

TEMPORAL DIVERSITY AND TEAM PERFORMANCE: THE MODERATING ROLE OF TEAM TEMPORAL LEADERSHIP

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This study examines how team temporal diversity—variation in members’ time urgency, pacing style, and time perspective—can be effectively managed to maximize team performance. Results from 71 teams in a business process outsourcing firm in India reveal that team temporal leadership moderated the relationships between time urgency diversity and team performance and between pacing style diversity and team performance. Specifically, the influence of time urgency and pacing style diversity on team performance was more positive under conditions of stronger team temporal leadership than under weaker team temporal leadership. Team temporal leadership also had a direct, positive influence on team performance.

Rapidly changing competition, technologies, and client needs in today’s business world have created temporal challenges for teams in the form of extremely short deadlines, complex and dynamic coordination of multiple projects, and constantly fluctuating task goals (e.g., Fine, 1998; Hamm, 2006). These challenges require careful management of temporal resources in teams (Lientz & Rea, 2001), bringing the issue of time to the forefront of research on teams. **Despite its importance, time remains “perhaps the most neglected critical issue” in team research** (Kozlowski & Bell, 2003: 364). To reverse this “vicious cycle of neglect of temporal effects in substantive, conceptual, and methodological domains” (Kelly & McGrath, 1988: 86), a growing number of researchers have identified temporal issues as a key agenda item for future team research (e.g., Eisenhardt, 2004; McGrath & Tschan, 2004; Mohammed, Hamilton, & Lim, 2009). Answering these calls for further research on temporal issues in teams, we examine a critical but neglected issue in team temporal research (Eisenhardt, 2004; Mohammed & Harrison, 2007)—the influence of diver-

sity in temporal individual differences (i.e., members’ temporal orientations) on team outcomes. Specifically, we investigate the effect of diversity in time urgency (feeling chronically hurried [Landy, Rastegary, Thayer, & Colvin, 1991]), pacing style (pattern of effort distribution over time in working toward deadlines [Gevers, Rutte, & van Eerde, 2006]), and future time perspective (cognitive temporal bias toward being future oriented [Zimbardo & Boyd, 1999]).

Diversity of temporal orientations is considered to be a double-edged sword. On the one hand, the authors of recent conceptual work have contended that temporal diversity in teams can enhance team effectiveness by balancing multiple team performance requirements, such as speed and quality and short-term and long-term demands (Bartel & Miliken, 2004; Bluedorn, 2002; Eisenhardt, 2004; Mohammed & Harrison, 2007). On the other hand, according to McGrath and colleagues’ time, interaction, and performance theory and their related work (McGrath, 1991; McGrath & Kelly, 1986; McGrath & Rotchford, 1983), **diversity of temporal orientations can create ambiguity and conflicts among team members about pacing and the scheduling of work activities that can hinder both the timeliness and quality of team output**. These opposing influences point to the importance of examining the moderating conditions that determine how diversity of temporal individual differences will influence team performance (Mohammed & Harrison, 2007). **We introduce team temporal leadership as a moderator of the relationship between temporal diversity and team performance.** Team temporal leadership represents the degree to which

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team leaders schedule deadlines, synchronize team member behaviors, and allocate temporal resources. We propose that strong team temporal leadership maximizes team performance by amplifying the benefits and reducing the problems associated with temporally diverse teams, whereas weak team temporal leadership hinders team performance by failing to leverage the positive and reduce the negative influences of temporally diverse teams.

Our study furthers theoretical and methodological research on temporal issues in teams in three ways. First, our results clarify the complex relationship between diversity of temporal individual differences and team performance by specifying the condition (team temporal leadership) under which temporal diversity can maximize team performance. Second, our results have prescriptive value in specifying the temporally oriented leader behaviors that effectively leverage temporal diversity and maximize team performance. Finally, we develop a team temporal leadership scale with promising validity. This is notable because the lack of measurement instruments has created bottlenecks for temporal research on teams.

THEORETICAL BACKGROUND

Temporal Individual Differences

We examine diversity in three temporal individual differences: time urgency, pacing style, and time perspective. These temporal individual differences are conceptually distinct, capture unique time-based characteristics relevant to team tasks, and have been theoretically implicated as important for team functioning (e.g., Blount & Janicik, 2002; Waller, Conte, Gibson, & Carpenter, 2001). Although sparse, team-level studies are beginning to investigate time urgency (Mohammed & Angel, 2004), pacing style (Gevers et al., 2006), and time perspective (West & Meyer, 1997).

Time urgency is a subcomponent of the type A behavior pattern (Koslowsky, 2001; Price, 1982) and is regarded as a stable personality trait, as supported by high test-retest reliabilities (Conte, Landy, & Mathieu, 1995; Landy et al., 1991). "Time urgent" individuals are concerned that temporal resources are scarce and must be conserved. They are preoccupied with the passage of time and feel chronically hurried (e.g., Conte, Mathieu, & Landy, 1998; Landy et al., 1991; Menon, Narayanan, & Spector, 1996). Even when faced with external deadlines, time urgent individuals frequently impose their own internal time lines and strategically use those internal markers to gauge the time remaining until task completion (Rastegary & Landy,

1993; Waller et al., 2001). Indeed, individuals high in urgency view time as their enemy (Price, 1982), which drives them to schedule more activities than comfortably fit into an allotted period and to continuously check how much time remains for activities (Friedman & Rosenman, 1974). In contrast, non-time urgent individuals tend to underestimate the passage of time and therefore feel less hurried and constrained by time resources (Waller et al., 2001).

Introduced by Blount and Janicik (2002), *pacing style* captures how individuals distribute their effort over time in working toward deadlines. Three pacing styles have received the most attention thus far: early action, steady action, and deadline action (e.g., Gevers et al., 2006; Gevers, Claessens, van Eerde, & Rutte, 2009). *Early action* individuals begin task behaviors right away and finish long before the deadline, but *deadline action* individuals start working close to the deadline and finish just before time runs out (Gevers et al., 2006). In contrast, persons with a *steady action* style spread work out evenly over the time available. Moderate test-retest reliability supports pacing style as less stable than dispositions such as time urgency but more stable than mere transitory states (Gevers et al., 2006). Unlike time urgency, which involves rigorous attention to *when* work is due, pacing style captures *how* temporal resources are allocated toward task completion. Whereas time is viewed as the enemy and a source of constant pressure for the time urgent, individuals with a deadline action style are most energized and "in their element" as a target date approaches (Mohammed & Harrison, 2007).

Time perspective, also labeled "temporal focus" (Bluedorn, 2002) and "time orientation" (Bartel & Milliken, 2004), refers to the relative importance of past, present, and future time frames (Zimbardo & Boyd, 1999). Originating with Lewin, the construct represents "the totality of the individual's views of his or her psychological future and psychological present existing at a given time" (1951: 75). Specifically, individuals with a present-time perspective focus on immediate pleasure, take more risks, and make plans with shorter time frames, whereas individuals with a future-time perspective are highly goal-oriented, make longer-term plans, and are more likely to consider future consequences (Ashkanasy, Gupta, Mayfield, & Roberts, 2004). According to Zimbardo and Boyd (1999), the habitual overemphasis or underemphasis of time frames serves as a fairly stable, cognitive temporal bias, with high test-retest reliabilities (Keough, Zimbardo, & Boyd, 1999). This bias has been shown to predict how individuals will make various choices with task implications in such areas as information

processing, planning, and decision making (e.g., Das, 1987; Kivetz & Tyler, 2007; Simons, Vansteenkiste, Lens, & Lacante, 2004). In keeping with the extant research, which shows little empirical attention to past orientation, we focus on present and future orientation in the current study (Das, 1987; Kivetz & Tyler, 2007; Simons et al., 2004; Waller et al., 2001).

