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The Influence of Early Efficacy Beliefs on Teams' Reactions to Failing to Reach Performance Goals

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Although a considerable amount of theoretical and empirical attention has been devoted to understanding individuals' responses to goal–performance discrepancies (GPDs), little attention has been devoted to examining how teams respond to GPDs. The present research sought to examine how teams responded to negative GPDs. We predicted that failing to reach higher goals would be perceived as less negative than failing to reach lower goals, and we examined the moderating influence of setting higher versus lower goals on how teams responded to performance that fell short of those goals. We also examined the role that efficacy beliefs that were formed early in those teams played in further explaining these effects. Results from 94 teams who all failed to reach self-set goals revealed that teams that failed to reach higher goals downwardly revised their goals less than teams that failed to reach lower goals. Early efficacy beliefs further explained these effects. High efficacy beliefs lessened the negative effects of failing to reach lower goals on subsequent goals. High efficacy beliefs also lessened the negative effects of failing to reach higher goals while low efficacy beliefs strengthened the negative effects of failing to reach higher goals. The implications of these findings for theory, research, and practice are discussed.

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INTRODUCTION

Of the many trends in contemporary business, perhaps no other has been as well documented as the increased use of teams in organisations (e.g. Cohen & Bailey, 1997; Ilgen, 1999; Kozlowski & Bell, 2003). One reason why organisations have increasingly relied on teams to reach specific performance outcomes is the belief that teams can be more creative, responsive, productive, efficient, and effective than individuals working alone. Although few managers question the potential benefits of work teams, the fact remains that teams often fail (Smolek, Hoffman, & Moran, 1999; Sundstrom, 1999). Interestingly, the specific issue of *team performance failure and how teams manage failure* has not been the subject of much empirical research (Naquin & Tynan, 2003, is a noteworthy exception).

A number of theoretical models such as control theory (Campion & Lord, 1982), feedback intervention theory (Kluger & DeNisi, 1996), goal-setting theory (Locke & Latham, 1990), and social cognitive theory (Bandura, 1986) offer insights that might be particularly useful in understanding how teams manage performance failures. Each suggests that goals serve as a frame of reference in which to interpret task performance and that the discrepancy between goals and performance has some effect on subsequent goals, subsequent task performance, or both. One goal of the current study was to examine the intersection of goals and performance in teams when their performance falls short of the goals they set. In doing so, we seek to add to both the goal–performance discrepancies (GPDs) and teams literatures.

We examine the effects of GPDs on two important team outcomes: subsequent team goals and subsequent team performance. Given our specific interest in teams' responses to failure, we focus specifically on negative GPDs. Whereas positive GPDs indicate that a team has exceeded its goal, negative GPDs indicate that a team has failed to reach its goal. Our explicit focus on negative GPDs is warranted because although both types of GPDs can exist in work contexts, it is likely that the effects of negative GPDs[1] are different from those of positive GPDs (Donovan & Williams, 2003). For example, positive GPDs indicate that there is little or no room for improvement or they might be interpreted as such (Bandura, 1986).

A considerable amount of past research (e.g. Donovan & Williams, 2003; Williams, Donovan, & Dodge, 2000) has examined GPDs by quantifying the discrepancy as the numeric difference between goals and performance (i.e.

[1] Following the extant literature on goal performance discrepancies (Donovan & Williams, 2003; Williams, Donovan, & Dodge, 2000; Tolli & Schmidt, 2008) and given our specific focus on negative GPDs only, we refer to negative GPDs as simply GPDs for the remainder of the article.

difference scores). For example, Donovan and Williams (2003) explored the difference between goals and performance on goal revision among varsity athletes with a specific interest in the effect of the size of the difference on future goals. Research such as this has greatly increased scholars' understanding of how goals and performance work in tandem suggesting, for example, that the size of the discrepancy (i.e. whether or not the difference is large or small) is an important predictor of responses to the discrepancy. Small GPDs, which indicate that there is not a significant mismatch between performance and the standard, have been found to be associated with increases in subsequent goals or low levels of downward goal revision (e.g. Campion & Lord, 1982; Donovan & Williams, 2003). On the contrary, large GPDs, which indicate that there is a significant mismatch between performance and the standard, are clear and unambiguous indicators of failure and have been found to be associated with high levels of downward goal revision. However, such work is not without its critics and some limitations. In particular, difference scores have been criticised because of their conceptual ambiguity, tendency to discard relevant information, insensitivity to the sources of the differences (in the case of GPDs whether the difference is driven primarily by goals, performance, or both), and overly restrictive constraints (see Edwards, 1993, for a comprehensive discussion of the concerns with difference scores). Similar to recent others who have used alternative theoretical and/or statistical approaches to avoid the use of difference scores (e.g. Tolli & Schmidt, 2008), we also avoided the use of difference scores in this study. Rather than utilise difference scores, which theoretically would imply that goals are the standard by which performance is compared, we explored to what extent the strength of prior performance on subsequent goals and subsequent performance is modified by, or varies across, prior goal levels (Edwards & Cooper, 1990). That is, we develop predictions regarding how prior goals moderate the effects of prior performance.

In addition to examining the interactive effects of prior performance and prior goals, we also examined the role that early collective efficacy beliefs play in further explaining how teams respond to the joint effects of prior performance and prior goals. In this way, the current study complements recent work that is just beginning to directly explore the role of self-efficacy in explaining reactions to GPDs at the individual level (e.g. Donovan & Hafsteinsson, 2006; Tolli & Schmidt, 2008). Collective efficacy beliefs are a team's collective perception that it can perform successfully (Lindsley, Brass, & Thomas, 1995). These beliefs help explain what individuals choose to do as a team, how much effort they put forth, and their staying power when collective efforts are unsuccessful (Bandura, 1997; Stajkovic, Lee, & Nyberg, 2009). An extension of the literature on self-efficacy suggests that collective efficacy beliefs should play an important role in explaining how teams respond to failure both in terms of their subsequent goals and their

subsequent performance, but to our knowledge no published empirical research has directly examined these effects.

