

RUNNING HEAD: Dynamic Team Leadership

**Developing Adaptive Teams:  
A Theory of Dynamic Team Leadership**

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As we engage the new millennium, accelerating technological, cultural, political, and financial turbulence buffets organizations – often unpredictably so. Responding to an uncertain and unpredictable future is not so much an issue of advanced strategy and planning, but rather one of organizational innovation, agility, and adaptability (Terreberry, 1968). Organizations that can adapt quickly will survive and may even exploit hidden opportunities in the unexpected. Those that are slow to adapt face decline and dissolution. These environmental trends have been evident for some three decades. Many organizations have responded by creating leaner and more agile structures, shifting to team based work organizations (Lawler, Mohrman, & Ledford, 1995), and building the capabilities of their members.

The dramatic shift to team based work systems and the emphasis on building member capabilities places a spotlight on the critical role of team leaders. Team leaders are arguably the key link pin for developing team member capabilities (Likert, 1961) – that is, the processes and emergent states that underlie team effectiveness. Yet, with very few exceptions, leading *teams*, focusing on *process dynamics*, and building *adaptive capabilities* have not been foci of popular leadership theories. “The role of leaders in the development of the coordinated, adaptive, and coherent behavior of effective teams is not well articulated. Although there is a substantial literature on leadership in organizations ... it is difficult to apply the prescriptions from this research directly to teams” (p. 255; Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996).

This comment is not intended to imply that marshalling subordinates to deal with the uncertainties and challenges of change is not of interest to mainstream leadership theories. Certainly, it is very much of interest to the currently dominant model – transformational leadership – which focuses on leader behavior dimensions that inspire subordinates to transcend self-interest and strive for challenging goals (Bass, 1985). However, transformational leadership like many other popular approaches is not very specific as to how this happens. As highlighted concisely in Table 1, many *general* leadership theories focus on the *structure* of leadership – identifying dimensions that are intended to be universally applicable across people, contexts, tasks, and time. Some structural approaches acknowledge contingencies that should modify leader action to fit contextual demands, although even these approaches are largely *static*. Once the leader fits, that is it. What is missing from universalistic approaches is an articulation of *how* leaders build and shape team development. A focus on *team* leadership necessitates attention to the *process* by which teams develop critical capabilities. Contingencies that necessitate shifts in leader action are linked to task and team development *dynamics* that vary within teams and over time.

The purpose of this chapter is to posit a prescriptive meta-theory – an overarching framework and set of fundamental principles – of team leadership that fills this gap in the literature. The theoretical emphasis is on articulating the process of how leaders should build team capabilities – the underlying aspects of team effectiveness and adaptability – by leveraging contingencies that arise from the dynamics of team tasks and the progression of team skill development. We integrate, update, and refine prior work addressing team leadership, team development, and team processes. We begin by drawing on theories that focus on *leadership functions* in the team context (e.g., Hackman & Walton, 1986). To sculpt the theoretical core, we integrate the functions with theories that focus on team leadership dynamics (e.g., Kozlowski, Gully, McHugh et al., 1996). *Task dynamics* are derived from attention to the episodic nature of team tasks (Marks, Mathieu, & Zaccaro, 2001), learning cycles that integrate with task episodes (Kozlowski, Gully, Salas, & Cannon-Bowers, 1996), and dynamic goal-regulation processes that underlie individual and team performance (DeShon, Kozlowski, Schmidt, Milner, & Weichmann, 2004). *Developmental dynamics* are derived from models of team development (Tuckman, 1965), transition (Gersick, 1988), and compilation across levels – individual to team – as team members gain experience (Kozlowski, Gully, Nason, & Smith, 1999). We then integrate these task and developmental dynamics and explicate them in detail, highlighting the key capabilities that team leaders should target for development, how they can instill them, and how leader actions shift to fit these dynamic contingencies. We close with a concise discussion of implications for team leadership research and practice.

### **Team Leadership: Theoretical Underpinnings and Integration**

#### *A Functional Perspective*

A team is comprised of a set of members who interact, dynamically, interdependently, and adaptively toward a common and valued goal, with each member having a specific role to fulfill within the team (Salas, Dickinson, Converse, & Tannenbaum, 1992). Although most leadership theories are not grounded in a team (or any) context, one stream of work has centered on delineating the *functions* that leaders serve in the maintenance, development, and effectiveness of teams (e.g., Hackman & Walton, 1986; McGrath, 1962). According to McGrath (1962), “... the primary purpose of leadership is to insure that the group fulfills all critical functions necessary to its own maintenance and the accomplishment of its task” (p. 5). As shown in Table 2, an examination across this literature for consistencies yields four linked executive leadership functions – *planning* and *organizing*, *monitoring* and *acting* – that are directed *internally* or *externally* toward team *task* or *social* domains. Note that while the planning /

organizing and monitoring / acting functions are nearly universal (Schutz, 1961, is an exception for monitoring / acting), there is less consistency across the foci. Indeed, only McGrath (1962) encompasses all functions and foci. We follow McGrath for comprehensiveness and use the functions and their foci to form the core structure of our theoretical approach.

One thing to note, however, is that while the team leader functions summarized in Table 2 are process-like, they are static in nature. The leadership functions are intended to be applied flexibly to enable group maintenance, development, and effectiveness, but the theories do not address the specifics of when and why particular functions should be applied. In other words, dynamic contingencies that should influence the application of leadership functions and their foci are not specified. To fill this gap, we turn our attention to theories that take a more dynamic perspective on team leadership, development, and effectiveness. Two dynamic processes run through this literature. One centers on the cyclical and episodic nature of team tasks and the other centers on team member skill compilation and development.

#### *Task Dynamics*

Team tasks are not fixed. Rather, they cycle episodically in the load they place on team member resources – cognitive, behavioral, and attitudinal/motivational – that are engaged as the team strives to learn and accomplish its goals (Kozlowski, Gully, McHugh et al., 1996; Kozlowski, Gully, Salas et al., 1996; Marks et al., 2001). Marks et al. (2000) suggested that the episodic nature of team tasks emphasized the importance of different team processes. During the *transition phase* that occurs between task engagements, team processes center on evaluating prior performance and planning for future activities. This is followed by an *action phase* during which members coordinate activities and strive for goal accomplishment, with subsequent transition-action episodes. Prior theoretical work by Kozlowski and colleagues (Kozlowski, Gully, McHugh et al., 1996; Kozlowski, Gully, Salas et al., 1996) posited that the cyclic and iterative nature of team tasks provided an opportunity for leaders to explicitly shape team regulatory processes underlying learning, skill development, and performance. In their framework, the leader prompted the setting of developmental goals during low load, monitored team performance and intervened as necessary during high load, and diagnosed errors and provided feedback as the task cycled back to low load.

Integrating across these frameworks, we conceptualize a task engagement cycle as an iterative three phase process of: (1) preparation, (2) action engagement, and (3) reflection. The dynamics of the task cycle provide an opportunity for the leader to explicitly prompt individual and team regulatory

processes designed to build targeted individual and team skills. Recent research has demonstrated that parallel goal-action regulation processes at the individual and team levels account for both individual and team performance (DeShon et al., 2004). As illustrated in the bottom portion of Figure 1, the load on team member resources is low prior to an engagement episode. During *preparation*, team leaders should set *developmental goals* designed to build *task* and *social* capabilities appropriate for the team's current developmental phase that will direct member resources as they engage the task. Leaders should also brief the team with strategies commensurate with their current capabilities to aid goal accomplishment. These developmental goals will shape team learning as members work toward goal accomplishment. As the team transitions to *action*, the load on member resources increases as they fully engage the task. The leader *monitors* and actively *develops* targeted *attitudes, behaviors, and cognitions*. Because team tasks can place loads on member resources that exceed their current capabilities – particularly early in team development – leaders are also prepared to directly *intervene* as necessary by *prompting coordination, adjusting strategy, updating situation assessments, and maintaining performance*. As the task engagement cycle concludes, the load on member resources is reduced and the team transitions to *reflection*. Leaders should then *facilitate process feedback*, helping team members *diagnose deficiencies* and identify capabilities that need further development in subsequent engagements. The task cycles are iterative, providing multiple opportunities for leaders to harness the regulatory process to build targeted and successively more complex skills. Task cycles are not fixed in duration, but variable depending on the nature of the task. This conceptualization of task dynamics maps the contingencies that should drive the *process* of leader skill building. The next aspect of the theory is to articulate developmental dynamics (contingencies) that dictate which targeted skills are appropriate at different phases of team development.

