

TOWARD A SYSTEMS THEORY OF MOTIVATED BEHAVIOR IN WORK TEAMS

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ABSTRACT

Work motivation theories and research have tended to focus either on individual motivation, ignoring contextual influences of team processes on individuals, or on team motivation, ignoring individual differences within the team. Redressing these limited, single-level views of motivation, we delineate a theoretical multilevel model of motivated behavior in teams. First, we conceptualize motivational processes at both the individual and team levels, highlighting the functional similarities in these processes across levels of analysis. We then delineate a set of theoretical propositions regarding the cross-level interplay between individual and team motivation, and antecedents and outcomes of individual and team motivation. Finally, we discuss the implications of our theoretical model for future research and managerial practices.

In developed countries, the shift from an industrial to a post-industrial economy has increased the use of work teams to accomplish a variety of organizational tasks, including management, special projects, production,

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and service (Sundstrom, 1999). Cohen and Bailey (1997), for example, estimate that over 80 percent of organizations worldwide currently utilize some form of work teams, broadly defined as “a distinguishable set of two or more people who interact, dynamically, interdependently, and adaptively toward a common and valued goal/objective/mission, who have each been assigned specific roles or functions to perform, and who have a limited life-span of membership” (Salas, Dickinson, Converse, & Tannenbaum, 1992, p. 4).¹

The trend toward team-based work has, in turn, generated a plethora of new questions and challenges for work motivation researchers, and has also prompted a host of new management issues. From a theoretical perspective, relatively little is known about the determinants, mechanisms, and consequences of team-level motivation processes. For example, although the importance of leadership, cohesion, and communication for collective behavior and performance is well-known (e.g., Chen & Bliese, 2002; Gully, Devine, & Whitney, 1995; Hoffman & Jones, 2005; Marks, Mathieu, & Zaccaro, 2001), we know much less about specific team-level and individual-level motivational processes that are affected by these factors. From a practical perspective, understanding how team and individual motivation processes interact has important implications for how best to lead and manage teams and the individuals that comprise them. Accordingly, the primary purpose of this chapter is to address this gap in the work motivation literature and to consider the implications of a multilevel systems approach for leadership, human resource management, and work design.

Although organizational scholars have long recognized the importance of teams (as one element of work design) and the socio-technical context for understanding work motivation (see, e.g., Lewin, 1951; Parker & Wall, 2001), surprisingly few contemporary work motivation theories directly address the dynamic and reciprocal influences of the individual-team level interface. Dominant theories of work motivation, such as expectancy and goal setting theories, typically assume that team-level processes affect individual-level motivation indirectly, through their effects on individual-level attitudinal and affective determinants of goal choice, goal commitment, and/or goal striving (cf. Kanfer, 1990). Some social-psychological theories, such as groupthink (Janis, 1972), propose that team-level processes affect both individual- and team-level motivation through their effects on specific team-level variables, such as group cohesion and group norms. Still other group-oriented theories, such as group information processing (e.g., Hinsz, Tindale, & Vollrath, 1997), focus primarily on the influence of team-level constructs and processes, and largely neglect the impact of individual differences among team members in affect, cognitions, and behaviors on

collective actions. These various perspectives, with their exclusive and separate emphases on different aspects of the individual, team, and the individual-team interface, have led Kozlowski and Bell (2003) to conclude that, “relatively little work has directly considered the issue of motivation in teams ... [and] there are no well-developed theories that explicitly incorporate the team level (p. 360).”

Following recent advances in the multilevel literature (e.g., Chan, 1998; Chen, Bliese, & Mathieu, 2005a; Chen, Mathieu, & Bliese, 2004; Kozlowski & Klein, 2000; Morgeson & Hofmann, 1999), we propose three requirements for developing a true multilevel conceptualization of motivated behavior in teams. First, it is important to identify parallel, or functionally similar, constructs and relationships that underlie motivation processes at both the individual and team levels. Identifying parallelism in the content and function of the motivation process across levels can help generalize motivation theory from one level to another, as well as provide a basis for explicitly comparing similarities and differences in the determinants and outcomes of motivation across levels. Second, we need to consider cross-level influences between individual and team motivation. In particular, we need to consider both *top-down effects* of team characteristics and processes on individual cognition and behavior as well as *bottom-up effects* of individual cognition and behavior on team processes. Finally, we need to examine antecedents and outcomes of motivation at both the individual and team levels. Indeed, it is possible that unique and complimentary means are required to promote individual and team motivation (e.g., Chen & Bliese, 2002; Chen, Kirkman, Kanfer, Allen, & Rosen, *in press*), and that considering both individual and team motivation would help to better explain differences in individual and team performance outcomes. Thus, a multilevel approach would advance our understanding of the interplay between team and individual motivation, resulting in better explanation of both team member and team effectiveness.

Accordingly, in this chapter we build upon prior findings and emerging theoretical perspectives to develop a broad, *multilevel* formulation of work motivation that takes into account the dynamic, mutual influences of the individual and the team context on individual and team motivation and motivation outcomes. The model we delineate considers motivational processes that: (a) occur simultaneously at the individual and team levels (i.e., *multilevel processes*), and which involve parallel direct and indirect relationships constituting individual and team motivation, as well as (b) transverse between the individual and team levels (i.e., *cross-level processes*), and which include top-down contextual influences of team motivation on

individual motivation and bottom-up emergent effects of individual motivation on team motivation. Specifically, we seek to extend past work by mapping the interconnections between individual and team motivation processes over the course of naturally occurring performance episodes. Although we recognize that factors other than motivation (e.g., members' ability, situational constraints) also contribute to individual and team effectiveness, our focus in this chapter is primarily on the interplay between individual and team motivation, and on the multilevel motivational processes that can explain performance in and of teams.

The organization of this chapter, and the associated development of our systems model of work motivation, follows what [Stokes \(1989\)](#) refers to as a use-inspired research approach. Accordingly, we begin by posing two closely related scientific problems of practical value – namely, how to understand and predict: (1) collective motivation and its outcomes, and (2) individual motivation and its outcomes in the context of teams. We address these open-ended questions by focusing on three critical issues, organized into five main sections. The first issue, addressed in the first section, deals with the problem of specifying a tractable conceptualization of team-level, collective motivation processes. Despite extensive theory and research on motives for group action and process-oriented models of team-level motivation (e.g., [Hackman, 1987](#); Marks et al., 2001), we still know little about the content, meaning, and processes involved in team-level motivation. Following a brief review of relevant individual- and team-level research, we propose parallel individual- and team-level process models based on evidence that supports the notions of isomorphism and homology (i.e., similarity or parallels) between individual- and team-level motivational constructs and processes.

Having tentatively identified basic individual- and team-level mechanisms, the next two sections (sections two and three) address the second problem confronting the development of a systems or multilevel motivation model – namely, how best to delineate the interconnections between individual- and team-level motivational processes. The key questions we address in the second section include: (1) what makes an individual's motivation in the team context different from motivation in the individualistic context; and (2) how do individual differences in team member motivation and the social context affect team motivation? Again, although there is some evidence showing cross-level influences on motivation processes and outcomes, much of this research appears in disparate literatures. What is needed is an organizing heuristic for delineating the possible structure of cross-level relations. Toward this objective, in the third section we provide the conceptual foundation for proposed cross-level influences from general systems theories. Specifically, we

introduce key features of the general systems paradigm that have import for the architecture of individual–team interconnections by considering examples of how the paradigm has been used in the biological sciences to understand object recognition and group activities, such as ant raids, termite nest building, and locomotion in schools of fish.

After considering the key components of individual and team motivation, and the unique aspects and complexities involved in their interconnectedness, in the fourth section we delineate an explicit multilevel model of motivation in and of teams. Specifically, we propose a set of cross-level pathways and discuss their expected effects on individual- and team-level work motivation processes and outcomes. The fifth and final section then focuses on the potential advantages and disadvantages of our conceptualization for science and practice; that is, addressing the classic “so what” question. In this section we discuss implications of the proposed model for research and practice from three perspectives. First, we discuss implications of the model for predicting the impact of common antecedent inputs, such as leadership, staffing, and work design. Second, we use the proposed framework to identify salient levers through which managers can enhance individual and team motivation. Finally, we use the model to develop a forward-looking research agenda for the study of work motivation in and of teams.

