Leadership in Teams: A Functional Approach to Understanding Leadership Structures and Processes

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As the use of teams has increased in organizations, research has begun to focus on the role of leadership in fostering team success. This review sought to summarize this literature and advance research and theory by focusing on leadership processes within a team and describing how team leadership can arise from four distinct sources inside and outside a team. Then, drawing from this inclusive, team-centric view of leadership, the authors describe 15 team leadership functions that help teams satisfy their critical needs and regulate their behavior in the service of goal accomplishment. This integrative view of team leadership enables the summarization of past research and identification of promising areas of future research.

Keywords: *team leadership; leadership; teams*

Acknowledgments: *We thank Gilad Chen, David Day, Bradley Kirkman, Steve Kozlowski, Michelle Marks, Jonathan Ziegert, and two anonymous reviewers for their comments on an earlier draft of the article. We are indebted to you for your thoughtful comments. Thanks to the International Business Center (IBC) in The Eli Broad Graduate School of Management at Michigan State University and the Center for Creative Leadership for supporting various aspects of this research. Finally, thanks to Adela Garza for her proofreading assistance.*

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Journal of Management, Vol. 36 No. 1, January 2010 5-39
DOI: 10.1177/0149206309347376

Structuring work around teams has become a fact of organizational life. Most, if not all, organizations use some form of team-oriented work (Hills, 2007; Kozlowski & Bell, 2003; Lawler, Mohrman, & Ledford, 1995). Perhaps explaining why teams have proliferated, one recent survey of high-level managers found that 91% of them agreed with the statement "teams are central to organizational success" (Martin & Bal, 2006). Research has followed suit, with a recent review noting "an explosion of work" on teams (Mathieu, Maynard, Rapp, & Gilson, 2008: 411). One area that has begun to receive increased attention is the role of leadership in team settings.

For example, researchers have explored how leaders can help teams through a variety of coaching-related activities (Manz & Sims, 1987; Wageman, 2001), the role of leaders in promoting team learning and adaptation (Edmondson, 1999; Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996; Wageman, 2001), how team leaders manage events that occur in the team context (Morgeson, 2005; Morgeson & DeRue, 2006), the role of team leaders in managing team boundaries (Druskat & Wheeler, 2003), how traditional leadership theories such as transformational leadership theory operate in a team context (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Eisenbeiss, van Knippenberg, & Boerner, 2008; Schaubroeck, Lam, & Cha, 2007), the role of dynamic delegation leadership processes in teams (Klein, Ziegert, Knight, & Xiao, 2006), and how leadership roles are shared in teams (Carson, Tesluk, & Marrone, 2007; Hiller, Day, & Vance, 2006; Pearce & Sims, 2002). Such a proliferation of research is heartening, prompting Day, Gronn, and Salas (2006: 211) to suggest that "team leadership as a discipline appears to be on the cusp of some truly significant breakthroughs."

Yet there are at least three reasons why this body of research may not yield the hoped for breakthroughs. First, past research has tended to focus on a somewhat narrow set of leadership activities. Although there is nothing inherently wrong with such a focus, what has resulted is a fairly incomplete account of the range of ways leaders can help their teams succeed. Second, empirical research has often relied on "traditional" leadership models when discussing the role of team leadership (Burke et al., 2006). As Zaccaro, Heinen, and Shuffler (2009: 84) note, traditional leadership models tend "not to make the distinction between leader–*subordinate* interactions and leader–*team* interactions." As such, there are considerable gaps in our understanding of the unique interplay between teams and leadership processes (Kozlowski & Ilgen, 2006; Zaccaro, Rittman, & Marks, 2001). Third, perhaps as a result of the past application of traditional leadership models in team leadership research, extant research has also tended to focus primarily on formal team leadership structures (i.e., hierarchical, formally appointed leaders). This has occurred despite the long-recognized fact that leadership is often distributed within a team (e.g., Bales, 1950; Slater, 1955). As is increasingly emphasized (Day et al., 2004, 2006), scholars need to focus on a broader array of leadership structures and processes within teams and not just the formal leaders of teams.

Thus, what is needed is a framework that integrates existing team leadership research and describes the full range of ways in which leadership can manifest itself within a team. This will enable us to identify exactly how much progress has been made in understanding team leadership, illustrate gaps in our understanding, and point to promising areas for future research. We seek to accomplish these goals and complement and extend other recent reviews (e.g., Burke et al., 2006; Kozlowski, Watola, Jensen, Kim, & Botero, 2009; Mathieu et al., 2008; Zaccaro et al., 2009) by first discussing the nature of the team performance environment and the specific team needs that can arise when teams work together. This provides a

way to understand the role of leadership in the context of the team and the different leadership sources that can exist within a team. We then describe the range of leadership functions that can help satisfy critical team needs. The identification and description of the leadership functions represents a needed integrative framework around which past team leadership research can be summarized and future research opportunities can be identified.

The Nature of Team Performance and Leadership in Teams

Team Performance Cycles

Obtaining an understanding of team leadership processes requires one to first understand the nature of team functioning. From this understanding, we can better articulate the role of leadership in fostering team effectiveness. Such a team focus separates team leadership models from traditional leadership models because of the central focus on the team as a unit. Team work is characterized by recurring cycles of mutually dependent interaction (Kozlowski et al., 1996; Morgeson & Hofmann, 1999). These temporal cycles of goal-directed activity can be divided into two distinctive phases (Marks, Mathieu, & Zaccaro, 2001). In the transition phase, teams engage in evaluation or planning activities designed to foster goal attainment. In the action phase, teams perform work activities that directly contribute to goal accomplishment. Over time, teams repeatedly cycle through these transition and action phases. It is through these performance cycles that collective (team) action occurs.

As teams work across the transition and action phases they encounter numerous challenges that arise from the team, organization, and environmental contexts within which the team is operating. These challenges can threaten team viability and make it difficult for them to accomplish their goals, in part because the challenges make it difficult for teams to regulate their goal-directed behavior (Peterson & Behfar, 2005). In effect, the challenges create distinctive needs within teams that must be satisfied for them to be successful (Morgeson, Lindoerfer, & Loring, in press).

Needs arising during the transition phase include establishing a team charter where overall objectives are outlined, setting goals, developing positive team norms, deciding on a task performance strategy, developing a shared understanding within the team, and becoming clear on the distribution of knowledge within the team (Cohen & Bailey, 1997; Kozlowski & Ilgen, 2006; Marks et al., 2001). Needs arising during the action phase include monitoring output as the team makes progress toward goals; monitoring systems inside and outside the team, such as people, resources, key stakeholders, and changing conditions; coordinating team actions; engaging in high quality communication; monitoring team behavior and coaching to team members; and maintaining boundaries so that teams effectively interface with groups outside the team (Marks et al., 2001). In addition, during transition and action phases, interpersonal processes must be managed. Important interpersonal needs include fostering adequate team member motivation, promoting a sense of psychological safety, and managing the emotions and conflict that can occur within the team (Edmondson, 1999; Marks et al., 2001).

Leadership in Teams

Given the centrality of these needs for team performance, team leadership can thus be viewed as oriented around team need satisfaction (with the ultimate aim of fostering team effectiveness). Whoever (inside or outside the team) assumes responsibility for satisfying a team's needs can be viewed as taking on a team leadership role. This view of team leadership is consistent with functional leadership theory (McGrath, 1962), which is the most prominent and well-known team leadership model (Fleishman et al., 1991; Hackman & Walton, 1986; Zaccaro et al., 2001). Functional leadership theory suggests that the leadership role is "*to do, or get done, whatever is not being adequately handled for group needs*" (McGrath, 1962: 5). Put another way, the leadership function in teams is that of ". . . *leader as completer* . . . the best a leader can do is to observe which functions are not being performed by a segment of the group and enable this part to accomplish them" (Schutz, 1961: 61). Thus, team leadership is fundamentally oriented around the satisfaction of critical team[1] needs.

Despite the fact that considerable attention is often given to formal team leaders, it is important to recognize that the functional view of team leadership is deliberately inclusive when it comes to who satisfies these team needs (Hackman, 2005; Hackman & Walton, 1986; McGrath, 1962). Because multiple individuals are often capable of satisfying team needs, it has been suggested that we "devote attention to the study of *leadership* rather than leaders," in part because of the "observation that many every-day groups have different leaders in different situations" (McGrath, 1962: 3). Team leadership is thus conceptualized as the process of team need satisfaction in the service of enhancing team effectiveness.