Finally, Gully, Incalcaterra, Joshi, and Beaubien (2002) noted that most previous research on collective efficacy has assumed its causal effects or failed to specify the direction of its relationship with team processes and outcomes. As such, there remains a need to explore how early motivational beliefs and attitudes in teams influence reactions to performance that falls short of team goals. In this study, we examined the effects of early efficacy beliefs (i.e. those developed before there were significant opportunities to work on the team task, but after the team had been together long enough to draw meaningful conclusions about their task ability).

Prior Performance, Prior Goals, and their Interactive Effects

There is little question as to whether prior performance relates to future performance in teams. Riggs and Knight (1994) suggested that this notion underlies the cliché "success breeds success" (see also Lindsley et al., 1995). Prior performance provides salient information for group members and has long been thought to have an impact on team members' perceptions and behaviors (e.g. Barr & Conlon, 1994; Nadler, 1979). Matsui, Kakuyama, and Onglatco (1987), for instance, found a strong correlation (i.e. $r = .87$) between pre- and post-feedback performance in teams. We therefore predict that prior performance will be positively associated with subsequent team goals and performance. However, in the current study, all of the teams failed to reach their goals. We therefore predict that in response to the failure experience, the worse our teams perform, the more they will reduce their subsequent goals. We predict a similar pattern of effects for subsequent team performance for several reasons. First, team goals are often correlated with team performance (O'Leary-Kelly, Martocchio, & Frink, 1994). Second, because team goals affect effort and persistence (Weldon, Jehn, & Pradham, 1991), lower subsequent goals are likely to be associated with lower subsequent performance. This does not suggest that our teams will lower their goals *and* lower their performance. Rather, it suggests that our teams will generally lower their goals in response to their failure and although they might experience performance improvements relative to their initial performance, their subsequent performance is likely to be highly correlated with the subsequent goals they set. Moreover, teams that set lower goals should experience less performance improvement than teams that set higher goals. Therefore, we expect that to the extent to which teams revise their goals downward when they fail, their subsequent performance improvements will suffer. Although our first hypothesis is relatively straightforward, it provides a necessary first step in developing the remainder of our hypotheses.

Hypothesis 1: Prior performance will be related to (a) subsequent goals and (b) subsequent performance such that lower time 1 performance will be associated with lower time 2 goals and time 2 performance.

Previous research suggests that prior goals (i.e. goal level) can help better explain the effects of prior performance (Locke & Latham, 1990, 2002). Among their many purposes, goals serve as a frame of reference in which to interpret task performance. A number of theoretical models suggest that individuals compare their performance to a standard (i.e. goal). These models also suggest that because individuals are sensitive to, and bothered by, discrepancies between their performance and goals, performance that falls short of goals leads to dissatisfaction (e.g. Austin & Vancouver, 1996; Kluger & DeNisi, 1996). Previous research suggests that individuals respond to such discrepancies by engaging in behavior designed to reduce the discrepancy (e.g. Donovan & Williams, 2003; Williams et al., 2000).

In terms of how *individuals* respond to GPDs, previous research suggests that respones largely depend on the size (or magnitude) of the GPD (Donovan & Williams, 2003; Phillips, Hollenbeck, & Ilgen, 1996; Williams et al., 2000). Previous research has demonstrated that larger GPDs are associated with greater amounts of downward goal revision in an attempt to make the goals easier to reach (Donovan & Williams, 2003). In fact, Campion and Lord (1982) suggested that the more severe the failure, the more subsequent goals will be reduced. In terms of subsequent performance, one might expect that individuals would respond to large GPDs by increasing their performance because large GPDs indicate room for improvement. However, large GPDs often have de-motivating effects because of the extent to which they suggest that performance is far from one's goals. Donovan and Williams (2003) suggested that large GPDs can lead individuals to conclude that there is little point in expending the effort necessary to reach the goals, especially when they believe that the reason for the discrepancy is not under their control. Ilies and Judge (2005) found evidence supporting their prediction that the magnitude of downward goal revision was proportional to the magnitude of the negative feedback. All of this suggests that, in general, when individuals fail, a likely response is some reduction of goals and some performance improvements, but as the magnitude of the discrepancy increases, the more goals will be reduced, which in turn may be associated with increasingly smaller performance improvements.

Closely related is work that has directly explored the interactive effects of goals and performance, in which researchers have shown that goals serve as a frame of reference for individuals when interpreting and making choices about how to react to their performance. This research has shown that information about past performance is most influential in the presence of goals and vice versa (e.g. Bandura & Cervone, 1983; Ilgen, Fisher, & Taylor,

1979; Locke & Latham, 1990; O'Leary-Kelly et al., 1994; Taylor, Fisher, & Ilgen, 1984; Zander, 1971). Locke and Latham (2002) explained this interaction by stating that for goals to be effective, people need information about their performance to understand how they are doing relative to those goals.

In this study, we examine to what extent taking into account prior goals can help explain the effects of prior performance in teams on their reactions to failure. Because so little attention has been devoted to examining these effects at the team level, we relied on previous theory and research on the joint effects of goals and performance at the individual level. As such, we assumed a high degree of functional equivalence across levels of analysis, although we expected that these influences would be manifested via different processes (see Chen & Kanfer, 2006; Morgeson & Hofmann, 1999).

We predict that the negative effects of failing might be better explained by also taking into account whether teams failed to reach relatively higher or lower goals. Failing to reach lower goals should be considered more negative than failing to reach higher goals because lower goals are more conservative than higher goals. Lower goals should be more easily obtained than higher goals. Failing to reach lower, more conservative goals therefore speaks more negatively about a team's performance. Prior research suggests that failing to reach lower goals is likely to evoke a more negative reaction than failing to reach higher goals. DeShon and Alexander (1996), for instance, found that responses to feedback that was considered too negative led to less persistence and fewer searches for better task strategies. Similarly, research demonstrating that the effects of larger GPDs are more negative than those for smaller GPDs (e.g. Campion & Lord, 1982; Donovan & Williams, 2003; Williams et al., 2000) also supports our prediction. Like large GPDs, an inability to reach lower goals suggests a greater degree of failure than does an inability to reach higher goals, which like small GPDs, may suggest that there is little room for improvement. It follows that we predict that among teams that fail, the teams that would respond the most negatively (i.e. have the most downward goal revision and the worse subsequent performance) would be those that previously set the lowest goals (i.e. those who failed to a greater extent).