TOWARD A PROCESS MODEL OF MOTIVATION IN AND OF TEAMS

The popular literature is replete with stories about the importance of team-level motivation – that is, team success attributable to the motivation of the collective rather than to each team member (see, e.g., [Hackman, 2002](#)). In many stories, particularly stories associated with positive team outcomes, coaches, leaders, and team members describe a motivational process in which the team espouses a lofty performance goal (e.g., winning the division playoff), and collectively sets about accomplishing the goal (e.g., tireless practice of offensive plays). Although intuitively appealing, such anecdotal stories raise a fundamental and as yet unanswered question about team-level motivation – namely, whether basic motivation processes, traditionally examined at the individual level, might apply to collective social systems, and in particular teams. In other words, what are the processes and mechanisms by which teams are motivated to perform? Before considering how motivation operates at the team level, we first briefly summarize the evidence on how work motivation processes operate at the individual level.

Individual-Level Motivation Processes

Over 80 years of research on the topic of employee work motivation has yielded substantial progress in the identification of major motivation constructs and the processes by which they affect job attitudes, behaviors, and performance (see, e.g., Campbell & Pritchard, 1976; Katzell & Austin, 1992; Staw, 1984). Although many diverse theories of work motivation have been promulgated, most current approaches depict work motivation as a multifaceted, intra-psycho process that governs the direction, intensity, and persistence of attention, energy (or effort), and behavior (Kanfer, 1990). In this perspective, perceptions of the environment, motives, attitudes, cognitions, and affective states are posited to contribute to motivation through their influences on both what an individual chooses to do (i.e., goal choice) and the strategies by which the individual seeks to accomplish cognized goals (i.e., goal striving). The relative influence of these factors on goal choice and goal striving represents the major distinction among extant theories of motivation, and has long served to organize motivational formulations into groupings that place greater emphasis on either the person (e.g., expectancy theories) or the situation (e.g., job design, behavioral theories) (see for reviews Ambrose & Kulik, 1999; Kanfer, 1990, 1992; Latham & Pinder, 2005; Mitchell, 1997).

The conceptualization of human motivation as comprised of two distinct, but inter-related systems represents one of the most important theoretical advances in the field during the late 20th century (cf. Latham & Pinder, 2005). In the organizational sciences, the distinction between these portions of the motivational system has been frequently described in terms of goal choice and goal striving (Kanfer & Ackerman, 1989; Kanfer & Kanfer, 1991). In the goal choice portion of the motivational system, individuals engage in two distinct, but related types of actions; namely, deliberative activities undertaken for the purpose of evaluating and selecting among goal options, and planning activities undertaken for the purpose of providing a template or model by which to accomplish chosen goals (Locke & Latham, 1990). That is, individuals consider which goal to select and how the goal will be accomplished. For the remainder of this chapter, we use the term *goal generation*, rather than goal choice, to provide a more complete depiction of the constituent elements (e.g., goal choice, strategy formulation, and planning) that comprise the “pre-action” phases of motivational processing (cf. Gollwitzer, 1990).

In the *goal striving*, or self-regulatory/action portion of the motivational system, an individual’s goal and strategies for accomplishing the goal set the

stage for cognitive and affective activities that support behaviors leading to goal attainment (Kanfer & Erez, 1983). In the work setting, for example, goal generation processes may lead a sales associate to commit to a sales goal of \$1 million dollars total over a 12-month period, as well as a set of specific strategies and plans for achieving this goal. Goal striving, in turn, pertains to the ongoing self processes by which the salesperson regulates her affect, cognitions, actions, and the environment for the purpose of accomplishing this goal by the end of the 12-month period.

In theories of individual motivation, goal generation and goal striving processes have long been assumed to be closely related, such that goal generation sets the stage and affects the initiation, direction, intensity, and persistence of goal striving. Conversely, obstacles in goal accomplishment during goal striving may influence goal commitment and subsequent goal generation. There is a voluminous body of research on the determinants and consequences of goal generation and goal striving, as well as their interrelations (see, for example, Carver & Scheier, 1981; Locke & Latham, 1990; Naylor, Pritchard, & Ilgen, 1980). For example, research on the cognitive architecture by which individuals accomplish complex, long-term goals, such as obtaining a medical degree or becoming a chief financial officer, indicates a hierarchical organization of goals such that broad goals condition the content and range of specific goal choices that the individual faces in daily work (Austin & Vancouver, 1996). Individuals who establish a goal of creating a new product may generate a host of subordinate task and social goals and plans, such as gathering materials and enlisting the aid of others, that are perceived to be necessary for goal accomplishment. Obstacles to the attainment of subordinate goals that cannot be overcome through greater allocations of effort may, in turn, instigate revision or abandonment of broad goals. That is, what and how individuals choose to do in their work (i.e., goal generation) helps to guide, direct, and sustain their actual effort on work tasks (i.e., goal striving), which in turn may lead them to alter their chosen goals, or to generate alternative goals and courses of actions altogether.

A second line of research that demonstrates the closely related nature of goal generation and goal striving processes stems from social-cognitive and goal theorizing by Bandura (1986, 1997), Dweck (1986), Higgins (1997) and others (e.g., Thomas & Velthouse, 1990). In contrast to cybernetic approaches that emphasize feedback functions, these approaches focus on the critical influence of *proximal motivational states*, such as task self-efficacy, goal orientation, sense of empowerment, and regulatory focus on both goal generation and striving. Specifically, these formulations suggest that a host of environmental variables as well as stable individual differences in

cognitive and non-ability traits influence these proximal motivational states. These states, in turn, are posited to affect both the goal generation process and the differential use of self-regulatory strategies during the goal striving process. In the organizational behavior domain, research findings by VandeWalle, Cron, and Slocum (2001) on goal orientation, for example, show that individuals with a learning goal orientation employ different goal striving strategies and modify goals in response to performance feedback differently than individuals with a performance goal orientation. Likewise, self-efficacy has been shown to be positively associated with choice of more difficult goals and the allocation of greater effort towards accomplishing one's goals, as well as to mediate the influence of ability and non-ability traits on such outcomes (e.g., Chen, Gully, Whiteman, & Kilcullen, 2000; also see for a review Bandura, 1997).

In summary, modern individual-level theories of work motivation posit a temporal ordering of micro-analytic processes organized around goal generation and goal striving. Empirical findings across a range of theoretical perspectives provide convergent support for this representation of motivational processing at the individual level of analysis. Findings associated with social-cognitive and goal theories also provide broad support for the notion that proximal motivational states are an important conditioning influence on motivational processing. In the context of building a team-level model of motivation processing, motivational findings at the individual level suggest that two interrelated motivational systems may be involved; namely, team processes directed toward generation and commitment to a collective goal, and team processes directed toward collective actions that support accomplishment of the team goal. Consistent with recent goal and cybernetic theories and research we further expect that: (a) proximal motivational states influence the operation of these motivational subsystems, and (b) goal generation and goal striving to be linked through a hierarchical and recursive structure. As such, we anticipate team-level motivation to be affected by emergent motivational states as well as positive and negative feedback associated with individual and collective outcomes.

Team-Level Motivation Processes

A fundamental question for understanding motivation of teams is whether the goal generation and goal striving subsystems traditionally studied at the individual level have similar meaning and provide a good representation of motivational processes at the team level. Over the past two decades, a growing body of theory and research has emerged to suggest that team-level

motivational phenomena may indeed be understood by generalizing individual-level theories through the use of isomorphic analogues of basic motivation constructs.