#### *Developmental Dynamics*

There are two dominant perspectives on the process of team development. Stage models propose a successive series of dominant activities that capture team members' attention. Although there are many, many stage models, they are well typified by the classic model of team forming, storming, norming, and performing (Tuckman, 1965; see Kozlowski et al., 1999 for a summary of stage models). As teams *form*, members are uncertain about their roles and the team. They begin to *storm* as members vie with one another to set direction and establish roles. They *norm* as conflicts get resolved and the team forms a social structure. Finally, the team is able to *perform* as members devote attention to the task at hand. Because Tuckman's model was derived from a literature review centered on clinical, therapy, and training

groups (T-groups), it tends to emphasize the uncertainty members face as the endeavor to create a social structure in the absence of a well defined task structure (Kozlowski et al., 1999).

The punctuated equilibrium model (PEM; Gersick, 1988) proposes that teams initially establish a set of roles and pattern of interaction that persist until the midpoint of their lifecycle. At that point, there is a major reorganization and investment of energy – the punctuated equilibrium – as the team strives to meet their deadline. Note that the PEM was developed from observations of project teams with a fixed timeline, which may have had some influence on the temporal dynamics (Kozlowski & Bell, 2003).

Although the stage and PEM approaches are often characterized as being in opposition, research suggests that they are complementary. Linear development is more evident when the focus is on group process and structure and the timing is more micro, whereas the punctuated shift is more evident when the focus is on the group's approach to its task and macro timing (Chang, Bordia, & Duck, 2003).

Kozlowski and colleagues (1999) synthesized the team development literature and integrated these two approaches, viewing team development as a process of compiling successively more complex skills that enabled flexible, coordinated, and adaptive team performance behaviors. The overall process of compilation is one of linear progression, punctuated by transitions as skills crystallize within a phase and the team shifts attention to the development of more complex knowledge and skills. In addition, they also viewed the phase transitions as shifting across focal levels – individual, dyadic, and team – such that members first focus on their own task and social needs, then shift to immediate role connections, and finally meld together into an adaptive team network. Unlike most previous team development models, their approach asserted the primacy of the team task; that is, the patterns of interdependence dictated by the workflow of the team task and its implications for member coordination and synchronicity. Consistent with previous models, they acknowledged that a supportive social structure was a necessary condition for team development but that it was not sufficient. Their model asserted the primary importance of compiling team capabilities to fit the team task structure, with social structure in a supporting role.

Our theory builds on these team development models and integrates them with the cyclical nature of team tasks. We posit that leader efforts to build targeted skills within phases yields team capabilities that in turn provide a basis for developmental transitions (cf. Hackman & Wageman, 2005; Kozlowski, Gully, Salas et al., 1996). Thus, leaders use the task cycles to guide teams to acquire successively more complex skill sets as they make developmental transitions: new, novice, expert, and adaptive. This set of developmental contingencies is illustrated the top portion of Figure 1. Team development is

conceptualized as a linear process punctuated by phase transitions as members acquire skills and transition to the acquisition of more complex skills – guided by the leader.

Figure 2 maps the broader team development process in more specific detail by crossing task and skill development dynamics. The left hand portion of the figure incorporates the key aspects of the previously described task engagement cycle relating to preparation, action, and reflection that apply to each of the developmental phases. The developmental phases and their foci are arrayed along the top of the figure moving from left to right. The body of the figure specifies the skill building targets that team leaders address within each phase. The phases are intended to capture “ideal” developmental targets and modal activities of team members. In that sense, phase transitions are “soft” rather than “hard” boundaries. The function of the team leader is to map an explicit regulatory process to the naturally occurring task engagement cycle, using the process to guide the compilation of increasingly more complex skills as the team progresses developmentally.

During preparation, leaders target specific task and social developmental goals and provide action strategies. Across phases, the goals shift from an individual focus to a team focus and the strategies become increasingly more sophisticated and team-determined. During action, team leaders target specific attitudinal / motivational, behavioral, and cognitive capabilities for monitoring and development. They intervene as necessary, with internal intervention more likely early in team development and external boundary spanning more likely later in development. Similarly, reflection shifts from more of a leader directed individual focus early on to more of a team directed regulatory process as team skills compile. We now turn attention to explicating this process in detail, integrating supporting literature, and illustrating the theoretical processes and outcomes with a common example.

### **Leadership, Team Development, and Adaptation**

#### *Phase 1: Team Formation*

As teams first form, the new members must identify and commit to the team. Team identification occurs when members associate themselves with the qualities, characteristics, and views of the team (Christ, van Dick, Wagner, & Stellmacher, 2003); team commitment occurs when members accept and support the team’s mission, values, and goals (Ellemers, de Gilder, & van den Heuvel, 1998). To build identification and commitment, the leader orients members to the team’s mission, norms, and values to help them understand its purpose, facilitate future performance, and promote satisfaction (Bishop & Scott, 2000; Gabarro, 1987; Katz, 1978; Schein, 1968). Additionally, the leader socializes members by

clarifying norms for social interaction and facilitating member integration (Kozlowski et al., 1999).

During orientation and socialization, the leader adopts the role of a mentor, facilitating each member's understanding of key features of the team, its mission, and its members (Ostroff & Kozlowski, 1993).

### *Preparation*

*Team Orientation.* The leader's task developmental goal is to orient new members. In new teams, members seek to reduce ambiguity regarding the team's purpose and their role in fulfilling its mission (Levine & Moreland, 1998; Tuckman, 1965). They seek information about the team's mission, objectives, and goals so they can learn more about their team, perform more effectively, and feel more satisfied with their performance (Mitchell & Silver, 1990; Morrison, 1993). By focusing on task and interpersonal relations, members are more satisfied, committed, identified, and adjusted (Ellemers et al., 1998; Ostroff & Kozlowski, 1992). Increased interpersonal familiarity is also related to the speed and quality of team performance (Harrison, Mohammed, McGrath, Florey & Vanderstoep, 2003). The leader should communicate the mission, its supporting goals, and how the team mission fits in the broader organization.

*Team Socialization.* Social developmental goals concern team socialization, or informing members of the behaviors and attitudes necessary for them to assume their role in the team (Schein, 1968). Leaders should inculcate team norms (i.e., patterns of behaviors characteristic of the group) and expectations for interpersonal interactions. In addition, they should clarify the consequences maladaptive working relationships can have on team performance. Forsyth (1999) stated norms are critical to teams as they provide direction and motivation, organize social interactions, and make team members' responses predictable and meaningful to each other. By explaining and modeling team norms, the leader specifies standards of behavior that facilitate team functioning (Adkins, 1995; Katz & Kahn, 1978). By explaining expectations for interpersonal interaction, the leader provides characteristics and expectations for member social roles (Ilgen & Hollenbeck, 1991), emphasizes the benefits of working together (Lewicki & Bunker, 1996), and facilitates future team functioning (Saks & Ashforth, 1997).

Morrison (1993) and Chao and colleagues (1994) suggest one important outcome of socialization is social integration, or developing successful working relationships with others. To become an effective team member, newcomers need to be oriented in social time and space relative to other members (Katz, 1978). Social integration affects members' social skills because it provides new members with support to facilitate learning, while reducing stress associated with adjusting to a new environment (Jablin, 2001). Thus, it aids team assimilation by transforming newcomers to contributing members.

*Action strategy.* As members become oriented and socialized, they are expected to accomplish the team's assigned tasks. However, at this point, members possess limited task proficiency, rudimentary coordinative capability, and almost no team task experience. Therefore, prior to engagement, the leader should provide them with an action strategy based on his or her assessment of the task, the team's capabilities, and environmental conditions. By providing the action strategy, the leader allows individual members to focus on what they need to do, when they need to do it, and who they need to work with to accomplish their tasks. Over time, members will use this experience to develop task mental models and understand the merits of different action strategies.

### *Action*

*Develop and monitor.* When tasks are more routine and within the range of the team's current capabilities, the leader can take advantage of this opportunity and orient task activities towards team socialization: building commitment, encouraging social interaction, and creating a team identity. The leader builds members' *commitment*, or identification with the team, by promoting acceptance of the team's goals and values as well as a desire to exert effort on behalf of the team (Bishop & Scott, 2000). More specifically, leaders develop affective commitment, which represents the extent to which members become identified with, emotionally attached to, and involved with the team and other members (Meyer & Allen, 1984). Commitment has been shown to be positively related to extra-role behaviors (Becker & Billings, 1993) and team performance (Bishop & Scott, 1997; Scott & Townsend, 1994). As commitment develops, members identify with each other more and begin to lay a foundation for group cohesion (Festinger, 1950; Gross & Martin, 1952; Gully, Devine, & Whitney, 1995) which is beneficial for several outcomes, including greater likelihood of accepting group goals, decisions, and norms (Forsyth, 1999); greater satisfaction with the team (Hackman, 1992; Roy, 1973); and greater responsibility for group outcomes (Widmeyer, Brawley, & Carron, 1992). Thus, the leader's developmental focus should center on building team commitment by creating positive affect toward the team task, its goals, and its members.