There are a number of potential sources of team leadership that reflect who is attempting to satisfy a team's needs. The sources of leadership can be conceptualized along the structural dimensions of locus of leadership and formality of leadership. These dimensions interact to yield four distinctive bases of team leadership (Table 1). The locus of leadership dimension indicates whether the leader is a member of the team and thus engaged in part of the team's task cycle (internal) or whether the leader is not a member of the team and thus outside the team's day-to-day activities (external). The formality of leadership dimension reflects whether the responsibility for team performance is formalized in the organization (formal) or whether there is no direct responsibility for a team's leadership and performance (informal). Internal and formal leadership represents formally assigned leaders who are members of the team. Such leaders are often called team leaders or project managers. External and formal leadership represents formally assigned leaders who are not members of the team (i.e., do not perform any of the team's day-to-day tasks). Such leaders are often called team sponsors, coaches, or advisors. Internal and informal leadership occurs when leadership responsibilities are shared among team members (Day et al., 2004; Pearce & Conger, 2003) or when certain team members emerge informally as a leader (Foti & Hauenstein, 2007; Hollander, 1964). Finally, external and informal leadership occurs when individuals outside the team seek to meet a team's critical needs. Such individuals are sometimes referred to as team mentors, team champions, or executive coordinators (Zaccaro et al., 2009).

Identifying these different sources of team leadership highlights several unique aspects and challenges of studying leadership in teams. First, some of these sources have received relatively little research attention. For example, we are not aware of any research focused on

Table 1
Sources of Leadership in Teams

		Formality of Leadership	
		Formal	Informal
Locus of Leadership	Internal	Team leader Project manager	Shared Emergent
	External	Sponsor Coach Team advisor	Mentor Champion Executive coordinator

informal external leadership. Second, scholars tend to study team leadership from the perspective of a single source (e.g., studies of formal external leadership or emergent leadership) and do not consider the possibility that team leadership can come from multiple sources simultaneously. Although focusing on a single source is appropriate when isolating a particular form of team leadership, such research is likely to offer an incomplete account of the extent of leadership in teams. Third, it is likely that in any given team there are multiple sources of leadership, and these sources are dynamic and change over time. This suggests the importance of taking a broad view of team leadership and explaining how the sources might interact and evolve depending on the challenges teams are facing and the specific needs a team has. In the review that follows, we seek to highlight how these different sources of team leadership are best suited to perform the different leadership functions (see Table 2 for a summary).

Team Leadership Functions

Although the source of team leadership can vary, all sources are ultimately focused on satisfying team needs with the goal of enhancing team effectiveness. Leadership is the vehicle through which such needs are satisfied, regardless of the specific leadership source noted above. Past work on functional leadership theory has tended to focus considerable attention on team needs (or functions) and has devoted less attention to the specific ways in which leadership can satisfy these needs. To understand how team needs become satisfied, our review will focus on team leadership functions or the things that need to be done for the team to meet its needs and function effectively. Thus, for the remainder of the article, we articulate the key leadership functions that are necessary for team need satisfaction and team effectiveness.

This framework of leadership functions will serve to integrate past research and to extend team leadership research into new domains. We first discuss how we identified relevant team leadership functions and the behavioral domain of each function. Then we discuss the leadership functions. This discussion will include a definition of the leadership function, the team needs potentially fulfilled by the leadership function, past empirical research on the leadership function, and the sources of leadership that might be particularly well-positioned to

Table 2
Team Leadership Functions by Leadership Sources

	Formality of Leadership			
	Informal		Formal	
Leadership Function	Locus: Internal	Locus: External	Locus: Internal	Locus: External
Transition phase				
Compose team			+ +	+ + +
Define mission	+ +	+ + +	+ + +	+ + +
Establish expectations and goals	+ +		+ +	+ + +
Structure and plan	+ + +	+	+ + +	+
Train and develop team	+	+ + +	+ +	+ +
Sensemaking	+	+ + +	+ +	+ + +
Provide feedback	+ + +	+ + +	+ + +	+ + +
Action phase				
Monitor team	+ +		+ +	+ + +
Manage team boundaries	+	+ +	+ +	+ + +
Challenge team		+	+ +	+ + +
Perform team task	+ + +		+ + +	+ +
Solve problems	+ + +	+	+ + +	+ +
Provide resources		+ +	+ +	+ + +
Encourage team self-management			+	+ + +
Support social climate	+ + +		+ + +	+ +

Note: Cell entries reflect the source of leadership best positioned to perform a particular team leadership function, ranging from "good" (+), to "better" (+ +), to "best" (+ + +) positioned. Empty cells suggest that a particular source is not well-positioned to perform that leadership function.

perform the leadership function. Finally, we provide the results of our taxonomic efforts in the form of a potential measure of these team leadership functions. Called the "Team Leadership Questionnaire" (TLQ), we provide survey items in the Appendix (compiled and refined based on our literature review) that could be used in future team leadership research.

Developing a Taxonomy of Team Leadership Functions

To identify relevant team leadership functions we followed the taxonomic principles outlined by Fleishman and Quaintance (1984). We first conducted a keyword search (terms included team or group, leadership, performance, and/or effectiveness) of the ISI Web of Science index to identify relevant published articles and book chapters. In addition, we manually searched the reference sections of key team leadership articles and book chapters for other publications. We reviewed the resulting 85 articles and book chapters, paying particular attention to existing measures of team leadership. Our primary focus was to compile all of the possible team leadership behaviors. We also reviewed traditional leadership research for additional insights into functions or behaviors relevant to teams. Finally, we reviewed the team

effectiveness literature to identify the key input and process factors that might be important for team effectiveness. Any behaviors not identified via our previous searches were added.

Via this literature review, we compiled a comprehensive list of possible team leadership behaviors, resulting in a set of 517 behavioral items relevant to team leadership. The items originated either directly from existing measures used in empirical studies of team leadership, or were adapted from theoretical, conceptual, or qualitative reviews of leadership behaviors. We then established a set of classification rules to determine which items should be included. These rules ensured that all of the possible items were evaluated consistently and using the same metrics. Using these rules, the first two authors independently evaluated and coded the 517 items into logical behavioral categories. Rather than develop a set of a priori behavioral categories within which items could be classified, we allowed the behavioral categories to emerge from our independent judgments of common themes and characteristics among items. We discussed our resulting categories until we reached consensus on the number of distinct categories and which behaviors should be excluded from further coding. The goal was to create mutually exclusive and exhaustive categories and develop a definition for each category to facilitate subsequent coding. This effort resulted in 15 team leader function categories that were used in the next round of coding.

Next, we took the behavioral items and sought to place them into one of the 15 team leadership function categories. This coding process yielded an overall agreement rate of 76% across the 15 functions. We then discussed each of the remaining items until consensus was reached on the most appropriate categorization for each item. This process resulted in 100% agreement across the 15 team leadership functions. Finally, to develop our initial measure, we sought to reduce and refine the number of behavioral items within each functional category. We accomplished this by selecting items based on the extent to which they sampled the content domain and were consistent with the category definition. We then edited the items so they reflected concise and consistent (in terms of verb tense and frame of reference) descriptions of leadership behavior. The resulting set of items for each team leadership function is provided in the appendix.

Transition Phase Leadership Functions

As noted, teams perform across time in a series of episodic cycles of goal-directed behavior that can be organized into transition and action phases (Marks et al., 2001). This section focuses on the leadership functions that are central to the transition phase of team performance. The transition phase is a period of time when teams focus on activities related to structuring the team, planning the team's work, and evaluating the team's performance such that the team will ultimately be able to achieve its goal or objective (Marks et al., 2001). In this sense, the primary focus of teams in the transition phase is not on direct task work per se, but rather on activities that establish the structures and processes that will enable future effectiveness. During this transition period, important team leadership functions include ensuring the right mix of people in the team; defining the team's overall mission, goals, and standards of performance; structuring roles and responsibilities in the team; ensuring all team members are capable of performing effectively; making sense of the team environment; and

facilitating feedback processes in the team. As these leadership functions are enacted over time, teams develop the foundation on which future team actions that contribute directly to goal accomplishment will be performed.

Compose team. Team behavior and performance is a reflection of its members. Thus, a key input into the functioning and behavior of any team is the team's composition, which refers to the characteristics and attributes of the individuals who make up the team as well as how those characteristics and attributes are distributed within the team (Jackson, Joshi, & Erhardt, 2003; Kozlowski & Bell, 2003; Neuman & Wright, 1999). Prior research provides a wealth of evidence suggesting that team composition is an important determinant of team processes and performance. In particular, compositional elements such as demographic diversity and team-level personality traits and abilities have been linked to interpersonal processes in teams such as coordination (Dahlin, Weingart, & Hinds, 2005), communication (Keller, 2001; Barry & Stewart, 1997), helping behavior and cohesion among team members (Barrick, Stewart, Neubert, & Mount, 1998), within-team conflict (Pelled, Eisenhardt, & Xin, 1999), and information exchange (Drach-Zahavy & Somech, 2001). In terms of performance criteria, team composition has been linked to teams' ability to learn and adapt to changing task environments (DeRue, Hollenbeck, Johnson, Ilgen, & Jundt, 2008; Gibson & Vermeulen, 2003; LePine, 2003), team creativity (Pirola-Merlo & Mann, 2004; Taggar, 2002), and task and contextual performance (Barry & Stewart, 1997; Morgeson, Reider, & Campion, 2005).