Hypothesis 2: The effects of prior performance on (a) subsequent goals and (b) subsequent performance will be further explained by prior goals such that the effects of time 1 performance will be stronger for teams that set lower goals than for teams that set higher goals.

Early Collective Efficacy Beliefs as a Moderator of the Prior Performance × Prior Goal Interaction

Collective efficacy beliefs are a team's collective expectations for success on a task (Bandura, 1986). They are positively related to both expected and actual performance in teams (Gully et al., 2002; Stajkovic et al., 2009). Explana-

tions for these effects include the influence of collective efficacy beliefs on what individuals choose to do as a team, how much effort they put forth, and their staying power when collective efforts are unsuccessful (Bandura, 1997; Stajkovic et al., 2009). Although efficacy beliefs can form over time as members develop confidence in their collective ability to effectively accomplish team goals based on their past experiences (Lindsley et al., 1995), they may also be the result of general feelings, or affect, among the members of the team (Gibson, 2003). Levine and Moreland (1990) suggested that behaviors, attitudes, and cognitions that develop during early team formation may have important influences on what groups and teams later become. This suggests both the need for explicit focus on motivational factors that are developed at various stages of teams' life cycles and the need to employ research designs that allow researchers to draw conclusions regarding the causal effects of such motivational factors.

Although we are unaware of any published empirical research that has explicitly examined the effects of early collective efficacy beliefs on teams' responses to failure, some recent work has examined the effects of self-efficacy beliefs on goal revision among individuals. Tolli and Schmidt (2008) argued that self-efficacy beliefs are positively related to the tendency to pursue more stringent performance goals. They also suggested that individuals with low self-efficacy beliefs are likely to choose goals that will help them avoid potential hits at their already fragile self-perceptions (see also Bandura, 1997). Citing Bandura (1986), Donovan and Hafsteinsson (2006) noted that self-efficacy may exert its strongest influence on self-regulation through its impact on goal revision decisions. Extending this work to the team level, we expect that early efficacy beliefs may further explain teams' reactions to different types of failures.

Turning first to when teams fail to reach higher goals, we predicted that, in general, failing to reach higher goals would have a less negative effect on teams than failing to reach lower goals. Although both high and low efficacy teams can set higher goals, only high efficacy teams should truly have high performance expectations (Gully et al., 2002). High efficacy teams are also more likely than low efficacy teams to believe that there is a strong link between their effort and their performance (Bandura, 1997; Stajkovic et al., 2009). Taken together, high efficacy teams who set higher performance goals should believe that they can actually reach those goals and that they can reach those goals via increased effort. This should not be the case with low efficacy teams. Although they lack confidence in their capabilities, low efficacy teams who set higher performance goals set those goals because they are hopeful and at least willing to exert effort towards their task. Despite their perceptions about their ability, they aspire to perform at high levels, as evidenced by their goals because goals are representations of desires, or statements about performance aspirations (Silver & Bufanio, 1996; Zander,

1971). High aspirations coupled with low collective efficacy beliefs can set these teams up for disappointment. Whereas high efficacy teams are likely to interpret failing to reach higher goals as a challenge, low efficacy teams are likely to interpret it as discouraging. Moreover, given their resiliency, high efficacy teams are likely to respond to failing to reach higher goals by increasing their efforts, whereas low efficacy teams are likely to conclude that continued efforts to reach higher goals are fruitless. We therefore expect that low efficacy teams will be more likely to abandon those higher goals than high efficacy teams. It is worth noting that our expectations are consistent with research that suggests that low efficacy teams that fail to reach higher goals will find this experience particularly disheartening (Silver & Bufanio, 1996).

Although we predict that low efficacy beliefs will be disadvantageous (i.e. lead to more downward goal revision, and by extension, lower levels of subsequent performance) and high efficacy beliefs will be advantageous (i.e. lead to less downward goal revision and by extension, higher levels of subsequent performance) when teams fail to reach higher goals, we expect the opposite when teams fail to reach lower goals. Failing to reach lower goals should be a particularly negative experience for teams because regardless of a team's actual ability, lower goals are more easily obtainable than higher goals. Compared to high efficacy teams who set lower goals, low efficacy teams who set lower goals have little confidence in their ability, low expectations about their performance, and little desire to perform at high levels (Gully et al., 2002). At the individual level, Gist (1987) suggested that one of the pitfalls of having efficacy beliefs that are too high may be overconfidence, suggesting that low efficacy teams might be more likely than high efficacy teams to anticipate failures. As a result, low efficacy teams who have the foresight to set lower performance goals should be less disappointed with news that they failed to reach lower goals than high efficacy teams who should anticipate meeting those goals. Thus, we expect a more negative reaction from high efficacy teams who fail to reach lower goals than we do low efficacy teams who fail to reach lower goals.

We should also note that the pattern we are predicting is also consistent with cognitive dissonance theory (Festinger, 1957). Cognitive dissonance theory suggests that it is especially difficult for individuals to reconcile incompatible information (e.g. cognitions). Extending this to the team level, when a high efficacy team receives especially negative performance information, such as would be the case following failure to reach lower goals, it may create a state of dissonance because the team's efficacy beliefs are so different from its performance. This state of dissonance is likely to lead to discomfort and attempts to avoid information likely to increase the dissonance. We therefore would expect that the dissonance experienced by such teams could serve as a distraction that might divert attention that could be better utilised working

on the task itself. High efficacy teams experiencing such dissonance may be at an increased risk of simply rejecting such negative feedback, thus failing to learn from it, which may in turn hinder subsequent performance improvements (Nease, Mudgett, & Quinones, 1999). In contrast, for low efficacy teams who experience failures of this magnitude, there would no dissonance as the experience only confirms what members already thought about their team's ability. Failing to reach even low goals should not come as a surprise, nor should it be particularly disappointing.

> *Hypothesis 3*: The interactive effects of prior performance and prior goals (i.e. Hypotheses 2a and 2b) on (a) subsequent goals and (b) subsequent performance will be further explained by early efficacy beliefs. Specifically, among teams that fail to reach higher goals, high efficacy beliefs will lessen the effects of prior performance, while low efficacy beliefs will strengthen the effects of prior performance. However, among teams that fail to reach lower goals, high efficacy beliefs will strengthen the effects of prior performance, while low efficacy beliefs will lessen the effects of prior performance.