Temporal Diversity and Team Performance

Research referencing diversity of temporal individual differences and team performance is sparse and inconsistent. According to Eisenhardt, "There is also lack of clarity surrounding when heterogeneity vs. homogeneity of temporal group composition is valuable" (2004: 273). On the positive side, temporally diverse teams are proposed to be especially useful in complex, dynamic, and uncertain task environments that require teams to balance varied, even paradoxical, team performance requirements, such as quality and speed, and long-term and short-term perspectives (Eisenhardt, 2004; Mohammed & Harrison, 2007). The variety of goals evoked by diverse temporal orientations, such as acting immediately versus waiting for more information, "allow for a more complete analysis of alternative ways of approaching a task . . . and different ways of completing and ordering sub-tasks (sequential vs. simultaneous, evenly distributed over time vs. skewed)" (Bartel & Milliken, 2004: 106). Therefore, the benefits of temporal diversity are more likely to be realized when effective performance requires some level of synthesis of paradoxes.

In contrast, a theory expounded in the team literature delineates specific problems that groups face in managing time, problems that can be exacerbated by diversity in temporal individual differences. The time, interaction, and performance theory emphasizes team temporal patterns and interaction processes in relation to how they affect performance (McGrath, 1991). Based primarily on experimental work on groups, but also drawing from other conceptual work, this theory presents assumptions underlying the model in the form of propositions. These propositions have been under-researched over the years, especially regarding temporal behavior in groups. Specifically, the time, interaction, and performance theory identifies three temporal problems: *temporal ambiguity*, *conflict of temporal interests*, and *scarcity of temporal resources (time pressure experienced by team members)* (McGrath, 1991; McGrath & Kelly, 1986; McGrath & Rotchford, 1983). Although the theory does not explicitly discuss diversity of temporal individual differences, recent studies hint at the relevance of these temporal problems in under-

standing the performance influences of temporal diversity (Blount & Janicik, 2002; Bluedorn & Standifer, 2004). For example, members in highly temporally diverse teams are likely to map out different and sometimes inconsistent temporal schedules for accomplishing task goals, which can create considerable ambiguity about task deadlines and work sequences. Such ambiguity can create gaps in work flows and coordination that inhibit team performance (McGrath, 1991). Similarly, members with different temporal orientations may develop work priorities and pacing behaviors that are inconsistent with the needs and comfort levels of others in their team. This conflict of temporal interests can create tensions and dissatisfaction among team members (Jansen & Kristof-Brown, 2005), which can translate into lower team performance. Finally, considerable time and effort must be spent on reducing temporal conflicts and coordination gaps (e.g., McGrath, 1991) resulting from diversity in temporal individual differences, which reduces the time available to successfully meet work deadlines. This scarcity of resources and time pressure is likely to adversely influence team performance.

Empirical studies examining the influence of temporal diversity on team outcomes are sparse and have yielded insignificant main effects. For example, Mohammed and Angell (2004) found no significant direct relationship between time urgency diversity and team performance. Similarly, Gevers and colleagues (2009) found no significant direct relationship between pacing style diversity and the timeliness of project performance. The opposing set of theoretical mechanisms, combined with the insignificant direct effects in empirical findings, suggests that identifying relevant moderators is critical to understanding the complex relationships between temporal diversity and team performance (Bartel & Milliken, 2004; Mohammed & Harrison, 2007). Limited empirical evidence also suggests significant moderated effects for diversity of temporal individual differences (Gevers et al., 2009; Mohammed & Angell, 2004). For example, Mohammed and Angell (2004) found that effective team processes attenuated the deleterious effects of time urgency diversity on relationship conflict. Following this lead, we propose that team temporal leadership moderates the relationship between temporal diversity and team performance by amplifying the benefits and addressing the problems associated with temporally diverse teams.

Team Temporal Leadership

We conceptualize *team temporal leadership* by integrating the time, interaction, performance the-

ory with the nascent literature on temporal leadership. The theory and related studies have identified three closely related activities that could tackle the problems arising from diversity of temporal individual differences: *scheduling of activities*, *synchronization of activities*, and *allocation of temporal resources* (McGrath & Kelly, 1986; McGrath & Rotchford, 1983). Setting clear and well-understood schedules reduces temporal ambiguity by specifying which events occur when and by creating a coherent and unified plan of interim deadlines and milestones that allow team members to track their progress (Zerubavel, 1981). Synchronization of team activities reduces conflict of temporal interests by regulating the flow of the task, improving coordination among team members, and adjusting individual work cycles (Schriber, 1986; Schriber & Gutek, 1987). Finally, scarcity of temporal resources (time pressure) can be mitigated by creating built-in times for unforeseen contingencies, prioritizing task goals, and efficiently allocating temporal resources among team members (Schriber & Gutek, 1987). When team members experience less time pressure, they are likely to be more productive and more committed to task accomplishment (Gevers, van Eerde, & Rutte, 2001).

Although the time, interaction, performance theory does not specify who will perform these three activities, other temporal scholars have acknowledged that team leaders are often responsible for implementing time-related activities such as scheduling and reminding team members of deadlines (Gevers, Rutte, & van Eerde, 2004; Gevers et al., 2009). Because a team leader's primary function is "to do, or get done, whatever is not being adequately handled for group needs" (McGrath, 1962: 5), the task of managing temporal problems in a team often falls to the leader. Indeed, leadership researchers are beginning to explicitly link temporally related activities to the leadership role. For example, Ancona, Goodman, Lawrence, and Tushman (2001) coined the term "temporal leadership" to address leadership challenges such as deciding how fast to act and managing multiple time frames. Recently, Halbesleben, Novicevic, Harvey, and Buckley (2003) postulated that temporal activities such as managing time frames, adjusting tempo, recognizing time-related differences, and synchronizing the abilities of members should be integral to the leadership role. Similarly, van der Erve advocated that "the notion of leadership should become more inclusive when it comes to the temporal or time-related needs of the organization" (2004: 605). Despite these calls, Bluedorn and Jaussi lamented that "the formal use of temporal variables in leadership research has been scarce and scat-

tered; work from temporal theory has not made its mark on . . . the leadership process" (2008: 657). Addressing this need, we expand the nascent notion of temporal leadership to the team context by conceptually and operationally examining the intersection of time, leadership, and teams.

Building on this conceptual foundation, we define team temporal leadership as leader behaviors that aid in structuring, coordinating, and managing the pacing of task accomplishment in a team. The set of behaviors that comprise temporal leadership of a team are *scheduling* (e.g., reminding team members of deadlines, setting interim milestones), *synchronizing* (e.g., coordinating the team so that work is finished on time), and *allocating temporal resources* (e.g., building in time for contingencies and problems). Conceptually, these activities are closely interrelated and together form the temporal structure for team activities (Bluedorn & Denhardt, 1998; Halbesleben et al., 2003; McGrath & Rotchford, 1983; Schriber, 1986). For example, creating built-in times for contingencies and sequencing team member actions are necessary for setting detailed schedules and interim milestones. Similarly, defining sequences of member behaviors requires an understanding of the available time and the planned schedule of work completion. As such, team temporal leadership comprises a unified and coherent construct.

Team temporal leadership captures the task-oriented behaviors of a team leader rather than relationship-oriented behaviors that focus on socio-emotional needs (Casimir, 2001; Judge, Piccolo, Ilies, 2004). However, team temporal leadership is distinct from task-oriented leadership such as "initiation of structure" because it represents a narrower set of behaviors that highlight temporality. For example, task-oriented behaviors such as maintaining standards of performance, standardizing task procedures, monitoring operations, defining task roles, and clarifying objectives (Fleishman, 1973, 1995; Yukl, 2006) are excluded from the team temporal leadership construct. Although initiation of structure facilitates the development of a clear task structure through planning, coordinating, and organizing member activities (Fleishman, 1973), these behaviors do not overtly include temporal referents. Temporal aspects are peripheral rather than central to the conceptualization and measurement of initiation of structure activities.