Behaviorally, the leader should create opportunities for social *interaction* in order to promote member bonding and a feeling of "groupness" (Moreland, 1987). Before members attend to their individual tasks and roles within the team, they must first learn about each other and build interpersonal relationships (Katz, 1978; Kozlowski & Hults, 1986). Similar to team identification, which involves commitment to team goals and values, bonding refers to integration with and commitment to fellow team members (Reade, 2003). Over time, successful social bonding may lead to reciprocal commitment, such

that members are willing to exert extra effort on behalf of the team (Reade, 2003) and the team is accepting of individual needs and the importance of satisfying them (Moreland & Levine, 2001). Furthermore, these interactions are also the mechanism by which members can learn other members' knowledge, skills, and abilities (KSAs) and how they might contribute to task performance (Edmondson, Bohmer, & Pisano, 2001). Thus, leaders should encourage members to interact and bond to begin laying the foundation for coordination in more complex task environments.

Finally, the leader seeks to create a *team identity*, a set of behaviors and characteristics by which an individual is recognized as a team member (Jones & George, 1998). While commitment to the team refers to acceptance of goals and values, team identity addresses the notion that team members are not simply individuals, but also members of a larger grouping of people with its own set of boundaries and expectations. Team identity arises simply from members defining themselves as such, and teams with stronger in-unit identity demonstrate a belief that they can be effective, have more positive social interactions, and feel more comfortable performing other members' tasks when needed (Campion, Papper, & Medsker, 1996). Thus, team identity enables members to recognize the importance of their participation for achieving team outcomes and is valuable for the existence of the team as an identifiable entity (Edmondson et al., 2001).

*Intervention.* In the team formation phase, members generally lack the task expertise and team skills required to contend with even moderately complex tasks. As a result, the leader must endeavor to buffer the new team from high complexity as much as possible. One proactive means of buffering involves establishing formal structures (e.g., rules, procedures, routines) to simplify tasks such that members' capabilities are not overwhelmed. If team member capabilities are overwhelmed, the leader may have to rely on reactive buffering, such as providing individual task assistance and coordination between members. These interventions also assist the leader in diagnosing deficiencies in individual and team capabilities and serve as foci for development under subsequent low complexity task conditions.

#### *Reflection*

As the task engagement cycle concludes, the leader reflects on individual and team performance to identify skill deficits and offer developmental feedback regarding members' violations of team norms, expectations, or values. This provides the leader with an opportunity to reinforce members' orientation and socialization. However, as members grow increasingly comfortable with each other and committed to the team over time, the leader should also provide them with developmental feedback with respect to task

skills. This feedback should be provided at the individual level as members are not prepared to attend to issues involving team coordination (Klaus & Glaser, 1970). Finally, leaders should use this reflection to influence the developmental efforts of subsequent task engagement cycles by amending task and social developmental goals and action strategies during task preparation and task developmental activities.

*Illustration: The New Emergency Room Team*

Consider a newly formed emergency room (ER) team nominally consisting of residents, interns, medical students, physicians' assistants, nurses, and technicians and led by an attending physician or chief resident. To develop a new team, the attending reviews the developmental goals. Task developmental goals are focused on providing team orientation and might involve generating member commitment toward the hospital's mission (e.g., providing quality health care to an economically disadvantaged community). Social developmental goals center on team socialization and involve communicating norms and expectations for interns' interactions with physician assistants and nurses. Given adequate warning of assignments, the attending will brief members on the anticipated task and define an appropriate strategy.

When the team is engaged in routine tasks such as attending an orientation course or social activities designed to introduce members to one another, the attending is able to focus on developing the team rather than intervening on its behalf. For example, he or she can support team orientation by reviewing hospital policies with interns and foster team socialization by observing pairs of medical students working together while taking a patient's history. However, when a critical care patient arrives, interns may be faced with injuries that are beyond their "book" knowledge and limited skills. Therefore, the attending may have to intervene by guiding them through new procedures, choreographing their interactions, or potentially taking over critical procedures to save the patient. Thus, novel tasks may necessitate active intervention by the leader, although this is expected to diminish as team capabilities compile with development.

Once the patient is stable, the attending guides reflection on team performance, assesses members' progress toward achieving developmental goals, and provides appropriate feedback to individual members. For example, the attending might ask a resident to review ER policies regarding patient triage or admonish an intern for violating team norms. Over repeated task engagement cycles, members commit to the team, bond with one another, and develop a team identity. They are no longer a new ER team, but a novice ER team, with members prepared to focus on improving their individual task capabilities.

### *Phase 2: Task and Role Development*

Members are now ready to improve their individual taskwork capabilities and their respective roles on the team (Ostroff & Kozlowski, 1992). To improve proficiency, members build individual task mastery by establishing routines, priorities, and strategies (Bandura, 1977; Ford, Quiñones, Segó, & Sorra, 1992) that will lead to effective team performance in later phases (Klaus & Glaser, 1970; Morgan, Glickman, Woodard, Blaiwes, & Salas, 1986). They also improve coordination by negotiating social roles to establish expectations and by developing role attachment and acceptance (Seers, 1996). To facilitate the novice team's development, the leader adopts the role of an instructor to develop members' abilities, assist in negotiating roles, and build individual efficacy by providing task information, modeling task behavior, and offering opportunities for members to practice (Bandura, 1977; Ford et al., 1992).

#### *Preparation*

*Taskwork.* During preparation, the leader frames the team's task developmental goals in terms of achieving individual task proficiency. Taskwork behaviors are related to task execution and require members to develop task-specific knowledge, skills, and attitudes, while teamwork behaviors require members to develop the ability to communicate and coordinate their actions with others (Cannon-Bowers, Salas, & Converse, 1993). In this phase, the leader focuses on developing taskwork competencies as a foundation for the development of teamwork competence in the next phase. Team members achieve task mastery, including declarative knowledge, self-regulatory skills, and individual performance strategies, through practice and experimentation (Gist & Mitchell, 1992; Morrison, 1993). Task proficiency is critical to the development of self-efficacy and resilience in face of challenges (Bandura, 1998). As task routines evolve, members make fewer errors (Anderson, 1987), resolve task ambiguities, and learn the task-based responsibilities of other members (Volpe, Cannon Bowers, Salas, & Spector, 1996). By developing taskwork proficiency, leaders ensure members have the essential knowledge and skills required to contribute to the team.

*Role socialization.* The leader frames social developmental goals in terms of building social role acceptance and attachment. Drawing on the commitment literature, social role acceptance and attachment is akin to normative commitment, whereby an individual believes they "ought" to fulfill their social role as a team member (Allen & Meyer, 1990). After socialization, members realize the team depends on their unique contributions and a sense of obligation builds as members feel a responsibility to take on the role they have been given. Normative commitment, role acceptance, and role attachment will contribute to

effective task interactions (Gabarro, 1987), as task relationships build upon the socio-emotional relationships established in the team formation phase (Seers, 1996). Furthermore, they are expected to reinforce earlier socialization (Moreland & Levine, 1982), provide members with knowledge of how social skills and efforts contribute to team success (Edmondson et al., 2001), and help develop role-based behavior that complements the behaviors of other members and contributes to team effectiveness (Seers, 1996). By understanding what others expect of them and what they can expect from others, members begin to develop loyalty and commitment to each other and to the team (Adler & Adler, 1988).

*Action strategy.* The leader prepares the team for an upcoming task by using his or her experience to select an appropriate action strategy. However, because the leader is dealing with a novice team rather than a new team, he or she should discuss the rationale for selecting the particular strategy. Specifically, he or she can reveal salient characteristics of the task or environment, provide “war stories” to justify the selected strategy, and present alternative strategies and the reasons for their rejection. By providing a rationale, the leader makes explicit the strategy selection process and prepares members for later phases when the team will be expected to select an action strategy on its own (Kozlowski et al., 1996).