Again, we explicitly acknowledge that our predictions as they relate to subsequent goals and subsequent performance are identical. As previously noted, goals and performance are positively related (e.g. O'Leary-Kelly et al., 1994) and there is reason to expect that lower goals result in lower performance (Weldon et al., 1991). Nevertheless, it is important to treat and examine subsequent goals and subsequent performance as separate outcomes for several reasons. First, although positively related, the two are conceptually distinct and uniquely important (O'Leary-Kelly et al., 1994; Weldon & Weingart, 1993). Second, and perhaps more importantly, is that previous research on goal revision suggests that individuals often respond to GPDs by changing their performance and/or changing their goals (Donovan & Williams, 2003; Williams et al., 2000). There is reason to expect the same in team settings. For example, DeShon, Kozlowski, Schmidt, Milner, and Wiechmann (2004) argued that individuals can change their goals in addition to, or instead of, changing their actual behavior in response to feedback in teams. Third, some previous research on reactions to GPDs suggests that individuals are more likely to downwardly revise their goals when faced with a failure experience than change their performance, especially when downward goal revision is easier to accomplish (Donovan & Williams, 2003). In general, the larger the GPD and the greater the extent of the failure, the more time and effort will be perceived as needed to address the discrepancy and failure (Schmidt & DeShon, 2007). In team settings, where team performance is a function of interdependent individuals and is based on their collective performances (Sundstrom, DeMeuse, & Futrell, 1990), it might, in fact, be easier to downwardly revise goals than to improve performance. By distinguishing

between, and separately examining, these two outcomes in the current study, we are able to explore this possibility.

METHOD

Sample, Research Task, and Procedures

Participants were 384 male and female undergraduate students who were enrolled in a management course at a university located in the southern United States. Participation was voluntary; however, participants received extra course credit in addition to the opportunity to win a $100 cash prize based on their team's performance on the task. All participants worked on a modified version of the Distributed Dynamic Decision-making (DDD) Simulation developed for the Department of Defense for research and training purposes (see Hollenbeck, Moon, Ellis, West, Ilgen, Sheppard, Porter, & Wagner, 2002, for a complete description of the task). In this version of the simulation, team members, who are seated in a common room to facilitate verbal communication, work on networked computers to protect an on-screen geographic airspace by destroying enemy targets that enter restricted areas while at the same time they are to avoid destroying friendly targets. To protect the restricted areas, teams are given a total of 16 resources, or sub-platforms, that are distributed such that each team member has four resources of his or her own. In this particular study, the teams were structured functionally such that each team member (labeled Decision Maker, or DM) was responsible for one of four types of military sub-platform—tanks, helicopters, jets, and reconnaissance planes—all of which have varying capabilities to identify and destroy targets. Specifically, DM1 operated all of the team's reconnaissance planes, DM2 operated all of the team's tanks, DM3 operated all of the team's helicopters, and DM4 operated all of the team's jets. To defend the geographic airspace, team members had to discuss the location of the targets on the screen (no one team member could see all of the screen and all of the targets), make decisions regarding which tracks to shoot down or ignore, and coordinate their resources (different targets required different types of resources to destroy them). To the extent that the teams made accurate decisions regarding whether or not to eliminate potentially threatening targets and executed those decisions quickly, they received higher scores on the task. Given the functional structure of the teams, the demands presented by the targets, and the fact that the reward (i.e. cash prize) was based on the performance of the team as a whole, our task involved high levels of task and outcome interdependence.

Upon entering the laboratory, all participants were randomly assigned both to a four-person work team and to one of four computer stations. Our entire sample was composed of 96 teams. Participants first received

declarative and procedural training, which lasted for approximately 1 hr. Approximately 40 min. of the training was devoted to hands-on training. At the end of the training, teams were allowed to practice on the team task for 10 min. with limited direct assistance from the team's experimenter. Although very similar to the actual task the team would perform, the practice task presented the teams with fewer enemy targets given its shorter duration and the pattern in which the targets were presented was slightly less complex. At the onset of the practice, each team began the task with 50,000 defensive points. Consistent with the defensive nature of the task, teams were instructed to keep their defensive points as close to the 50,000-point mark as possible. Teams lost 1 point for each second that any enemy target was in a restricted zone and 2 points for each second that any enemy target was in a highly restricted zone. By allowing our teams to practice on their own for 10 min. after the training, we ensured that the performance score that they received at the end of practice would be relatively high compared to the score they would likely receive after working on the task for the full 30 min.

Immediately after the practice opportunity, team members received and completed the collective efficacy measure. Thus, responses to the collective efficacy measure were based on approximately 1 hr. and 10 min. of time together in which members interacted with each other and were able to observe each other's performances in addition to each other's interactions with the experimenter. During this time, members also had numerous opportunities to discuss the task and their individual and collective performances. After completing the collective efficacy measure, each team member received a goal form and teams were told that they would need to agree to a team goal for the first task (i.e. time 1 goal) and write it down on their goal forms. The experimenter then presented the team with the range of possible scores (from –8,400 to +50,000 points) before giving members several minutes to decide on their performance goal for the first task. It would have been virtually impossible for a team to obtain a defensive score as high as +50,000 points and highly unlikely for a team to obtain a score as low as –8,400 points; however, we purposely provided the actual range of scores based on the best and worst possible performances to allow for some natural variance in the goals that teams set for themselves. Moreover, by providing this range of possible scores when teams set the goals for the first of the two performance trials, it allowed us to provide teams with the same possible range of scores at time 2 and thus we could be consistent throughout the experiment. Additionally, the experimenter informed the teams that their performance on the 10 min. practice task could be used to deduce how they might perform on the upcoming 30 min. task.

Teams then worked on the first of the two 30 min. performance tasks. At the end of the first task, teams were provided with a score for their performance (i.e. time 1 performance). Teams were then instructed to spend several

minutes deciding on a team goal for the second task (i.e. time 2 goal). Again, team members were instructed to write down the team goal that was collectively agreed upon. The team then worked on the second task. Following the second task, teams received their score (i.e. time 2 performance). At the end of the experiment, all team members were debriefed and dismissed. The entire experiment lasted for approximately 3 hr.

