# Team Goal Orientation and Team Performance: The Mediation of Team Planning

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## Abstract:

This study examines the relationships between team goal orientation, the team self-regulation tactic of team planning, and team performance of 91 student teams engaged in complex decision-making tasks requiring analytical skills. In contrast to previous findings involving individuals, the authors' results indicate that team performance-prove goal orientation, but not team learning goal orientation, influenced team performance through its impact on team planning. Implications of these results are discussed in terms of enhancing team performance by emphasizing team planning and team performance-prove goal orientation.

**Keywords:** team goal orientation | team planning | team performance

## Article:

A key variable that has generated considerable interest lately as a predictor of team performance is team goal orientation (Bunderson & Sutcliffe, 2003). *Team goal orientation* refers to the shared perceptions of team members regarding their teams' climate and achievement goals (Bunderson & Sutcliffe, 2003; Dragoni, 2005). The surge in research on team goal orientation in the past few years has established the construct as a predictor of a number of team outcomes such as team adaptation, team performance, and team efficacy and commitment (cf. Bunderson & Sutcliffe, 2003; DeShon, Kozlowski, Schmidt, Milner, & Wiechmann, 2004; LePine, 2005; Porter, 2005). However, some questions still remain unanswered.

In this study, we address two important issues regarding the relationship between team goal orientation and team performance. Our first issue deals with the mechanism through which team goal orientation influences team performance. Research has indicated that the team goal orientation—team performance relationship is influenced by several mediating variables (LePine, 2005; Porter, 2005). One such critical mediating variable is team self-regulation. Recent studies have indicated that the theory of self-regulation applies to teams as well (e.g., DeShon et al., 2004; Dragoni, 2005). That is, teams with different goal orientations use different self-regulation tactics (i.e., cognitive, affective, and behavioral strategies) to guide team members'

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goal-directed activities over time. Academicians have begun examining this proposition. DeShon et al. (2004), for example, observed a direct link between team goal orientation and team self-regulation processes, which in turn were positively related to team performance.

Extending this stream of research, in this article, we examine how team planning, as a key self-regulation tactic, mediates the relationship of team goal orientation and team performance. *Team planning* is defined as an activity "that requires the group to lay out a course of action by which it can attain an already chosen objective" (McGrath, 1984: 127). Previous research has identified team planning as an important goal-based regulatory process, instrumental in task performance (e.g., Janicik & Bartel, 2003). Teams engaged in complex tasks employ planning as a tactic to coordinate various activities, thereby improving their performance (Weldon, Jehn, & Pradhan, 1991). Planning is also an important metacognitive skill that has been recognized as critical to performance (Brown, Bransford, Ferrara, & Campione, 1983; Ford, Smith, Weissbein, Gully, & Salas, 1998). However, despite the evidence that team planning is a vital self-regulation tactic, there have been no attempts to examine its mediating effects on the relationship between team goal orientation and team performance. For example, DeShon et al. (2004) examined team goals, goal commitment, team strategies, and effort but did not focus on planning. This appears to be an important gap in team research, which this study attempts to fill.

The dimensionality of the goal orientation construct provides the focus for the second issue we address in this study. Our review of past literature indicated that previous team-based studies have measured team goal orientation as a two-dimensional construct. However, goal orientation theory and empirical evidence at the individual level have established that there are three types of goal orientations—that is, (a) learning, (b) performance-prove, and (c) performance-avoid (cf. Elliot, 1999; VandeWalle, 1997). Although researchers have noted that future studies should consider measuring both prove and avoid aspects of team goal orientation (cf. LePine, 2005; Yeo & Neal, 2004), we found no studies that had addressed these goal orientations. By examining the link between three-dimensional team goal orientation and team performance, this study aims at yielding knowledge currently missing in the team literature. Moreover, such an investigation might be useful in understanding and explaining the contradictory findings for team goal orientation–team outcome relationships reported by previous scholars (e.g., Bunderson & Sutcliffe, 2003; Porter, 2005). We conceptualize goal orientation as a team-level construct comprising learning, performance-prove, and performance-avoid goal orientations. Additionally, team goal orientation is conceived as a "state" as opposed to a "trait" in this study (cf. Bunderson & Sutcliffe, 2003).

## Team Goal Orientation and Performance

Dweck (1986) defined *goal orientation* as a disposition toward developing or demonstrating ability in achievement situations. Although originally conceived as two dimensional (learning and performance goal orientation), research has now confirmed that goal orientation can have three distinct dimensions (e.g., Elliot & Harackiewicz, 1996; VandeWalle, 1997)—that is, (a) learning, (b) performance-prove, and (c) performance-avoid. Individuals with a high learning goal orientation emphasize developing their skills, knowledge, and competence. Individuals with a high performance-prove goal orientation are task focused with a desire to prove their ability to others. They exhibit high levels of aspiration and cognitive as well as affective task immersion

(e.g., Elliot & Harackiewicz, 1996; Wegner, 1994), resulting in adaptive and beneficial response patterns. People with a high performance-avoid goal orientation are also task focused but are primarily concerned with avoiding failures. This distracts them from task engagement, resulting in a passive, risk-aversive approach to task completion and maladaptive response patterns (Elliot & Church, 1997).

*The Emergent Model of Team Goal Orientation*

As opposed to the dispositional view, a situational view of goal orientation has also been proposed (e.g., Button, Mathieu, & Zajac, 1996; Dragoni, 2005). Situational cues such as evaluative feedback (Butler, 1993) and leadership (Ames & Archer, 1988) can influence the types of goals individuals adopt in a given situation. Thus, individuals can develop a state goal orientation, which is dynamic and dependent on the situation (e.g., Button et al., 1996).