In contrast, the team temporal leadership construct explicitly addresses how team leaders facilitate the clear temporal structure of team activities through scheduling, synchronizing, and allocating temporal resources that are not specified in extant task-oriented leadership behaviors. We contend that

strong temporal leaders effectively leverage diversity of temporal individual differences and maximize team performance, whereas weak temporal leaders fail to address temporal problems and to exploit the benefits of temporal diversity, omissions that result in lower levels of team performance.

HYPOTHESES

Time Urgency Diversity

If one assumes that a speed-accuracy trade-off exists (e.g., Beersma, Hollenbeck, Humphrey, Moon, Conlon, & Ilgen, 2003), less time urgency implies higher quality (e.g., Landy et al., 1991). Consequently, the hurried nature of time urgent individuals is especially beneficial in task contexts that place a premium on rapid task accomplishment, but it becomes a liability in those in which time pressure has been found to be an impediment, such as complex information processing and creative problem solving (Kruglanski & Freund, 1983). Because neither time urgent nor non-time urgent individuals are likely to consistently meet both performance requirements, diversity of time urgency in teams may be beneficial for complex tasks requiring accurate work as well as timely execution (Mohammed & Harrison, 2007).

Although the combination of time urgent and non-time urgent members may be synergistic in theory, the reality is that time urgency diversity is likely to create significant temporal problems in teams. The internally driven contrasts between members who are chronically hurried (time urgent) and members who underestimate the passage of time (non-time urgent) are likely to create ambiguities about external schedules and deadlines. Time-urgent members are likely to feel frustrated and discomforted by the unwelcome delays imposed by non-time urgent members, whereas the latter members may experience anxiety because of the uptight and demanding nature of time urgent members (Waller et al., 2001). Jansen and Kristof-Brown (2005) found that team members whose time urgency did not match those of their coworkers felt dissatisfied and were less likely to engage in helpful behaviors. Such negative attitudes and tension among team members can detract from team productivity and cause delays in meeting deadlines, as additional time is needed for conflict resolution.

We predict that strong team temporal leadership maximizes team performance by creating temporal synergies and reducing the problems associated with time urgency diversity. When team leaders actively set and enforce clear schedules and interim deadlines that synchronize team member be-

haviors, the ambiguity and conflict created by time urgent and non-time urgent members responding differently to temporal demands is likely to diminish. Zerubavel (1981) argued that scheduling can promote temporal complementarity wherein the temporal rhythms and patterns of members match each other. Finally, team leaders can avoid delays in meeting deadlines by recognizing problems associated with time urgency diversity (e.g., coordination gaps, existence of multiple and conflicting schedules) early and by building in time for addressing them. Schriber (1986) stressed that the efficient allocation and management of temporal resources was central to timely and effective task accomplishment. In contrast, failure to create and enforce schedules, to actively synchronize member activities, and to properly plan and allocate temporal resources can result in serious conflicts and misunderstandings about schedules and deadlines that are likely to adversely affect both the quality and speed of team output. This rationale suggests that strong team temporal leadership can help leverage the positive effects and reduce the problems associated with time urgency diversity and team performance.

Hypothesis 1. Team temporal leadership moderates the relationship between time urgency diversity and team performance: time urgency diversity is more positively related to team performance when team temporal leadership is stronger.

Pacing Style Diversity

Pacing style describes the pattern of effort distribution over the time available to complete a team task. Analogous to the notion of massed (all at once) versus spaced (distributed over time) learning in the training literature (e.g., Donovan & Radosevich, 1999), early action and deadline action styles promote task completion that occurs within a short period, whereas a steady action style fosters incremental movement toward work goals. Thus, the combination of pacing styles in a team influences when and how individuals work together toward task completion. Specifically, a mix of pacing styles may be well suited for coordinatively complex tasks that allow team members with an early action style to start a project, those with a steady action style to maintain project momentum, and a deadline action style to finish (Mohammed & Harrison, 2007). Specifically, those who begin a task early can provide the team with a head start; those who evenly pace their work can adapt to dynamic task goals by making consistent changes

over time; and those who work right up to the deadline can provide the final push to complete the task on time. Diversity of pacing styles is suitable for dynamic projects in which changing task demands may render “early bird” efforts moot and a “slow and steady” approach insufficient to meet stringent due dates.

However, pacing style diversity may also create temporal ambiguities about work schedules as members follow different patterns of work distribution that may be inconsistent with each other (Bartel & Milliken, 2004). Temporal tensions may also occur in teams when members with early and steady action styles experience anxiety because the work patterns of those with deadline action styles leave little room for revision and adjustments, which could adversely influence the quality of team performance (Gevers et al., 2009). Indeed, early and steady action members may perceive the “last minute heroics” of deadline action members to be irresponsible procrastination that evidences a lack of commitment to the team. Contrastingly, deadline action members may regard their style as the most efficient and results-oriented because they are best able to accommodate task changes occurring late in the process, long after the early and steady action style members have completed the bulk of their work (Mohammed & Harrison, 2007).

We propose that strong team temporal leadership plays a crucial role in maximizing the performance benefits of pacing style diversity while minimizing temporal ambiguities, tensions among team members, and time pressures arising from differences in pacing style. Leader behaviors that set clear and enforceable schedules, synchronize member behaviors to meet deadlines, and dynamically allocate temporal resources may help to avoid team performance breakdowns that result when those with a deadline action style are assigned to tasks that occur at the beginning of a project's life span, and those with an early or steady action style are assigned to tasks that occur immediately before the deadline. Because it is uncommon for members to take an inventory of pacing styles at their team's outset, synchronization efforts of leaders can play an especially valuable role in harnessing diverse member proclivities and converting pacing style heterogeneity into a constructive team experience. Schriber and Gutek (1987) advocated synchronization and efficient allocation of temporal resources as ways to reduce time pressure (e.g., schedules are not too tight, tasks do not take longer than planned, time is not a constraint in achieving goals). Without strong team temporal leadership that dynamically adjusts individual work cycles and coordinates a team so that work is finished on time, it is likely

that the contrasting requirements of different pacing styles will prevent the team from fully exploiting the benefits of time pacing diversity and maximizing performance.

Hypothesis 2. Team temporal leadership moderates the relationship between pacing style diversity and team performance: pacing style diversity is more positively related to team performance when team temporal leadership is stronger.

Time Perspective Diversity

Whereas future-oriented individuals are likely to create a vision and engage in long-term planning, present-oriented individuals are likely to act rather than to deliberate (Thoms, 2004). Because present and future frames serve as cognitive biases, neither teams composed of only visionaries or those grounded in the “here and now” are likely to consistently meet both performance requirements. Consequently, diversity of time perspective in teams helps to ensure that both proximal and distal objectives are adequately addressed (Mohammed & Harrison, 2007).

However, greater heterogeneity can also generate temporal ambiguities and conflicts among team members in planning and executing team activities (Waller et al., 2001). For example, present-oriented members tend to prefer shorter planning horizons, whereas future-oriented members favor longer planning horizons (Das, 1987). These differences may not only create ambiguities about team schedules, but also result in temporal conflict. In addition, members' time perspective biases may cause them to ignore or discount valuable information from members with dissimilar time perspectives. To illustrate, present-oriented individuals may be perceived as impulsively acting without adequately considering long-term consequences, and future-oriented individuals may be regarded as having an “off in the clouds” mentality out of touch with day-to-day operational realities.