#### *Action*

*Develop and monitor.* When tasks fall within the team’s capabilities, the leader develops members’ *self-efficacy*, an individually held belief about one’s capabilities on a specific task or set of specific tasks (Bandura, 1997). Task self-efficacy is an essential element of successful performance, as higher efficacy leads to individuals overcoming challenges, approaching difficulty with a positive outlook, and more effectively setting new goals (Bandura & Cervone, 1986). Success builds self-efficacy. Thus, leaders should set increasingly difficult goals, provide mastery experiences, and assign members to tasks of increasing complexity to strengthen their task efficacy over time (Bandura, 1982).

Self-efficacy towards individual social roles, or the way members relate to others interpersonally, also underlies team task interaction. Empirically, individuals with clear social roles report higher self-efficacy for job performance (Chen & Bliese, 2002). Thus, leaders should instill a belief that members can fulfill their social roles in the team and promote positive social relationships by providing opportunities for members to turn knowledge about their social role into action (Anderson & Betz, 2001). Self-efficacy is also positively related to performance adaptability (Kozlowski et al., 2001). By developing members’ self-efficacy for task performance and social roles, leaders can create a team

composed of efficacious members eager to learn, stretch their capabilities, and master the complexity of the task domain.

In addition to member attitudes, leaders need to develop members' self-regulatory and help-seeking behaviors. *Self-regulatory behaviors* refer to the behavioral and cognitive processes that occur when individuals pursue goals (Bandura, 1997) and include strategies for learners to plan, monitor, and modify their cognition and effort (Corno & Mandinach, 1985; Zimmerman & Pons, 1986, 1988). Self-regulation relates to metacognition, an individual's knowledge of and control over his or her cognition (Flavell, 1979). Schmidt and Ford (2003) found that self-regulation has a positive effect on monitoring (i.e., metacognitive) activity, self-efficacy, and performance on a complex task. In a reciprocal fashion, self-efficacy affects the aspects of performance that members monitor, the goals they set for themselves, and their goal commitment (Locke, Frederick, Lee, & Bobko, 1984). Therefore, leaders should enhance both self-efficacy and self-regulation by encouraging active reflection and performance monitoring.

*Individual help seeking*, or members seeking assistance from the leader, is also vital for successful task performance. Leaders should ensure members understand that seeking help is acceptable and desirable as it can improve their task performance as well as strengthen their social roles (Edmondson et al., 2001). Ostroff and Kozlowski (1992) reported new members who increased help seeking behavior also increased task knowledge, team adjustment, and team commitment over time. Thus, leaders can serve as instructors when clarifying goals and roles, establishing performance expectations, and offering performance feedback (Gabarro, 1987; Katz, 1980). Individuals who feel comfortable asking for help will likely be cooperative (Seers, 1996) and open to personal development, change, and growth, which are necessary for a team to succeed in the next phase of development.

Finally, leaders should help members construct a *mental model* to organize their cognitions. Mental models are "...mechanisms whereby humans generate descriptions of system purpose and form, explanations of system functioning and observed system states, and predictions of future system states" (Rouse & Morris, 1986, p. 351). Leaders should encourage members to develop an individual task mental model incorporating knowledge of task procedures, strategies, likely scenarios, and contingencies they might encounter during task performance, and the relationship between components of their task and task responsibilities (Cannon-Bowers et al., 1993). The purpose of this mental model is to help members cognitively describe and explain task-related events. For example, Park and Gittelman (1995) studied the characteristics of mental models and their influence on dynamic performance and found that individuals

with more developed mental models had a greater understanding of system features and functions and improved task performance relative to those with less developed models. Kozlowski, Gully, Brown, Salas, Smith, and Nason (2001) showed that individuals with more coherent mental models were better able to adapt their performance when confronted with a more complex and dynamic task environment.

Leaders can also encourage members to develop an interpersonal mental model or network, which encompasses a social understanding of how an individual fits into the team, how their role fits into the team's social structure, and how their contributions are essential for team effectiveness. This type of mental model is derived from the work of Edmondson et al. (2001) and Lewicki and Bunker (1996) who discuss knowledge relevant to interpersonal situations. An interpersonal mental model is expected to help individuals understand, describe, and explain their personal social interactions in the team environment (Mathieu, Heffner, Goodwin, Salas, and Cannon-Bowers, 2000). Both a task and interpersonal mental model are beneficial when integrating individual understanding into a shared team understanding, with the ultimate goal of building a team representation of task and social responsibilities.

*Intervention.* Whenever possible, the leader should exercise the team in situations that fit its current degree of proficiency. As members of a novice team are still learning their tasks and are not yet fully focused on their interactions, they are likely to require the leader's assistance in both the taskwork and teamwork domains when faced with an overly challenging task. When task demands overwhelm members' task capabilities, the leader can set proximal sub-goals to limit difficulty, provide direct support to affected members, and intervene to ensure members do not fail in their assigned tasks. Because coordination among members is necessary for effective performance (Hage, 1980), leaders can intervene by encouraging members to work together, orienting lost members, and providing assistance where needed if the team is faced with task demands that overwhelm its coordinative capabilities (Seers, 1996).

#### *Reflection*

At the conclusion of a task cycle, the leader should work closely with individual members to help them diagnose skill deficiencies and provide developmental feedback regarding task competence and role expectations (Miller & Jablin, 1991). It is important that members receive individual level feedback so they can work to maximize their individual performance before they focus (later) on team performance (Klaus & Glaser, 1970). As positive feedback increases task self-efficacy (Tuckman & Sexton, 1991), leaders should discuss what members did correctly as well as addressing their deficiencies.

*Illustration: The Novice Emergency Room Team*

The attending prepares the novice team for this phase by reinforcing the task and social developmental goals of building members' taskwork skills and socializing members to their roles, respectively. Relevant subgoals might include fostering members' self-efficacy for basic medical procedures or generating commitment toward fulfilling social roles within the team. When a task is anticipated, the attending defines a task strategy and explains why it is appropriate to consider salient situational or task characteristics when evaluating alternative strategies and to prepare the team for a time when it will be expected to select an appropriate strategy on its own.

During routine tasks, such as when interns make rounds or see walk-in patients, the attending supports taskwork skill development by assigning cases that moderately challenge members' existing capabilities and then monitoring their performance. As members successfully accomplish routine procedures (e.g., providing IV fluids, suturing shallow lacerations), they build self-efficacy and enrich their task mental models. Similarly, the attending can support role socialization by encouraging appropriate social behavior. For example, if a medical student elects to chat with a nurse rather than pay attention to the chief resident's demonstration of a new procedure, the attending might remark how the student's inattention could lead to poor team performance. By reminding members that there is a time for work and a time for play, the attending instills in members a sense of responsibility to fulfill their given roles. When confronted by more challenging tasks that exceed the team's current capabilities (e.g., an emergent case arrives), the attending observes members as they provide care consistent with their individual abilities. If the patients' needs exceed members' skills, the attending intervenes by providing direct instruction or performing a procedure. Since members are focused on developing their task rather than team skills, the attending continues to orchestrate member interactions as needed by, for example, directing a resident to ready a defibrillator while an intern performs CPR or asking a student to find a chest tube when an intern anticipates the collapse of a patient's lung.

As the task cycle concludes, the attending reflects on the team's performance, encourages members to reflect on their own performance, and offers appropriate feedback at the individual level. For example, the attending might ask a resident to practice suturing or encourage an intern to ask for a second opinion when unsure of a diagnosis. Over time, members develop self-efficacy, taskwork competence, and task mental models. These outcomes signal a novice team that is ready to transition to an expert team where members are prepared to develop their teamwork capability.

### *Phase 3 – Team Development*

The leader shifts developmental focus from the individual to the team level to improve teamwork, the set of behaviors, cognitions, and attitudes that interact to influence group performance (Weaver, Bowers, Salas, & Cannon-Bowers, 1997). Since members have achieved basic taskwork proficiency in the preceding phase, the leader now provides them with opportunities to learn how their task contributions fit within the team context. This promotes coordination and builds trust (Weaver et al., 1997). Developing effective team skills can minimize process loss due to coordination failures among members, allow the team to handle increasingly complex tasks, and evolve an expert team (Fleishman & Zaccaro, 1992).

#### *Preparation*

*Teamwork.* During preparation, the leader offers task developmental goals that focus on teamwork skills and processes. Specifically, members must learn who to interact with, what they are expected to provide, and when to provide it (Kozlowski et al., 1999). As members interact, they discover inefficiencies or conflicts to resolve through task role negotiation and revision processes (Jackson & LePine, 2003; Marks et al., 2001). Task role exploration and knowledge acquisition are critical to the team's ability to efficiently and effectively accomplish tasks (Cannon-Bowers et al., 1993) and can be accomplished using group goals and goal-relevant feedback, which are related to team performance (e.g., DeShon et al., 2004; Weldon, Jehn, & Pradhan, 1991).

