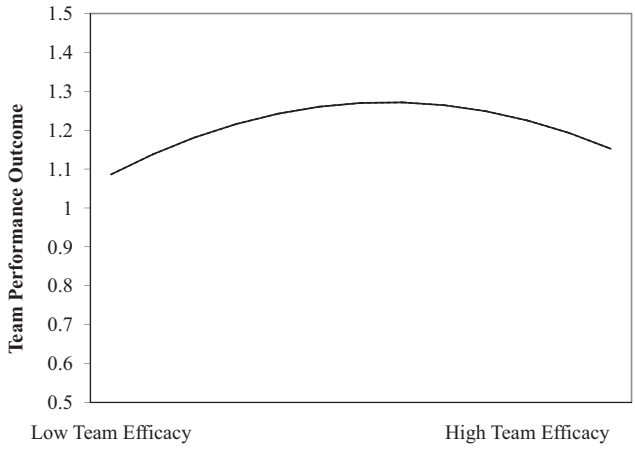

Figure 2. Curvilinear relationship between team efficacy and team performance outcome (i.e., objective team sales), indicating that there is an initial positive slope in the relationship that reaches a point of inflection after which no further increases are apparent.

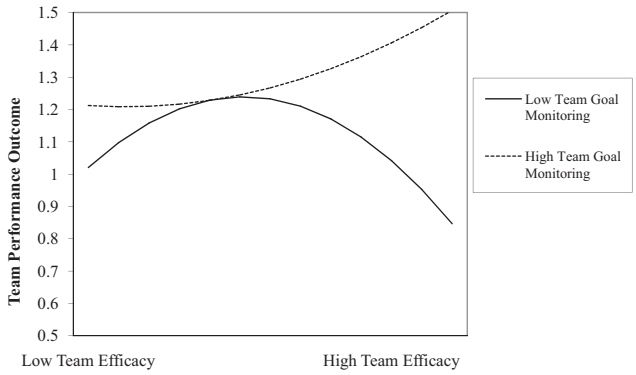

Figure 3. Curvilinear relationship between team efficacy and team performance outcome under high and low team goal monitoring.

team efficacy and team performance. A great deal of evidence reported in the literature suggests that team efficacy can have positive team performance consequences. However, emerging empirical evidence reveals that team efficacy can have negative consequences as well, prompting researchers to speculate that at high levels, team efficacy may function as a double-edged sword (Goncalo et al., 2010). To establish a coherent conceptual framework incorporating these disparate empirical findings, we build from the *too-much-of-a-good-thing principle* (Pierce & Aguinis, 2013) to develop and test the position that the association between team efficacy and performance is nonmonotonic.

Further, in an effort to establish a boundary condition of this curvilinear association, building from team self-regulatory theory (Kozlowski et al., 1996), we test the moderating impact of team goal monitoring on this relationship. In support of our model, we find that a significant proportion of teams' performance variance is captured by a squared team efficacy term. These results provide support for Hypotheses 1a and 1b and suggest that the relationship between team efficacy and team performance may be characterized as nonlinear. Teams exhibited the highest levels of performance at intermediate levels of team efficacy.

A key take-away for teams, therefore, is that it should not be unequivocally assumed that high levels of team efficacy will result in high levels of team performance. Rather, researchers and practitioners alike should account for the complex nature of the team efficacy–performance relationship and be cognizant of unintended consequences potentially accompanying high levels of team efficacy. Further, consistent with our self-regulatory framework, we also find that the character of this curved association depends significantly on the extent that teams engage in goal-monitoring behaviors. In support of Hypothesis 2b, our analysis revealed that goal monitoring moderates the curvilinear association between team efficacy and the team performance outcome (i.e., objective team sales), such that the team performance outcome in teams engaged in higher levels of goal monitoring benefitted more from higher levels of team efficacy than did the sales of teams engaged in lower levels of goal monitoring. A second key take-away from our study for teams, therefore, is that the relationship between team efficacy and team performance hinges in part on the extent to which teams engage in team regulatory processes. Monitoring goal progress

appears to be a key mechanism through which efficacious teams can accelerate the positive performance consequences of team efficacy.