Team temporal leadership is likely to serve as a situational mechanism to diffuse the negative and heighten the positive aspects of diversity in time perspective. According to Ancona and colleagues, “temporal leadership is rooted in the senior team's ability to operate simultaneously in the present and the future” (2001: 658). When leaders engage in activities such as building in time for contingencies, enforcing schedules and deadlines through reminders, and balancing the attention given to short- and long-term activities through behavior sequencing, there is a greater probability that the

strengths of present- and future-oriented members will be effectively harnessed. “Synchrony in group members’ expectations about deadlines may be critical to groups’ abilities to accomplish successful transitions in their work” (Gersick, 1989: 305); therefore, stronger team temporal leadership may allow time perspective diversity to be properly leveraged.

Hypothesis 3. Team temporal leadership moderates the relationship between time perspective diversity and team performance: time perspective diversity is more positively related to team performance when team temporal leadership is stronger.

Team Temporal Leadership and Team Performance

In addition to moderating the relationship between diversity of temporal individual differences and team performance, team temporal leadership may also contribute directly to team performance. Because virtually all teams have implicit or explicit deadlines, the timely completion of work is regarded as a critical indicator of team success in both science (e.g., Hackman, 1990) and practice (e.g., Fine, 1998; Lientz & Rea, 2001). **Indeed, effective adjustment to external temporal parameters is central to maximizing team performance in today’s business world, where teams are closely tied to environmental paces such as technology, customer, supplier, and economic cycles** (Ancona et al., 2001; Bluedorn & Denhardt, 1998; Halbesleben et al., 2003; Okhuysen & Waller, 2002).

Bridging the team-organization boundary, team temporal leadership behaviors may allow team leaders to create internal temporal structures that entrain the internal tempo, rhythm, and work cycles of a team’s activities to those of its external project environment (Ancona et al., 2001; Halbesleben et al., 2003; Kelly & McGrath, 1986; McGrath & Rotchford, 1983). **For example, setting interim milestones in scheduling can help teams adjust their tempo and pace so that activities are more closely aligned with external deadlines** (Waller et al., 2001). **Interim milestones allow teams involved in complex, dynamic, and creative tasks to shift their attention from the developmental aspects of a project in the early phases to the execution aspects of the project in the later phases so that deadlines are met** (Gersick, 1989). **Moreover, team temporal leadership behaviors such as scheduling, synchronization, and temporal resource allocation can help team leaders better understand and communicate the complexities of project time frames** (Ancona et

al., 2001). **Crossan, Cunha, Vera, and Cunha (2005) proposed that understanding temporal issues in an environment enables leaders to set the context for team activities and to develop a more integrated and flexible approach to time, which is likely to foster adaptability and performance.** Therefore, leaders who establish clear time frames and convey them to members through schedules, reminders, and interim milestones and time frames tied to project goals are better positioned to maximize team productivity (Halbesleben et al., 2003).

Hypothesis 4. Team temporal leadership is positively related to team performance.

METHODS

Organizational Context

The site for the study was a medium-sized business process outsourcing provider firm from India with 534 employees. Business process outsourcing involves the transfer of the operational ownership of one or more of a firm’s processes to an external provider that, in turn, manages the processes according to predetermined metrics (Ghosh & Scott, 2005; Stone, 2004). Specifically, the company provided customer interaction services such as “tele-sales” and customer support and feedback, as well as back office transaction-processing services, including mortgage and credit card processing, to multinational corporations in the finance sector.

This company provided an ideal setting for testing the relationship between diversity of temporal individual differences and team performance. First, the company was a team-based organization (e.g., West & Markiewicz, 2004) in which team leaders reported directly to members of the top management team. Each project team also worked closely with a client coordinator who served as a liaison between the team and the client. In keeping with the definition of a team provided by Guzzo and Dickson (1996), members saw themselves and were seen by others as distinct collectives, were highly interdependent, performed tasks that affected others, and were embedded in a larger organizational context.

Second, the company offered an excellent opportunity to explore diversity in temporal individual differences. Indeed, the sampled teams had high interdependence and cognitively demanding project-based tasks, two characteristics that strengthen the relationship between diversity and team performance (Bowers, Pharmer, & Salas, 2000; Horwitz, 2005; Mohammed & Angell, 2003). Third, time-based characteristics were expected to be trait-relevant in this setting (Tett & Burnett, 2003). Reflect-

ing the reality that time is one of the most important challenges confronting business process outsourcing providers (Mehta, Armenakis, Mehta, & Irani, 2006), the organization constituted a time-pressured environment in which employees had to cope with increasing client demands, exigent project targets, and constantly changing client policies and processes. Most projects were structured around a monthly schedule, and weekly and bi-weekly interim deadlines were closely monitored by the client firms.

Sample

The sample consisted of 299 Indian employees, most of whom worked full-time (81.3%) and had been with the organization an average of 2.10 years (range of 0.5 to 5 years). The mean age was 26.18 (range of 18 to 37), and 59.5 percent of the participants were male. Employees were organized into 71 teams ranging from 3 to 8 in size, with an average of 4.21 members per team. Each team had a formally designated leader, and teams were structured around information technology or sales.

Data Collection Procedures

Survey instruments were administered at three different times over the course of one month. At the beginning of the monthly project cycle, the first survey, measuring individual differences (time urgency, pacing style, time perspective) and basic demographic data (e.g., gender, age) was distributed to team members. We created codes for each team as well as each team member to ensure confidentiality. Coded surveys were then distributed to employees through the human resources manager, and team members were asked to return completed surveys in a sealed envelope within one week. We sent two reminder e-mails to team members, the first in the middle of the week and the second a day before the surveys were due. At the team level, our response rate was 63.34 percent (71 out of 112 teams in the organization responded).

Recent research has shown that basing calculation of intrateam diversity on incomplete member data can result in "nontrivial distortion of true diversity/outcome correlations" (Allen, Stanley, Williams, & Ross, 2007: 279), even when the nonresponse is random. As information on temporal individual differences could only be derived from employees themselves, it was especially important that within-team response rates be high (Allen et al., 2007). Completion of the first survey by 100 percent of the members of 63 teams, by all but 1

member of 6 teams, and by all but 2 members of 2 teams met this requirement.

In the middle of the project cycle, approximately two weeks after the first survey was given to team members, the team temporal leadership scale was administered to team leaders and client coordinators. At the end of the monthly project cycle, after projects were delivered to the customers (a minimum of two weeks after the team temporal leadership survey was administered), client coordinators rated the performance of each team. As suggested by their title, client coordinators were liaisons between team members, team leaders, and client representatives. They received extensive feedback from clients about their satisfaction with both the timeliness and quality of team output. Therefore the client coordinators served as "internal clients." Given the importance of client satisfaction in the business process outsourcing industry (Mehta et al., 2006), we deemed client coordinators to be the most qualified to rate team performance. The response rate for the team performance scale rated by client coordinators and the team temporal leadership scale rated by team leaders and client coordinators was 100 percent. As temporal individual differences, team temporal leadership, and team performance measures were each obtained from a different source as well as separated in time, common method bias was minimized (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Measures

Appendix A presents the scale items for all our measures.

Temporal individual differences. *Time urgency* was assessed using a six-item scale derived from the general and task-related hurry subscales of a measure developed and validated by Landy and colleagues (1991). The hurry subscales capture the degree to which individuals feel chronically hurried and rush in carrying out their work. These subscales have been used in the extant research to represent time urgency (e.g., Jansen & Kristof-Brown, 2005). Respondents rated six items (1, "strongly disagree/definitely false," to 5, "strongly agree/definitely true"), which were combined into a single scale ($\alpha = .81$) at the individual level.