The concept of a situation influencing the goals adopted by individuals appears to apply to teams as well (Bunderson & Sutcliffe, 2003). Dragoni (2005) has explained how a combination of top-down and bottom-up effects creates state goal orientation in organizational work groups. She argues that goal orientation emerges in organizational groups as a result of cues from the psychological and work group climate regarding preferred achievement orientation. *Psychological climate* refers to team members' individual perceptions of their work group environment (Jones & James, 1979). Psychological climate emerges from top-down effects of social learning, when team members develop individual perceptions of work routines and rewards by observing and interacting with their team leader (Bandura, 1986). In the absence of a leader, these individual perceptions might be cued by other situational factors, such as performance appraisal and organization policies. For example, a psychological climate for learning emerges if team members' social context promotes new ideas, encourages development of new competencies, and rewards creativity (Bunderson & Sutcliffe, 2002), whereas a psychological climate for performance-prove would result when the social context fosters competition, constant task evaluation, and performance-based rewards (Dragoni, 2005).

The psychological climate thus formed provides informational cues to team members regarding outcome expectancies, social support, and evaluation processes that motivate them to adopt specific achievement goals or state goal orientations (Dragoni, 2005). For example, when individuals hold a psychological climate for learning, they find work stimulating, coworkers supportive, and work improvements rewarding (e.g., McCauley, 2001). These perceptions result in the development of a state of "learning" goal orientation at the individual level (e.g., Ames & Archer, 1988; Papaioannou, Marsh, & Theodorakis, 2004). In a similar manner, a state of individual performance-prove goal orientation would emerge when team members perceive their work as competitive, highly visible, and being constantly evaluated.

In the case of teams, as team members interact more frequently with each other, they test and negotiate their interpretations of social events and adapt their individual perceptions and achievement motivations accordingly (Dragoni, 2005; Schneider & Reichers, 1983). As a result, the psychological climate—that is, individual perceptions of the work environment—becomes shared and a team climate emerges signifying a bottom-up effect. Team climate, then, shapes the development of team state goal orientation.

The emergence of team goal orientation from team climate can be explained through the process of social approval (e.g., Blau, 1964). As team members engage in meaningful social interactions, they become invested in and committed to their teams (Dragoni, 2005). As a result, their need to conform and seek social approval is intensified, because few resources can provide such social approval as provided by one's own group (Blau, 1964). Simultaneously, as a result of these social interactions, a team climate emerges that provides cues to team members regarding expected behaviors (Salancik & Pfeffer, 1978). Team members then adopt an ascribed state goal orientation based on these social cues to gain social approval of their peers. Thus, individual-level achievement orientations get translated to team-level goal orientations (see Figure 1).

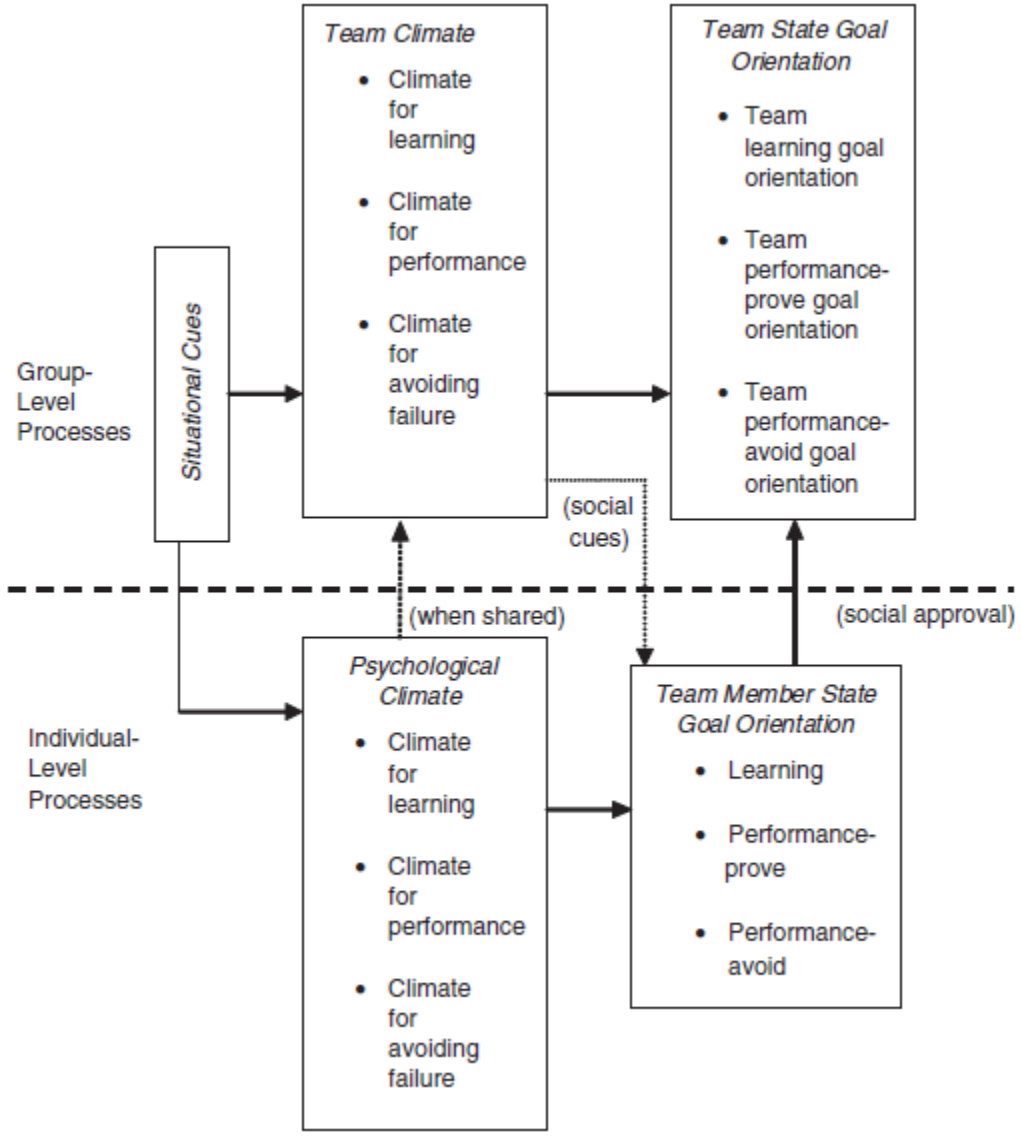


**Figure 1.** Two-Way Model of Emergence of Team State Goal Orientation
*Note:* Adapted from Dragoni (2005).

Additionally, team members align their individual goal orientations with the achievement focus endorsed by their teams to satisfy their psychological need for balance and harmony with their environment. Cues provided by the team climate become a source of order and comprehension for the team members, who adapt their perceptual, motivational, and behavioral responses accordingly to maintain equilibrium with their environment (Schneider, 1975).