Implications for Theory and Future Research

Our results provide several implications for team efficacy research and theory, as well as directions for future research. First, and perhaps most important, although research supports the expectation that the more efficacy teams exhibit, the better they will perform, we find that these benefits may reach a point of diminishing returns—an inflection point—after which team performance declines. Conceptually, the approach we adopt to resolve an apparent paradox in the domain moves beyond the traditional team efficacy paradigm (M. Lewis, 2000).

We address the question in this way in an effort to reconcile increasing discrepancies in the empirical record regarding the consequences of team efficacy. Our approach is intended to reveal greater underlying complexity in the team efficacy–performance relationship (Pierce & Aguinis, 2013), which we argue can be simultaneously both functional and dysfunctional, depending on goal monitoring. Grant and Schwartz (2011) observed that the notion of the Aristotelian mean represents an opportunity for scholars to enrich theory and research, developing a deeper, more comprehensive, and balanced understanding of the potential effects of positive states, such as team efficacy. These authors emphasized that broad questions remain regarding the specific virtues that do and do not have costs that emerge at high levels, as well as how, why, and when detrimental effects of otherwise positive constructs emerge.

Our research builds on emerging theoretical and empirical evidence suggesting that high levels of team efficacy can have undesirable consequences for decision making, information processing, and coordination (Marks, 1999; Tasa & Whyte, 2005; Whyte, 1998) and reveals that these negative consequences extend to performance behaviors and outcomes as well. It will be important for future researchers to continue to build on these finding and examine whether the curvilinear effects we uncover extend to other team performance behaviors (e.g., team learning behaviors), organizational citizenship behavior (Bachrach, Powell, Collins, & Richey, 2006; Rapp, Bachrach, & Rapp 2013; Rubin, Dierdorff, & Bachrach, 2013) and outcomes (e.g., efficiency, quality, service quality).

Second, and consistent with extant theory (Lindsley et al., 1995), we propose that the declines in team performance we observe may have been due to complacency, overconfidence, or devotion of insufficient resources to team tasks (e.g., Lindsley et al., 1995). Because we do not evaluate these mediators empirically, it will be important for future researchers to explore the mechanisms underlying the underperformance of highly efficacious teams. In addition to exploring potential mediators, researchers also should consider other factors that potentially underlie reduced effort in collective settings (e.g., identifiability and dispensability of effort). Longitudinal research might also further explore the curvilinear efficacy–performance relationship by examining the role of factors such as goal difficulty (LePine, 2005). It is possible, for example, that higher performing teams are more efficacious and therefore receive more difficult goals, which become too difficult for them to attain. Further, it will be important for future researchers to examine the focal constructs within the context of the collective effort model framework (Karau & Williams, 1993). Exploration of the efficacy–effort–performance relationship at the individual team member level will help to establish whether the team functions as an embedding system or context that provides a pattern of social stimuli that affects the behavior, attitudes, and cognitions of members within that context (Hackman, 1992).

Third, using a team self-regulation lens (Kozlowski et al., 1996), we explore team goal monitoring (Marks et al., 2001) as a boundary condition of the focal relationships in our model. It will be important for future research to explore boundary conditions shaping the nature of the team efficacy–performance relationship. Given the substantive role played by monitoring behaviors to facilitate team self-regulation (Kozlowski et al., 1996), we posit that contextual factors (Johns, 2006) such as performance appraisal system characteristics (Cleveland, Murphy, & Williams, 1989) and team reward structures (Johnson et al., 2006) also may influence the point at which the benefits of functional team efficacy diminish. It will also be interesting to consider the role of team states such as trust in future extensions of our model. Although the current pattern of results suggests that teams engaged in higher levels of goal monitoring benefited more (in terms of performance outcomes) from higher levels of team efficacy, evidence suggests that teams high in trust are reluctant to engage in monitoring behaviors (e.g., Langfred, 2004).

Implications for Practice

The results we report have several clear managerial implications, the first being a recognition that team efficacy may be a double-edged sword (Goncalo et al., 2010) requiring careful handling. By developing an understanding of the circumstances, boundary conditions, and contextual effects underlying the negative consequences of otherwise beneficial states such as team efficacy, researchers can inform practice and help team leaders and managers understand how to mitigate these negative performance consequences (Grant & Schwartz, 2011). Although it is intuitively appealing to support interventions aimed at increasing team efficacy, in isolation, allocating resources toward this end may diminish both team performance behaviors and outcomes. Rather, our research suggests that team leaders are better advised to strive for a balanced state of team efficacy and to apply a disciplined focus on progress toward achieving goals in conjunction with interventions to increase efficacy.

