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Mind the gap: The role of leadership in multiteam system collective cognition

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ABSTRACT

The increasing prevalence of team-based organizations places a premium on leadership that will "mind the gap" and enable smooth synchronization of activities across multiple distinct teams. Prior work shows that leaders can be trained to directly facilitate between-team coordination processes. Yet, relatively little is known about the intervening psychological mechanisms that enable between-team coordination. Here, we advance multiteam-interaction mental models—cognitive structures containing knowledge of appropriate between-team activities—as one mechanism that facilitates coordination among multiple teams. We use leader and team cognition data gathered in DeChurch and Marks' (2006) MTS study to test these ideas. Results reveal leaders' multiteam-interaction mental model accuracy "transfers" to teams through strategic communication, and leader strategic communication enables between-team coordination by promoting accuracy in followers' mental models. This study highlights the importance of leadership for developing collective cognition that allows teams to "scale up" from small stand-alone teams to larger and more complex systems.

Introduction

Scholars have long emphasized leadership as a particularly potent force for organizing and coordinating collectives. However, the challenges associated with leading *multiple* teams, groups, or organizations, have not been adequately addressed by traditional leadership research (Hogg, van Kippenberg, & Rast, 2012). Typically, leadership is studied in contexts where leaders and followers all share a common group membership. Yet, in real world contexts, leaders are often responsible for influencing the coordinated activities of multiple groups or teams (Pittinsky & Simon, 2007). For example, as work is increasingly structured into teams, specialized teams are often called upon to work interdependently with *other* specialized teams to tackle complex problems requiring disparate skills and expertise (e.g., DeChurch & Zaccaro, 2010; Lanaj, Hollenbeck, Ilgen, Barnes, & Harmon, 2013). Hybrid organizational forms in which two or more teams work interdependently toward one or more shared goals are termed *multiteam systems* (i.e., MTSs; Mathieu, Marks, & Zaccaro, 2001), and a small, but growing set of findings demonstrate that between-team processes are critical drivers of their success (Davison, Hollenbeck, Barnes, Sleesman, & Ilgen, 2012; DeChurch & Marks, 2006; Marks, DeChurch, Mathieu, Panzer, & Alonso, 2005).

Unfortunately, effective collaboration among multiple teams is not a given. Groups or teams that should be working together may instead compete for scarce resources (Pfeffer & Salancik, 1977) or emphasize individual or team objectives above superordinate goals (Marks et al., 2005). In organizations, these breakdowns can lead to great losses in revenue; at a more macro scale, these breakdowns can be catastrophic—for example, when the FBI and CIA failed to coordinate knowledge sharing prior to September 11, 2001 (Caruso,

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Rogers, & Bazerman, 2013). As such, recent theoretical work suggests optimizing the performance of multiple groups or teams requires *leadership* that effectively connects disparate groups, diverting self-interest and inter-group competition, and transforming tendencies toward insularity into intergroup collaboration and coordination (Hogg et al., 2012). Moreover, enabling integration across component teams in MTSs is the essential function of MTS leadership (DeChurch & Marks, 2006; Zaccaro & DeChurch, 2012).

Initial empirical work suggests that MTS leaders can be trained to engage in certain functional leadership behaviors that directly facilitate between-team coordination (DeChurch & Marks, 2006). However, the psychological mechanisms through which leadership shapes between-team coordination processes are not yet clear, leaving a gap in our understanding of and ability to develop effective leadership for multiple teams. The current paper begins to address this gap by identifying one mechanism that MTS leaders can capitalize upon in order to optimize between-team coordination—*collective cognition*. Over two decades of research on stand-alone teams reveals the extent to which teams build effective collective cognition predicts their coordinated performance (Cannon-Bowers, Salas, & Converse, 1993; Marks, Zaccaro, & Mathieu, 2000; Mathieu, Heffner, Goodwin, Cannon-Bowers, & Salas, 2005; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000; Mohammed, Ferzandi, & Hamilton, 2010). We argue that, as is the case with single teams, the cognitive underpinnings of MTSs play a central role in enabling distinct teams to coordinate.