*Team Goal Orientation and Team Performance*

The notion of shared climate perceptions forms the basis of most widely accepted conceptualizations of team goal orientation. For example, DeShon et al. (2004) theorized that team goal orientation is a state induced by shared perceptions of team members regarding the goals pursued by their teams. Bunderson and Sutcliffe (2003) also defined *team (learning) goal orientation* in terms of the team's climate (of proactive learning). Drawing from these conceptualizations, we define *team learning goal orientation* as a state when team members perceive their group as having learning goals, mutual support mechanisms, and challenging tasks. *Team performance-prove orientation* is a state in which team members perceive high competition and focus on performance and task specificity within their group. *Team performance-avoid orientation* represents a state in which team members perceive their group as focusing more on avoiding negative outcomes and less on task accomplishment.

Previous theory and research indicates that a perceived group emphasis on learning goals is likely to elicit proactive learning behaviors (Dweck, 1986; Roser, Midgley, & Urdan, 1996). There is evidence of a collective learning climate influencing learning-oriented behaviors in organizational work units (Abbey & Dickson, 1983) and work teams as well (Edmondson, 1999). Teams having a learning orientation tend to be innovative (Ames & Archer, 1988) and pursue complex goals and learning behavior. Recently, Porter (2005) also reported a positive relationship between learning orientation and efficacy and commitment within teams. Thus, team learning goal orientation has generally been associated with positive team outcomes.

Research demonstrating the influence of team performance-prove goal orientation on team outcomes is apparently nonexistent. Our literature search revealed no team-based empirical studies that examined the three-dimensional model of team goal orientation. Using Dweck's (1986) two-dimensional conceptualization, researchers have obtained inconsistent results for performance goal orientation, both at the team (cf. DeShon et al., 2004; LePine, 2005; Porter, 2005) as well as at the individual level (e.g., Button et al., 1996; Ford et al., 1998; VandeWalle, Brown, Corn, & Slocum, 1999). The inconsistent results might be attributed to the fact that these studies overlooked the two subdimensions of performance goal orientation, which have been found to be distinct.

However, in a recent meta-analysis, Payne, Youngcourt, and Beaubien (2007) analyzed goal orientation as a three-dimensional construct and reported positive relationships of state performance-prove goal orientation with job and task performance, albeit with a small sample. In spite of reporting a few negative results, too, for performance-prove orientation, they concluded that it might be beneficial to task and job performance. Porath and Bateman (2006) also found a positive link of performance-prove goal orientation with sales performance. Though team-level associations might not completely parallel individual-level outcomes, we expect some

similarities, as previous researchers have obtained analogous results for several variables in both individual- and team-based studies (Bunderson & Sutcliffe, 2003; DeShon et al., 2004). Moreover, teams operating in an environment of high achievement expectations and outcome-based rewards might benefit from a performance-prove orientation.

We did not find any empirical studies that have examined the relationship between team performance-avoid goal orientation and team performance. However, in a conceptual study on emergence of state goal orientation in work groups, Dragoni (2005) proposed a negative relationship of group performance-avoid goal orientation with task performance. Previous individual-level research has also demonstrated a negative relationship between performance-avoid goal orientation and performance (cf. Payne et al., 2007; Porath & Bateman, 2006). Evidently, a performance-avoid orientation induces negative behaviors because of overemphasis on avoiding failures (Elliot & Church, 1997) and fosters detrimental self-protective processes that hinder optimal task engagement (Elliot & Harackiewicz, 1996). Therefore, we predicted:

> *Hypothesis 1a:* Team learning goal orientation will be positively related to team performance.
> *Hypothesis 1b:* Team performance-prove goal orientation will be positively related to team performance.
> *Hypothesis 1c:* Team performance-avoid goal orientation will be negatively related to team performance.

**Team Planning as a Self-Regulation Tactic**

Self-regulatory tactics are cognitive, affective, and behavioral processes that guide individuals' goal-directed activities over time (Kanfer, 1992; Zimmerman, 2001). In the context of teams, self-regulation refers to the tactics adopted by team members to pursue team goals. Past research has shown that goal orientation influences self-regulation that, in turn, influences job performance (DeShon et al., 2004). Learning and performance-prove goal orientations are linked with positive regulatory processes, whereas performance-avoid goal orientation is associated with detrimental, self-protective processes (Elliot & Harackiewicz, 1996).

*Team Planning and Team Goal Orientation*

Previous research indicates that team planning is an important self-regulatory process (cf. Zimmerman, 2001) that is significantly influenced by the nature of goals pursued by the teams (Weldon et al., 1991). For example, Weingart (1992) found that teams with difficult goals engaged in high-quality planning. Recently, in developing a motivated action theory model of goal orientation, DeShon and Gillespie (2005) proposed "action plans" as means to achieving individual mastery, performance-prove, and performance-avoid goals, thereby signifying the goal orientation—planning link.