For example, to avoid performance losses, interventions intended to foster team efficacy should be instituted in conjunction with goal-monitoring practices. Of the 85 highly efficacious teams in our study, less than 40% engaged in sufficient monitoring to generate positive team efficacy returns. Efficacious teams may need intervention to leverage efficacy's benefits. Team leaders should consider exploring the various strategies available to leverage the potential benefits of team efficacy while avoiding its negative consequences. They may develop strategies for using dispersion to a team's advantage. For example, DeRue et al. (2010) proposed creating "a devil's advocate role or . . . identifying the team member most likely to genuinely have a different perception of team efficacy and encouraging this person to express his or her opinions and beliefs to the team" (p. 34).

Limitations

As in all empirical research, there are inherent limitations associated with our design. First, although team efficacy and team goal monitoring were collected several months prior to collection of the outcome variables, teams likely were aware of their prior efforts and performance, which may have affected teams' efficacy ratings (Bachrach, Bendoly, & Podsakoff, 2001; Shea & Guzzo, 1987; Staw, 1975). Although our results support the causal inferences we draw, the current design limits our ability to establish causal priority. Second, we are unable to draw definitive conclusions about changes in team efficacy over time or the nature of the relationship between changes in team efficacy and changes in team effectiveness. Our results provide only a snapshot of how these variables interrelate. It will be important for future research to adopt designs that incorporate the collection of team efficacy data at multiple points in time to explore the dynamic (e.g., reciprocal) nature of these relationships. This issue is particularly relevant when viewed in light of work by Vancouver and colleagues (e.g., Vancouver, Thompson, Tischner, & Putka, 2002) revealing that the causal relation of self-efficacy and performance can be negative, with emergent complacent self-assurance undermining motivation, adversely affecting performance across time. Although similar phenomena may be present at the team level of analysis, only through longitudinal research can the causal relation of team efficacy and performance be established definitively.

Third, using data from sales teams potentially introduces questions as to how well the current results generalize to other types of teams. For example, factors such as team type, team interdependence, task complexity, and the nature of task and performance criteria can alter the pattern of relationships observed in the current study. However, our use of a sales team sample also has advantages as well. For example, this setting provides an evaluation of our model in a field setting, whereas previous research suggestive of a potential dark side of team efficacy has been conducted in laboratory settings, with student samples performing simulations. Therefore, the fact that we uncover evidence of a nonlinear team efficacy–performance relationship among sales teams lends a degree of confidence that our results will generalize to other types of teams, performing real organizational tasks. It will be important for future researchers to explore relationships between team efficacy and performance criteria across a range of operational contexts to further broaden the generalizability of the model we develop.

Conclusion

Although considerable research effort has been devoted to the topic of team efficacy and its positive consequences (e.g., Gibson, 1999; Little & Madigan, 1997; Prussia & Kinicki, 1996), a growing number of studies have identified potentially negative outcomes of team efficacy (e.g., Gist, 1987; Knight et al., 2001; Lindsley et al., 1995). With the goal of developing a framework to encompass this emergent paradox (Grant & Schwartz, 2011), we challenge conventional assumptions of linearity and test for the presence of nonmonotonicity in this relationship. We find that the relationship between team efficacy and team performance may be best characterized as curvilinear and subject to teams' goal monitoring behaviors.

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Appendix

Team Goal Monitoring and Team Efficacy Scale Items

Team Goal Monitoring

My sales team measures our progress toward goals.

My sales team regularly monitors how well we are meeting our goals.

My sales team discusses what needs to be done to reach our goals.

My sales team regularly seeks out feedback about our performance.

My sales team knows whether we are on track for reaching our goals.

Team Efficacy (Adapted From Jex & Bliese, 1999)

My sales team has confidence in its abilities to perform at high levels.

My sales team is better trained than most other sales teams.

The level of training in my sales team is high.

My sales team would do a better job than most sales teams in my company.

When we go on our next sales call, my sales team feels confident going with our team members.

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