Measures

Early Efficacy Beliefs. Collective efficacy beliefs were measured with a seven-item scale adapted from Riggs and Knight's (1994) collective efficacy measure (e.g. "The members of this team have excellent task skills" and "This team is not able to perform as well as it should"). Responses to the items for this measure were based on a 5-point Likert-scale and any reversed-coded items were reverse-scored. Previous research suggests that such measures are sufficiently similar to more traditional approaches to measuring efficacy beliefs and lead to similar results (Maurer & Pierce, 1998). The measure was based on a referent-shift composition model (Chan, 1998) that assumes that there is some true score for each team and that within-team variability represents rater error. Thus, we examined the appropriateness of aggregating this measure to the team level using procedures common among researchers interested in justifying aggregation decisions (i.e. $r_{wg(j)}$, which in this case was estimated based on a uniform distribution, ICC(1), and an *F*-test to determine whether or not there was more between- than within-team variance on our efficacy measure; see DeShon et al., 2004). We found sufficient justification for aggregating collective efficacy beliefs to the team level, mean $r_{wg(j)} = .89$ with scores ranging from .76 to .99, ICC(1) = .14, $F(93, 282) = 1.63$, $p < .01$.

Time 1 and Time 2 Goals. Team goals were measured by the agreed upon performance goal that team members decided on prior to each task (i.e. at time 1 and time 2). Each team member was asked what the decided upon team goal was for each performance episode. Although measured at the individual member level, each team had to agree on the team's goal; therefore there was no opportunity for within-team variance on time 1 goals or time 2 goals and it represented the performance goal of the team as a whole.[2]

[2] To ensure that our team goal measures were based on consensus rather than some subset of members who dominated the goal-setting discussion, we privately collected some additional information about members' perceptions of the team goals and members' ideal team goals. Specifically, we asked each team member, "Regardless of the goal that was agreed upon by your team, what do you think would have been the most appropriate team defensive goal?" There was a considerable agreement within teams about what was the most appropriate goal for the team

Time 1 and Time 2 Performance. Team performance was measured at time 1 and time 2 by the computer simulation and was based on the team's defensive performance consistent with the task mission. High defensive performance scores at the end of the 30 min. task were indicative of higher levels of performance. Given both the nature of the team's task and the functional nature of the team's structure, team performance represented not only the individual performances of team members, but also the extent to which they were able to successfully coordinate their individual efforts.

Analyses

Given our focus on team failure, we dropped two teams that met their time 1 goal. The fact that only two of the 96 teams in our sample met their goal at time 1 provided direct, objective evidence that the goals teams set at time 1 were challenging. As we noted earlier, we developed our hypotheses in such a way as to avoid evoking difference scores and our analytical approach avoided the use of difference scores as well. We tested all of our hypotheses with two sets of hierarchical moderated regressions—one for subsequent goals and one for subsequent performance. Specifically, we tested Hypotheses 1a and 1b by regressing subsequent goals and subsequent performance on prior performance. We then tested Hypotheses 2a and 2b by examining the two-way interaction between prior performance and prior goals on subsequent goals and subsequent performance. Finally, we tested Hypotheses 3a and 3b by examining the three-way interaction between prior performance, prior goals, and early efficacy beliefs. We plotted our interaction effects following the recommendations of Cohen, Cohen, West, and Aiken (2003) and using regression slopes for low (–1 *SD*) and high (+1 *SD*) levels of our predictors around their means. In the case of our three-way interactions, we also conducted tests of the simple slopes based on recommendations by Aiken and West (1991).

RESULTS

Table 1 presents the means, standard deviations, and zero-order correlations among our study's variables. To provide a more complete examination of our

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and more between-team variance than within-team variance at both time 1, ICC(1) = .56, $F(93, 275) = 6.14$, $p < .01$, and time 2, ICC(1) = .66, $F(93, 278) = 8.80$, $p < .01$. In addition, we compared each team member's response to this question for each goal (i.e. time 1 and time 2) to their individual response to the question regarding the decided upon team goal using a paired *t*-test. Team members' aggregate perceptions of what was the most appropriate goal were not different from their agreed upon team goal at time 1, $t(93) = -.12$, $p > .05$, or time 2, $t(93) = 1.35$, $p > .05$. Therefore, within teams, members collectively decided on their team's goal and the goal measure we used was indeed representative of the teams' rather than any subset of members' decision.

TABLE 1
Means, Standard Deviations, and Zero-Order Correlations ($N = 94$)

	M	SD	*1*	*2*	*3*	*4*	*5*	*6*
(1) Time 2 Performance	36072.03	4379.37						
(2) Time 2 Goals	31744.16	4185.72	.47**					
(3) Time 1 Performance	28090.26	3957.00	.67**	.72**				
(4) Time 1 Goals	39228.19	4740.48	.25*	.37**	.22*			
(5) Time 1 Goal–Performance Discrepancy	11137.92	5478.06	.27**	–.20†	.54**	.71**		
(6) Time 2 Goal–Performance Discrepancy	–4327.87	4411.42	–.58**	.48**	.02	.10	.07	
(7) Early Efficacy Beliefs	3.31	.32	.27**	.32**	.26*	.29**	.06	.03

* $p < .05$; ** $p < .01$; † $p < .10$.

data along with an opportunity to explore the relationships between the difference between goals and performance across our two time periods with our other variables of interest we also created two difference scores. The first represented the difference between time 1 goals and time 1 performance and therefore captured the GPD created at time 1 as a result of our encouraging our teams to set challenging goals in conjunction with our teams' time 1 performances. The second represented the difference between time 2 goals and time 2 performance and therefore captured the GPD created at time 2 as a result of the difference between the subsequent goals our teams set following their first performance episode and their efforts towards meeting those goals. These variables are directly comparable to those used in previous research on GPDs (e.g. Donovan & Hafsteinsson, 2006; Williams et al., 2000) and reveal a number of interesting and relevant findings, in particular the GPD variable created from the data collected at time 1.