Team-Level Goal Generation and Goal Striving Processes

Comparable to individuals, many work teams also generate task goals and work towards accomplishing their goals. At the team level, however, the identification of the operational goals and the processes by which the team accomplishes those goals typically occurs through the collective and coordinated actions of team members. Retail store sales teams, hospital in-service teams, and marketing teams, to name just a few, often engage in multiparty deliberations to establish team-level goals and strategies, and then work in a coordinated manner with respect to the direction and intensity of effort in order to accomplish their goals. Similarly, action teams (e.g., flight, search and rescue, or combat teams) in military settings often generate goals and plans during pre-mission briefings, and then collectively strive to accomplish team goals during the mission. Indeed, research on goal setting has shown that goal-related processes, such as goal setting, task strategy selection, and effort allocations for goal accomplishment are very similar at the individual and team levels (see [Locke & Latham, 1990](#)). In one study ([Weingart, 1992](#)), groups who were assigned a difficult performance goal outperformed those assigned an easy performance goal, at least partially because they exerted a higher level of collective effort directed at accomplishing their goal. Moreover, a meta-analysis study by [O'Leary-Kelly, Martocchio, and Frink \(1994\)](#) suggests that the effect of group goals on group performance is positive and of similar magnitude to that obtained in individual-level studies. Taken together, these results suggest that team- and individual-level goal-related processes are similar, which lends support to the notion that motivation is a phenomenon that generalizes to teams.

Additional evidence for the similarity between individual- and team-level motivational processing stems from recent theorizing and research focused exclusively on team-level processes. Following a review of the team literature, [Marks et al. \(2001\)](#) suggested that team processes may be best described as interdependent team member activities that “direct, align, and monitor taskwork” (p. 357). This definition of processes complements individual-level motivation formulations that emphasize motivation as a force for the direction and regulation of behavior. [Marks et al. \(2001\)](#) further proposed that the various processes studied by team researchers could be classified into three broad clusters (transition, action, and interpersonal),

two of which – transition and action – appear to correspond well to the individual-level goal generation and goal striving processes, respectively.

Specifically, Marks et al. (2001) suggested a functional correspondence between team-level transition processes and individual-level goal generation activities. Similar to individual-level activities involved in goal generation, team-level transition processes yield collective goals that are arrived at following deliberative activities that take into account collective desired outcomes, alternative outcomes, and some consideration of how goals may be accomplished. At the team level, such processes may include analysis of the team's mission, specifying and prioritizing goals, and formulating plans for accomplishing team goals. For instance, a combat flight team may need to collectively consider the location of enemy forces and their targets, and the terrain of alternative flight routes, when generating various plans for accomplishing their goals of hitting certain enemy targets. Comparable to individual-level goal generation, transition processes usually take place prior to or in-between task engagements (i.e., between performance episodes), when team members decide how and where to allocate their collective effort (Marks et al., 2001). Thus, there is a clear parallel between what Marks et al. (2001) refer to as team transition processes and the goal generation processes delineated in the individual-level work motivation. The functional similarity of these team- and individual-level processes provides initial conceptual support for the notion of generalizability of this aspect of the motivation system across levels of analysis.

Marks et al. (2001) distinguished further between team transition processes and team action processes, which include the monitoring of goal progress, monitoring of external conditions that could affect goal accomplishment, backing-up team members who need assistance, and coordination of interdependent tasks among members. We suggest that this set of team action processes are functionally similar to the goal striving process described in the work motivation literature, in that they involve the collective regulation of team activities during goal pursuit. Comparable to individual-level goal striving, team-level action processes typically occur during task engagement, when team members work towards accomplishing their project or mission objectives (Marks et al., 2001). For instance, combat flight teams likely engage in collective, team goal striving processes when executing their flight missions. Likewise, a project team of product developers may engage in team goal striving processes such as backing up members or coordination when briefing managers in their client organization regarding the advantages of the new web-application system they have developed for their clients.

In sum, we propose that motivation processes are functionally similar at the individual and team levels of analysis, in that they both involve *goal generation* (i.e., deciding where and via which strategies to allocate either individual or team effort) and *goal striving* (i.e., regulating and sustaining individual or team effort toward goal accomplishment). This is perhaps not surprising given that both individuals and teams can be conceptualized as goal-driven living systems. However, team motivation is built on shared or at least common interactions among team members. Specifically, goal generation can only be meaningful at the team level when team members come to consensus regarding what objectives the collective pursues, and, likewise, goal striving at the team level requires that team members coordinate their collective effort towards accomplishing common goals. Hence, building on definitions of individual motivation, we define team motivation as *the collective system by which team members coordinate the direction, intensity, and persistence of their efforts*.

Team-Level Motivational States

There is also a large body of research attempting to generalize individual motivational states to the team level. At the team-level, motivational states reflect a shared belief among members regarding various aspects of their capabilities and tasks. Such shared states emerge from both individual states and beliefs and from mutual interactions among members, and thus have been dubbed “team emergent states” (Marks et al., 2001). The two team emergent motivational states that have received the most attention in the literature are team (or collective) efficacy and team empowerment. Researchers have suggested that collective or team efficacy is a team-level analogue of self-efficacy, which captures the shared belief among members of a team that their team can accomplish certain tasks (Bandura, 1997). For instance, members of an R&D project team may share the belief they can collectively develop unique patents, or that they can collectively develop new drugs to battle cancer. Likewise, team empowerment has been defined as an isomorphic construct to individual empowerment, capturing the extent to which teams share the multidimensional belief they have the autonomy and capability to perform meaningful tasks that have the potential to make a difference in or beyond their organization (Kirkman & Rosen, 1999).

In addition to the correspondence in conceptual definitions of individual- and team-level motivational state constructs, a number of studies provide evidence for correspondence in the relations of these variables to performance and goal generation and goal striving processes at individual and team levels of analysis. In the domain of efficacy, for example, meta-analytic

findings obtained by Stajkovic and Luthans (1998) on the self-efficacy – individual performance relation (estimated true score $r = 0.38$) and meta-analytic findings obtained by Gully, Incalcaterra, Joshi, and Beaubien (2002) on the team efficacy – team performance relation (estimated true score $r = 0.39$) show a positive relationship of similar magnitude. Moreover, a study by Chen et al. (2002) directly compared the individual- and team-level efficacy–performance relationship in two different samples of action teams (simulated flight teams and basketball teams), and found these relationships to be very similar across levels. Likewise, Chen et al. (in press) and Kirkman and Rosen (1999) found correspondence in empowerment – performance relations at the individual and team levels. Findings obtained by DeShon, Kozlowski, Schmidt, Milner, and Weichmann (2004) and Chen, Thomas, and Wallace (2005b) also show similar patterns of association among motivational states, goal generation, and goal striving at the individual and team levels of analysis. DeShon et al. found that, at both the individual and team levels, motivational states (e.g., efficacy beliefs) were positively related to performance through strategy and effort. Chen et al. found that, in addition to the correspondence in relations among efficacy beliefs, goal generation, and goal striving at the individual and team levels of analysis, motivational processes mediated the relationships between efficacy beliefs and task performance at both the individual and team levels.

Summary

The research summarized above provides initial empirical support for the basic “building blocks” of our proposed model, shown in Fig. 1. As shown in the figure, we propose that individual- and team-level motivation is similarly comprised of three key components – motivational states, goal generation, and goal striving – and that the relations among these system processes are similar across levels of analysis. Consistent with empirical findings to date, we also propose that motivational states, such as efficacy and empowerment, operate as a proximal influence on team-level motivational processes in a manner similar to that observed at the individual level.