*Cooperation.* To enhance members' task interactions, the leader also focuses on the social developmental goal of promoting cooperation. Cooperative acts create positive feelings and stimulate interactions that reinforce shared values and attitudes (Jones & George, 1998). Cooperation is fostered through role interactions that build trust (Gambetta, 1988). Trust allows team processes to occur more smoothly and predictably, despite unexpected conflict or task requirements, by creating reliable and positive interdependencies among members that lead to openness, confidence, and team identification (Sheppard & Sherman, 1998). Developmental experiences for enhancing cooperation may include fostering an understanding of others' personality and needs (Cannon-Bowers et al., 1993), a sense of dependability among members (Mayer, Davis, & Schoorman, 1995; McAllister, 1995), and mutual respect (Tyler, 1999). These characteristics are critical for team performance in this phase and also provide a foundation for adaptive processes in the next phase.

*Action strategy.* The leader now facilitates, rather than dictates, the selection of an appropriate action strategy. Based in part on Roby's (1961) work regarding executive functioning, Hackman and

Walton (1986) asserted that leaders should provide expert coaching and assistance to help the team develop its processes, including the choice of a task-appropriate performance strategy. Moreover there is some support for the idea that teams become more receptive to strategy as they become oriented to the team, establish their proficiency, and gain experience (Hackman & Wageman, 2005; Woolley, 1998). The process of developing an action strategy in collaboration with members may also increase similarity and accuracy of members' mental models regarding the upcoming task (Marks, Zaccaro, & Mathieu, 2000).

### *Action*

*Develop and monitor.* When tasks are routine, the leader can promote processes that lead individuals to cooperate, feel solidarity, and act as a combined entity for attaining shared goals (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). These outcomes result from cognitive and affective processes, as well as from task-relevant behaviors. While self-efficacy was relevant during the prior phase, the team's collective efficacy is of interest during this phase. *Team efficacy* is the shared belief that the team will perform effectively on a particular task (Gully, Incalcaterra, Joshi, & Beaubien, 2002). It has been shown to affect team performance by increasing the effort and resources applied to a task (Shea & Guzzo, 1987), persistence and strategy selection (May & Schwoerer, 1994), goal setting (Durham, Knight, & Locke, 1998), sharing of mental models (Peterson, Mitchell, Thompson, & Burr, 2000), and coordination (Marks, 1999). Furthermore, meta-analytic findings support a relationship between team efficacy and team effectiveness. This relationship is moderated by interdependence after controlling for the individual and team levels of analysis, with the relationship being somewhat stronger for high interdependence ( $\rho = .45$ ) relative to low interdependence teams ( $\rho = .34$ ; Gully et al., 2002). Team efficacy is also presumed to improve group cohesion (Zaccaro, Blair, Peterson, & Zazanis, 1995), satisfaction, and organizational commitment (Riggs & Knight, 1994) and is influenced by past experiences, social modeling, and feedback (Bandura, 1986). Thus, the leader should provide opportunities for members to perform well as a team and foster team efficacy via encouragement and modeling.

Attitudinal and affective factors such as mutual trust and respect can also increase coordination among members (Weaver et al., 1997), especially when the team is placed in risky situations and members must rely on each other to do what is expected (LePine, Hollenbeck, Ilgen, & Hedlund, 1997). Generally, *trust* is the confidence in expectations that another's motives will be positive toward oneself in situations entailing risk (Sheppard & Sherman, 1998). Some research has found trust to be initially low in action teams because members are functionally diverse (Jackson, May, & Whitney, 1995). Thus, the

leader should foster a climate for trust and a shared perception that members will perform particular actions and will recognize and protect each others' rights and interests (Webber, 2002).

The leader should also provide learning opportunities for teamwork skills and coordination (Fleishman & Zaccaro, 1992; Hackman, 1987), communication (Dickinson & McIntyre, 1997), and mutual performance monitoring (i.e., backup behaviors; Blickensderfer, Cannon-Bowers, & Salas, 1997). *Team coordination* activities comprise "... the process of orchestrating the sequence and timing of interdependent actions" (Mathieu et al., 2000, p. 367) and involves exchanges of information and mutual adjustments (Marks, Sabella, Burke, & Zaccaro, 2002). When members coordinate their actions, they anticipate needs and "push" information or actions to other members rather than waiting for members to "pull" information from each other (Entin & Serfaty, 1999). Effective communication allows members to monitor each others' performance, share the workload when help is needed, explicitly coordinate tasks in real-time, adjust team strategy, and develop and enhance shared mental models. For example, Komaki, Desselles, and Bowman (1989) showed that leadership behaviors aimed at providing feedback about team coordination during a regatta race were strongly related to performance. Salas, Fowlkes, Stout, Milanovich, and Prince (1999) demonstrated that teamwork behaviors of assertiveness, communication, mission analysis, and situational awareness increased through training and improved team performance for naval aircrews. *Backup behaviors*, or actions performed to assist other members' (Fleishman & Zaccaro, 1992) have also been shown to influence team performance. Nieva, Fleishman, and Rieck (1978) describe mutual performance monitoring, error correction, and compensatory performance (i.e., assisting another member when they experience overload or failure) as key adaptive team functions. Such behaviors have been found to be important for team effectiveness (Morgan, Salas, & Glickman, 1993) and linked to a willingness to accept and provide help (Denson, 1981; Dyer, 1984).

Finally, a leader should create opportunities for members to learn task and role interrelationships and develop a common cognitive framework for understanding team processes. A team's *shared mental model* refers to the procedural knowledge about how and when members should interact within a given task domain (Cannon-Bowers et al., 1993). It enables coordination when members possess common assumptions and expectations regarding others' roles and responsibilities and understand effective ways to perform their roles in the team context, which can lead to improved team performance (Peterson et al., 2000). Mathieu et al. (2000) found that convergence in shared team and task mental models influenced team performance through increased coordination, cooperation, and communication. Furthermore, Marks

et al. (2002) found that cross-training develops shared mental models, with mental model similarity related to coordination processes, backup behaviors, and team performance.

*Intervention.* Although members in this phase are able to perform their taskwork, the team is still likely to encounter demanding tasks that are beyond its current capabilities, disrupt team processes, and prevent effective functioning (Hackman, 1987; Marks et al., 2001). Task demands that overwhelm members can be dealt with via adjustments or corrections to the team task, strategy, or goals. At times, the leader can serve as a buffer between the team and the environment by mitigating (or facilitating) factors that hinder (or enhance) team functioning (cf. McGrath, 1964). Under high workload conditions, members may also become overly focused on their individual taskwork rather than teamwork, resulting in communication breakdowns and related problems (Bowers, Braun, & Morgan, 1997; Salas et al., 1999). In such cases, the leader should intervene to assist coordination and communication (e.g., encouraging team members to work together, re-directing lost team members) to maintain team performance.

#### *Reflection*

During reflection, the leader facilitates the team's assessment of individual and team performance and provides appropriate developmental feedback at the team-level. At this point, the expert team has acquired greater task and teamwork skills with each task cycle and is now capable of diagnosing its own performance and providing feedback with the leader's guidance. In this phase, team-level feedback is critical, as DeShon et al. (2004) showed that team feedback was important for helping develop calibrated team goals (i.e., difficult but attainable) and focus effort on coordination to enhance team performance.

#### *Illustration: The Expert Emergency Room Team*

In the team development phase, the attending focuses on the task developmental goal of building teamwork capability and the social developmental goal of promoting cooperative behaviors to increase team task performance. Task-related subgoals might include recognizing other members' preferences for receiving inputs from others, while social subgoals might include fostering a high degree of trust among members. As members have developed their task capabilities in the preceding phase, the attending facilitates their selection of an appropriate action strategy when tasks assignments are anticipated.

When tasks are routine, interns, residents, nurses, and technicians are working together to clear non-emergency patients without direct supervision of the attending physician. Members rely on each others' respective expertise and interact in order to interview, diagnose, and treat patients. Their repeated interactions allow them to support one another, build trust, and generate a shared mental model of team

processes. When emergency patients stretch their skills, members perform their specialized tasks and coordinate their activities as best they can. However, the attending observes their performance to ensure their task or teamwork capabilities are not overwhelmed. Should the former occur, the attending might redefine the task or strategy (e.g., refer the patient to a specialist in another department). In the event of the latter, he or she would intervene by providing the coordination that members are unable to muster.