Given the impact that composition has on team processes and performance, one of the most important team leadership functions is composing the team. This leadership function consists of selecting a cohort of individuals who will be successful in accomplishing the team task outlined by the organization and then ensuring that the mix of individuals is appropriate over time as the team develops and the environment evolves. This would include selecting members who provide the requisite mix of knowledge, skills, abilities, and prior experiences that enable task accomplishment as well as the values, interpersonal skills, and motivations that enable the team to work effectively together. In cases where the composition of a team is inherited and already in place, this leadership function is served by assessing the attributes and capabilities of individual team members, redeploying those attributes and capabilities as needed, and replacing team members if necessary. Given their responsibility for the team, formal internal and external leaders are likely best positioned to perform this leadership function. Formal external leaders are likely a little better positioned to perform this function than formal internal leaders, in part because of their status outside the team and ability to align the team's composition with the external environment.

This team leadership function involves two key tasks. The first task involves aligning the composition of the team with the task environment and ensuring that this alignment is preserved over time as the task environment changes. Studies that illustrate how the team task environment can shape the relationship between team composition and performance speak to the importance of this leader behavior. For example, in a study of 54 teams across 13 different organizations in the information technology, financial services, government, and chemical industries, Schippers, Den Hartog, Koopman, and Wienk (2003) showed that demographically diverse teams demonstrate superior performance compared with less

diverse teams when task interdependence is high, but the opposite when task interdependence is low. Likewise, Pelled et al. (1999) showed in a study of 45 teams in the electronics industry that task complexity was an important determinant of how demographic diversity influenced within-team conflict and ultimately team performance. Clearly, the list of environmental variables that might influence the relationship between team composition and effectiveness is extensive (see Horwitz & Horwitz, 2007; Mannix & Neale, 2005). Our intention here is not to provide an exhaustive review of these environmental concerns, but rather to suggest that a key leadership function is the alignment of the team composition with the current and future environment of the team (DeRue & Hollenbeck, 2007).

The second task involves ensuring that the team not only has the requisite knowledge and skills for task performance, but also that the team is composed in such a way that team members form trusting and cooperative relationships. For example, recent theorizing and research suggests that different levels of diversity and configurations of team member characteristics can significantly impact team functioning (DeRue, Hollenbeck, Ilgen, & Feltz, in press; Horwitz & Horwitz, 2007; Humphrey, Hollenbeck, Meyer, & Ilgen, 2007; Humphrey, Morgeson, & Mannor, 2009). In addition, in a study of 51 manufacturing teams, Barrick et al. (1998) found that cohesion among team members was highest when teams were high on select personality variables, namely, agreeableness, extraversion, and emotional stability. Likewise, in a study of 93 applied research and new product development teams across a variety of industries, Keller (2001) showed that diversity in functional background creates stress within the team, which in turn lowers cohesiveness among team members and hinders their ability to work together. For these reasons, it is important to consider both task accomplishment and cooperative norms and cohesion when this leadership function is performed.

Define mission. Once a team is created and its composition is established, the next team leadership function is to define the team's mission. This involves determining and communicating the organization's performance expectations for the team in such a way that they are broken down into tangible, comprehensible pieces. Once the team is clear about these expectations, the team leadership process focuses on establishing the team's mission or purpose. The primary leadership task is to make sure that the team's mission is clear, compelling, challenging, and shared among team members. Defining the team's mission and ensuring that all team members have a common understanding of this mission is particularly important for satisfying team needs and directing the team toward goal accomplishment. In particular, this team leadership function provides the foundation on which a common identity can form and cohesive relationships can develop among team members (Dionne, Yammarino, Atwater, & Spangler, 2004). Moreover, clearly defining the team's mission ensures that the team has aligned its purpose, goals, and tactical plans with the broader organization's expectations, strategy, and values.

The importance of defining and establishing a shared mission for the team can be seen across a variety of studies that have examined leadership processes in teams (e.g., Galanes, 2003; Pielstick, 2000; Posner, 2008). Several of these studies are particularly noteworthy because of the emphasis they put on establishing a common understanding of the team's mission and the role of different leadership sources. For example, in an observational study of 15 self-managing teams, Barry (1991) concluded that establishing a common understanding of

the team's mission was just as important as having a mission in the first place. Barry recounted a story of an engineering team that he observed where two of the engineers were particularly visionary and creative with respect to the purpose of their team and what the team could develop in terms of product ideas. However, these same engineers did not have the motivation or ability to build support for their viewpoints among other team members, and as a result, the team's performance suffered due to a lack of collaborative and cohesive relationships among team members. In terms of leadership structures, research evidence is mixed with respect to how leadership structures influence the mission development and planning process. For example, Pielstick (2000) concluded from a survey of 95 formal and informal leaders that informal leaders engage in mission development and planning behaviors more so than formal team leaders. On the other hand, Carte, Chidambaram, and Becker (2006) found that the mission development process was not different between teams where leadership was designated with a single individual versus teams where leadership responsibilities were distributed and shared among all team members. This suggests that all team leadership sources can perform this function, with perhaps informal sources playing a stronger role at developing a common understanding of the mission and formal sources helping to define the mission itself. Future research could explore these possibilities.

Establish expectations and goals. The next leadership function represents a dynamic shift in the operation of the team as the members come into more active involvement in shaping their future together. This leadership function involves establishing performance expectations and setting team goals. In teams with formal team leaders, the leader works with the team and individual team members to develop goals and expectations for task performance as well as goals related to learning and team development. For teams with a more informal leadership structure, team members actively facilitate the goal setting process and determine for themselves how team members should be held accountable with respect to performance expectations. With the team's mission and overall purpose established, setting challenging but realistic goals for the team and outlining clear performance expectations based on those goals aids in accomplishing the team's task (Einstein & Humphreys, 2001; Knight, Durham, & Locke, 2001). In fact, O'Leary-Kelly, Martocchio, and Frink (1994) found in their meta-analytic review of the team goal-setting literature that teams with well-defined goals outperformed teams without goals by a full standard deviation.

Team leadership research provides compelling evidence that setting challenging goals and clear performance expectations is one of the most important leadership functions for facilitating effective team performance. One of the more persuasive aspects of this literature is the diversity of contexts within which goals and performance expectations have been studied and found to be an important element in the team leadership process. For example, in a study of 238 knowledge workers from 26 project teams in the chemical, technology, and consumer products industries, Amabile, Schatzel, Moneta, and Kramer (2004) identified clarifying objectives, motivating and inspiring via challenging goals, and rewarding team members when goals are met as important leader behaviors that facilitate team creativity. Likewise, numerous other studies have found goal setting and clarifying performance expectations as important leader behaviors in traditional business settings (Wageman, 1997). Adding to the robustness of these findings is research in more nontraditional settings. For example, Komaki

and colleagues have examined leadership processes in sailing teams and found that team leaders who convey clear expectations of performance and set explicit team goals are associated with superior performing sailing teams (Komaki, Desselles, & Bowman, 1989; Komaki & Minnich, 2002).

These findings help establish the importance of goal setting in teams with a formal team leader, but goal setting has also been examined as a leadership process in self-managing teams that do not have a formal internal leader. For example, Mohrman, Cohen, and Mohrman (1995) argued that one important role of an external team leader is performance management, whereby the team leader assists the team in defining, developing, and reviewing team performance relative to established goals and metrics. Similar findings for self-managing teams are evident across other studies. In a comparison of 60 traditional, intact teams versus 58 self-managing teams, Cohen, Chang, and Ledford (1997) found that leaders who facilitate goal setting in the team, regardless of the team structure, are associated with superior performing teams. Likewise, in a study of 156 teams in five pharmaceutical and medical products firms, Gibson and Vermeulen (2003) used a mix of in-depth interviews and survey methods to conclude that external team leaders who engage in performance management behaviors such as goal setting help enhance learning behavior in teams.

There are at least three reasons why the leadership function of setting goals and clear performance expectations satisfy critical team needs. First, at the individual level, goal setting theory (Locke & Latham, 1990) suggests that clear and challenging goals are important for directing individual action and motivating individuals to achieve performance targets. Second, at the team level, research suggests that the goal setting process can help teams form a common identity among individual members and enhance the team's commitment to team goals. In a case study of four virtual team leaders, Sivunen (2006) observed that team leaders who establish common goals and standards for performance in the team also aid in the development of a common team identity, with this team identity enables team members to work together more effectively and achieve superior team performance. Third, when team members actively participate in the goal setting process, the team is more committed to team goals and acts as a more cohesive unit (Cohen et al., 1997; Durham, Knight, & Locke, 1997; Sagie, 1996; Wegge, 2000; Yammarino & Naughton, 1992).