Nonetheless, it is important to recognize that motivation, while functionally similar across levels, manifests differently at the individual and team levels. The individual-level variables (i.e., those at the lower portion of the model) and team-level variables (i.e., those at the upper portion of the model) differ in that the individual-level variables reflect individual differences among team members, whereas team-level variables reflect collective activities or beliefs that are shared among, or common to, all members. That is, individual variables focus on the individual “parts” within the team,

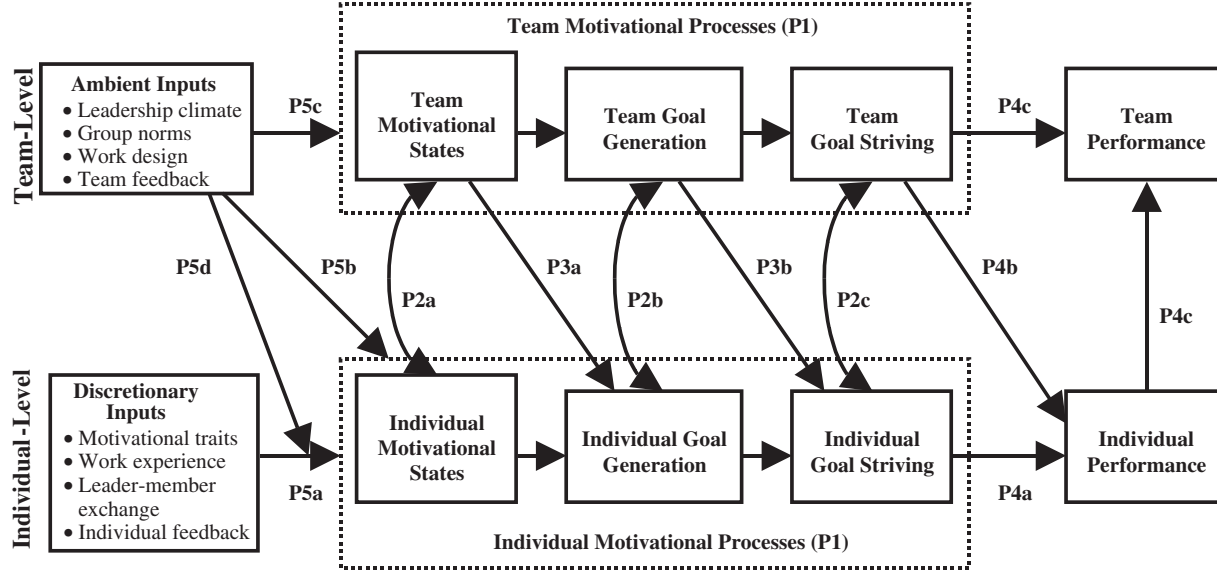


Fig. 1. An Integrative Theoretical Model of Individual and Team Motivation; Note: P = Proposition.

whereas team variables reflect the team as a “whole.” For instance, individual goal generation reflects individual activities that support the generation of individual and team goals and plans, and individual goal striving reflect how hard each member of the team works towards accomplishing individual and team goals. In contrast, team goal generation and goal striving reflect the *collective* effort of the team directed at generating and executing goals. Motivated behavior at the team level emphasizes the coordination of effort among team members, whereas individual motivation emphasizes effort that may or may not be exerted in concert with other individuals. That is, there is a larger social component to team motivation, and a larger cognitive component to individual motivation. Indeed, teams must agree, at least to some extent, on their goals and task strategies, and then coordinate their effort to accomplish their collective goals. Thus, individual and team goal generation and goal striving are functionally similar, yet are manifested through mostly *cognitive*-behavioral processes at the individual level and mostly through *social*-behavioral processes at the team level (cf. Morgeson & Hofmann, 1999). Accordingly, we advance the following proposition regarding the similarity in the *functional content* of motivational processes at the individual and team levels.

Proposition 1. Individual motivation processes and team motivation processes are homologous (i.e., functionally similar), in that they are captured by similar individual- and team-level relationships among similar motivational states and goal generation and goal striving processes.

WHAT'S DIFFERENT ABOUT MOTIVATION IN TEAMS?

The preceding discussion posits an isomorphic parallel in the micro-analytic processes underlying individual- and team-level motivation, but does not address the interconnectedness *between* individual members and the team as a whole. Indeed, most organizational scholars and practitioners agree that it is precisely these interconnections that make motivation in teams so different from motivation in individualistic contexts (e.g., Kozlowski & Bell, 2003). It is also widely acknowledged that these interconnections are the most complex and least well understood aspects of motivation in teams. Nonetheless, it is relatively easy to illustrate the critical role that these cross-level linkages play in motivation and performance at both the individual and team levels. Post-hoc, motivational process explanations for the loss or win

of a football game, for example, frequently focus on individual–team linkages, such as how the team’s game plan (e.g., high scoring versus strong defense) influenced goal striving activities and persistence of individual team members (e.g., effort versus caution), how the performance goals of various team players (e.g., to play aggressively) affected team goals and strategies used to accomplish the goals (e.g., type of plays made during the game), or how the execution of team strategies (e.g., running) affected individual player performance (e.g., most valuable player). In contrast to motivation in the individualistic context, motivation in the team context is critically affected by the form and intensity of the psychological links that bind the individual and the collective.

It is exceedingly difficult, if not impossible, to address the question of what makes motivation different in teams without adopting a multilevel, systems perspective. Attempts to capture the cross-level influences of individuals and teams on motivation by extending individual-level theories of work motivation have been only partially successful. As Weick (1979) noted when he coined the term “double interact,” there is a mutual dependence between individual members and the team as a whole such that individual behaviors influence collective processes, which in turn affects individual processes and behavior. More recently, DeShon et al. (2004, p. 1051) have made a similar argument, noting that “team performance contexts present individuals with the challenge of regulating their intentions and actions in ways that contribute to both individual and team effectiveness.” That is, individual team members must balance between performing their own role within the team and helping the team accomplish its collective tasks. Accordingly, individuals must choose goals that are in concert with other member’s goals, as well as with the team’s collective goals. For instance, the goal of a software development team may be to write programming code that meets the functional purpose of the software, within a project timeline and budget. However, the personal goal of a member of the team for writing a specific portion of the code by a specific date must be determined jointly based on the coordination of personal and team goals dictated by the team’s strategy (e.g., how writing is distributed across members, and the timing of each member’s tasks throughout the project). That is, individual goals in the team must be aligned both *horizontally* (i.e., with other members’ individual goals), and *vertically* (i.e., with the team’s goals).

Not surprisingly, most individual-level theories of motivation – even those that include explicit social-situational determinants of work motivation – do little to help understand the influence of the individual on the team, or the emergent influences of the person–team transactions on the individual. In

expectancy and goal setting theories, for example, motivation is studied in terms of its direct influence on individual performance, but not in terms of its effects on the setting in which performance takes place. As such, these theories predict that higher levels of effort lead to higher levels of job performance, but they do not take into account the more immediate influence of an individual's effort on the setting (team) in which performance takes place. That is, these motivation theories have largely considered individual-level criteria, but not criteria at higher levels of analysis, such as the individuals' direct or indirect influences on team-level outcomes. In work teams, a team member who demonstrates a low level of motivation may generate negative affective reactions among other team members (even unintentionally), and so decrease team-level motivation, lower morale, disrupt task performance, and alter leader behaviors (e.g., [LePine & Van Dyne, 2001](#)). Similarly, the development of strong affective bonds among team members over time may disrupt and/or augment individual-level motivation (e.g., [Janis, 1972](#)). That is, in a way similar to the function of the family unit in society, teams serve as both the source and recipient of motivated action.

As implied by the [Salas et al.'s \(1992\)](#) definition of work teams, such collectives represent unique social settings for action. In these interdependent contexts, created and sustained formally or informally within the larger organization, an individual's cognition, affect and emotion, and motivation serve as both determinants and consequences of motivational processes operative at the team level. Accordingly, we suggest that a multilevel study of motivation in team contexts may enrich extant work motivation approaches by identifying unique conditions and processes that cannot be detected when focusing solely on individual *or* team motivation ([Ambrose & Kulik, 1999](#); [Kozlowski & Bell, 2003](#)). As suggested by [Chen and Klimoski \(2003\)](#), interdependent team contexts intensify the influence of situational variables, such as group norms and climate. Likewise, individual influences on collectives may also be more powerful in interdependent teams (e.g., see [Chen, 2005](#)). Thus, the specific content or manifestations of goal generation and striving, as well as their sources and outcomes, are likely to be quantitatively and qualitatively different in teams.