At the end of the task cycle, the attending facilitates the team's reflection of its performance and provides team-level feedback with respect to teamwork capability. For example, the attending might remind members to attend to each others' activities (i.e., mutual performance monitoring) in order to provide proactive rather than reactive assistance. After multiple iterations of the task engagement cycle, the team builds teamwork capability, team efficacy, and a shared mental model. Given these tools, the expert team is prepared to transition to a self-regulating adaptive team.

#### *Phase 4: Team Improvement*

The team now focuses on developing adaptability, or the ability to incrementally improve and rapidly respond to novel and changing task demands (Kozlowski et al., 1999). Given the dynamic nature of modern work environments, adaptability has become an increasingly desirable and essential characteristic of individuals and teams (Smith, Ford, & Kozlowski, 1997), and this recognition has spurred research on the nature of adaptive performance (e.g., Pulakos, Arad, Donovan, & Plamondon, 2000). To develop adaptability, the leader adopts the role of a facilitator, allowing the team to apply its existing task and team capabilities in order to accomplish assigned tasks while intervening only when necessary to recover team coherence (Kozlowski et al., 1996). As the team grows increasingly adept at responding to a dynamic task environment, it becomes an adaptive team and works to continuously improve its responsiveness, efficiency, and effectiveness (Kozlowski et al., 1999).

#### *Preparation*

*Adaptability.* During preparation, the leader frames the team's task developmental goals in terms of achieving adaptability, that is, on developing the team's ability to self-manage and continuously improve. At this point, members have acquired and demonstrated the taskwork and teamwork capabilities necessary to perform routine tasks effectively. Thus, the leader is able to spend less time intervening within the team and more time attending to critical functions external to the team, such as scanning the environment (Hackman & Walton, 1986) or obtaining information and resources (Fleishman et al., 1991). Ancona and Caldwell (1988, 1992) suggested this "external perspective" was appropriate for

understanding team behavior, especially in uncertain and complex task environments. In her study of consulting teams, Ancona (1990) found external activities to be better predictors of team performance than internal processes when teams were externally dependent. The leader's external orientation affords the team the opportunity to self-manage via shared leadership, a group process whereby leadership behaviors are distributed among team members (Pearce & Sims, 2002). However, shared leadership alone does not make an adaptive team, it must also continuously improve. Avolio, Jung, Murray, and Sivasubramaniam (1996) suggest highly developed teams are more willing to restructure or even abandon inadequate assumptions in order to adapt to new challenges, and such teams are also more likely to continuously develop themselves by confronting new challenges over time. Thus, when teams explore alternative solutions, they learn more efficient ways of accomplishing tasks and are better able to address novel problems by quickly modifying existing solutions or proposing new ones (Kozlowski et al., 1999).

*Social Cohesion.* The leader frames social developmental goals in terms of achieving group cohesion, or "the resultant of all forces acting on members to remain in the group" (Festinger, 1950, p. 274). Barrick, Stewart, Neubert, and Mount (1998) referred to Festinger's construct as social cohesion, and in a field study of work teams found it was significantly related to both team viability and team performance (i.e.,  $r = .40$  and  $.27$ , respectively). With the leader increasingly focused on external functions, the team must build upon its foundation of commitment and trust in order to self-manage while simultaneously maintaining social cohesion, the "...synergistic interactions between team members" that include workload balancing, effective communication, and conflict management (Barrick et al., 1998, p. 382). Team conflict management is critical to an adaptive team and is related to group cohesion. For example, Sullivan and Feltz (2001) found that integrative conflict resolution tactics (e.g., mutual disclosure, inclusive efforts) were related to team cohesion. Thus, as social cohesion increases, members are expected to manage conflict more effectively in the leader's absence and to engage in more risky, exploratory behaviors designed to develop new task strategies and increase team adaptability.

*Action strategy.* Unlike preceding phases, the leader in the team improvement phase neither provides the action strategy nor helps the team select an existing strategy. Rather, the leader develops the team's adaptive capability by facilitating its creation of new action strategies in preparation for anticipated tasks. At this point, the team has learned and applied a number of successful task strategies and is capable of identifying appropriate courses of action. For example, by proposing a series of "what if" scenarios for members to address, the leader can encourage the team to explore and create new and

increasingly effective strategies for dealing with both routine and novel tasks. This degree of risk-taking and exploration is essential to the team's acquisition of an adaptive capability.

#### *Action*

*Develop and monitor.* When tasks are routine, the leader cultivates adaptive capability by developing or encouraging favorable attitudes, behaviors, and cognitions such as team potency, shared leadership, and compatible mental models, respectively. Unlike team efficacy, which refers to a team's shared perception that they can be effective at specific tasks, *team potency* refers to a team's shared perception that they can be effective in general across tasks and contexts (Shea & Guzzo, 1987). Gully et al. (2002) reported a corrected mean correlation of .37 between team-level potency and team-level performance. Leaders should not only seek to develop team potency because of its relationship to team performance, but also because such perceptions are likely to affect how teams frame and address novel situations. That is, a high potency team would be more likely to develop adaptability by engaging in continuous improvement behaviors such as taking risks and exploring alternative solutions to problems. Guzzo, Yost, Campbell, and Shea (1993) suggest leaders can enhance team potency by providing KSAs to members, creating successful mastery experiences, and providing positive feedback.

The leader should also develop *shared leadership* within the team. Under shared leadership, leader responsibilities, functions, or behaviors are broadly distributed across members rather than concentrated in a single, appointed leader (Pearce & Sims, 2000, 2002). Burke, Fiore, and Salas (2003) suggest that shared leadership enables a more adaptive team by preventing the appointed leader from being cognitively overloaded or overwhelmed by responsibilities. In their study of leadership in selling teams, Perry, Pearce, and Sims (1999) concluded shared leadership, rather than vertical (i.e., traditional) leadership, was most appropriate for highly interdependent teams performing complex functions. Furthermore, Pearce and Sims (2000) proposed a model of shared leadership that includes several antecedents that are salient in the team improvement phase, including a leader that actively supports shared leadership, a mature team comprised of skilled and familiar members, and a task environment characterized by task interdependence, criticality, and urgency. In their study of change management teams, Pearce and Sims (2002) found empirical evidence that shared leadership explained more variance in team effectiveness than vertical leadership (i.e., leadership exercised by an appointed leader) and high performing teams exhibiting more leadership behaviors overall and more shared leadership in particular as compared to low performing teams.

When members possess the authority, skills, and motivation to lead, they must then determine who should lead, when they should lead, and when they should relinquish leadership. Shared cognition enables the smooth transference of shared leadership, which is critical for team adaptability (Burke et al., 2003). The concept of a *compatible mental model* is one form of shared cognition that enables this process. As team members enter the team improvement phase, they possess a shared mental model of how they should interact to accomplish assigned tasks. However, as they begin to explore alternate strategies, their mental models diverge when they learn how their unique expertise can be applied in novel ways to new problems. Despite this deviation from sharedness, members' mental models remain compatible, such that any given member knows who has the knowledge, skills, or abilities required to address a given problem. The idea of a compatible mental model is similar to the concept of transactive memory as a shared system for encoding, storing, and retrieving information in groups (Wegner, 1986, 1995). In essence, a team's transactive memory system consists of the knowledge possessed by individual members and a shared awareness of which members know what. Hollingshead (2001) suggests such systems are adaptive for teams because they reduce the encoding and storage demands made on individuals, reduce the memory overlap across individuals, and provide individuals with wider access to information stored in other members. Empirically, transactive memory has predicted team performance on technical assembly (Liang, Moreland, & Argote, 1995) and clerical memorization tasks (Hollingshead, 2000). By developing compatible mental models and a transactive memory in team members, the leader provides the team with an increased ability to deal with the cognitive demands of a dynamic task environment.

*Intervention.* The team will self-regulate while the leader scans the external environment to identify factors that might affect the team's task performance. This external, future-oriented perspective is expected to place the leader in a position of having superior knowledge of the task environment relative to the team (Endsley, 1995). Consequently, during taskwork, it is possible for the team's shared task mental model to diverge over time from reality as depicted by the leader's task mental model. Such divergence is especially likely in dynamic task environments characterized by stress and high workloads which might distract members or distort their perceptions of the task environment (Serfaty, Entin, & Johnston, 1998). To maintain task coherence, the leader should provide periodic *situation updates* to the team in order to revise their shared task mental model (Kozlowski et al., 1996). Leader situation updates not only provide the team with a more accurate understanding of the task environment, they also indicate to members which cues are important to attend to in the environment (Entin & Serfaty, 1999).