Structure and plan. With team goals and performance expectations established, the next team leadership function is to structure and plan the team's work. The team's goals and performance expectations provide a target for team performance, but to achieve these performance targets, team members need to develop a shared understanding of how best to coordinate their action and work together to accomplish team goals. In this sense, team goals identify what the team is expected to accomplish, whereas the leadership function of structuring and planning determines how best to achieve those performance targets. The structuring and planning team leadership function involves determining or assisting in determining how work will be accomplished (e.g., method), who will do which aspects of the work (e.g., role clarification), and when the work will done (e.g., timing, scheduling, work flow). These behaviors result in an integrated work plan that directs the team's performance, coordinates team efforts, develops task performance strategies, and standardizes team processes. We refer to these behaviors as structuring and planning, but other scholars have also used terms

such as *directive leadership* (Tschan et al., 2006), *initiating structure* (Katerberg & Hom, 1981; Keller, 1992, 2006; Powell & Butterfield, 1984), *team design* (Wageman, 2001), and *task leadership* (Eys, Loughead, & Hardy, 2007) to refer to these same planning and structuring behaviors.

The importance of clearly structuring team member roles within the team and developing an integrated work plan to direct team members' actions is apparent across all of the team leadership sources identified earlier. For example, in a study of 41 formal external leaders of planning and design teams in the information systems field, Henderson and Lee (1992) found that leader behaviors such as assigning work roles and specifying procedures were associated with independent ratings of team efficiency, speed, and overall effectiveness. Likewise, scholars have found that formal internal leaders who structure and plan the team's tasks and workflow are associated with superior team effectiveness (Kane, Zaccaro, Tremble, & Masuda, 2002) and higher ratings of satisfaction with the leader (Jurma, 1978). Yet, it should be noted that the only support we found for structuring and planning with formal internal team leaders was in the context of laboratory, experimental studies using undergraduate samples.

For informal leaders, scholars have mostly examined shared leadership processes and found that team members actively sharing the function of structuring and planning results in superior team performance. For example, in an interview and observation-based study of shock trauma center teams, Klein et al. (2006) concluded that communicating the overall plan or strategy for treating the patient, prioritizing possible interventions, and revising the treatment plan as new information became available were structuring and planning behaviors that all team members participated in and were important for team success. Likewise, in a study of shared team leadership processes in winter road teams in a state department of transportation, Hiller et al. (2006) concluded that planning and organizing the team's work was a responsibility of all team members, and when performed collectively, enhanced team effectiveness. Although research on structuring and planning suggests that multiple leadership sources can effectively perform this function, we would suggest that internal sources are likely to be more effective, in part because they are actively involved in the team's day-to-day activities and are thus likely to be able to more effectively adjust their actions in a dynamic and ongoing way.

Train and develop team. As teams engage in multiple performance episodes over time, teams and their leaders often identify deficiencies in the team's capabilities, either in the case of individual team members not being equipped to perform their assigned tasks or the team as a whole not being able to work together effectively. Such deficiencies in team performance capabilities provide the impetus and context for the train and develop leadership function. To achieve optimal levels of performance, teams need to be skilled in and capable of the task work that is expected of the team. Teams need to learn and apply new things about both the task at hand and the interpersonal processes that enable team members to work together as a collective unit. To develop these capabilities in the team, the training and development function may involve directly providing targeted training to the team through instruction or demonstration, followed by ongoing coaching. This leadership function also entails encouraging team members to use educational resources provided by the organization. Additionally, members of the team may engage in cross-training and peer coaching to broaden the distribution of valuable skills and knowledge resident among them.

Leadership actions directed at coaching, developing, and mentoring the team have been shown to enhance team processes and effectiveness across a wide range of formal and informal leadership sources (Hackman & Wageman, 2005; Kozlowski et al., 1996; Wageman, 2001). For example, in addition to their findings related to structuring and planning, Hiller et al. (2006) also found that winter road teams that engaged in a collective process of peer-to-peer coaching and mentoring were more effective than teams who did not engage in these leadership functions. Similar findings have also been observed in more traditional team settings with formal, internal team leaders. For example, Dackert, Loov, and Martensson (2004) examined the training and development functions of four team leaders across 14 teams in a Swedish manufacturing plant. In this case, the team leaders were not only actively involved in the team's task work but also engaged in behaviors targeted at developing team members' knowledge and skills as well as the team's ability to work together effectively. In this study, the training and development leadership function was positively related to team innovation and creativity. We would further suggest that the different leadership sources are likely to be effective in different ways. For example, informal internal leadership is likely to provide ongoing peer coaching as the team performs its tasks, informal external leadership is likely to offer a broader type of mentoring relationship, and formal external leadership is likely to be oriented around formal training and development experiences.

One key observation from the existing literature on team leadership and development is that this particular leadership function involves two distinct concerns. The first concern is ensuring that each team member has the knowledge and skills required to effectively perform his or her role within the team and the specific task work associated with that role. For example, when Kozlowski et al. (1996) discussed the developmental aspects of team leadership, building the skill proficiency of individual team members and developing their self-efficacy and task-related knowledge was central to the instructional aspects of team leadership. The second concern is training and developing the team regarding the interpersonal processes associated with effective teamwork, such as developing trust and cohesion in the team (Zaccaro et al., 2001), communication (Warkentin & Beranek, 1999), and developing shared mental models and transactive memory within the team (Austin, 2003; Kozlowski, Gully, Nason, & Smith, 1999). For example, Marks, Zaccaro, and Mathieu (2000) studied the effectiveness of cross-training team members on a helicopter simulation and found that cross-training enhanced team performance through the development of shared mental models among team members, increased helping behavior, and improved coordination. This suggests that this leadership function focus on the capabilities required for individual task work as well as the interpersonal team processes that facilitate superior team performance, thereby enabling the team to more effectively lead itself in the future.

Sensemaking. During the life of all teams, events occur both within and outside of the team that impact the team's experience. Prior research has investigated a variety of different types of events that impact team functioning, including but not limited to changes in team size and leadership structure (DeRue et al., 2008), changes in the team task (Harrison, Mohammed, McGrath, Florey, & Vanderstoep, 2003), and changes in the organizational environment (Wiersema & Bantel, 1992). To the extent that an event is critical to team success, requires immediate attention, and requires sustained attention over time, the event can be quite disruptive to team functioning and negatively impact team performance unless the team is able to adapt (DeRue et al., 2008; Morgeson & DeRue, 2006).

Given the impact that disruptive events can have on team functioning, sensemaking is a particularly important team leadership function that satisfies essential team needs. As a team leadership function, sensemaking involves identifying essential environmental events, interpreting these events given the team's performance situation, and communicating this interpretation to the team (Morgeson, 2005; Weick, 1995; Zaccaro et al., 2001). In effect, this team leadership function facilitates within the team an understanding of the meaning for and impact of events on team functioning (Smircich & Morgan, 1982), and in doing so, manages how the team thinks about internal or external events or experiences. Through making sense of specific events for team members, this aspect of team leadership helps the team understand the significance of specific events and enables the team to effectively cope with their impact. External leadership sources are particularly well-positioned to help clarify ambiguous, conflicting, and potentially threatening information. Open discussion can help to interpret unfolding events and explore their potential implications. These sensemaking activities help the team gain perspective on its work and its challenges and facilitate the objective use of information needed to adapt to dynamic environments.

The validity of sensemaking as an important team leadership function has been established in laboratory, experimental research as well as field research across multiple organizations and a variety of industries. For example, in an experimental study of undergraduate student teams engaged in a war-game simulation, Marks et al. (2000) found that leader communication in the form of sensemaking helped teams develop shared mental models, which, in turn, enhanced team performance, particularly when the team task environment was novel and nonroutine. Other studies have also shown that sensemaking processes lead to more developed mental models in teams, and as a result, enhanced team functioning (e.g., Klimoski & Mohammed, 1994; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000). Extending these ideas to a field setting, Morgeson (2005) investigated leader sensemaking in a study of 29 formal external team leaders from three different organizations and industries. Findings from this study were particularly insightful because, although leader sensemaking was negatively related to the team's satisfaction with the leader, it was positively related to team member judgments of leader effectiveness when events became more disruptive. From these findings, Morgeson (2005) concluded that leaders' sensemaking behavior can appear intrusive and manipulative when teams are self-managing and the leader is external to team functioning, but still helpful in terms of facilitating team functioning and adaptation to disruptive events.