The reciprocal, multi-layered and proximate nature of influence between the team as a whole and its individual members creates potentially powerful micro-environments that may facilitate or hinder individual and/or team performance. Micro-environments that empower team members, for example, may entrain corresponding patterns of high individual and team-level motivation for goal accomplishment ([Chen et al., in press](#); [Kirkman & Rosen, 1999](#)). In contrast, micro-environments that inhibit or threaten team

members may create maladaptive patterns of individual- and/or team-level motivation. Delineating the critical transactions that promote or hinder the development of adaptive patterns of individual- and team-level motivation can only be accomplished by considering the structure of the interface between the individual and his/her micro-environment. The need for individual team members to regulate their effort toward accomplishing both individual and collective tasks clearly results in added complexity in understanding individual motivation in teams. In particular, due to the inherent and continuous need to balance between focusing on individual and team goals, there is likely to be strong coupling between individual and team motivation in team context, as the goals individuals generate and pursue are likely to be highly related to the goals teams collectively generate and pursue. Consequently, the influences of individual motivation on collective team motivation, and of collective team motivation on individual motivation, are likely to be quite pervasive.

TOWARD A MULTILEVEL PERSPECTIVE

A comprehensive conceptualization of motivation in teams thus requires a multilevel approach. Such a model offers several advantages, including (1) meaningful comparisons between individual and team motivational processes, (2) investigation of the generalizability of individual-level motivational constructs, principles and findings to the team level, and (3) identification of unique person–team transactions that may exert strong influence on performance outcomes (Chen et al., 2004, 2005a). Moreover, initial multilevel research focusing on motivational concepts such as efficacy beliefs, empowerment and goals indicates that factors motivating individual team members may not as strongly or directly motivate the team as a whole, and vice versa (e.g., Chen & Bliese, 2002; Chen et al., in press; Gibson, 2001).

A multilevel approach to motivation in teams is also concordant with broader general systems theorizing (Prigogine & Stengers, 1984) that emphasizes the patterns of exchange between the individual and the collective, as well as the relationships between the individual and the team with the contextual environment. Over the past two decades, a growing number of scientists have used the general systems paradigm to understand the organization and interconnectedness of components in a variety of biological and physical systems, ranging from interaction of neurons in the visual system to the self-organizing coordination of movement in schools of fish (see, e.g.,

Behrmann & Kimchi, 2003; Camazine et al., 2001; Clark, 1997; Kossman & Bullrich, 1997; Thelen, 1995). The emphasis in general systems approaches on understanding multilevel processes in the context of purposive outcomes offers a potentially powerful paradigm that goes beyond current approaches that investigate the determinants and consequences of one or more specific cross-level pathways (e.g., Chen & Klimoski, 2003; Seibert, Silver, & Randolph, 2004) without specifying system goals and processes. In the following sections, we consider features of general systems approaches to further guide our development of a multilevel model of motivation in teams.

Cross-Level Architecture in Biological Systems

Models that seek to explain complex human functions, such as vision, typically emphasize the architecture by which molecular components, such as individual neurons, and molar systems interact to organize, interpret, decide, and implement courses of action with respect to input from the external world. Such models are typically found in basic theory and research on human sensation and perception systems (e.g., hearing, vision, movement). In the area of object recognition, for example, recent theorizing suggests that individual neurons operate in unison to achieve object recognition (e.g., Behrmann & Kimchi, 2003). Each neuron has specific qualities or characteristics that affect their receptivity to being set off by other neurons, as well as qualities or characteristics that relate to the system as a whole. Dysfunction of particular neurons, for example, may or may not yield visual impairments (i.e., affect the system as a whole) depending on both external demands, the compensatory influence of other neurons, and the extent to which dysfunction in an individual neuron remains localized.

In addition, the system of object recognition is affected by external factors that place demands on the system as a whole, such as poor light. Differences in light conditions, or the amount of light that individuals are exposed to, are posited to affect particular neurons (e.g., changing their activation set points) as well as the system as a whole (e.g., activating different sets of neurons to fire in a particular sequence). As such, the molar system by which objects are recognized is affected by external factors that differentially energize individual neurons, the system-level activation of neural firing sequences, and the interdependent molecular activities among individual neurons that aggregate in complex ways to affect the molar visual system.

In an analogous fashion, individual team members function like individual neurons in the visual system. Each team member operates within a

personal zone of plasticity that is conditioned by internal (individual) factors as well as by social system demands (i.e., the team). Team motivation, analogous to the molar vision system, is affected not only by the demands made by the environment, but also by the operation of the constituent elements of the system – i.e., its individual members. For example, just as one dysfunctional neuron may impair the operation of a set of neurons and so disrupt object recognition, so can one indifferent or disruptive team member interfere with the successful generation of team goals. Consider, for example, a Special Forces team that must generate specific team goals and an associated strategy for neutralizing the destructive potential of an enemy ship. If one member of the team strongly opposes on-board disabling of the ship (versus destroying the ship), goal generation processes at the team level may lead to a different tactical goal and strategy than if there is consensus for ship disablement among all team members. Similarly, changes in the emergent motivational state of the team brought about by external conditions (e.g., heightened team efficacy for undetected ship boarding, brought about by the acquisition of better equipment) may directly affect team-level goal generation processes, as well as individual members' goals.

The systems perspective as applied to object recognition suggests two features of cross-level influences for our multilevel model of motivation in teams. First, it seems reasonable to expect that the individual and the collective exert reciprocal influence on each other at corresponding points in the motivation system, just as individual neurons affect and are affected by the molar visual system. That is, positive motivational outcomes in teams require horizontal as well as vertical alignment of motivational states and goal generation and striving processes. Second, contextual factors or antecedents to motivational processing appear to exert selective influences on individual- and team-level motivational processes, such that some contextual factors may affect motivation of only some individuals, whereas other factors may influence the motivational state for the collective, as well as all individuals in the team.

Self-Organizing in Groups

Another important aspect of general systems theorizing pertains to the autonomous organization of activities within a system, or *self-organization*. In their review of the literature on self-organization, Camazine et al. (2001, p. 8) define self-organization as “the process in which the pattern at a global level of a system emerges solely from numerous interactions among

lower-level components of a system.” In the context of a group of individuals or organisms, self-organization refers to the processes by which individual members of the group form a mutual understanding by which to work together in the absence of explicit external orders (cf. Camazine et al., 2001). Among schools of fish, for example, the school’s movement may be explained by the information sharing and coordination of movements that occur at the individual fish level. That is, by each fish responding to what their nearest neighbors are doing. The emergent molar pattern of locomotion, in turn, exerts influence on the subsequent activities of the individual fish in the school. Other examples of group activities that involve at least some degree of self-organization include termite mound building, ant raids, and orchestra performances.

From a multilevel motivation perspective, the principle of self-organization and emergent team processes closely resembles Weick’s concept of a double interact, in that activities of the individual influence the collective, which in turn influence the individual. Consider, for example, a rowing team competing in a race. Although contextual factors (e.g., good weather, strong past record, clear contest structure) may promote strong individual self-efficacy and team efficacy and cohesive individual and team goal states (to win), the accomplishment of team goals (team goal striving) requires self-organizing processes to achieve rowing synchrony, coordinated team member actions, and monitoring of team-level progress to the finish line. Self-organizational failures at the team level can be expected to affect not just individual goal striving, but individual- and team-level performance. In other words, team motivational processes (e.g., team goal striving) are expected to exert immediate and feed-forward (top-down) influences on individual-level motivational processes and performance.

The Contextual Environment and Multilevel Motivational Antecedents

As we noted previously in our vision example, it is important to recognize that individual team members (or the “parts” analogues to individual neurons) and the team (or the “whole” analogue to the complete vision system) represent distinct elements within a multilevel system that are potentially differentially amenable to various external and internal influences. For instance, moving from a dark room to an outside setting in a bright sunny day would likely affect the complete visual system, given the system as a whole would need to adapt to the extreme change in lighting. On the other hand, particular chemical or hormonal changes in the blood system may

affect particular parts of the visual system more than other. Likewise, some contextual factors may exert their strongest influence on collective team motivation, while other factors may primarily affect motivation of some but not all individual team members.