For instance, and as can be seen in the table, although teams set goals that they were unable to reach at time 1, there was considerable variance in the magnitude of the discrepancies between time 1 goals and time 1 performance. In addition, following the initial failure to reach time 1 goals, teams generally responded by both lowering their goals and by improving their performance. As can also be seen in the table, on average, teams created a positive GPD (where performance > goals yet which is represented by a negative GPD value, indicating that time 2 performance generally exceeded time 2 goals); however, there was also considerable variance in the magnitude of this discrepancy. Perhaps more importantly, we were able to examine whether or not our teams simply set unrealistically high goals at time 1 that they then lowered at time 2 to make consistent with their time 1 performance. The goals that teams set at time 1 were generally well within the range of performance scores because, as can be seen in the table, the range of time 2 performance

TABLE 2
Results of Hierarchical Regression Analyses

	Subsequent goals (Time 2 goals)			*Subsequent performance (Time 2 performance)*		
Variables	*Model 1*	*Model 2*	*Model 3*	*Model 1*	*Model 2*	*Model 3*
Time 1 Goals	.20**	.18**	.19**	.09	.11	.13
Time 1 Performance	.65**	.63**	.64**	.63**	.64**	.67**
Early Efficacy Beliefs	.09	.18**	.24**	.08	.07	.14
Time 1 Goals × Time 1 Performance		−16*	−.18**		.03	.00
Early Efficacy Beliefs × Time 1 Goals		.27**	.22**		−.02	−.07
Early Efficacy Beliefs × Time 1 Performance		−.17*	−.22**		.16†	.09
Early Efficacy Beliefs × Time 1 Goals × Time 1 Performance			−.17†			−.21*
ΔR^2	.57	.07	.01	.46	.03	.02
R^2	.57	.64	.65	.46	.49	.51
ΔF	39.13**	5.45**	3.57†	25.91**	1.40	4.16*

$N = 94$. Standardised coefficients are presented.
* $p < .05$; ** $p < .01$; † $p < .10$.

scores overlaps with time 1 goals. Therefore, although the goals that were set at time 1 were higher than most teams were able to reach during the first performance opportunity, the goals were indeed realistic. Also, a supplemental paired *t*-test demonstrated that time 2 goals were different from time 1 performance, $t(93) = 11.50$, $p < .01$, and that despite their failure experience, teams continued to aim for relatively high goals. This later finding led us to conclude that these data were appropriate for testing our hypotheses.

Tests of Study Hypotheses

Table 2 presents the tests of our study hypotheses. The left half of the table presents our hierarchical moderated regression predicting subsequent goals, and the right half of the table presents our hierarchical moderated regression predicting subsequent performance. As can be seen in Model 1 on the left half of the table, we found effects for both time 1 goals and time 1 performance on subsequent goals, $\beta = .20$, $p < .01$ and $\beta = .65$, $p < .01$, respectively. The latter effect provides support for Hypothesis 1a. As can be seen in Model 1 on the right half of the table, only time 1 performance had an effect on subsequent team performance, $\beta = .63$, $p < .01$, but this nevertheless yielded support for Hypothesis 1b.

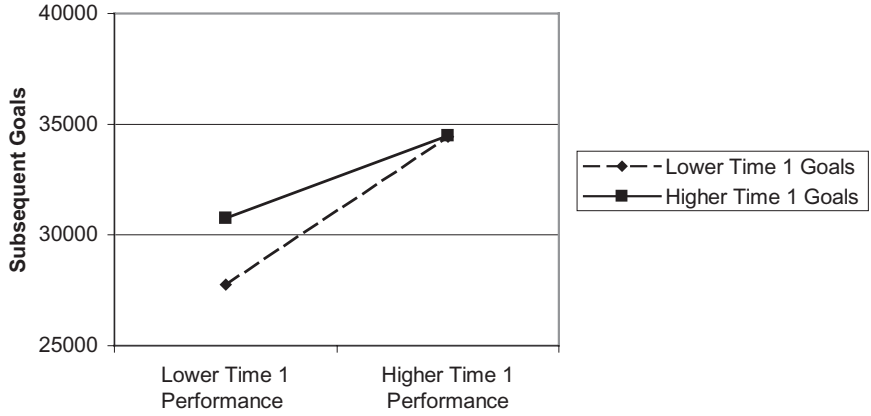

FIGURE 1. Two-way interaction between time 1 performance and time 1 goals.

As can be seen in Model 2 on the left half of the table, there was a two-way interaction between time 1 performance and time 1 goals on subsequent goals, $\beta = -.16$, $p < .05$. We plotted this interaction in Figure 1. The pattern of this effect was consistent with the one we predicted in Hypothesis 2a. Specifically, the teams that responded the most negatively to their failure (i.e. demonstrated the most downward goal revision) were those that set lower time 1 goals compared to those that set higher time 1 goals. As can be seen in Model 2 on the right half of the table, we did not find evidence of a two-way interaction between time 1 performance and time 1 goals on subsequent performance, $\beta = .03$, *ns*. Thus, we found no support for Hypothesis 2b.

As can be seen in Model 3 on the left half of the table, we found evidence of a three-way interaction between time 1 performance, time 1 goals, and early efficacy beliefs on subsequent goals, $\beta = -.17$, $p = .06$, although this effect fell just short of the $p < .05$ criterion for significance testing. We plotted the three-way interaction in Figure 2. Turning first to when teams failed to reach higher goals, we found a difference in the simple slopes between high and low efficacy teams, $t(90) = -1.83$, $p = .07$. Consistent with our predictions, and as can be seen at the top of Figure 2, the effects of failing to reach higher goals were less negative for high efficacy teams compared to low efficacy teams. Comparing these effects to those plotted in Figure 1, there was support for our prediction that high efficacy would mitigate, whereas low efficacy would exacerbate, the negative effects of failing to reach higher goals. Turning next to when teams failed to reach lower goals, we again found a difference in the simple slopes for our high and low efficacy teams, $t(90) = -2.60$, $p < .01$. However, the nature of this interaction was inconsistent with