Pioneered and validated by Gevers and colleagues (2006, 2009), *pacing style* was measured via five graphs representing five styles of time allocation on a continuous scale. Participants selected the graph that best captured the way they pace their work when performing a project or task. In addition to the pictorial representation, Gevers et al. provided a written description below each

graph. Therefore, the measure is a behaviorally anchored rating scale (BARS), which are regarded as less susceptible to cognitive distortions than non-behavioral scales and have frequently demonstrated acceptable psychometric properties, including reliability and resistance to common forms of rating errors (e.g., Landy & Farr, 1983; Smith & Kendall, 1963). The first graph represented an early action pacing style, and the last graph represented a deadline action style. The midpoint represented a steady action style. The second and fourth intermediate graphs showed moderate tendencies toward the early and deadline action styles, respectively (Gevers et al., 2006). Because the graphs were ordered continuously, lower mean scores were indicative of an early action style and higher mean scores were indicative of a deadline action style. If none of the graphs represented how they paced their work, participants had the option of drawing their own model and writing an explanation, but no employees did so.

Future time perspective was assessed with the Consideration of Future Consequences Scale developed and validated by Strathman, Gleicher, Boninger, and Edwards (1994). This 12-item scale, which measures the extent to which individuals consider distant outcomes versus immediate benefits in choosing behaviors, was rated from 1, "extremely uncharacteristic (not at all like you)," to 5, "extremely characteristic (very much like you)." The scale coefficient alpha was .88.

Confirmatory factor analysis (CFA), for which we used Arbuckle's (2006) AMOS, supported the distinctness of time urgency and consideration of future consequences, as a two-factor model had superior fit (χ^2 : 297.6 [df = 135]; CFI: 0.91, NFI: 0.94, IFI: 0.91, RMSEA: 0.04) compared to a one-factor model (χ^2 : 495.3 [df = 42]; CFI: 0.42, NFI: 0.40, IFI: 0.42, RMSEA: 0.22). We excluded the single-item measure of pacing style from this analysis because it could have created a model identification problem. The range of item-factor correlations was 0.77 to 0.93 for time urgency and 0.74 to 0.90 for future time perspective.

Diversity of temporal individual differences.

Diversity of time urgency, future time perspective, and pacing style describes the distribution of members on a horizontal continuum, which is referred to as "separation diversity" (Harrison & Klein, 2007). The within-group standard deviation is appropriate for measuring separation diversity (Harrison & Klein, 2007) and interval-level data (Harrison & Sin, 2006). In addition, the standard deviation meets all of the properties of an effective diversity index, including zero representing absolute homogeneity and larger values indicating

greater diversity, as well as the absence of negative values and bounded maximum values (Harrison & Sin, 2006). Furthermore, in a simulation study examining the validity of several dispersion measures for detecting meaningful relations between within-group variance and group-level outcomes, Roberson, Sturman, and Simons (2007) concluded that researchers should use the standard deviation when strength or interaction effects are predicted. Although there has been notable inconsistency in the operationalization of diversity, we utilize the recent measurement recommendations espoused by diversity scholars (e.g., Harrison & Klein, 2007; Harrison & Sin, 2006; Roberson et al., 2007).

Team temporal leadership. One of the criticisms levied against leadership research is the overuse of predeveloped instruments that capture only a small subset of essential leader behaviors (Hunter, Bedell-Avers, & Mumford, 2007). Because the notion of team temporal leadership has been virtually ignored in empirical research, it was necessary to develop a measure for the present study. We developed a seven-item scale by partially adapting scales for temporal planning (Janicik & Bartel, 2003) and temporal reminders (Gevers et al., 2006) and modifying these scales to be leader-specific. We composed additional items to fully capture McGrath's (1991) description of scheduling, synchronization, and allocation of temporal resources and Ancona and colleagues' (2001) conceptualization of temporal leadership. Item responses were coded from 1, "not at all," to 5, "a great deal." Appendix A contains the full scale.

We validated the team temporal leadership scale in a separate study of 304 students (254 undergraduate seniors and 50 middle managers from an executive education program) working in assigned teams with a designated leader on a team case analysis project in a business policy course. We examined the convergent and discriminant validity of the team temporal leadership scale by linking it to two established and validated leadership behavior scales from the Leadership Behavior Description Questionnaire (LBDQ-XII; Stogdill, 1963): initiation of structure (task-focused behaviors; ten items) and consideration (people-focused behaviors; ten items) Conceptually, both team temporal leadership and initiation of structure behaviors are task-focused (Ancona et al., 2001; Fleishman, 1973, 1995; Yukl, 2006), whereas consideration behaviors are people-focused (Judge et al., 2004). Therefore, we expected and found that team temporal leadership had a stronger relationship with initiation of structure (0.47, p < .01) than with consideration (0.19, p > .05). CFA results indicated that the hypothesized three-factor model best fit the

data ($\chi^2 = 1,024.2$ [$df = 323$]; CFI: 0.91, NFI: 0.89, IFI: 0.91, RMSEA: 0.05), surpassing the one- and two-factor models. The range of item-factor correlations was .70 to .91 for initiation of structure, .80 to .92 for consideration, and .75 to .89 for team temporal leadership. Moreover, team temporal leadership explained significant additional variance in willingness to follow the leader (Cushenbery, Thoroughgood, & Hunter, 2009) beyond that explained by initiation of structure and consideration ($\beta = 0.38$, $p < .001$; $\Delta R^2 = 0.12$, $p < .001$).

For the main study, we averaged team temporal leadership self-assessments from team leaders as well as external assessments from client coordinators because they were highly correlated ($r = .79$, $p < .01$). Using this average allowed us to mitigate inflation bias, which can sometimes result from self-reported assessments (e.g., Horwitz & Horwitz, 2007). Client coordinators possessed detailed knowledge of team leader behaviors because of their frequent and involved interactions with the teams to which they were assigned (for example, they participated in regular e-mail correspondence and team meetings and they were informed about task assignments and schedules as well as major task-related problems). Internal consistency reliability was .90 for the averaged team leader and client coordinator ratings.

Team performance. Team performance is multidimensional (Hackman, 1990), and although quantity and quality are measured far more fre-

quently in team research (e.g., Austin, 2003; Chen & Klimoski, 2003), it was especially important to include the timeliness of work completion because of the temporal emphasis in the current study. Therefore, team performance was assessed via four items capturing teams' timeliness in meeting project milestones, clients' satisfaction with team performance, and overall performance. These items were adapted from existing team performance measures (e.g., Gevers et al., 2009; Rentsch & Klimoski, 2001). Client coordinators rated team performance on a scale anchored by 1 = "poor," 3 = "mediocre," and 5 = "exceptional" ($\alpha = .92$; see Appendix A).

We conducted a CFA at the team level for team temporal leadership and team performance. The two-factor model showed superior fit ($\chi^2 = 349.2$ [$df = 43$]; CFI: 0.90, NFI: 0.87, IFI: 0.90, RMSEA: 0.06) to the one-factor model ($\chi^2 = 501.78$ [$df = 43$]; CFI: 0.48, NFI: 0.45, IFI: 0.48, RMSEA: 0.19). The standardized item-factor correlations ranged from 0.78 to 0.91 for temporal leadership and from 0.84 to 0.93 for team performance.

Control variables. We included a number of control variables in statistical analyses. First, because of its potential influence on diversity (e.g., Jackson, Brett, Sessa, Cooper, Julin, & Peyronnin, 1991) and team outcomes (e.g., Steiner, 1972), we examined team size. As shown in Table 1, larger teams had greater diversity on time urgency ($r = .25$, $p < .05$) and pacing style ($r = .41$, $p < .01$), but not future time perspective ($r = -.09$, $p > .05$).