Planning is also an essential component of metacognition (Brown et al., 1983), which refers to individuals' awareness of and control over their cognitions (Flavell, 1979). Individuals with greater metacognitive skills are expected to perform better because they plan their tasks, anticipate problems in advance, and adapt accordingly (Ford et al., 1998). Past research has

linked individual goal orientation to metacognition. For example, Ford et al. (1998) found learning orientation to be positively related, and performance orientation to be unrelated, to metacognitive activity.

Thus, given that planning is a fundamental metacognitive activity and that goal orientation has been linked to metacognition, it may be argued that goal orientation would be associated with planning. Consistent with this notion, VandeWalle et al. (1999) demonstrated positive relationships of learning and performance goal orientation with planning. Porath and Bateman (2006) also showed positive associations of learning and performance-prove goal orientation with proactive behavior. Proactive behavior refers to active involvement of individuals to bring about change rather than passive acceptance of a situation (Bateman & Crant, 1993). Individuals who display proactive behavior should be more inclined to plan.

A negative or neutral relationship has been reported, however, between performance-avoid goal orientation and self-regulation tactics such as feedback seeking and learning strategies (Payne et al., 2007; Porath & Bateman, 2006). In their meta-analysis, Payne et al. (2007) concluded that performance-avoid goal orientation had a detrimental effect on a majority of self-regulatory constructs. In the context of groups, Dragoni (2005) also proposed a negative relationship between group performance-avoid orientation and use of learning strategies such as planning. Based on these studies, we posited the following relationships between team goal orientation and team planning:

> *Hypothesis 2a:* Team learning goal orientation will be positively related to team planning.
> *Hypothesis 2b:* Team performance-prove goal orientation will be positively related to team planning.
> *Hypothesis 2c:* Team performance-avoid goal orientation will be negatively related to team planning.

*Team Planning and Team Performance*

Self-regulation, as a set of cognitive, affective, and behavioral processes, has been linked to positive outcomes for teams (DeShon et al., 2004). Past research has also demonstrated the specific link between team planning and team performance (e.g., Janicik & Bartel, 2003; Weingart, 1992). For example, Weldon et al. (1991) found group planning to be related to group performance. Weingart (1992) also reported a positive impact of planning on group performance. Thus, teams that engage in greater team planning should exhibit greater positive outcomes compared to teams that exhibit lower levels of team planning.

> *Hypothesis 3:* Team planning will be positively related to team performance.

*Team Planning as a Mediator*

A distal construct such as goal orientation may influence a proximal construct—that is, self-regulation—which, in turn, may influence performance (Kanfer, Ackerman, & Heggestad, 1996). Conforming to this notion, planning has been found to be a significant intermediary process in

the relationship between group goals and group performance (Weingart, 1992). Weldon et al. (1991), for example, found mediation of team planning in the relationship between group goal level and group performance. Additionally, DeShon et al. (2004) demonstrated the intermediary role of team self-regulation in the relationship between team goal orientation and team performance. VandeWalle et al. (1999) and Porath and Bateman (2006) also reported mediation of self-regulation tactics in the goal orientation–performance relationship, albeit at the individual level.

> *Hypothesis 4:* Team planning will mediate the relationship between team goal orientation and team performance.

## Method

### *Participant Teams and Study Context*

Participants were 529 business seniors enrolled in a capstone-based, strategic management course at a large southeastern university, randomly assigned to 116 teams. These teams were temporary and were formed for a single semester only. Previous studies have used similar teams to examine team performance (e.g., DeShon et al., 2004; Tasa, Taggar, & Seijts, 2007). The teams worked for a 15-week period on a computerized management simulation to fulfill a course requirement. During the summer semester, the teams worked for a 10-week period. Participants' course grades were based primarily on their teams' performance in the simulation, which constituted 70% of the final grade. After discarding teams that (a) had fewer than three members ($n$ = 11), (b) did not complete both Time 1 and Time 2 surveys ($n$ = 5), and (c) were identified as outliers—that is, had intraclass correlation (ICC)[1]) or $r_{wg}$ values below an acceptable range ($n$ = 4)—a final sample of 91 teams was retained with an average team size of five members ($SD$ = 1.82). A majority of participants were white (90%) and male (62%). The mean age of participants was 22.2 ($SD$ = .65), with an average full-time work experience of 10.8 months ($SD$ = 5.40).

The teams performed a complex computer simulation using the Capstone Business Simulation (Stephen, Parente, & Brown, 2002), in which they worked as a top management team of a business organization. Under time constraints, the teams had to develop business strategies and implement them through weekly decisions involving research and development, production, finance, marketing, human resources, and total quality management. Given that the Capstone Business Simulation is designed for senior graduates and is considered sufficiently complex to require higher order analytical skills and that the participants had no prior exposure to a similar task, a manipulation check for perceived task complexity was considered unnecessary.

### *Study Procedures*

*Data collection*. Predictor and mediating variables were measured using questionnaire surveys given at two time periods. Participants completed an initial survey consisting of demographic and predictor variables at the beginning of the fifth week of the semester (Time 1). This time period was chosen as Time 1 data collection, as (a) it was essential to allow the teams to function as distinct interdependent entities before administering any team-based questionnaires (DeShon

et al., 2004) and (b) the predictor variables in the study (i.e., team goal orientations) were operationalized as state goal orientations, which develop as a result of shared perceptions of team members about team climate. The second survey measuring the mediating variable (i.e., team planning) was given in the eighth week of the semester (Time 2). Finally, overall team performance, the criterion variable, was derived at the end of the semester based on a team's cumulative performance on the simulation.

*Aggregation of team measures*. Individual team members responded to team-referent items for each measured construct (e.g., "My team has gained from the collaborative project"), corresponding to the referent-shift model (Chan, 1998). This model is generally preferred over the individual-referenced, direct-consensus method, which may not be able to capture the team-level construct (Klein, Conn, Smith, & Sorra, 2001). Team-level measures were obtained by aggregating team members' responses to the team level (DeShon et al., 2004). Because most team members were similar with respect to age, work experience, educational background, and race and the outcome variable was operationalized at the team level, we judged aggregation of responses to the team level to be theoretically acceptable (Gibson, Randel, & Earley, 2000).