However, an external orientation should not entirely detach the leader from that team, as one of the most fundamental functions of a leader is to make decisions (Roby, 1961). Although an adaptive team is highly capable, self-regulating, and cohesive, there will be times when members have legitimate disagreements that cannot be settled quickly or easily without disrupting team performance. Such a situation may require that the leader make a *final decision* based on superior knowledge of both the team's internal and external environments. Such decisions will recover team coherence by focusing the team on the complex task at hand rather than continued conflict (Entin & Serfaty, 1999).

### *Reflection*

At the conclusion of each task cycle, the leader will monitor the team's review of individual and team performance and progress toward task and social developmental goals. However, the leader is not expected to manage their efforts, as the team is self-diagnosing and capable of providing effective feedback to members. Instead, the leader will focus on more global developmental activities such as member performance evaluations, career development, and long-term team planning. By attending to these higher order functions, the leader promotes team adaptability by encouraging the team to self-manage the analysis of its risk-taking, exploration, and continuous improvement strategies.

### *Illustration: The Adaptive Emergency Room Team*

The attending prepares the team by focusing on the task and social developmental goals of improving the team's adaptive capability and building social cohesion, respectively. A task-related subgoal might include engendering a continuous improvement orientation in members, whereas a social subgoal might involve resolving member conflicts at the lowest level possible. When an assigned task is anticipated, the attending facilitates the team's integration of past learning to develop new action strategies that are more effective, reduce service times, and conserve resources.

Members are applying their task expertise in coordination with others to effectively accomplish routine cases with little difficulty or supervision. To develop an adaptive capability, the attending encourages member risk-taking and exploration of alternative means of accomplishing tasks. Thus, residents may modify procedures if they find them to be more effective or efficient. The attending might also develop adaptive capability by encouraging the team to self-manage tasks, resource allocation, and interpersonal problems. For example, residents with specialized expertise are expected to voluntarily take patients that would benefit from their experience; interns have developed a sufficient degree of mutual respect such that potential conflicts can be resolved satisfactorily without the intervention of the chief

resident or attending. Such experiences groom members for future leadership roles and free the attending to focus on external concerns such as requisitioning equipment or lobbying for additional funding. When emergent cases increase task complexity, members are able to respond rapidly and appropriately based on their shared memory of past similar experiences, smooth interactions, and adaptive responses to novel stimuli. Despite members' diverse skills and capabilities, they may still require the attending's advice or decision when, for example, ambiguous symptoms result in differential diagnoses or interpersonal problems are so severe as to be irresolvable by the affected parties. Furthermore, the attending's increased monitoring of the external environment may yield important information. For example, if residents know that hospital's sole CAT scan will be soon be unavailable due to planned maintenance, they can devise alternatives or negotiate resource sharing with neighboring medical facilities.

At the close of each task cycle, the team reflects on its performance and provides appropriate team-level developmental feedback. During reflection, members share the results of their continuous improvement explorations so the entire team can benefit from their experiences. Members also address and resolve interpersonal conflicts before they begin to fracture team cohesion. Developmental feedback might focus on identifying opportunities for future exploration (e.g., interfacing with top researchers or practitioners, inefficient processes) and self-management (e.g., stimulating initiative in junior residents). After multiple successful iterations the team develops adaptive capabilities, specialized yet compatible mental models, and team potency which allow it to grow increasingly effective over time.

### ***Discussion and Conclusion***

We began this chapter by highlighting what we regard as a significant gap in leadership theory. By and large, most popular theories of leadership in organizations focus on its *structure* – the “what” of leadership. The theories are for the most part context free, intended to be universally applicable across people, settings, tasks, and time. And the theories are largely static; the nature of effective leadership does not change. Certainly, we acknowledge that some structural theories incorporate contingency factors that determine which dimensions of leadership best fit the situation, but the contingencies are not dynamic. They are tied to the situation. Thus, most popular approaches to leadership adopt a static, structure-oriented, between-unit perspective. Our theory is focused on the leadership *process* – the “how” of leadership. It is a “middle range” theory grounded in the team context to make dynamic contingencies that arise from our process focus more salient and to allow us to make the resulting implications for effective leadership more specific. Our approach is a dynamic, process-oriented, within-unit perspective.

It is important to recognize that these perspectives are complementary rather than in opposition because they deal with critical aspects of leadership – structure and process – at differing points of a team lifecycle. Transformational leadership, arguably the current dominant model based on popularity and support (Judge & Piccolo, 2004), assumes that subordinates have the underlying capabilities needed to respond positively to the leader’s vision, transcend self-interest, and work toward challenging collective goals. How do these capabilities arise? Our theory posits that early in the team lifecycle a process of team development guided by the leader builds these essential team capabilities. Structural theories that assume such skills are in place have more relevance later in the team lifecycle. In that sense, our theory addresses an important gap in the literature and, yet, is compatible with structural theories.

### *Research Implications*

Our meta-theory is broadly integrative, synthesizing diverse literatures that address functional leadership, team task and developmental process dynamics, and a wide range of member capabilities that underlie team effectiveness. The dynamic process perspective we adopt, which enhances our conceptualization of leadership, also makes a comprehensive evaluation of the theory in any one study impossible – it is too big, complex, and dynamic for current methods to encompass in a single design. To some extent this challenge is mitigated by the fact that there is broad support in the literature for the basic prescriptions of the theory. However, just because the theory is complex does not mean that it cannot be evaluated. Rather, it means that any given evaluation has to be focused on a more specific *model* (i.e., specific focal constructs and functional relationships) derived from the broader theoretical framework that evaluates a particular key aspect of the theory. Moreover, the complexity of the theory suggests that triangulation via the use of multiple methods – quantitative *and* qualitative – is likely necessary.

For example, one key aspect of the theory centers on the leader using the task cycle to prompt a regulatory process that builds targeted skills. This aspect of the theory can be examined by fixing a developmental phase, and investigating whether leader functions that prompt the quality of self-regulation yield better learning and skill development. Given the depth of support for self-regulatory processes as an effective account for individual and team learning and performance (e.g., DeShon et al., 2004; Karoly, 1993) one would expect so, but it should be subject to empirical test. The *quantitative* precision necessary to evaluate dynamic regulation processes suggests that an evaluation of this aspect of the theory would likely need to be conducted in a laboratory or simulation design. However, a *qualitative* evaluation of the process could be conducted in a team-based setting where tasks are episodic and involve novices striving

to improve their skills. A setting like the ER in a teaching hospital – like the illustration used in the prior section – could serve as an ideal setting for such an evaluation. One line of research that takes such an approach is in progress (Klein, Ziegert, & Xiao, 2002; Klein, Ziegert, Knight, & Xiao, 2004). Similarly, another key aspect of the theory centers on developmental transitions and progression. There is some limited experimental work showing that developmental progression can be prompted by manipulating the focus of regulatory activity, shifting from individual to team as incorporated in our theory (DeShon, Kozlowski, Schmidt, Wiechmann, & Milner, 2001). However, an evaluation of the full range of developmental progression would likely necessitate a quantitative and qualitative evaluation in a field setting of multiple teams progressing across a meaningful developmental process. Here we note that the volume of good field research – quantitative or qualitative – on team development is *extraordinarily sparse* given the importance of the process to team effectiveness (Kozlowski & Bell, 2003). If our theory prompts *any* rigorous and systematic field research on team development, it would be an important contribution. Bottom line, accumulative evidence on key aspects of the theory would provide support and elaboration. Disconfirming evidence would necessitate revision (e.g., to key capabilities or their sequencing) or outright rejection if sufficiently severe (e.g., the regulatory cycle does not improve skill acquisition or there is no reasonably systematic order to developmental progression).

### *Practical Implications*

Given the support for our approach provided by the incorporated literature (and also assuming confirmation of key aspects of the theory in more focused empirical evaluations), what implications does it have for enhancing team leadership? First, it means that there is more to effective leadership than emulating fixed behavioral targets. The prescriptions of our theory presume a highly experienced, socially sensitive leader with a sophisticated set of skills. The leader needs to be able to gauge the capabilities of the team and its members, create or leverage calibrated opportunities to build skills, and shift task or development processes in response to dynamic contingencies. Thus, it means that organizational designs predicated on adaptive teams will need to invest in leader development as a long term process. Second, as a long term process, leader development is in part predicated on a diverse yet systematic set of developmental experiences (Halpin, 2004). However, given the environmental forces impinging on organizations, there is a clear need to compress the process of compiling necessary expertise. Ongoing evolution in the use of computer simulation to provide “synthetic experiences” offers the promise of building the necessary leader competencies more rapidly. Finally, our theory provides a point of departure

for specifying competencies that leaders of adaptive teams should possess. As sketched in this chapter, the competencies are molar. Watola and Kozlowski (2005) have made an initial effort to specify finer grained leader competencies and, in particular, the cues that should signal the application of different competencies within a phase of development. Extension across the phases would yield a comprehensive set of team leader competencies that could serve as training specifications. The specifications in turn would provide a basis for mapping a systematic set of leader development experiences, designing synthetic experiences, and creating guidelines for application of the theory by leaders.