Hackman (1992) provides support for this notion of differential impact of contextual factors in his review of social psychological research on team influences. As Hackman (1992, p. 201) states, "One's group membership largely defines one's 'social universe' ... [and] being a member of some groups ... restricts and specifies the domain of stimuli to which individuals are exposed." Hackman suggests that person and situation stimuli affect motivation by providing team members with informational, attitudinal, and behavioral cues (e.g., by informing members regarding appropriate and inappropriate attitudes and behaviors). To organize these diverse influences, he further posits a distinction between two types of stimuli: (a) *Ambient stimuli*, or team-oriented stimuli that pervade the team as a whole, and (b) *Discretionary stimuli*, or person-oriented stimuli directed or presented to specific team members, rather than the team as a whole. Examples of ambient stimuli include the socio-technical aspects of work, such as work design and group norms. Examples of discretionary stimuli include personalized feedback leaders may provide individual members, as well as individual differences in personality and motivational traits, activated by the environment, that predispose the individual to particular patterns of goal choice and striving behaviors. This distinction between ambient and discretionary stimuli provides a powerful framework for considering how person and situation influences affect multilevel motivational processes in and of teams. In particular, discretionary stimuli can be conceptualized as influences that primarily trigger individual-level actions and reactions (much the same way that genes predispose individuals to act and react in certain ways). In contrast, ambient stimuli are directed at affecting team-level action and reactions (similar to how environments predispose individuals within them to act and react in similar ways).

The conceptualization of external contextual influences on motivation in and of teams using Hackman's (1992) input classification scheme raises an important issue about specific pathways of antecedent influences. In particular, a number of presumably important contextual variables, such as leadership and feedback, reflect broad multidimensional constructs that likely encompass both ambient and discretionary inputs to the motivation system. Leadership climate, for example, may be best conceptualized as an *ambient* input that exerts influence on both team- and individual-level motivation, while leader-member exchange seems likely to be more

accurately classified as a *discretionary* input that differentially affects different members of the team. With few exceptions (Chen & Bliese, 2002; Chen et al., 2005b, in press; DeShon et al., 2004; Hofmann, Morgeson, & Gerrass, 2003), previous work has yet to delineate the dimensionality of key contextual influences on motivation in teams or to sufficiently consider plausible synergistically and complimentary ways in which ambient and discretionary inputs combine to affect to individual and team motivation. Such delineation is critical to our understanding of how simultaneously to facilitate individual and team motivation.

Summary

To account for motivation in and of teams, we must recognize individual-, team-level processes, and, perhaps most importantly, the multiple cross-level processes between individual and team processes. More specifically, we need to understand the coupling of individual- and team-level goal generation and goal striving processes. Just as we cannot fully understand vision without considering how individual neurons function individually and in concert in response to environmental stimuli, we also cannot fully appreciate team functioning without adopting a multilevel, systems approach that takes into account both the individual members and the social system or team they compose and operate within (cf. Katz & Kahn, 1978). Indeed, coordination of activities at the team level may facilitate or hinder the impact of individual level self-regulatory influences on performance. Likewise, effective or ineffective individual regulation processes can greatly affect team-level motivation and performance.

To this point we have provided discussion of the three major issues that confront our development of a full account of motivation in and of teams. Specifically, we reviewed conceptual and empirical evidence to support the identification of major system components of individual and team motivation and their isomorphic parallels. Next, we identified distinctive features associated with motivation in the team context and implications of general systems theorizing for specifying the nature of cross-level influences between the individual and the team as a whole. Finally, we considered contextual antecedents to individual and team motivation using Hackman's (1992) organizational scheme, and have begun to consider potential multilevel pathways of influence for multidimensional input factors, such as leadership. In the next section, we build upon this foundational work to describe, in greater detail, the basic tenets of our integrative multilevel model of motivation in and of teams.

AN INTEGRATIVE MULTILEVEL MODEL OF MOTIVATION IN TEAMS

As shown in Fig. 1, our proposed model builds upon contemporary views of individual-level motivation and assumes isomorphism in individual and team-level motivational processes. Consistent with a general systems perspective, however, we also delineate a set of theoretical propositions regarding the multilevel influence of the context in which the system operates and the interplay between individual and team motivation processes as they affect individual and team performance outcomes. Specific propositions derived from the model and supporting evidence from the organizational literature are described below.

Interplay between Individual and Team Motivational Constructs

Given that individual and team motivational processes can be presumed not to occur in isolation of each other, the next question to address is how they interact. To date, most multilevel theorizing on the topic has suggested that top-down effects (i.e., effects of team-level variables on individual-level variables) are more pervasive, powerful, and immediate than bottom-up effects (i.e., effects of individual-level variables on team-level variables) (see Kozłowski & Klein, 2000). In part, this asymmetry in the pattern of cross-level influences has been attributed to the fact cognitive, affective, and behavioral change occurs faster at the individual level than at higher (system) levels of analysis. From a general systems perspective, this asymmetry is also consistent with the notion that the molar system affects molecular components of which it is comprised more often than singular changes at the molecular level alter the molar system (e.g., the impact of a single dysfunctional neuron in object recognition may be compensated by neighboring neurons). That is, the influence of team goal generation and goal striving processes on individual-level motivation is more frequent and potent than the influence of individual motivation processes on team processes. DeNisi (2000, p. 138) has gone so far as to argue, “It is almost impossible to change the “behavior” of an organization, whereas it is relatively straight forward to change the behavior of an individual.”

To reflect this asymmetry in cross-level effects, we propose below that the top-down effects of team variables on individual variables includes both direct effects between different components of team and individual motivation (e.g., between team motivational states and individual goal

generation) and cross-level relationships between isomorphic components of individual and team motivation (e.g., between individual and team motivational states). In contrast, we propose that bottom-up effects of individual variables on team variables are subsumed primarily by cross-level relationships likely to occur between isomorphic components in the model. Nonetheless, it is important to note that there may be occasions when bottom-up effects exert a significant impact on team functioning. Indeed, a single team member who fails to accomplish his/her role in the team could adversely affect the likelihood that other team members would accomplish their respective individual goals, as well as the team's overall success. In highly specialized emergency response teams, for example, a single nurse's failure to self-regulate sufficient attention to the monitoring of a patient's blood pressure could lead to ineffective goal striving at the team level and subsequently poor individual and team performance should the patient die.

Cross-Level Relationships

Consistent with a general systems approach, our proposed model posits the co-occurrence of direct top-down effects and direct bottom-up effects of individuals and teams across all phases of motivational processing. As hypothesized below and shown in Fig. 1, these cross-level recursive effects are captured by cross-level relationships in motivational states, goal generation processes, and goal striving processes.

As Shamir (1990) suggests, individual-level motivational states should be positively related to team-level emergent motivational states. Consider, for example, the cross-level relationship involving self- and team efficacy beliefs. This cross-level relationship can be partially explained by a top-down process involving the influence of members' team efficacy beliefs on members' self-efficacy beliefs. Specifically, when members believe their team is composed of capable members who can collectively accomplish the team's mission, they are also likely to believe they can effectively perform their role in their team, given that their role is highly dependent on other team members' roles – a phenomenon Eden (2001) has dubbed means efficacy. For example, a leading prosecutor in a legal team is likely to be personally efficacious regarding cross-examining defense witnesses effectively if she shares the collective (team efficacy) belief that her team is collectively capable to investigate well that particular case, and is highly knowledgeable of broad array of previous relevant cases. Bottom-up processes can also account for the cross-level relationship between individual and team motivational states, given members who feel they can contribute effectively to their team by performing their role well (i.e., have high self-efficacy) also feel their team is

more likely to perform better as a result (i.e., have high team efficacy). In fact, several studies have detected moderate to strong correlations between self- and collective efficacy beliefs (e.g., [Chen & Bliese, 2002](#); [Feltz & Lirgg, 1998](#); [Jex & Bliese, 1999](#); [Kark, Shamir, & Chen, 2003](#)). Similarly, [Chen et al. \(in press\)](#) have found a positive relationship between individual and team empowerment in teams. Accordingly:

Proposition 2a. Individual motivational states positively relate to team motivational states.