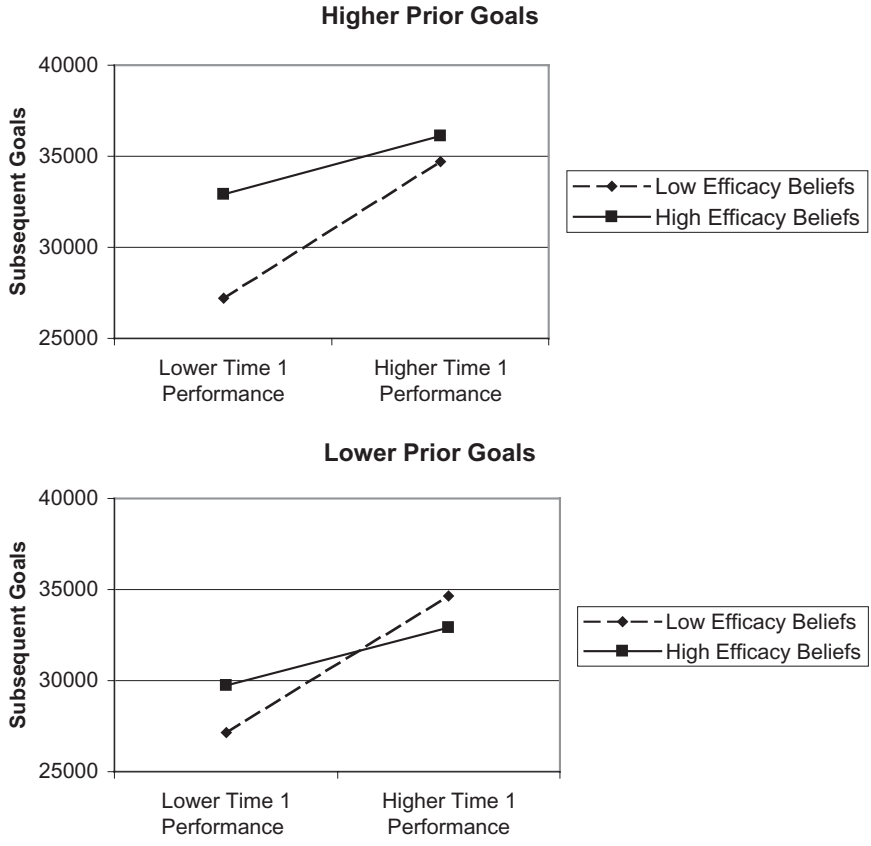

FIGURE 2. Three-way interaction between time 1 performance, time 1 goals, and early efficacy beliefs on subsequent goals.

our predictions. Although we did not predict it, we found that when teams failed to reach lower goals, high efficacy beliefs mitigated, rather than exacerbated, those negative effects. Thus, we found mixed support for Hypothesis 3a.

Finally, and as can be seen in Model 3 on the right half on the table, we also found evidence of a three-way interaction between time 1 performance, time 1 goals, and early efficacy beliefs on subsequent goals, $\beta = -.21$, $p < .05$. We plotted this interaction in Figure 3. Turning first to when teams failed to reach higher goals, our simple slope tests failed to provide evidence of a difference between high and low efficacy teams, $t(90) = .65$, *ns*. Turning next to when teams failed to reach lower goals, our simple slopes tests again revealed no difference between the slopes for our high and low efficacy teams,

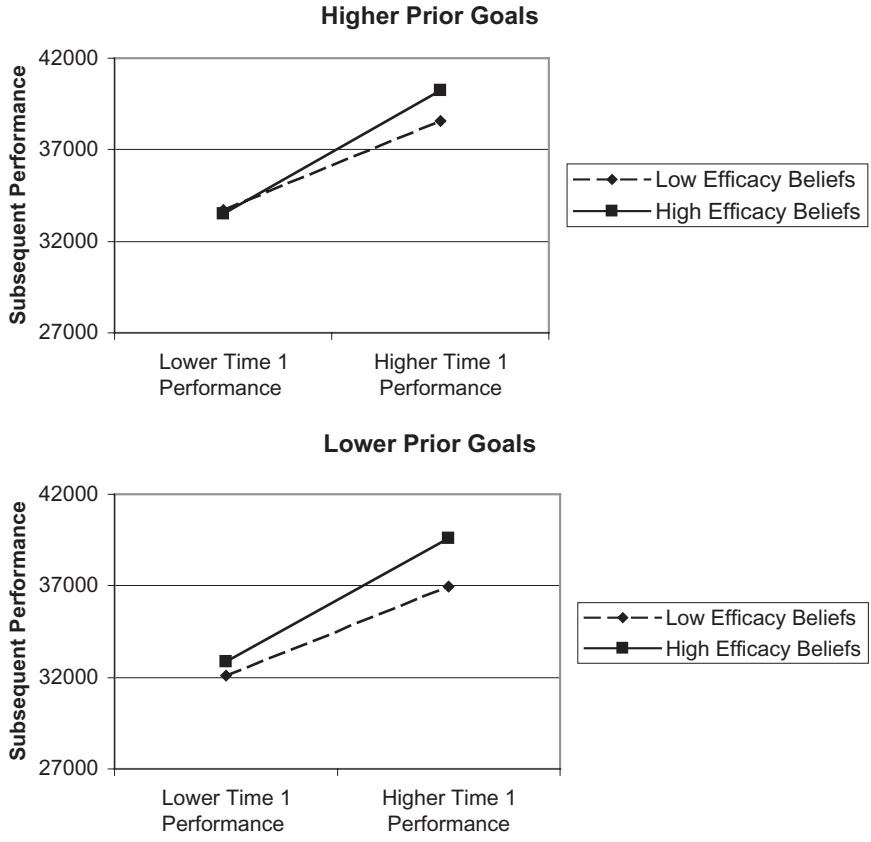

FIGURE 3. Three-way interaction between time 1 performance, time 1 goals, and early efficacy beliefs on subsequent performance.

$t(90) = .93$, *ns*. Taken together, we found no support for Hypothesis 3b; however, we did find one particularly noteworthy pattern of effects as can be seen in both the top and bottom of Figure 3. Specifically, we found that even high efficacy teams demonstrated some of the lowest levels of subsequent performance at time 2.

DISCUSSION

The goals of the current study were twofold. First, we sought to examine the joint, interactive effects of prior performance and prior goals on subsequent goals and subsequent performance when teams failed to reach their goals. As such, our study is one of the first that explicitly examines team failure.