We also recognize that the progression of the team from novice to adaptive will not always be a forward moving process (Kozlowski et al., 1999). In any team environment, members may come and go as their assignments change and as the organization requires their expertise in another area (or as members are fired for poor performance). As team members depart and are replaced, the team may regress somewhat until the new member is brought up to speed. This is well documented as a process of newcomer socialization and is easily incorporated in the model; rather than the team as a whole needing to be socialized (as in our model description), the new member is assimilated to the team (Chen, 2005; Chen & Klimoski, 2003). The presence of a new team member may also require the leader to re-examine the team's task and social goals to ensure that the team is operating at its best, given the new member's expertise and work preferences. While the leader should always be pushing the team to move forward, some regression movement may be a necessary part of the team's lifecycle. The lifecycle of the team may be most strongly affected when the leader is the target of change. A new leader, however, should not signal the demise of any team. As teams develop, the institutional knowledge of the team does not rest only with the leader but with the team members in their shared and compatible mental models. The success of the leader-team relationship may rest on the team's ability to orient the leader to the group in much the same way a more experienced leader would socialize a novice team to its new environment.

### *Conclusion*

Organizational adaptability is increasingly desirable, but it is not fundamentally a property of organizations per se; rather, it is an emergent property. Adaptability is based on the capabilities of the members of an organization and, in particular, how well team leaders are able to build and leverage those capabilities. This theory of *dynamic team leadership* extends our continuing efforts to develop an understanding of this complex and critical process.

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Table 1. Leadership in General and Team Leadership: Distinguishing Features

Features	Leadership in General	Team Leadership
Approach:	<ul style="list-style-type: none"> <li>▪ <i>Structure</i> of leadership</li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>Process</i> of leadership</li> </ul>
Contingencies:	<ul style="list-style-type: none"> <li>▪ If considered, fixed to leadership situation</li> <li>▪ <i>May vary across</i> situations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Dynamic task and developmental contingencies</li> <li>▪ <i>Varies within</i> situation</li> </ul>
Level of Focus and Member Role Linkages:	<ul style="list-style-type: none"> <li>▪ Ambiguous, primarily individual level</li> <li>▪ Roles not distinguished, loosely connected; additive contributions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Individual <i>and</i> team levels</li> <li>▪ Distinctive roles, tightly coupled; coordination requirements</li> </ul>
Emphases:	<ul style="list-style-type: none"> <li>▪ Universal ideal</li> <li>▪ Or, if contingencies, fitting leader to situation, task, subordinates, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Regulating team processes to build skills, fit to shifting internal and external demands</li> <li>▪ Transitioning focus of development as skills compile</li> </ul>
Distinctive Features and Conclusion:	<ul style="list-style-type: none"> <li>▪ Focus on structure of leadership</li> <li>▪ Focus on individuals</li> <li>▪ Context free or fixed</li> <li>▪ Universal and static</li> </ul>	<ul style="list-style-type: none"> <li>▪ Focus on process of leadership</li> <li>▪ Focus on individuals and teams</li> <li>▪ Contingent on context dynamics</li> <li>▪ Leadership and team processes as dynamic, fluid, and emergent</li> </ul>

Table 2. Team Leadership Functions and Foci.

<u>Functions</u>		<u>Foci</u>	
<u>Plan – Organize</u>	<u>Monitor – Act</u>	<u>Internal – External</u>	<u>Task – Social Domains</u>
▪ Schutz (1961)	NA	▪ Schutz (1961)	▪ Schutz (1961)
▪ Roby (1961)	▪ Roby (1961)	NA	▪ Roby (1961)
▪ Roby (1962) <sup>1</sup>	▪ Roby (1962) <sup>1</sup>	▪ Roby (1962) <sup>1</sup>	NA
▪ McGrath (1962)	▪ McGrath (1962) <sup>2</sup>	▪ McGrath (1962) <sup>2</sup>	▪ McGrath (1962)
▪ Lord (1977)	▪ Lord (1977)	NA	▪ Lord (1977)
▪ Hackman & Walton (1986)	▪ Hackman & Walton (1986)	NA	NA
▪ Komaki et al. (1989)	▪ Komaki et al. (1989)	NA	NA
▪ Fleishman et al. (1991)	▪ Fleishman et al. (1991)	NA	▪ Fleishman et al. (1991)

Citations organized in chronological order.

<sup>1</sup> Roby (1962) is drawn from an unpublished manuscript reported by McGrath (1962).

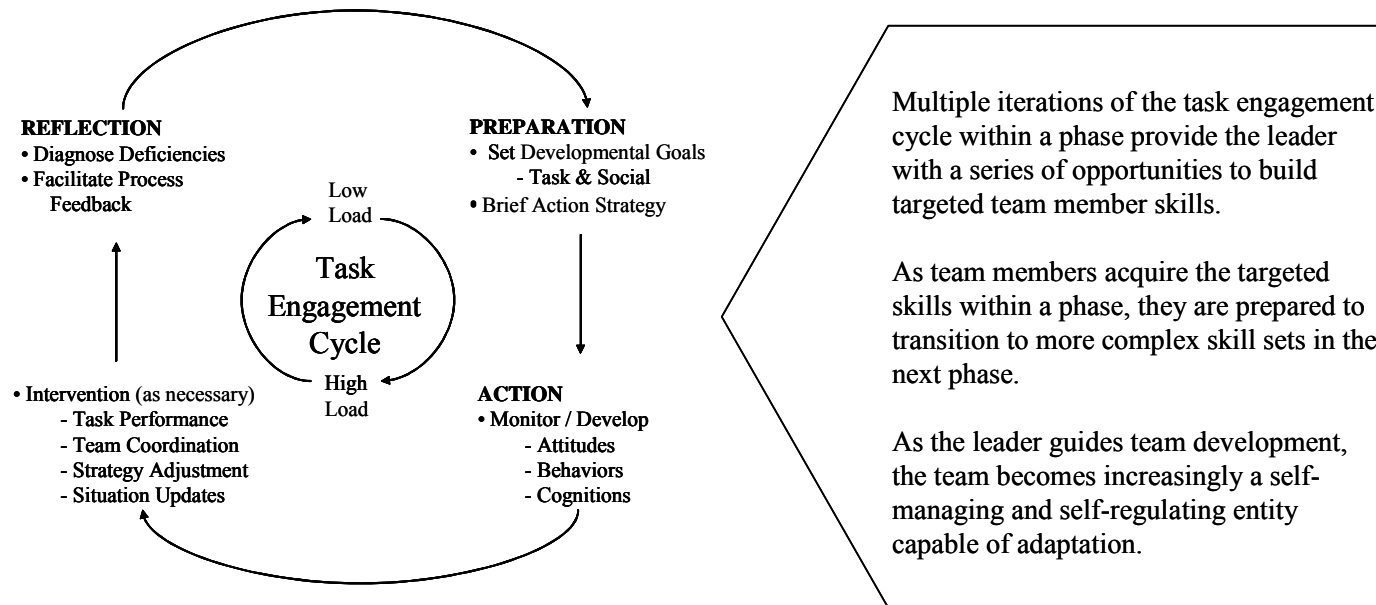
<sup>2</sup> McGrath's (1962) leadership functions cross the internal-external and monitor-act dimensions.

Figure 1. Task Engagement Cycles and Developmental Phase Transitions.

## Team Development Dynamics

<u>Phase</u>	<u>Team Formation</u>	<u>Task &amp; Role Development</u>	<u>Team Development</u>	<u>Team Improvement</u>
<u>Team</u>	New	Novice	Expert	Adaptive
<u>Leader</u>	Mentor	Instructor	Coach	Facilitator
<u>Focus</u>	Identification & Commitment	Taskwork Capability	Teamwork Capability	Adaptive Capability

### Within Phase Task Dynamics



Multiple iterations of the task engagement cycle within a phase provide the leader with a series of opportunities to build targeted team member skills.

As team members acquire the targeted skills within a phase, they are prepared to transition to more complex skill sets in the next phase.

As the leader guides team development, the team becomes increasingly a self-managing and self-regulating entity capable of adaptation.

Figure 2. Team Developmental Phases, Targeted Knowledge and Skills, and Phase Transitions.