Provide feedback. Feedback is an essential input into the regulatory mechanisms that direct and control individual behavior (Bandura, 1986; Carver & Scheier, 1981). Likewise, in social systems such as work teams, feedback is essential for the functioning, maintenance, and development of the system over time (Katz & Kahn, 1978). In the case of team leadership, providing team feedback enables the team to effectively assess its past and current performance and then adapt as needed to ensure future success. Teams must periodically review their performance against established milestones, metrics, and expectations, and to the extent performance is not meeting those expectations, adapt, and determine more effective

ways of team functioning. All sources of leadership can perform this team leadership function, although each will differ slightly in terms of the kind of feedback they are ideally positioned to provide. Informal internal leadership can give and receive ongoing task-related feedback; informal external leadership can provide feedback that can help the team adapt to changing environmental conditions; and the two formal sources of leadership can help teams review progress against established goals.

From a functional leadership perspective, feedback processes are an integral part of the team leadership process that allow teams to assess their performance, adapt as necessary, and develop over time (Einstein & Humphreys, 2001; Mohrman et al., 1995). In fact, in their study of teams in the pharmaceutical and medical products industries, Gibson and Vermeulen (2003) found that those leaders who engage in performance management behaviors, including providing teams with performance feedback, help facilitate more extensive team learning behavior. Central to this leadership function is the provision of timely, specific, objective, and balanced feedback to the team and to its individual members. It would also include the solicitation and use of ongoing feedback from the team and the team's stakeholders as well as encouraging team members to give feedback to each other during the course of work. By incorporating performance management and feedback processes into the team leadership function, teams build awareness of performance capabilities in the team, encouraging the team to review and reassess its work methods, ultimately enabling the team to adapt to dynamic task environments (Kozlowski et al., 1996; Mohrman, Mohrman, & Lawler, 1992).

The existing literature on team leadership points to several reasons why providing feedback satisfies these team needs, and in doing so, enhances team performance and adaptability. The first reason is that feedback from team leaders facilitates certain task and interpersonal processes that enable teams to function more effectively. For example, in a study of 94 teams composed of undergraduates who were together for 13 weeks working on a series of multipart, open-ended tasks, Taggar (2002) found that leaders who engaged in performance management behaviors such as providing feedback provoked interaction between team members, stimulated intrateam processes such as coordination, communication, and motivation, and as a result of these processes, enabled greater team creativity. The second reason providing feedback enhances team functioning is related to the psychological implications of teams receiving feedback from their leaders. Across a series of interviews with virtual team leaders, Sivunen (2006) found that team leaders who provided evaluative and systematic feedback to their teams promoted a greater degree of identification and commitment among members. Thus, not only does providing feedback facilitate within-team interaction and important task processes such as coordination and communication, but leaders who provide feedback also enhance the bond among team members and their commitment to the team.

Action Phase Leadership Functions

The next set of team leadership functions consists of those that become important during the team's action phase. The action phase is the portion of the team's performance cycle where the team is focused on activities that directly contribute to accomplishing its goals (Marks et al., 2001). During the action phase, important team leadership functions include

monitoring the team and its performance environment, managing the boundaries between the team and the broader organizational environment, challenging the team to continually improve, becoming involved in performing the team's work, solving problems that the team encounters, acquiring resources for the team, encouraging the team to act autonomously, and cultivating a positive social climate within the team. We discuss each of these functions below.

Monitor team. To ensure that the team performs up to its potential and is aware of external contingencies that may impact its functioning, the team must be monitored as it actively engages in task performance. Therefore, an important team leadership function during the action phase is to monitor the team. This function refers to examining the team's processes, performance, and the external team context (Hackman & Walton, 1986; Komaki et al., 1989; McGrath, 1962; Yukl, 1989). It includes monitoring and evaluating the team's progress toward task completion, the resources available to the team, the team's external environment, and team member performance. Such monitoring is a critical team leadership function because it provides the key data that informs many of the other leadership functions.

Several studies highlight the importance of monitoring the team, events, and information that is relevant to the team's goal achievement. Kane et al. (2002) examined the impact of team leadership monitoring on team outcomes and leader performance. In this study, 96 undergraduate student team leaders led teams on production tasks. The complexity of the task was manipulated such that there was instability in the input and output variables throughout the simulation. Team leader monitoring included requesting task-relevant information from team members, offering help to members, and clarifying strategies. The study found that team leader monitoring was positively related to team cohesion and ratings of leader effectiveness.

Other studies have highlighted different forms of monitoring to gain a greater understanding of what this function entails. For example, Zohar (2002) examined two types of monitoring in the context of team safety. He delineated a facet-free perspective in which the leader monitors all aspects of the members' performance and a facet-specific perspective where leaders monitor only certain performance aspects and adjust the consequences for noncompliance based on "relative priorities" (p. 157). Klein et al. (2006) examined the monitoring behavior of formal leadership in trauma center teams. Here, monitoring was accomplished by questioning team members' performance to ensure that the team did not make serious errors in treating the patients. Team leadership monitoring was observed to be both close and active or more distant and passive depending on the severity of the patient's injuries and the experience of the team members treating the patient. These studies suggest that the team leadership monitoring function comes in different forms, and the results present some evidence that the best type of monitoring is situationally dependent. In addition, it is likely that different leadership sources are better able to monitor different aspects of the team's environment. Internal sources are best positioned to monitor team performance and the resources needed by the team whereas formal external leadership is best positioned to monitor the external environment for potentially disruptive events.

Manage team boundaries. The next leadership function involves managing the team's boundaries. This function entails managing the relationships between the team and the larger

organizational context (Ancona, 1990; Ancona & Caldwell, 1992) by communicating and coordinating with key constituents or units outside of the team (e.g., other teams and leaders, senior management, customers) and by buffering the team from external forces and events to integrate the team's work into the rest of the organization (Sundstrom, De Meuse, & Futrell, 1990). Managing team boundaries involves managing two competing priorities. On the one hand, the team needs to have a fairly tight boundary around itself so that the members know who is on the team, what resources these members bring, and who is accountable for what. On the other hand, the team needs to have a fairly loose boundary so that it is not isolated and maintains an ongoing information exchange with the environment in which it resides. The leadership function of managing team boundaries enables the team to balance these opposing demands.

There are at least two related activities falling under this leadership function. The first involves representing the team's interests to individuals and groups outside the team in order to protect the team from interference as well as persuading others to support them (Ancona & Caldwell, 1992; Druskat & Wheeler, 2003). This includes selling the team's ideas to others in the organization, such as top management to get "buy-in" within the organization; communicating the stakeholders' expectations, perceptions, and feedback to the team; and acting as a buffer so the team members can work on their tasks with minimal disturbances. By mediating relationships with other organizational units, this leadership function not only retains a link with the rest of the organization but also protects the team from unnecessary interruptions. The second aspect of managing team boundaries involves coordinating external team activities. This involves actions that coordinate work or tasks between teams or functional units (Brett & Rognes, 1986) and includes discussing problems with others, obtaining feedback on product designs and requirements, and coordinating and negotiating with outsiders (Ancona & Caldwell, 1992). The importance of these actions increases as organizations become less centralized and hierarchical and as team interdependence increases (Druskat, 1996). Formal external leadership is likely best-positioned to perform this leadership function, largely because it resides at the boundary between the team and the broader environment. Yet some of the other leadership sources will likely be able to coordinate work across units (both internal sources) and represent the team's interests to stakeholders outside the team's boundaries (informal external leadership).

Effective boundary management has been examined in a variety of team settings. For example, Kolodny and Kiggundu (1980) found that coordination between teams and the broader external environment was particularly important in mechanical harvesting crews because adequate support and resources from those outside the crew was critical to the success of the unit. In addition, Edmondson's (2003) analysis of qualitative and quantitative data from 16 operating room teams showed that boundary spanning was related to successful implementation of technology. Finally, although based on a small number of studies ($k = 3$), Burke et al.'s (2006) meta-analysis showed that leader boundary spanning was positively related to perceptions of team effectiveness.

Challenge team. This team leadership function involves challenging teams with regard to their task performance and confronting the team's assumptions, methods, and processes in

an effort to find the best ways of accomplishing the team's work. Pearce and Sims (2002) refer to this leader behavior as challenging the status quo, and they note that one aspect of empowering leadership is encouraging opportunistic thinking. Latham (1987) refers to this team leadership role as the "inventor" and suggests that its function is responsible for creating new approaches or methods that are challenging to team members. During the team's action phase, it is important that the team members continually question the ongoing usefulness of the team's established ways of thinking and that they explore alternative ways of working. This mode of operating, where the team members challenge team assumptions, methods, and processes, is part of a continual cycle of seeking new, optimal ways of completing work. In practice, however, it is difficult for team members to effectively do this. As such, formal external leadership is likely to be best positioned to perform this function, with formal internal leadership close behind.