TABLE 1
Descriptive Statistics and Correlations among All Group-Level Variables^a

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11
1. Team size	4.21	0.86											
2. Part-time/full-time status	1.82	0.18	-.09										
3. Gender diversity	0.40	0.13	.16	.16									
4. Standard deviation of age diversity	4.31	1.21	-.09	-.48**	-.09								
5. Mean time urgency	3.10	0.87	.13	.02	-.11	-.06							
6. Mean pacing style	2.25	0.75	.13	-.11	.09	.04	-.11						
7. Mean future time perspective	2.86	0.74	-.18	.07	.01	.01	.05	.05					
8. Standard deviation of time urgency	0.54	0.34	.25*	-.19	.06	.04	-.10	.12	-.35**				
9. Standard deviation of pacing style	0.72	0.50	.41**	.07	.08	-.20	.01	.46**	.14	-.04			
10. Standard deviation of future time perspective	0.43	0.31	-.09	.11	-.16	.03	-.04	.11	.01	.00	-.05		
11. Temporal leadership	2.83	0.97	.13	-.20	-.17	.13	-.02	.03	-.13	.16	-.13	.04	
12. Team performance	4.11	1.54	.15	-.03	-.18	.09	.01	-.01	-.28*	.08	-.04	-.04	.59**

^a $n = 71$ teams.

* $p < .05$

** $p < .01$

Second, to partial out potential effects of task requirements, we controlled for whether teams were comprised of part-time or full-time members (coded respectively 1 or 2; aggregated up to team level by mean). Third, to ensure that diversity of temporal individual differences exhibited unique effects beyond diversity of background characteristics, we also included heterogeneity of gender and age as control variables. Gender heterogeneity was measured by Blau's (1977) index, using male and female categories. We calculated age diversity by means of standard deviation. Finally, because average scores on diversity measures can be confounded with within-group standard deviations (Bedeian & Mossholder, 2000; Harrison & Klein, 2007), group means on time urgency, pacing style, and future time perspective were also included as control variables.

ANALYSES AND RESULTS

Data Analysis

The research design and analyses employed in this study were all framed at the team level, and hierarchical ordinary least square regression analysis was used to test hypotheses. Specifically, we used a four-step procedure to test for moderation. In step 1, we controlled for team size, part-time/full-time status, heterogeneity of gender and age, and the means of temporal individual differences. In step 2, we entered the standard deviations of time urgency, pacing style, and future time perspective. Team temporal leadership and interactions between temporal diversity and team temporal leadership were added in steps 3 and 4, respectively. We mean-centered interaction terms to enhance interpretability (Aiken & West, 1991).

Descriptive Statistics

According to Harrison and Klein, "A researcher's sample must evidence substantial between-unit variability in within-unit separation" (2007: 1218) to adequately test diversity hypotheses. Meeting this requirement, the range of within-group standard deviations across sampled teams was 0.08 to 1.46 for time urgency, 0.00 to 1.73 for pacing style, and 0.11 to 1.31 for future time perspective.

Table 1 provides the means, standard deviations, and correlations for all study variables at the group level of analysis. Demonstrating that they are distinct constructs, the correlation between mean time urgency and pacing style was not significant ($r = -.11, p > .05$). Similarly, mean future time perspective was not associated with time urgency ($r = .05, p > .05$) or pacing style ($r = .05, p > .05$).

Test of Hypotheses

Table 2 presents the results of the moderated hierarchical regression analysis with team performance as the dependent variable. The interaction between time urgency diversity and team temporal leadership ($\beta = .25, p < .05$) and the interaction between pacing style and team temporal leadership ($\beta = .20, p < .05$) were significant, accounting for an additional 10 percent of the variance in team performance ($F_{3,56} = 3.94, p < .05$) beyond that accounted for by controls and main effects.¹ Figures 1 and 2 illustrate the interactions by showing the slopes of regression lines under conditions of strong and weak team temporal leadership (one standard deviation above and below the mean, respectively [Aiken & West, 1991]). Supporting Hypotheses 1 and 2, the pattern was similar for both interactions. The influence of team temporal leadership is more salient under conditions of higher member variability than lower member variability. A simple slope analysis revealed that time urgency diversity did not significantly predict team performance for teams with strong ($\beta = .14, p > .05$) or weak ($\beta = -.22, p > .05$) team temporal leadership. The simple slope analysis for pacing style diversity revealed that team performance was marginally significant for teams with strong temporal leadership ($\beta = .29, p = .07$), but nonsignificant for teams with weak temporal leadership ($\beta = -.13, p > .05$). Although low sample size was probably responsible for the nonsignificant effects, the effect sizes for the weak and strong team temporal leadership slopes for time urgency and pacing style, respectively, are relatively sizable and comparable to significant betas in Table 2. In addition, for both temporal individual differences, the slopes were in the positive direction for strong team temporal leadership and in the negative direction for weak team temporal leadership. The influence of time urgency and pacing style diversity on team performance was more positive under conditions of stronger team temporal leadership than under conditions of weaker team temporal leadership.

Contrary to Hypothesis 3, the interaction between future time perspective diversity and team temporal leadership was not significant ($\beta = .06, p > .05$). Hypothesis 4 predicts that team temporal leadership relates positively to team performance. Supporting Hypothesis 4, there was a strong posi-

¹ Results still hold if the two time-related items in the team performance measure are deleted.

TABLE 2
Results of Hierarchical Regression Analyses for Moderation of the Relationship between Temporal Individual Differences Diversity and Team Performance by Team Temporal Leadership^a

Independent Variables	Model 1	Model 2	Model 3	Model 4
<i>Control variables and means of time-based individual differences</i>				
Team size	.16	.19	.06	.06
Part-time/full-time status	.10	.12	.17	.21
Gender diversity	-.21	-.22	-.12	-.10
Standard deviation of age diversity	.13	.13	.11	.15
Mean time urgency	-.02	-.02	.01	.08
Mean pacing style	-.00	.04	-.02	.10
Mean future perspective	-.25*	-.25*	-.24*	-.30**
<i>Diversity on time-based individual differences</i>				
Standard deviation of time urgency		-.03	-.07	-.13
Standard deviation of pacing style		-.07	.07	.06
Standard deviation of future perspective		-.08	-.09	-.11
<i>Moderator</i>				
Team temporal leadership			.58**	.58**
<i>Interactions</i>				
Standard deviation of time urgency \times temporal leadership				.25*
Standard deviation of pacing style \times temporal leadership				.20*
Standard deviation of future perspective \times temporal leadership				.06
R^2	.14	.15	.43**	.53**
ΔR^2		.01	.28**	.10*

^a Standardized coefficients are reported; $n = 71$ teams.

* $p < .05$

** $p < .01$

tive main effect for team temporal leadership ($r = .59$, $p < .01$; $\beta = .58$, $p < .01$).