Empirical analyses were also performed to assess the appropriateness of aggregating individual-level data to the team level. ICCs were calculated to compare within-team and between-team response variances (ICC[1]) and to assess the reliability of team-level means (ICC[2]) for each scale (Bliese, 2000). Additionally, $r_{wg}$ scores were calculated to assess within-team agreement for each construct (James, Demaree, & Wolf, 1993). For ICC(1), a range of .05 to .20 is considered acceptable, and for ICC(2), a value of .80 or higher is generally acceptable (Bliese, 2000). For $r_{wg}$, a value of .70 or higher is considered adequate (Glick, 1985).

*Measures*

Team learning goal orientation was measured with five items from a scale used by Bunderson and Sutcliffe (2003). Participants rated the items using a 7-point Likert-type response format ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). A sample item from the scale is: "This team likes challenging and difficult assignments that teach new things." One item was removed from the scale, as it cross-loaded on another factor. Coefficient alpha for the four-item scale was .86; the ICCs were ICC(1) = .08 and ICC(2) = .98, and median $r_{wg}$ was .94 ($M$ = .90).

Team performance-prove goal orientation was assessed with a five-item scale adapted from a goal orientation instrument developed and validated by VandeWalle (1997). We adapted the items by changing the referent from individual to team. Participants rated each item using a 7-point Likert-type response format ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). One item was removed from the scale because of cross-loading. A sample item is: "This team tries to figure out how to prove its ability to other teams in the class." Coefficient alpha for the scale was .88; the ICCs were ICC(1) = .07 and ICC(2) = .99, and median $r_{wg}$ was .92 ($M$ = .90).

Team performance-avoid goal orientation was measured using a five-item scale adapted from a goal orientation instrument developed by VandeWalle (1997). The adaptation involved changing the referent from individual to team. A sample item from the scale is: "This team prefers to avoid

situations where it might perform poorly." One item was removed because of a low factor loading. Participants used a 7-point Likert-type response format ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Coefficient alpha for the scale was .81, the ICCs were ICC(1) = .05 and ICC(2) = .98, and median $r_{wg}$ was .91 ($M$ = .84).

We performed a confirmatory factor analysis on the Goal Orientation Scale to test the dimensionality of our team goal orientation measure. We examined one-, two-, and three-dimensional models. Results showed acceptable model fit ($\chi^2$ = 78.58, $df$ = 51, root mean square error of approximation [RMSEA] = .08, comparative fit index [CFI] = .95, goodness of fit index [GFI] = .89) for the three-dimensional model, and it was better than the two-factor ($\chi^2$ = 412.553, $df$ = 54, RMSEA = .27, CFI = .41, GFI = .54) and one-factor ($\chi^2$ = 385.09, $df$ = 57, RMSEA = .25, CFI = .46, GFI = .60) models. The $\chi^2$ difference tests were also significant for the two- ($\chi^2$ = 333.972, $p < .001$) and one-dimensional ($\chi^2$ = 306.51, $p < .001$) models when compared to the three-dimensional model. These results confirmed our conceptualization and use of team goal orientation as a three-dimensional measure in our study.

Team planning was measured with a nine-item scale adapted from the Self-Regulation Scale used by Hong and O'Neil (2001). Our scale modification entailed changing the referent from individual to team or team members, changing the verb tense to past tense, and making a minor modification in one item. Participants rated each item using a 4-point Likert-type response format ranging from 1 (*almost never*) to 4 (*almost always*). A sample item is: "My team developed plans for solution of the problems." Coefficient alpha for the scale was .86. ICC(1) and ICC(2) were .06 and .98, respectively. Median $r_{wg}$ was .94 ($M$ = .92).

Team performance was measured using the teams' overall performance in the simulation derived by a computer simulation algorithm. Basically, the Capstone simulation generates a standardized measure of overall team performance based on a team's performance on success measures such as stock price and profit. The simulation algorithm calculates each team's overall performance score based on the adjusted weighted averages of teams' success measures. The system first determines a raw score for each category. Generally, each team gets 1 point for itself and 1 point for each inactive team; however, teams with negative results could fall beneath this level. Teams get an additional point for each active team they beat. The system then creates an adjusted score for each category by multiplying the team's raw score by its success measurement weight. For example, if a team's stock price weight were 20% and if it were first in that category (scoring 6 raw points), it would receive 1.2 points. The adjusted scores for each category are then summed. The resulting score will be between 1 and 6. The overall scoring shows each team's performance based on their individual criteria, allowing an "across the board" comparison (Management Simulations, Inc., 2006). Previous studies have used similar simulation results to measure team performance (cf. Cervone, Jiwani, & Wood, 1991; Tasa et al., 2007).

*Control variables*. We controlled for team members' grade point average, work experience, and team size because these variables might influence team performance (e.g., Haleblian & Finkelstein, 1993; Tziner & Eden, 1985; Williams & Parker, 2000). We also controlled for semester because the varying amount of time that team members worked together in summer and fall semesters might have affected the results. Intrateam interdependence and peer evaluation also served as controls. We measured intrateam interdependence using three items from Bishop

and Scott's (2000) scale. Coefficient alpha for the scale was .74; ICC(2) was .61. Peer-evaluation was measured with a 10-item Likert-type scale provided on the Capsim Web site. The scale had items related to group processes such as team coordination and contribution. Coefficient alpha for the scale was .99; ICC(2) was .98.

## Results

We created composite scores for the measures by aggregating the scores across relevant indicators and averaging them. Table 1 presents the means, standard deviations, coefficient alphas, and zero-order intercorrelations among the study variables.