Much prior research on collective cognition in teams has focused on members' *mental models*—the manner in which knowledge important to team functioning is organized and represented mentally, and distributed among members (e.g., Cannon-Bowers et al., 1993; Klimoski & Mohammed, 1994). Teams can have many different mental models, covering topics such as the team task, environment, team members, and members' interactions (Mohammed et al., 2010). Of particular relevance to team coordination are *team-interaction* mental models, which encompass information about the structure of interaction patterns, roles and responsibilities, and role interdependence among members (Cannon-Bowers et al., 1993). These knowledge structures enable members to form accurate conceptualizations of their task and team members, and, in turn, enable direct coordination (Marks, Sabella, Burke, & Zaccaro, 2002). In the multiteam context, between-team coordination processes are vital (Davison et al., 2012; Marks et al., 2005). Thus, in MTSs, *multiteam-interaction* mental models are needed consisting of accurate knowledge of appropriate between-team activities. We advance the multiteam-interaction mental model construct as one mechanism by which leaders facilitate coordination among multiple teams. Such coordination is essential for the "scale up" from single teams to larger and more complex systems of teams.

Theory development and hypotheses

Formally defined, MTSs are "two or more teams that interface directly and interdependently in response to environmental contingencies toward the accomplishment of collective goals" (Mathieu et al., 2001, p. 290). As such, MTSs are often comprised of multiple component teams that each possess unique specialized skills and expertise and are linked together through interdependent processes. These fundamental attributes of MTSs make these structures especially well suited for adaptively tackling problems in today's complex and turbulent organizational environments (Davison et al., 2012; Mathieu et al., 2001).

In a single team, collective processes serve to combine the efforts of individual team members. In an MTS, processes must harmonize both the efforts of individuals within each team as well as the efforts that span team boundaries (Marks et al., 2005). Because of the interdependencies connecting component teams in an MTS, rhythms of activities within each team are entrained to those at the MTS level (Ancona & Caldwell, 1992; Ancona & Chong, 1996; Standifer & Bluedorn, 2006). A component team whose actions are out of sync with other teams may not only fail to achieve its own objectives, but may also jeopardize the entire system by failing to deliver information or inputs needed by other teams. Thus, depending on the degree of interdependence required by the task, MTS performance depends on the successful coordination of efforts across teams (Marks et al., 2005).

However, achieving between-team coordination is innately problematic. Because of the often-observed characteristics of MTSs—diverse expertise, geographic dispersion, and different organizational memberships—social divides are likely at the boundaries between component teams. Social identity theory suggests that different memberships are sufficient to create ingroup–outgroup attitude structures (Turner, 1984) whereby people favor ingroup members over those in the outgroup (Tajfel & Turner, 1979). Negative attitudes toward outgroup members can be exacerbated when outgroup members have different backgrounds or values, are from different geographic locations, or when opportunities for socialization are limited (Lau & Murnighan, 1998; Li & Hambrick, 2005). Moreover, typical MTS structures can create a situation in which members most strongly identify and communicate with other members of their own component team, thereby limiting opportunities for successful coordination across teams. To facilitate MTS success involves enabling seamless coordination across distinct teams by identifying and capitalizing upon mechanisms that encourage teams to overcome naturally occurring divides.

Multiteam-interaction mental models

Numerous empirical studies have established the robust impact of team mental models on team processes and performance (Edwards, Day, Arthur, & Bell, 2006; Marks et al., 2000; Mathieu et al., 2000; Randall, Resick, & DeChurch, 2011; Smith-Jentsch, Cannon-Bowers, Tannenbaum, & Salas, 2008; Smith-Jentsch, Mathieu, & Kraiger, 2005). In particular, the *team-interaction* mental model construct is useful for understanding how teams coordinate their actions in complex dynamically changing environments. Here, we extend this construct to the MTS environment as a mechanism for integration across teams.

Team-interaction mental models provide an organized knowledge base for team members to draw upon to predict one another's behaviors and anticipate their needs (Cannon-Bowers et al., 1993). Team-interaction mental models allow members to stay in sync without the need for extensive direct mutual adjustment. For example, members of a military team enacting a mission in a war zone may not have time to engage in costly explicit communication with one another. Because time and resources are limited, these teams need to rely on an accurate implicit understanding of the environment, and the needs and actions of other members.