Aspects of the team leadership function of challenging the team are reflected in the intellectual stimulation component of transformational leadership (Bass, 1985). Intellectual stimulation includes supporting followers as they question past ways of working which may be outdated for handling the team's current problems (Avolio, Waldman, & Einstein, 1988). Keller (1992) examined the intellectual stimulation component of transformational leadership in R&D project team leaders. In this study, intellectual stimulation was assessed using items such as "enables me to think about old problems in new ways" (p. 493). He found a positive relationship between team leader intellectual stimulation and management ratings of project quality and budget/schedule performance. In a later study of R&D project teams, Keller (2006) found a positive relationship between intellectual stimulation and profitability of the team's projects in the marketplace.

Yet intellectual stimulation is a more individually focused conceptualization whereas the leadership function of challenging the team encompasses a broader set of leader actions which promote team functioning by encouraging team members to challenge their performance and processes. Pratt and Jiambalvo's (1981) examination of accounting audit teams shows other ways this function may be employed. They examined the extent to which formal external audit team leaders assigned challenging tasks to the team members and encouraged innovation in the team. Providing challenging tasks and encouraging innovative ways of working were both positively related to team member satisfaction, motivation, and overall audit team performance. Similarly, Dackert et al. (2004) empirically examined the change and development orientation of team leaders in a manufacturing setting. They found a positive relationship between leadership high in change/development orientation and a team climate for innovation.

Perform team task. The leadership function of performing the team's task involves taking a more active role in the team's work by participating, intervening, or otherwise performing some of the team's task work. Hackman and Walton (1986) discuss this function in terms of "taking action" and suggest that the leadership skill at its most basic level is "the ability to get things done" (p. 108). Although this function is oriented toward external leaders who are not involved in the team's day-to-day task performance (and can become involved as needed), it does have some relevance for internal leaders who might only be responsible for a portion of the team's task and can periodically help other team members with their tasks.

It goes without saying that informal internal leadership would be intimately involved with this function because they perform the team's work day in and day out.

The importance of task roles within a team has long been recognized (Bales, 1950; Benne & Sheats, 1948). More recently, Mumford and colleagues (Mumford, Campion, & Morgeson, 2006; Mumford, Van Iddekinge, Morgeson, & Campion, 2008) integrated past research on team roles and developed a typology of 10 distinct team roles. Key among these roles was five task-related roles (contractor, creator, contributor, completer, and critic). Most relevant to the perform team task leadership function is the "completer" role. This task-related role includes executing tasks within the team, taking personal responsibility for finishing team tasks, and assisting other team members with task completion. The clear implication is that performing the team's task is essential for the team's overall functioning and goal attainment.

Several empirical studies have explored how this team leadership function impacts team functioning. Kane et al. (2002) examined team leaders who performed task functions required for team performance in a laboratory experiment. They found a positive relationship between leaders who performed the team's task and team productivity. Morgeson (2005) conducted a study of external team leaders from several organizations. In this study, performing the team's task was described in terms of a leader's "active intervention" and the findings suggest that performing the team's task is a critical additional resource for teams, particularly when faced with highly disruptive events. Finally, Klein et al. (2006) found that leaders either delegated team responsibilities or directly intervened in the team's work depending on when the team leader judged it necessary to ensure that the team performed effectively. These studies highlight the contextual factors, including workload intensity and the impact of external events, which may influence the decision of the team's leadership to directly participate in the team's task to maintain or enhance performance.

Solve problems. Teams often confront complex, ill-defined problems that lack a single solution. Numerous scholars have posited that a critical team leadership function is to diagnose and solve any problems that keep teams from realizing their potential (Hackman & Walton, 1986; Zaccaro et al., 2001). For example, Shea and Guzzo (1987: 347) argued that effective team leaders must know how to "diagnose problems accurately and intervene effectively." Zaccaro et al. (2001: 454) suggested that team leadership should be defined in terms of "problem-solving activities directed at the generation of solutions that advance team goal attainment." Mumford, Zaccaro, Harding, Jacobs, and Fleishman (2000) even referred to leadership as a complex form of social problem solving whereby leaders use their knowledge of the problem, the people in the team or workgroup, and the organization to solve any performance problems. For our part, we draw from Hiller et al. (2006: 390) who define problem solving as "identifying and diagnosing task-related problems, carefully using a team's combined expertise to analyze problems, and arriving at effective solutions." In this sense, the team leadership function of solving problems can involve directly engaging in or supporting the team in problem assessment, solution development, and implementation of the solution.

Several empirical studies have investigated the importance of problem solving as a team leadership function, but the results of these studies are mixed. For example, Kim, Min, and Cha (1999) examined several of the team leadership functions identified in this article,

including solving problems, supporting the social climate, and providing resources. Based on a sample of external team leaders of 87 research and development teams across six different organizations in Korea, the authors concluded that problem solving as a team leadership function was positively related to team performance above and beyond any effect associated with other team leadership functions. On the other hand, Hiller et al.'s (2006) study of shared team leadership processes in winter road teams found that solving problems was the only team leadership function that did not have a positive relationship with team performance (the other team leadership functions were structuring and planning and supporting the social climate of the team).

There are at least two possible explanations for these divergent findings. First, in the Kim et al. (1999) study, common method and source variance cannot be ruled out as an alternative explanation for the observed relationships. Second, a more substantive difference between these studies is related to the leadership sources studied in each sample. Whereas Kim et al. (1999) investigated problem solving in a sample of formal external team leaders, Hiller et al. (2006) studied problem solving in the context of shared and informal leadership sources. This might suggest that this leadership function might be more effectively performed by external leaders who can take a broader view of the problem (and perhaps have more time to devise solutions). That said, a key principle of sociotechnical systems theory is to "control variance at its source". This suggests that internal sources would be most proximal to any problems that might arise and thus be best-positioned to address the problems. Future research could explore which of the sources is indeed most capable of performing this leadership function.

Provide resources. The next leadership function is to provide resources for the team. This includes obtaining and providing informational, financial, material, and personnel resources for the team. Because teams must have the resources necessary to complete their tasks (Hackman, 1987), this leadership function involves taking action to secure these resources. Shea and Guzzo (1987) have argued that there are dual benefits to providing a team with resources. Not only are resources essential to task completion, but the provision of adequate resources sends an indication of support in the team. This can motivate teams because it signals that their work is important and enhances their efficacy that the work can be accomplished. This is a critical function during the action phase, because if the team lacks these fundamental resources, then no amount of motivation or other leadership actions will allow the team to perform adequately.

There have been considerable conceptual arguments presented which elucidate a team's need for adequate resources. Fleishman et al. (1991) highlighted the importance of obtaining and allocating personnel and material resources. This includes adding or identifying team members who can fulfill important task or social roles in the team as well as "budgeting, financing, and acquiring new technologies required for people to perform the requisite work" (p. 267). In addition, Fleishman and colleagues note that the resources must be preserved, monitored, and replenished as needed throughout the team's performance cycles. Hackman and Walton (1986) also specifically identified the need for adequate resources, including financial resources, personnel resources, space, and tools, as important

elements of team effectiveness. Furthermore, Hackman (1987) indicated that the material resources must be sufficient so that the team can perform its task well and in a timely manner.

However, there have been limited empirical studies of this team leadership function. In a qualitative examination of formal external leaders, Druskat and Wheeler (2003) showed how leaders can "scout" or seek information from individuals or groups outside the team. Oftentimes the relevant knowledge of information is not resident within the team but is available outside the team and an important leadership function is to acquire those informational resources. In addition, Mathieu, Gilson, and Ruddy (2006) examined external team leaders of customer service engineers whose primary responsibilities were to repair and service office document production systems. Team members indicated whether their leaders provided the necessary resources to do their jobs effectively. They found a positive relationship between leader resource acquisition and the team's transition, action, and interpersonal processes. Formal external leaders would seem to be best-positioned to acquire resources as it is often a key part of their role (Morgeson & DeRue, 2006).

Encourage team self-management. The team leadership functions identified thus far generally require an individual or individuals to directly intervene in team functioning in order to satisfy critical team needs. We now turn to a more supportive and indirect form of team leadership where the team is encouraged to manage itself, and in many cases, to perform its own leadership functions. Such leadership is consistent with the self-management philosophy that underlies the use of more autonomous work structures. The idea of encouraging self-management as a leadership function is rooted in behavioral theories of self-control (Thoresen & Mahoney, 1974) and social learning theory (Bandura, 1977), and was first identified by Manz and Sims (1980) in their theory of self-management as a substitute for formal leadership. This theory suggests that by encouraging team members to resolve task- and teamwork-related problems themselves, and by relying on their own resources rather than seeking expertise from outside the team, the team becomes more adaptable and resilient.