**Table 1.** Means, Standard Deviations, Coefficient Alphas, and Intercorrelations Among Study Variables

| Variable | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Grade point average | 2.99 | 0.26 | | | | | | | | | | | |
| 2. Team size | 5.07 | 1.82 | –.23* | | | | | | | | | | |
| 3. Work experience | 10.81 | 5.40 | –.27** | .06 | | | | | | | | | |
| 4. Team term | 0.24 | 0.43 | –.30** | .72** | .21* | | | | | | | | |
| 5. Peer evaluation | 4.66 | 0.29 | .15 | .18 | .00 | .28** | **(.99)** | | | | | | |
| 6. Team interdependence | 5.00 | 0.40 | .05 | .15 | .20 | .20 | .37** | **(.74)** | | | | | |
| 7. Learning goal orientation | 4.93 | 0.53 | .10 | .01 | .20 | .06 | .09 | .29** | **(.86)** | | | | |
| 8. Performance-prove goal orientation | 5.18 | 0.57 | .10 | –.14 | –.24* | –.01 | .09 | .35** | .65** | **(.88)** | | | |
| 9. Performance-avoid goal orientation | 3.77 | 0.49 | .09 | .13 | –.18 | .07 | .00 | –.13 | –.40** | –.21* | **(.81)** | | |
| 10. Team planning | 3.08 | 0.29 | –.02 | .19 | .26* | .21* | .25* | .43* | .56** | .59** | –.15 | **(.86)** | |
| 11. Team performance | 4.28 | 1.43 | .09 | –.26* | .07 | –.30** | –.14 | .14 | .25** | .41** | –.18 | .34** | — |

*Note:* $N = 91$ teams. Coefficients within parentheses and in **bold** are coefficient alphas. All tests are two-tailed.
*$p < .05$.
**$p < .01$.

We used hierarchical regression to test our hypotheses. Hypotheses 1a, 1b, and 1c predicted that team learning and performance-prove goal orientations would be positively related, and team performance-avoid goal orientation would be negatively related, to team performance. As shown in Table 2, only team performance-prove goal orientation ($\beta = .39$, $p < .01$) was related to team performance. Team learning goal orientation ($\beta = –.04$, *ns*) and team performance-avoid goal orientation ($\beta = –.08$, *ns*) were unrelated to team performance. Performance-prove goal orientation accounted for incremental variance, $\Delta R^2 = .12$, $\Delta F(3, 81) = 4.44$, $p < .01$, in predicting team performance over and above the control variables. Thus, Hypothesis 1b was supported, but Hypotheses 1a and 1c were not.

Hypotheses 2a, 2b, and 2c posited that team learning and performance-prove goal orientations would be positively associated and team performance-avoid goal orientation would be negatively associated with team planning. Both team learning ($\beta = .29$, $p < .05$) and performance-prove goal orientations ($\beta = .38$, $p < .001$) were positively related to team planning, as shown in Table 2. Learning and performance-prove goal orientations accounted for unique variance, $\Delta R^2 = .28$, $\Delta F(3, 81) = 15.50$, $p < .001$, in predicting team planning over and above the control variables. Team performance-avoid goal orientation, however, was unrelated to team planning ($\beta = .05$, *ns*). Thus, Hypotheses 2a and 2b were supported, but Hypothesis 2c was not.

**Table 2.** Multiple Hierarchical Regressions for Testing the Mediation Model

| | Team Planning | | Team Performance | | |
|---|---|---|---|---|---|
| **Variable** | **Step 1** | **Step 2** | **Step 1** | **Step 2** | **Step 3** |
| Grade point average | .03 | –.07 | .02 | –.01 | .01 |
| Team size | .11 | .20 | –.09 | –.02 | –.05 |
| Work experience | .20 | .08 | .09 | .01 | –.02 |
| Team term | .01 | –.05 | –.25 | –.29 | –.27 |
| Peer evaluation | .10 | .12 | –.14 | –.13 | –.17 |
| Team interdependence | .32** | .14 | .24* | .11 | .06 |
| Learning goal orientation | | .29* | | –.04 | —[a] |
| Performance-prove goal orientation | | .38*** | | .39** | .27 |
| Performance-avoid goal orientation | | .05 | | –.08 | —[a] |
| Team planning | | —[a] | | | .32* |
| $\Delta F$ | | 15.50*** | | 4.44** | 6.10* |
| $\Delta R^2$ | | .28 | | .12 | .05 |
| $R^2$ | .24** | .51*** | .16* | .28** | .33* |
| Adjusted $R^2$ | .18 | .46 | .10 | .20 | .25 |
| *df* | 6, 84 | 9, 81 | 6, 84 | 9, 81 | 10, 80 |
| *F* | 4.32** | 9.54*** | 2.67* | 3.48*** | 3.93*** |

*Note*: $N = 91$ teams. The values in the upper half of the table are standardized regression coefficients.
a. Not applicable.
*$p < .05$.
**$p < .01$.
***$p < .001$.

Hypothesis 3 predicted a positive relationship between team planning and team performance. Table 2 shows that team planning was related to team performance ($\beta = .32$, $p < .05$). Team planning accounted for unique variance, $\Delta R^2 = .05$, $\Delta F(1, 80) = 6.10$, $p < .05$, in predicting team performance over and above that explained by the control and three team goal orientation variables. Therefore, Hypothesis 3 was supported.

Hypothesis 4 predicted a mediated relationship between team goal orientation and team performance. In the absence of any relationship of team learning and performance-avoid goal orientations with team performance (Hypotheses 1a and 1c), a mediation hypothesis was tested for team performance-prove orientation using both Baron and Kenny's (1986) and Sobel's (1982) tests. With regard to Baron and Kenny's test, results for the first condition (i.e., predictor–mediator; see results for Hypothesis 2b) demonstrated that team performance-prove orientation was significantly related to team planning. Results for the second condition (i.e., mediator–outcome; see results for Hypothesis 3) showed that team planning was significantly related to team performance. Finally, for the third condition (predictor– and mediator–outcome), results demonstrated that team performance-prove orientation failed to reach significance ($\beta = .27$, *ns*) when team planning was included in the equation. This pattern of results indicated full mediation of team planning, thus supporting Hypothesis 4 (see Table 2). Sobel's test, which is often recommended by researchers (e.g., MacKinnon & Dwyer, 1993), was employed to further test the significance of indirect effects. Sobel's test results also provided support for the full mediation effect (Sobel test statistic = 2.42, $p < .05$).