We also propose that cross-level relationships occur between individual and team goal generation and goal striving processes. Such cross-level relationships capture a “double-interact” process ([Weick, 1979](#)) in which individual behavior influences the collective (team) context, which in turn affects individual behavior within the context. In advertising project teams, for example, the adoption of a difficult team goal to win an account by creating a new advertising campaign directly influences what goals and how much effort will be required of team members. Conversely, individual member activities that support the adoption of goals that demand low levels of individual effort directly affects the likelihood that the collective will adopt the new campaign team goal (as opposed to less effort-intensive goals such as modifying an old campaign). Also, individual-level behaviors involving goal generation and goal striving are likely to aggregate and form team-level goal generation and goal striving processes, respectively, given teams whose members work harder on developing and executing plans are more likely to exhibit effective team motivational processes (cf. [Marks et al., 2001](#)). Moreover, teams who engage in effective team goal generation and goal striving processes are likely to encourage and motivate their members to contribute to these processes (e.g., through processes such as modeling, persuasion, or vicarious experiences; cf. [Bandura, 1997](#)).

The general systems paradigm further suggests that successful systems require the content, or architecture, of individual and team motivation processes to be closely aligned. Thus, individual team members must align personal goals and self-regulatory activities with team goals and strategies for goal accomplishment. Pharmaceutical research teams, for example, are unlikely to be productive in formulating new drugs rapidly for market if team members seek different objectives with respect to performing research tasks (e.g., testing new research methods rather than testing drug properties) and/or perform multi-part drug tests in an uncoordinated fashion. Therefore, there is a need for individual and teams to work closely together when generating and striving towards goals and plans.

Preliminary evidence supporting these expectations is provided by [Chen and Kanfer \(2005\)](#), in a study of individual and team motivation processes during team performance of a computerized flight simulation task. Following a team planning session, individual team members were asked to report personal as well as their team's goal generation activities. Following team task performance, individuals were asked to report personal and team goal striving activities. Subject matter expert ratings were also obtained of team-level goal generation and goal striving processes. Results obtained showed a significant pattern of positive cross-level relationships for both individual and team goal generation activities and for individual and team goal striving activities, irrespective of whether team activities were assessed by self-report or subject matter experts. Thus:

Proposition 2b. Individual goal generation positively relates to team goal generation.

Proposition 2c. Individual goal striving positively relates to team goal striving.

Top-Down Effects

In addition to cross-level relationships, motivational processes in teams are likely to involve unique top-down effects of team motivational states on subsequent individual goal generation and of team goal generation on subsequent individual goal striving. These reflect in part the asymmetry between top-down and bottom-up effects discussed by multilevel theorists ([Kozlowski & Klein, 2000](#)). Specifically, given that teams' influences on individual members are more powerful than the effects of individual members of their teams, it is likely that team motivational states (e.g., team efficacy and team empowerment) would uniquely affect individual goal generation over and above individual motivational states, and that team goal generation would uniquely affect individual goal striving over and above individual goal generation. In contrast, the bottom-up effects (i.e., individual motivational states → team goal generation, and individual goal generation → team goal striving) are likely to unfold more slowly, and therefore are indirect and less powerful ([Kozlowski & Klein, 2000](#)).

The unique top-down team motivational states → individual goal generation effect is likely because the content (i.e., direction) and characteristics (e.g., difficulty) of the goals and plans individuals generate are likely dependent on whether they believe their team is capable of performing effectively (i.e., have high team efficacy) and, more broadly, whether they believe their team has the autonomy and capability to perform meaningful and

influential tasks (i.e., have high team empowerment). For instance, members of a service team who believe in the team's collective capabilities to sell certain merchandise are more likely to work individually and collectively to generate effective quarterly sales goals and plans. More generally, empowered teams often face more complex tasks, which require that team members generate more challenging individual goals as means of meeting their challenging tasks. Of course, individuals are also more likely to generate effective goals when they have high levels of self-efficacy and individual sense of empowerment, but knowing that their team, not just them personally, is efficacious and empowered is also important determinant of individual activities contributing to developing team plans. In contrast, individuals who are personally efficacious and empowered are unlikely to exert as much effort on behalf of their team if they believe their team is incapable of handling challenging tasks (Shamir, 1990). Accordingly:

Proposition 3a. Team motivational states positively affect individual goal generation.

Finally, teams engaging in effective goal generation develop challenging goals and effective strategies that can facilitate the work of team members working on accomplishing these goals. Specifically, in combination with individual goal generation processes, team goal generation processes provide a more complete and appropriate "roadmap for action" that directs, energizes, and sustains members' individual efforts allocated toward individual goal accomplishment (i.e., individual goal striving processes) (cf. Locke & Latham, 1990; Weingart, 1992). Stated another way, individual effort directed at generating goals is insufficient – what is needed are *both* individual effort *and* collective team effort to generate an appropriate "architecture" of horizontally and vertically aligned goals and plans that enable more effective individual and team goal striving. Some support for these expectations was found in Chen and Kanfer's (2005) study who showed that team goal generation (through team goal striving) and individual goal generation uniquely and positively predicted individual goal striving. Hence:

Proposition 3b. Team goal generation positively affect individual goal striving.

Effects of Motivational Processes on Performance

There is voluminous evidence documenting the positive influence of motivation on performance – at both the individual and team levels (see, e.g.,

Kanfer, 1990; Marks et al., 2001; Mitchell, 1997). Results of several meta-analyses also show a strong, positive relationship between efficacy beliefs, goals and performance at individual and team levels (Gully et al., 2002; Locke & Latham, 1990; O'Leary-Kelly et al., 1994; Stajkovic & Luthans, 1998), and recent studies by Chen et al. (2005b, in press) and DeShon et al. (2004) have found that motivational states influence performance at least partially through motivational processes at both the individual and team levels of analysis.

Yet, there have been surprisingly few studies investigating possible *cross-level* effects involving individual and team motivation and performance. In particular, very little research in teams to date has considered how individual motivation might aggregate up to affect team performance, or how team motivation might affect individual performance in team settings. Our proposed model suggests that, in addition to the traditional, direct influence of individual and team motivation on their respective levels of performance, performance at both levels may also be importantly influenced by cross-level motivational processes. Thus, we suggest the following, more complete set of propositions regarding the proximal motivational determinants of individual and team performance:

Proposition 4a. Individual goal striving positively influences individual performance.

Proposition 4b. Team goal striving positively influences individual performance both directly and indirectly, through individual goal striving.

Proposition 4c. Team goal striving positively influences team performance both directly and indirectly, through individual performance.

Propositions 4b and 4c expand on current conceptualizations of motivational processing in two important ways. First, we posit that the way teams organize and coordinate member activities to accomplish team performance affects individual-level goal striving and performance. In serially coordinated elementary school teaching teams, for example, effective teaching performance requires close attention to what the previous day's teacher covered and accurate self-monitoring of one's own progress in covering assigned material in the allotted time. Moreover, when teaching objectives are met through "team teaching" methods in which multiple teachers instruct the class at the same time, individual goal striving and performance may be enhanced by team processes such as back-up behaviors and coordination. Likewise, in basketball teams, the direction and allocation of each individual member's effort (e.g., scoring) is largely affected by coordinated

team effort (e.g., effectively coordinating screening and passing of the ball, so that the individual player could make the shot and score). Such cross-level effects, of team goal striving processes on individual performance, were in fact supported by results obtained by [Chen and Kanfer's \(2005\)](#) study of simulated flight teams.