A notable amount of empirical research has investigated the implications of encouraging team self-management on team effectiveness. One of the first studies on encouraging team self-management was conducted with 33 teams in a U.S. manufacturing plant (Manz & Sims, 1984). In this study, the authors combined a group elicitation and interview method with direct observation of formal external team leaders and their teams. Results of this study suggested that one of the most important team leadership functions was "getting teams to manage their own efforts" (Manz & Sims, 1984: 416). In fact, of the 10 most endorsed team leadership functions identified in this study, 6 were related to encouraging the team to manage and lead itself. Following this study, Manz and Sims (1987) further investigated the team leadership function of encouraging team self-management, and in the same manufacturing environment, found that formal external team leaders who encourage teams to engage in self-observation, self-evaluation, and self-reinforcement are seen as more effective than team leaders who do not engage in these behaviors. Results from this study also indicate that the variance in leadership effectiveness explained by encouraging team self-management is independent of any variance explained by many other team leadership functions, such as establishing expectations and goals, providing resources, and performing the team task

Subsequent to this initial research, Cohen and colleagues (Cohen et al.,1997; Cohen, Ledford, & Spreitzer, 1996) conducted further investigations of encouraging team self-management and found mixed support for the validity of this team leadership function. In a large U.S. telephone company, Cohen et al. (1996) examined the impact of encouraging team self-management, group task design, group characteristics, and the level of involvement and autonomy exhibited by employees. Their sample consisted of 85 self-managing teams and 84 traditional hierarchical teams that all performed a variety of functions in the company, including technical service, information processing, clerical support, and management. Results from this study suggest that, in comparison with the other predictors, encouraging team self-management had little to no impact on team effectiveness. Yet in a sample of 58 self-managing teams and 60 traditional hierarchical teams from the same work context, Cohen et al. (1997) found that encouraging team self-management was positively associated with team member satisfaction and self-rated effectiveness for both self-managing and traditional teams. Thus, although the research evidence is generally supportive of the validity of encouraging team self-management, inconsistencies in these results point to opportunities for future research to shed light on when and under what conditions encouraging team self-management is most effective. Similarly, existing research has focused on how formal external leaders can encourage self-management. What remains to be answered, however, is the extent to which informal internal sources can provide this same sort of encouragement.

Support social climate. The final team leadership function during the action phase is to support the social climate of the team. Numerous researchers have discussed the importance of tending to the team's social environment (Fleishman et al., 1991; Hackman & Walton, 1986; Marks et al., 2001), with social roles consistently emerging as critical in team contexts (see Mumford et al., 2006, for a summary). This support function occurs throughout the task cycle when it is particularly important to tend to the team's social environment and to address interpersonal issues within the team that may interfere with the team's performance. A study conducted by Campion, Medsker, and Higgs (1993) brings to light the importance of positive social interactions among team members by highlighting the positive relationship between support and team productivity.

This leadership function can be implemented in a variety of ways. For example, in a study of 36 class project groups, Schminke, Wells, Peyrefitte, and Sebora (2002) described supportive internal leaders as those who show respect for team members' ideas, exhibit warmth, and demonstrate concern for interpersonal issues among the team's members. Druskat and Wheeler (2003) used critical incident interviews with team leaders and their team members in a Fortune 500 manufacturing plant to examine how effective leader behaviors unfold over time. They identified a *relating* behavior which occurred when the leader "engages in caring actions that validate team members and their individual needs and concerns" (p. 442). Leaders who engaged in these types of activities were more likely to be rated as superior.

Studies have also researched other outcomes related to the team leadership function of supporting the social climate. In an examination of jazz music groups and collegiate rowing crews, Pescosolido (2002) proposed that emergent team leaders were responsible for managing team emotions. Importantly, he further suggested that managing the team's emotions

does not have to be tied to a specific leader, but that different team members can perform this function at different times. Phillips, Douthitt, and Hyland (2001) conducted a laboratory experiment to examine the impact of a formal external leader's supportive actions. This study found that a leader's supportive actions were positively related to satisfaction with the leader and attachment to the team. Pirola-Merlo, Hartel, Mann, and Hirst (2002) studied 54 formal research and development project team leaders. They found that leaders who "facilitated positive working relationships among team members" (p. 568) had teams with higher satisfaction and viability. Kim et al. (1999) examined formal, external team leaders who supported their teams by solving conflicts, building cohesion, setting the team climate, demonstrating consideration, and empowering team members. They found a positive relationship between supportive team leaders and team performance. Finally, in a meta-analysis of team leadership behaviors, Burke et al. (2006) found positive relationships between team leader consideration behaviors and team quantity and quality outcomes. As these studies demonstrate, multiple sources are able to engage in this particular leadership function.

Future Research and Conclusion

In this article, we have sought to advance research and theory on team leadership in two distinct ways. First, we described four different sources of team leadership (Table 1). Although these different sources have been identified in the past, we are not aware of any research that has integrated all of them in a single framework. We view this as an important advance because it not only helps shift the focus from *the leader* of a team to the *leadership processes* within teams, but it also explicitly acknowledges the diverse sources of leadership within a team. Second, drawing from this inclusive, team-centric view of leadership, we articulated the set of team leadership functions that help teams satisfy their critical needs and regulate their behavior in the service of goal accomplishment. By linking the leadership sources to the team leadership functions, we were able to summarize the diverse literature that has explored team leadership and identify areas needing future research.

Although our review highlighted a diversity of empirical team leadership research, it is clear that much remains to be done. We have highlighted future research needs throughout the preceding discussion. In addition, future research is needed in the areas of leadership sources, leadership functions, mediational mechanisms, contingencies, and team leadership effectiveness criteria.

Sources of Team Leadership

In terms of leadership sources, as we noted earlier, the typical approach in team leadership research is to focus on a single source of leadership. For example, scholars might focus on formal external leaders, emergent leadership, or shared leadership, but seldom do they focus on more than one of these sources. Although there are undoubtedly good reasons to focus on a single source, one of the unfortunate side effects of this approach is that the total leadership capacity of a team is underestimated. Considering all of the sources of team leadership is essential for developing a complete understanding of team leadership processes and the leadership capacity within the team (Day et al., 2004).

Thus, we highlight two directions for future research on team leadership structures. First, additional research is needed on what might be termed *nontraditional* leadership structures. The majority of existing research has focused on formal leaders, no doubt owing to the influence of traditional theories of leadership that emphasize formal leaders. Although this research is important, other team-specific forms of leadership also deserve attention. We have sought to highlight these other forms of team leadership in this review, but much more needs to be done to understand how these leadership structures influence team processes and effectiveness. In particular, even though there is no research on informal external forms of team leadership, this form of leadership is undoubtedly important for team success, particularly in highly interdependent organizational contexts. Second, there is a need for research that explores multiple leadership sources simultaneously. Although this type of research is more challenging to conduct, without such research we do not have a clear understanding of how these different sources of team leadership are interrelated and how they might interact in a dynamic way. One potential way to conduct this research would be to explore the extent to which each of these sources engages in the various leadership functions and then examine how different leadership configurations are related to team needs and outcomes.

Team Leadership Functions

Although we were able to identify 15 different team leadership functions in our comprehensive review, for many of the functions there is comparatively little empirical research in team contexts. A number of conceptual models of team leadership have been offered (e.g., Day et al., 2004; Hackman & Walton, 1986; Kozlowski et al., 1996; McGrath, 1962; Zaccaro et al., 2001), but it is only relatively recently that scholars have begun to empirically study team leadership as a distinct phenomena. This is a limitation of the literature, but it is also an opportunity for scholars to greatly expand our understanding of the range of ways leadership in teams manifests itself and impacts team outcomes.

To assist in this future research, we followed taxonomic principles and developed the TLQ (see Appendix) that could be used to assess the team leadership functions identified in this article. Although future research needs to validate its reliability, dimensionality, and validity, the TLQ serves as an integrative measurement tool that scholars can use to expand our understanding of some fundamental questions about leadership in teams. These questions might include issues such as (a) the relationship between the team leadership functions, (b) the relationship between the functions and team outcomes, and (c) the extent to which certain sources of team leadership are more or less effective at performing different leadership functions. Virtually any research in these areas would constitute an important contribution to the literature.

Mediational Mechanisms

A key assumption of our model of team leadership (and functional leadership theory more generally) is that leadership functions are important because they satisfy critical team needs. Throughout our discussion of the leadership functions, we alluded to the different ways in

which a particular function might satisfy different team needs. There is little research, however, that directly assesses the mediational mechanisms through which team leadership affects team outcomes. Research is needed to explore specific linkages between the team leadership functions and the range of team needs briefly described at the outset of this article (see Morgeson et al., in press, for a more extended discussion). We propose that team need fulfillment is a key mechanism by which these leadership functions impact team processes and outcomes. However, it is likely that a given leadership function would satisfy multiple team needs and that the same team need would be satisfied by different leadership functions. In this way, there is likely an equifinality in team leadership such that there are multiple pathways through which team leadership can produce positive team outcomes. One can envision research that maps the connections between team leadership functions and team needs.