In the absence of a significant linear relationship (Hypothesis 1a), we also tested for a curvilinear relationship between team learning goal orientation and team performance, as previous research

has reported such a relationship (Bunderson & Sutcliffe, 2003). However, no curvilinear relationship was observed for team learning goal orientation and performance.

## Discussion

We investigated the relationships between team goal orientations (learning, performance-prove, and performance-avoid), the team self-regulation tactic of planning, and team performance. Our findings underscore the importance of team performance-prove goal orientation for team performance as well as team planning. However, team learning goal orientation was beneficial to team planning only. Team planning mediated the relationship between team performance-prove goal orientation and team performance. Thus, although teams used learning and performance-prove goal orientations almost equally, performance-prove had a greater impact on team performance, through team planning. No significant relationships were found for team performance-avoid goal orientation.

### *Team Goal Orientation Dimensionality*

Our study is one of the first to investigate the dimensionality of team goal orientation. Most team-based studies have examined only two types of team goal orientations, although researchers have acknowledged the existence of a three-dimensional model (e.g., LePine, 2005; Payne et al., 2007). We found support for a three-dimensional model of team goal orientation. Confirmatory factor analysis revealed that the three-dimensional model was significantly better than the two-dimensional model. Moreover, these dimensions were differentially related to the mediating and criterion variables. Thus, our results suggest that future studies should consider team goal orientation as a three-dimensional construct.

### *Relationship Between Team Goal Orientation and Team Performance*

Another interesting finding is that no relationship was found between team learning goal orientation and team performance. Team performance-prove goal orientation, however, was positively related to team performance. These findings challenge the assumption that team learning goal orientation is necessarily a better predictor of team performance. However, its positive relationship with team planning suggests that learning orientation can be beneficial for teams but that it was just not significant in our context. This may have been due to the rewards—that is, student grades that were solely tied to performance—or due to teams' short-term focus.

Our findings corroborate those obtained by Porter (2005), who found no relationship between team learning goal orientation and task performance. Payne et al. (2007) also reported a nonsignificant relationship of state learning goal orientation, but a significant relationship of state performance-prove goal orientation, with task performance. One explanation for these results might be found in the organizational learning literature, which suggests that learning-oriented behaviors might be unproductive and not result in higher performance under certain situations (cf. Levinthal & March, 1993). The short-term, performance-focused environment in which teams generally operate might be one such situation where overemphasis on learning might prove to be distracting and unproductive (Edmondson, 1999). Bunderson and Sutcliffe's

(2003) findings on the negative influence of team learning goal orientation on business units' short-term performance confirm this notion.

The nature of the task teams performed could also have influenced our findings. The teams in our sample faced a novel and complex decision-making task every week. Under such circumstances of task complexity and novelty, difficult goals would prove detrimental as they would consume cognitive resources required to perform well (Kanfer & Ackerman, 1989; Wood & Locke, 1990). In our sample, teams with a learning goal orientation might have set and pursued difficult goals (Payne et al., 2007). This would result in distraction and inadequate resource allocation for performance. Effort could be one such attentional resource expected to influence performance (Kanfer & Ackerman, 1989). An exploratory analysis of our data revealed that performance-prove-oriented teams did expend more effort compared to learning-oriented teams. Also, learning-oriented teams might have pursued different types of plans or planning processes that might not be appropriate for attaining short-term performance goals.

The teams in our sample had a short-term focus. Initially, all such teams might engage in high levels of planning, which might explain the positive relationship between team learning and performance-prove goal orientation with team planning. However, as a team approaches the project deadline, situational factors might create a strong performance-prove-oriented situation (cf. Payne et al., 2007). Teams with a performance-prove orientation will tend to perform better than learning-oriented teams in such situations. Also, because learning goal orientation needs a long time to evolve (Yeo & Neal, 2004), its effects might not be so pronounced in short-term teams.

A further explanation for our results might lie in the goal setting literature. Seijts, Latham, Tasa, and Latham (2004) demonstrated that regardless of the type of goals, goal setting was found to attenuate the correlation between goal orientation and performance. They reported a unique, positive relationship between learning orientation and performance only in the learning goal condition. It is likely that the teams participating in our study might have set performance goals only because their final grades (rewards) were tied to team performance, and not learning, resulting in a nonsignificant team learning orientation—performance relationship.

We found team performance-avoid goal orientation to be nonsignificant. Although such nonsignificance has been reported earlier also (e.g., Porath & Bateman, 2006), these results do not support existing goal orientation theory. Possibly, most teams focused on proving their ability relative to other teams rather than on avoiding negative outcomes. Given that the teams were competing with each other for grades, this approach would seem logical. In the case of team planning, team performance-avoid goal orientation might be nonsignificant, as planning is more likely to occur when people have personally meaningful goals (Krietler & Krietler, 1987). In a competitive setting, performance-avoid goals might be perceived as insignificant by the teams. Moreover, it is likely that performance-avoid-oriented teams did not perceive planning as a viable strategy to achieve their team goals, as people use different strategies to achieve similar goals based on their approach or avoidance focus (Higgins, 1997).

It would be prudent to also consider the possibility that goal orientation might work differently at the team and individual levels. Group processes such as leader support and team member

interactions might facilitate adoption of positive learning and performance-prove achievement goals in teams. Team performance-avoidance goals might be adopted only in exceptional situations where teams are rewarded for minimizing mistakes (e.g., pilot training).