DISCUSSION

Our study yielded two major results. First, team temporal leadership moderated the relation-

ship between temporal diversity and team performance in such a way that time urgency and pacing style diversity were more positively related to team performance when team temporal leadership was stronger. Second, team temporal leadership exerted a positive main effect on team performance. In what follows, we discuss these

FIGURE 1
Effect of the Interaction between Time Urgency Diversity and Team Temporal Leadership on Team Performance

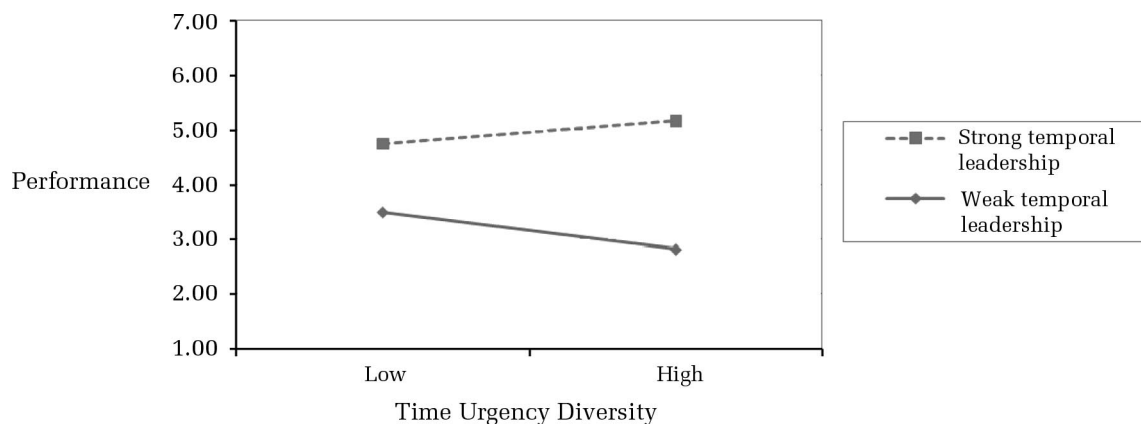
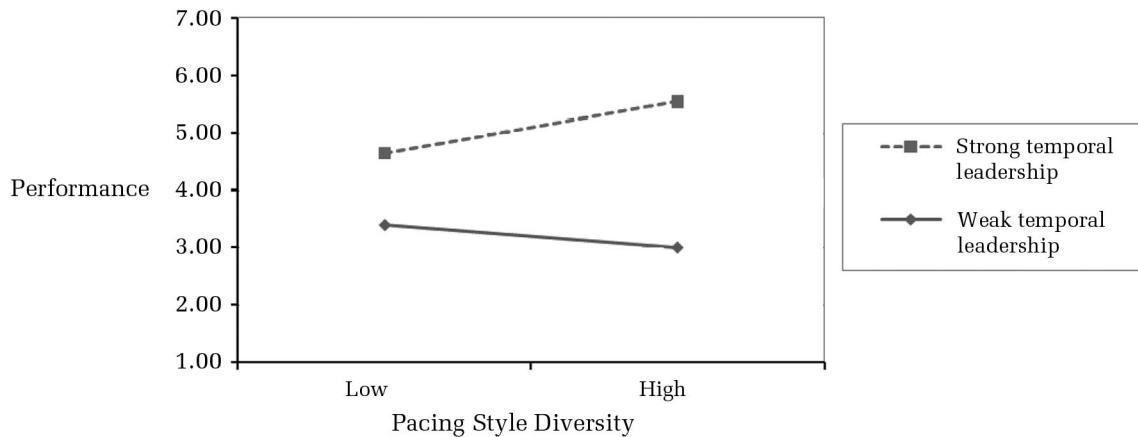


FIGURE 2
Effect of the Interaction between Pacing Style Diversity and
Team Temporal Leadership on Team Performance



results and provide theoretical and practical implications.

Theoretical Implications

Temporal diversity and team performance. Our results extend temporal research in teams in several ways. For example, the time, interaction, and performance theory (McGrath, 1991) identifies the temporal problems teams encounter but does not explain how these problems arise or who should manage these problems. Understanding these issues is central to effectively managing temporal problems in teams. Our study suggests that time urgency and pacing style diversity are underlying mechanisms that may give rise to temporal problems in teams. The results of the current research point to the relevance of temporal diversity to better comprehending and managing the temporal problems specified in the theory. In addition, although the time, interaction, and performance theory delineates a solution for each temporal problem, who performs these solutions is left unaddressed. Our results point to a team's leader as a key player in the scheduling, synchronization, and allocation of temporal resources. By acknowledging that the management of time-based issues in teams is often the responsibility of the team leader, the current study integrates McGrath's theory with the leadership literature.

Moreover, our results also help to reconcile opposing conceptual mechanisms salient in the team diversity literature as well as to explain the boundary conditions for existing temporal theories such as time, interaction, and performance. For example, we specified a moderating condition under which diversity of temporal individ-

ual differences can help or harm team performance. Stronger temporal leaders may have reduced the problems and/or amplified the benefits of diversity in temporal individual differences, whereas weaker temporal leaders may have failed to leverage the benefits and/or address the problems associated with diversity of temporal individual differences.

Surprisingly, team temporal leadership did not moderate the relationship between diversity of future perspective and team performance. In business process outsourcing organizations, rapid task accomplishment and conformity to client demands tend to be rewarded more than setting distal future goals (Mehta et al., 2006). In such a context, anticipating distant future events would impede performance (speed) by expressing too great a concern for longer-term outcomes. Therefore, this type of environment is better suited to present-oriented team members than to future-oriented team members. In keeping with this rationale, we found a significant, negative relationship between a team's mean future perspective and team performance ($r = -.28$, $p < .05$; $\beta = -.30$, $p < .01$). Diversity of future perspective may be more applicable in teams that simultaneously require the consideration and management of short-term and long-term goals, such as product development and top management teams (Thoms, 2004) than in teams primarily tasked with meeting monthly project goals, such as those in the present study.

Team temporal leadership. We found that team temporal leadership not only moderated the relationship between temporal diversity and team performance, but also exerted a positive main effect on team performance. This result contributes to research on team leadership. For example,

Zaccaro, Rittman, and Marks lamented that “we know surprisingly little about how leaders create and manage effective teams” (2001: 452). Our findings address this concern by highlighting the importance of temporal leadership behaviors in effectively managing teams. Similarly, our results also support recent leadership literature urging the incorporation of temporal elements (Bluedorn & Jaussi, 2008; Halbesleben et al., 2003).

Our results have some important implications for leadership research. First, temporal diversity and temporal leadership could be important considerations in team leader assignments aimed at achieving effective leader-team fit. Our findings suggest that strong temporal leaders are more likely to improve performance in temporally diverse teams than in homogeneous teams. Second, because temporal leadership behaviors are central to addressing temporal problems in teams, leader development and training programs could include a temporal component to enhance the time-related leadership behaviors of current and potential team leaders. Incorporating a temporal component in training could increase leader effectiveness in teams performing complex and time-pressured tasks.

Finally, to our best knowledge, our study is the first to conceptualize, operationalize, and empirically examine team temporal leadership. In our validation study, team temporal leadership predicted incremental variance in willingness to follow the leader beyond that accounted for by measures of initiation of structure and consideration. Building on these promising results, future studies should examine team temporal leadership in different task (e.g., dynamic versus stable, short- versus long-term, developmental versus operational) and team (e.g., cohesive versus fragmented team members) environments to explore how team temporal leadership influences team performance.

Team diversity. Our results also have implications for the team diversity literature, which has traditionally focused mainly on demographic and functional differences (e.g., Bowers et al., 2000; Horwitz & Horwitz, 2007; Mannix & Neale, 2005). Recently, scholars have urged researchers to improve the conceptual relevance of diversity variables to outcomes by incorporating task-based, deep-level characteristics (e.g., van Knippenberg & Schippers, 2007; Williams & O'Reilly, 1998). By examining temporal individual differences, we “push the edge of the psychological diversity envelope” (Harrison & Sin, 2006: 200), by drawing attention to an unexplored form of diversity that is task-relevant in deadline-conscious teams. Future studies could examine team diversity on other relevant temporal individual differences,

such as “polychronicity” (preference for engaging in more than one task concurrently) and “temporal depth” (the temporal distance that individuals typically consider when contemplating events that have happened or may happen) (e.g., Bluedorn & Standifer, 2004). As some temporal individual differences are considered to be more stable (e.g., time urgency, time perspective, polychronicity) than others (e.g., pacing style), members' perceptions regarding the changeability of others' temporal proclivities may affect how diversity effects play out in teams (e.g., “She could change if she really wanted to” versus “He cannot change his temporal style”).