Contingencies in Team Leadership

Although some of the team leadership functions identified herein might be appropriate and effective regardless of the team or the context within which the team is operating, we expect that the effectiveness of these functions will also vary based on numerous team, organizational, or environmental factors (see Morgeson et al., in press, for a description of different contextual elements). For example, the design of the team's work and the composition of the team itself could play a key role in the relevance of the leadership functions. If a team is geographically dispersed (e.g., a virtual team), then leadership functions like monitoring the team and establishing expectations may be particularly important given the possibility for team members to feel disconnected from the organization and the team's mission (Fiol & O'Connor, 2005). The composition of the team (in terms of skills, abilities, and work experience) can also be influential. For example, highly experienced teams may not require much in the way of training and development, but they may need to be challenged at appropriate points in time in order to avoid becoming complacent. As these two examples illustrate, there are potentially numerous contextual factors that might shape the importance and effectiveness of these leadership functions. We encourage scholars to pursue research that explores the range of team, organizational, and environmental contingencies that might impact how these team leadership functions influence team processes and effectiveness.

Finally, we expect that some leadership sources are better equipped or positioned to perform certain team leadership functions. For example, formal or informal external leaders might be most effective at managing a team's boundaries, in part because they are positioned outside the team's day-to-day task cycle and thus are already positioned at the team's boundary. Conversely, formal or informal internal leaders might be best suited to provide feedback or support the social climate of the team given their extensive opportunities to observe team behavior and perform the leadership function at the most appropriate time. As illustrated in Table 2 and discussed in our description of the different leadership functions, there is likely to be variation in the extent to which different team leadership sources are able to perform the different leadership functions. Because there is no research comparing the validity of different leadership sources, our discussion of differences across leadership sources is speculative. Going forward, scholars can use Table 2 as a starting point for theorizing about how effective

each leadership source is at fulfilling key leadership functions and satisfying critical team needs, and then empirically test the effectiveness of the leadership functions across the leadership sources identified in this article.

Team Leadership Effectiveness Criteria

As our review illustrates, team leadership has been evaluated in a variety of different ways. Although a comprehensive consideration of team leadership effectiveness criteria is beyond the scope of this article, it is important to discuss the specific criteria that are used when evaluating the effectiveness of leadership in teams as well as the targets of this evaluation. In terms of criteria, there are potentially multiple team effectiveness criteria that span the affective, behavioral, and cognitive domains. Affective criteria would include such things as satisfaction, commitment, and identification. Behavioral criteria would include such things as quality and quantity of task performance as well as contextual performance, which could include helping fellow team members or engaging in prosocial behaviors directed toward the larger organization. Cognitive criteria would include such things as learning and adaptation over time within the team. There is no single criterion or set of criteria that is ideal. Rather, the relevance of these different criteria depends on the specific research questions and types of teams being studied. We would simply suggest that future research be deliberate in considering and choosing the widest and most appropriate set of criteria.

In terms of targets of evaluation, there are at least three different targets for assessing team effectiveness. First, an evaluation of team leadership effectiveness can focus on the individuals who perform a particular leadership function. Typically, this would include single individuals occupying a particular leadership role within the team. For example, the effectiveness of formal external and internal leaders is commonly evaluated and would reflect this approach. Second, the effectiveness evaluation can focus on the performance of the team leadership function, regardless of who is performing that function. Such an evaluation would commonly occur in shared leadership structures, where multiple team members are likely to perform a particular leadership function. Third, in light of functional leadership theory that suggests a leader's job is to do whatever is needed for the team to succeed, the team as a whole can be evaluated (Kaiser, Hogan, & Craig, 2008). The success of a team at accomplishing its goals would be an example of this team assessment.

Conclusion

Our intent with this article was to review the literature on team leadership, describe how this form of leadership is distinct from traditional forms of leadership and present an integrative view of team leadership that both summarizes past research and points to areas of promising future research. Although considerable progress has been made, much research remains to be done. We hope that our review helps guide the field in making the significant breakthroughs that others have anticipated (Day et al., 2006).

Appendix
Team Leadership Questionnaire (TLQ)

Transition Phase Leadership Functions

Compose team

1. Selects highly competent team members
2. Selects team members who have previously worked well together
3. Selects team members that have previously worked well with the leader
4. Selects team members so there is the right mix of skills on the team
5. Selects highly motivated team members

Define mission

1. Ensures the team has a clear direction
2. Emphasizes how important it is to have a collective sense of mission
3. Develops and articulates a clear team mission
4. Ensures that the team has a clear understanding of its purpose
5. Helps provide a clear vision of where the team is going

Establish expectations and goals

1. Defines and emphasizes team expectations
2. Asks team members to follow standard rules and regulations
3. Communicates what is expected of the team
4. Communicates expectations for high team performance
5. Maintains clear standards of performance
6. Sets or helps set challenging and realistic goals
7. Establishes or helps establish goals for the team's work
8. Ensures that the team has clear performance goals
9. Works with the team and individuals in the team to develop performance goals
10. Reviews team goals for realism, challenge, and business necessity

Structure and plan

1. Defines and structures own work and the work of the team
2. Identifies when key aspects of the work need to be completed
3. Works with the team to develop the best possible approach to its work
4. Develops or helps develop standard operating procedures and standardized processes
5. Clarifies task performance strategies
6. Makes sure team members have clear roles

Train and develop team

1. Makes sure the team has the necessary problem solving and interpersonal skills
2. Helps new team members learn how to do the work
3. Provides team members with task-related instructions
4. Helps new team members to further develop their skills
5. Helps the team learn from past events or experiences

(continued)

Appendix (continued)

Sensemaking
1. Assists the team in interpreting things that happen inside the team
2. Assists the team in interpreting things that happen outside the team
3. Facilitates the team's understanding of events or situations
4. Helps the team interpret internal or external events
5. Helps the team make sense of ambiguous situations

Provide feedback
1. Rewards the performance of team members according to performance standards
2. Reviews relevant performance results with the team
3. Communicates business issues, operating results, and team performance results
4. Provides positive feedback when the team performs well
5. Provides corrective feedback

Action Phase Leadership Functions

Monitor team
1. Monitors changes in the team's external environmental
2. Monitors team and team member performance
3. Keeps informed about what other teams are doing
4. Requests task-relevant information from team members
5. Notices flaws in task procedures or team outputs

Manage team boundaries
1. Buffers the team from the influence of external forces or events
2. Helps different teams, communicate with one another
3. Acts as a representative of the team with other parts of the organization (e.g., other teams, management)
4. Advocates on behalf of the team to others in the organization
5. Helps to resolve difficulties between different teams

Challenge team
1. Reconsiders key assumptions in order to determine the appropriate course of action
2. Emphasizes the importance and value of questioning team members
3. Challenges the status quo
4. Suggests new ways of looking at how to complete work
5. Contributes ideas to improve how the team performs its work

Perform team task
1. Will "pitch in" and help the team with its work
2. Will "roll up his/her sleeves" and help the team do its work
3. Works with team members to help do work
4. Will work along with the team to get its work done
5. Intervenes to help team members get the work done

Appendix (continued)

Solve problems

1. Implements or helps the team implement solutions to problems
2. Seeks multiple different perspectives when solving problems
3. Creates solutions to work-related problems
4. Participates in problem solving with the team
5. Helps the team develop solutions to task and relationship-related problems

Provide resources

1. Obtains and allocates resources (materials, equipment, people, and services) for the team
2. Seeks information and resources to facilitate the team's initiatives
3. Sees to it that the team gets what is needed from other teams
4. Makes sure that the equipment and supplies the team needs are available
5. Helps the team find and obtain "expert" resources

Encourage team self-management

1. Encourages the team to be responsible for determining the methods, procedures, and schedules with which the work gets done
2. Urges the team to make its own decisions regarding who does what tasks within the team
3. Encourages the team to make most of its own work-related decisions
4. Encourages the team to solve its own problems
5. Encourages the team to be responsible for its own affairs
6. Encourages the team to assess its performance

Support social climate

1. Responds promptly to team member needs or concerns
2. Engages in actions that demonstrate respect and concern for team members
3. Goes beyond own interests for the good of the team
4. Does things to make it pleasant to be a team member
5. Looks out for the personal well-being of team members

Note

1. We adopt the definition of teams proposed by Kozlowski and Bell (2003: 334) who suggest that teams are "composed of two or more individuals who (a) exist to perform organizationally relevant tasks, (b) share one or more common goals, (c) interact socially, (d) exhibit task interdependencies (i.e., work flow, goals, outcomes), (e) maintain and manage boundaries, and (f) are embedded in an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity." Although some have made distinctions between groups and teams, the differences tend to be ones of degree rather than kind. In keeping with past research, we use the terms *group* and *team* interchangeably.

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