*Role of Team Planning*

Team planning significantly predicted team performance, further confirming the previously reported link of planning with task performance and teamwork (e.g., Isenberg, 1986; Weldon et al., 1991). More importantly, however, team planning was found to fully mediate the relationship between team goal orientation (performance-prove) and team performance. Previously, Weldon et al. (1991) had reported a mediation of planning, albeit between group goals and group performance. The mediation of team planning has not been previously explored in the context of team goal orientation and team performance. Our findings conform to the theories of self-regulation that suggest that people use self-regulation tactics to guide goal-directed behavior (Kanfer, 1992). Thus, the strong link of goal orientation, self-regulation, and performance that has been established at the individual level (e.g., Porath & Bateman, 2006) appears to exist at the team level also. The results also support goal-setting theory, which postulates that goals (such as learning and performance) influence performance through mechanisms such as planning and effort (Earley, Wojnaroski, & Prest, 1987; Locke & Latham, 2002).

*Implications for Future Research and Practice*

We found evidence that the team self-regulation tactic of planning mediates the relationship of team goal orientation and team performance. Further research in real-world settings is required to validate this finding. Additionally, our research can be extended to include other self-regulation tactics, such as effort and proactive behavior (Porath & Bateman, 2006), and team outcomes, such as team viability and team member satisfaction (LePine, 2005). It would also be prudent to test the model with different types of teams such as software development and health care teams to be more definitive about the role of team goal orientation in team outcomes.

Another important extension of this study could be an experimental design where the researcher can foster specific team goal orientations among different teams through instructions, and also vary levels of goal difficulty and task complexity. Such an investigation might be immensely useful in understanding team goal orientation. Additionally, we did not examine leader orientation, as the teams had no formal leader. A leader's impact should, however, be examined because it might influence team goal orientation (Dragoni, 2005).

We operationalized team goal orientation as a state as opposed to a trait, implying that it is not a stable construct and is fostered by a team's climate. It is possible then that for complex tasks, short-term teams exhibit a high learning goal orientation in the initial phases but shift to a high performance-prove orientation in later stages. Also, team members' trait goal orientation might affect team goal orientation. Addressing these issues may provide new insights.

In this study, we focused only on the team level of analysis. However, a multilevel analysis focusing on both individual as well as team levels may be useful (e.g., DeShon et al., 2004). By adopting a multilevel approach, researchers can not only seek to understand the relationships

between goal orientation, self-regulation, and performance for both individuals as well as teams, but they can also detect cross-level effects and interactions while accounting for different sources of variance (Hofmann, Griffin, & Gavin, 2000). Thus, a multilevel conceptualization and examination of these variables is warranted in future research.

Business organizations may require (a) work teams with high learning motivation and adaptability to change for creative tasks; (b) teams with performance-achievement focus for routine, competitive tasks; and (c) teams motivated to avoid failure for critical decision-making tasks. However, the goal orientation literature has generally supported the notion of enhancing learning goal orientation in organizations (cf. Gong & Fan, 2006; VandeWalle et al., 1999). In contrast, our results indicate that overemphasizing team learning goal orientation might come at the cost of team performance. That a team learning goal orientation might be ineffective in improving team performance is an important finding, as it defies common wisdom. Thus, team managers must exercise caution in deciding the extent to which learning should be encouraged within teams (Bunderson & Sutcliffe, 2003). It should be noted, however, that we are not advocating against learning goal orientation. Under conditions of unpredictability and change, learning-oriented teams may perform better compared to performance-prove-oriented teams (Bunderson & Sutcliffe, 2003; LePine, 2005).

Our results also highlight the critical role of team planning in teams' performance. Teams in this study engaged in complex, nonrepetitive decision-making tasks, and team planning affected team performance. These findings imply that team planning can be especially important for complex and dynamic real-world teams that require coordination for goal attainment (cf. Mumford, Schultz, & Doorn, 2001). But despite the evidence that team planning is critical to team performance (e.g., Janicik & Bartel, 2003; Weingart, 1992), it has received little managerial attention. Team planning is often mistakenly believed to be a routine process and is neglected by firms as a trainable skill, which might prove to be a costly oversight, as people are not always aware of how and when to use such self-regulation tactics (Ames, 1992).

Managers must help teams develop self-regulatory skills such as planning (Cameron, Dutton, & Quinn, 2003) and create contexts that encourage use of these tactics (Cohen, Chang, & Ledford, 1997). Our results imply that one way of promoting team planning is through team goal orientations. Only the teams that pursued learning or performance-prove goals engaged in team planning in our sample. Performance-avoid-oriented teams had no effect on team planning. Managers should, thus, ensure that teams pursue those achievement goals that facilitate team planning and improve performance. For example, performance-avoid-oriented teams may be trained to focus on achieving success, as opposed to avoiding failure. Teams may also be trained to understand the critical role of planning in improving performance.

**Limitations and Conclusions**

One important boundary condition of this research relates to the type of teams under investigation. We focused on short-term teams that had no formal leaders. Results may differ for permanent teams, where processes such as group identification and leader–member exchange might be critical (cf. Dragoni, 2005). Also, results might be different for teams engaged in simple and routine tasks. Thus, caution is warranted while interpreting these findings.

We also admit to the limitations regarding generalizability posed by the use of student teams. Although the participating teams shared some similarities with real-world teams, our results cannot be generalized without replication in organizational settings. In a field setting, where outcome and accountability conditions are more severe compared to a lab setting, results might vary. However, previous studies have successfully drawn on student teams to investigate similar constructs (e.g., DeShon et al., 2004; Tasa et al., 2007).

In conclusion, we extended previous theorizing by testing a mediation model of team goal orientation and team performance. Our results demonstrate that the relationships between team goal orientation, team self-regulation, and team performance may parallel those found at the individual level of analysis. They highlight the significant role of team performance-prove goal orientation and planning in team performance. The nonsignificant results for team learning and performance-avoid orientations may provide an impetus for further team research.

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