Limitations and Directions for Future Research

We studied teams from a single company to control for company and firm confounds. Our focus on the Indian business process outsourcing industry answers recent calls by team diversity (e.g., Milliken & Martins, 1996) and leadership (Elkins & Keller, 2003) scholars to test theories in non-Western cultures. However, future studies should replicate our findings with samples from diverse organizational and cultural contexts.

The conceptual strength of investigating novel constructs was somewhat countered by the lack of strongly validated measures. The pacing style measure, although behaviorally anchored and recently validated (Gevers et al., 2006, 2009), was a single item. One-item measures are often viewed as unreliable and as increasing the chances of not finding significant results (Zuckerman, Hodgins, Zuckerman, & Rosenthal, 1993). The similarity in the pattern of relationships between pacing style diversity and time urgency diversity (a multiple-item measure) bolsters confidence in the current results. Nevertheless, future research should develop a scale-based measure of pacing style.

Although our study demonstrates that team temporal leadership interacts with time urgency and pacing style diversity to affect team performance, our results do not provide conclusive evidence on the specific mechanism through which moderation occurs. **Team temporal leadership may reduce the negative aspects of temporal diversity, amplify the benefits of temporal diversity, or do both in some combination.** To allow for more precise explanations, future research should test possible mediators of the diversity-performance link, such as conflict (Mohammed & Angell, 2004) and social integration (Harrison, Price, Gavin, & Florey, 2002). In addition, future studies could explore other potential moderators, such as time awareness norms (Janicik & Bartel, 2003) and shared temporal cogni-

tions (Gevers et al., 2006). For example, the positive effects of temporal diversity could be effectively leveraged and negative effects mitigated when team members establish norms that foster sensitivity to time and when team members are able to develop basic agreements regarding meeting deadlines and time allocation.

In this study, the client coordinators rated the performance of each team two weeks after completing the team temporal leadership survey. Despite this causal sequence, prior team performance may have influenced temporal leadership ratings if client coordinators considered this variable over a longer time period rather than restricting their ratings to the monthly project period. Therefore, we must be cautious about causal explanations regarding team temporal leadership and team performance.

Our results also have some implications for temporal research in other disciplines. For example, research on intertemporal choice suggests that several biases can inhibit individuals from making accurate predictions about future events, which can adversely influence decision quality (Gilbert, Gill & Wilson, 2002; Loewenstein, 1988; Read & Loewenstein, 1995). Temporal leadership could potentially foster improved predictions about future choices through planning activities (e.g., schedules, temporal reminders, interim milestones) that are aimed at projecting an individual into the future (Bluedorn & Denhardt, 1998). Future studies could theorize and test this speculative contention.

Diversity of time urgency, pacing style, and time perspective could also be relevant to understanding particular conflicts among couples as well as teams (Ballard, 2009). Examining time-based individual differences in relation to time-based work-family conflict (Greenhaus & Beutell, 1985) may also prove fruitful. For example, time urgent individuals may be more prone to experiencing time-based work-family conflict.

Practical Implications

Our results inform practitioners about effectively managing temporally diverse teams engaged in time-pressured and client-driven tasks. Although temporal asynchrony may be at the root of many performance-related problems, temporal attributes often remain in the background of thought processes and behaviors. Our results highlight the importance of explicitly considering time-based individual differences in selecting team members and assigning roles. Proactively discussing temporal orientation in establishing team charters would fa-

cilitate a deeper understanding of members' attitudes toward time and foster the development of coping strategies for dealing with team temporal diversity. Through recognizing temporal diversity in teams, organizations can assign those likely to provide strong temporal leadership to effectively leverage this diversity and maximize team performance. Managers should urge team leaders to exert strong team temporal leadership by creating schedules, using temporal reminders, synchronizing their teams, and creating built-in contingency times. Given the importance of temporal leadership, it may also be worthwhile for companies to invest in training team leaders to improve their temporal leadership behaviors.

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*This article continues
with an appendix.*

APPENDIX A

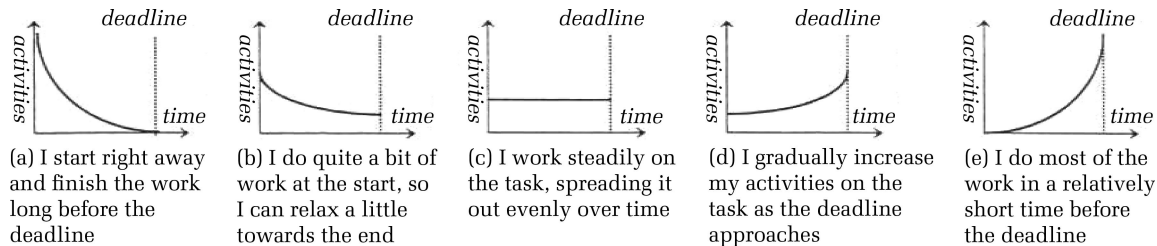
Study Measures

Time Urgency Scale (Landy et al., 1991)

1. I find myself hurrying to get places even when there is plenty of time.
2. I often work slowly and leisurely.
3. People that know me well agree that I tend to do most things in a hurry.
4. I tend to be quick and energetic at work.
5. I often feel very pressed for time.
6. My spouse or a close friend would rate me as definitely relaxed and easy going.

Pacing Style (Gevers et al., 2006)

Please **circle one** of the following models that best represent the way you generally pace your work when performing a task or project.



Consideration of Future Consequences Scale (Strathman et al., 1994)

1. I consider how things might be in the future, and try to influence those things with my day to day behavior.
2. Often I engage in a particular behavior in order to achieve outcomes that may not result for many years.
3. I only act to satisfy immediate concerns, figuring the future will take care of itself.
4. My behavior is only influenced by the immediate (i.e., a matter of days or weeks) outcomes of my actions.
5. My convenience is a big factor in the decisions I make or the actions I take.
6. I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes.
7. I think it is important to take warnings about negative outcomes seriously even if the negative outcome will not occur for many years.
8. I think it is more important to perform a behavior with important distant consequences than a behavior with less-important immediate consequences.
9. I generally ignore warnings about possible future problems because I think the problems will be resolved before they reach crisis level.
10. I think that sacrificing now is usually unnecessary since future outcomes can be dealt with at a later time.
11. I only act to satisfy immediate concerns, figuring that I will take care of future problems that may occur at a later date.
12. Since my day to day work has specific outcomes, it is more important to me than behavior that has distant outcomes.

Temporal Leadership Scale

1. To what extent does your project leader remind members of important deadlines?
2. To what extent does your project leader prioritize tasks and allocate time to each task?
3. To what extent does your project leader prepare and build in time for contingencies, problems, and emerging issues?
4. To what extent does your project leader pace the team so that work is finished on time?
5. To what extent does your project leader urge members to finish subtasks on time?
6. To what extent does your project leader set milestones to measure progress on the project?
7. To what extent is your project leader effective in coordinating the team to meet client deadlines?

Team Performance Scale

1. Please rate the **timeline** by which this team's project was completed:
 1-----2-----3-----4-----5-----6-----7
 Completed far in advance of the deadline Completed on time Completed long after the original deadline
2. The team's **timeliness** in meeting project milestones and biweekly deadlines was:
 1-----2-----3-----4-----5-----6-----7
 Poor Mediocre Exceptional
3. The **client's satisfaction** with the team's performance on this project was:
 1-----2-----3-----4-----5-----6-----7
 Poor Mediocre Exceptional
4. Your evaluation of the team's **overall performance** on this project was:
 1-----2-----3-----4-----5-----6-----7
 Poor Mediocre Exceptional