Second, we sought to examine the extent to which early efficacy beliefs might help further explain these effects. In doing so, we demonstrated how questions about how goals and performance work in tandem could be answered while at the same time avoiding the methodological ambiguities that often arise when researchers examine such effects using difference scores.

We found that, in terms of subsequent goals, teams generally had more negative reactions to failing to reach lower goals than they did to failing to reach higher goals. This finding was consistent with much of the previous work on individual reactions to GPDs, in particular when the magnitude of the GPD is large (Campion & Lord, 1982; Donovan & Williams, 2003; Williams et al., 2000). We also found that early efficacy beliefs could help further explain these effects. Although the patterns we found regarding the moderating effects of early efficacy beliefs only partially supported our hypotheses, our findings nevertheless complement recent research on the role of self-efficacy beliefs in how *individuals* manage GPDs. In our study, when teams failed to reach higher goals, high early efficacy beliefs mitigated the negative effects of the failure on subsequent goals while low early efficacy beliefs exacerbated the negative effects of the failure. Contrary to our predictions, when teams failed to reach lower goals, high early efficacy beliefs also mitigated, rather than exacerbated, the negative effects of the failure. These findings support the notion that high collective efficacy has important buffering effects when teams face adversity (Gully et al., 2002; Stajkovic et al., 2009). Our results indicating that high early efficacy beliefs mitigated the potential negative effects on subsequent goals among teams who failed to reach higher and lower goals also suggests that the magnitude of the failure may not be a boundary condition for the benefits of high collective efficacy.

Coupling our failure to find evidence for our hypothesised three-way interaction on subsequent performance with the notion that goals are likely to be a better representation of motivation than performance (Weldon & Weingart, 1993), our findings regarding how teams with high early efficacy beliefs responded to failures has implications for theory and research that seeks to explain *why* high collective efficacy can be detrimental in teams. Tasa and Whyte (2005) found evidence of a curvilinear relationship between efficacy and vigilant problem solving such that teams that were low and high on efficacy devoted the least time to problem solving which in turn negatively affected their decision-making performance. Although we also found some of the lowest levels of subsequent performance among teams with high early efficacy beliefs, our findings regarding the goals these teams set suggests that complacency would not explain why high collective efficacy beliefs were associated with low levels of performance in this study. Rather, our findings are more consistent with the notion that teams with high efficacy beliefs may reject negative feedback or fail to discontinue the use of ineffective performance strategies (Whyte, 1998). Our findings also raise the possibility that

teams with high efficacy beliefs may abandon effective strategies while engaging in searches for even more effective strategies that could also result in lower levels of performance. Future research should explicitly examine these potential explanatory mechanisms. This research should also conceptually and empirically distinguish goals from performance. Had we not done so, we might have drawn incorrect conclusions regarding the moderating effects of collective efficacy.

Implications

In addition to highlighting both the advantages and potential disadvantages of high efficacy beliefs in teams, our findings suggest at least three important practical implications. First, our findings suggest the potential danger in setting conservative goals that might be perceived as easily obtainable. In real teams, this is often done during the early stages of team development or when a team begins working on a relatively new, or changing, task. In this study, on average, teams that failed to reach relatively lower goals responded by reducing their goals more than teams that failed to reach relatively higher goals. Failing to reach lower, as opposed to higher, goals does appear to be perceived as a more significant failure and has the potential to be especially de-motivating.

Second, our results also have implications for the common practice of setting stretch goals in teams. This is often done with the hope that if teams at least aim high then even if they fail they may nevertheless reach higher levels of performance than if they had aimed low. Our results suggest that the failure experiences that result from unsuccessful attempts to reach especially high goals can also have strong de-motivating effects, especially for low efficacy teams. Related to this, our findings also have implications for self-managed teams in real organisations that, similar to the teams in our study, are charged with discussing and collectively setting their own performance goals (Levine & Moreland, 1990; Pearson, 1987). Previous research suggests that when given the opportunity to self-set their goals teams are likely to set difficult rather than easy goals (Latham & Lee, 1986). An extension of our findings therefore suggests that the opportunity to self-set goals perhaps should be reserved for high efficacy teams. We recommend that such teams be warned of the potential for failure when setting especially high goals and encouraged to use any failures as learning experiences.

Finally, because we found effects for early collective efficacy beliefs, we suggest that organisations devote more attention to shaping team members' early experiences and interactions with one another. For example, Kozlowski, Gully, Salas, and Cannon-Bowers (1996) suggested that one important role that leaders play in the early formation of teams is that of

mentor in which they can help shape and build members' affect and attitudes about the team and the task. We suggest that teams be presented with opportunities to develop high efficacy beliefs. However, we also recommend that teams be discouraged from becoming too confident about their ability if it is likely that the team will later experience failures.

Limitations and Future Research

Despite the insight our study provides, it is not without some limitations that deserve mention. One such limitation was our participants and the context in which we conducted our study. Although our use of undergraduate students working together for a limited amount of time on a team task in a laboratory setting provided us a high level of control in addition to the opportunity to induce a failure experience with limited negative consequences, it does limit our generalisability. Although our findings have implications for teams working on complex tasks, striving for performance-based rewards, and who are responsible for setting and monitoring their own progress towards reaching self-set goals (e.g. self-managed and project teams), future research should explore the effects of prior goals, prior performance, and efficacy beliefs using real work teams.

Another limitation is that to create failure experiences, we induced all of our teams to set goals that were somewhat high. Even the teams that set the lowest goals in this study did not set extremely low goals per se. As a result, we are unable to generalise our findings to teams that fail to reach very low goals. Somewhat related, because we provided our teams with a performance score to reference in setting their performance goals that would result in their setting a goal that was specific and challenging but also likely unobtainable, we created a situation in which teams were likely to respond by lowering their goals (e.g. Donovan & Williams, 2003). Fortunately, our primary interest was not whether or not our teams would reduce their goals or improve following their failure experiences, but rather whether or not early efficacy beliefs might help explain to what the extent our teams would reduce their goals or improve following those failure experiences.

Finally, we should remind readers that despite our use of a lagged research design, we did not run a true experiment, which would have allowed us to truly make causal inferences regarding the effects we found in this study. Clearly, research such as this represents an important avenue for future work on goals, performance, and collective efficacy beliefs in teams.

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