Proposition 4c also posits two pathways of influence for the effects of team-level goal striving on team performance. Consistent with most team models, team-level motivation processes are posited to exert a direct effect on team performance, such as when a lack of coordination among ants retards the building of a mound. In addition, however, we suggest that the top-down effect of team-level goal striving on individual performance may exert an indirect effect on team performance. In performing flight teams, such as the Blue Angels, for example, team-level strategies for completing complex and dangerous maneuvers (e.g., follow your neighbor's wing) crucially determines each team member's performance. Even more important, the failure of any one team member to perform successfully has a direct and immediate (and potentially disastrous) impact on the team performance.

An alternative, more positive example of the effects of individual performance aggregating up to affect team-level performance may be provided by considering the assumption of most staffing theories (e.g., [DeNisi, 2000](#); [Ployhart & Schneider, 2002](#)). A recent study by [Chen \(2005\)](#) on newcomer (individual) effectiveness in project teams found that newcomers who felt more empowered (i.e., were more motivated) performed better, and that newcomer performance positively contributed to subsequent team performance, even when controlling for prior team performance. Findings by [Chen and Kanfer \(2005\)](#) and [Chen et al. \(in press\)](#), in different contexts, provide additional and similar support for the cross-level relationship between individual and team performance, and suggest that such motivational pathways represent an important, but as yet somewhat neglected, determinant of team performance.

Antecedents of Motivational Processes

No account of motivation in and of teams can be considered complete without addressing the impact of the contextual environment on system components. Indeed, work motivation theory and research has long emphasized the roles that person characteristics (e.g., team member abilities and personality traits) and/or situational factors (e.g., work design) play in individual- and team-level motivation (see for reviews [Chen et al., 2000](#); [Feldman, 1984](#); [Hackman, 1992](#); [Hackman & Oldham, 1976](#); [Kanfer &](#)

Heggestad, 1997). However, much less is known about how these factors influence motivation that is conceptualized from a multilevel, systems perspective. In order to understand the impact of personal and contextual antecedents from this perspective, we make two assumptions. First, in accord with Marks et al. (2001), we assume that the multilevel motivational processes we have delineated are dynamic, cyclical, and unfold over time. Thus, as reflected in Fig. 1, the effects we hypothesize are expected to occur throughout the motivational process (i.e., prior to, during, or in-between task engagements).

Our second assumption pertains to how best to conceptualize the multitude of contextual features that impact motivation processes. As noted previously, modern theories of work motivation have typically emphasized the role of either individual-level factors (e.g., personality traits) *or* team-level factors (e.g., work design, group norms), but there have been few attempts to integrate person and situation perspectives. We assume that a multilevel, systems conceptualization of motivation requires consideration of both types of influences, and that such an interactionist approach can help account for additional variance in individual and team motivation. To enable such an approach, we propose a reorganization of person and situational influences according to their stimulus characteristics, not their impact. That is, following Hackman (1992), we organize contextual and personal factors into two types; namely, ambient (team-oriented) inputs and discretionary (person-oriented) inputs. Fig. 1 provides a partial listing of common and specific examples of ambient and discretionary inputs, and their proposed relations to individual- and team-level motivational processes.

In work settings, leadership arguably represents the most important of all contextual factors, which might affect individual and team motivation. Poor team performances are frequently attributed to leader deficiencies in creating a favorable climate for performance and/or providing insufficient direction or structure to team activities. Similarly, poor individual team member performances are also often attributed to poor leadership related to the way that the leader encourages and interacts with team members. Indeed, several scholars have noted the multitude of critical leadership functions in teams, including team design, staffing, and coaching (e.g., Hackman, 2002; Wageman, 2001; Zaccaro & Marks, 1999). Most researchers agree that leadership is more usefully construed as multidimensional construct, in which some dimensions represent ambient inputs and other dimensions represent discretionary inputs. Leadership behaviors and practices may be delineated into different types of ambient inputs directed toward the team as a whole that develop the leadership climate within the

team (e.g., Chen & Bliese, 2002; Shamir, Zakay, Breinin, & Popper, 1998), group norms (Feldman, 1984), design characteristics of the team (Campion, Medsker, & Higgs, 1993; Campion, Papper, & Medsker, 1996), and team feedback. What is common to these kinds of inputs is that they involve social, informational, or task-related factors that have the potential to motivate the team as a whole – i.e., inputs that affect all team members rather than a specific individual or a few members of the team (Hackman, 1992).

For example, transformational leadership theory suggests that effective leaders motivate their group of followers by transforming the values and priorities of followers and motivating them to perform beyond their expectations (Bass, 1985). Indeed, research has shown that transformational leaders often achieve superior results by creating a shared sense of social identity within their group (e.g., Kark et al., 2003). Similarly, Feldman (1984) argues that group norms involve informal rules established by leaders and members of the group to regulate and regularize the behavior of all members belonging to the group. Feldman argues further that group norms are quite powerful in establishing a common code of conduct in groups (see also Hackman, 1992). In addition, work by Campion et al. (1993, 1996) suggests that work team design (e.g., level of interdependence among teammates, extent to which the team is provided with autonomy) helps differentiate between teams, even teams within the same organization, and that design characteristics of teams can motivate the team as a whole. Furthermore, Wageman (2001) has shown that effective design of teams can even facilitate leaders' influences on teams; specifically, leaders' coaching practices were found to be more successful when teams were designed more appropriately.

In contrast, leadership may also be manifested through discretionary inputs, which are directed at particular team members and thus are likely to affect specific individuals in the teams, but not necessarily the team as a whole. For instance, according to leader-member exchange theory (e.g., Dansereau, Graen, & Haga, 1975), leaders develop different relationships with different followers, and thus differentially affect members within their group. Likewise, performance feedback leaders may direct at a particular team member is likely to affect that particular member, but not other members in the team. Finally, leaders may also staff their teams with members who differ on various individual differences, such as motivational traits (Kanfer & Heggestad, 1997) and work experience (Tesluk & Jacobs, 1998). Such individual differences are also consistent with the notion of discretionary inputs, in that they pre-dispose individuals, but not teams, to behave in certain ways.

While it is also possible for ambient inputs to affect individuals in the team, and for discretionary inputs to affect the team as a whole, we argue that what is most important for understanding their effects on motivation in teams is their *relative influence* across levels. Specifically, given that ambient inputs are directed at the team as a whole, they are likely to more strongly affect the team, but yet to also have a (somewhat weaker) top-down effect on individuals within the team. Similarly, given that discretionary inputs are intended to most strongly affect individual team members, they are likely to influence the manner in which the individuals contribute to their team, and thus also have a weaker, indirect bottom-up effect on the team. Further, given that top-down effects tend to be stronger and more immediate than bottom-up effects (Kozlowski & Klein, 2000), we would expect that ambient inputs would incrementally influence individual motivational processes over and above discretionary inputs, but that discretionary inputs (when aggregated across team members) would not affect team motivational processes over and above ambient inputs. As such, leaders can utilize various ambient and discretionary inputs to differentially influence individual and team motivation.

Note that we generally expect the influences of these inputs on motivational processes to be positive, since our focus is on inputs that have high “motivating potential” (cf. Hackman & Oldham, 1976). However, we certainly recognize that various ambient and discretionary inputs can also carry negative consequences on teams. For instance, laissez-faire team leaders can create de-motivating (ambient) climate that adversely affects team motivation (Bass, 1985). This is particularly true in teams facing challenging and uncertain situations (e.g., military teams during combat, production teams in manufacturing organizations that face potential downsizing), where direction and support from leaders is especially critical.

Several studies provided initial support for the theoretical assertions above. For instance, a study by Feltz and Lirgg (1998) on collegiate sports teams found that previous team performance (a form of ambient input) affected subsequent team efficacy more strongly than subsequent self-efficacy. In addition, studies dealing with feedback in teams (e.g., Barr & Conlon, 1994; Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1988; Saavedra, Earley, & Van Dyne, 1993) suggest that feedback provided to the team as a whole (an ambient input) is more effective in promoting teamwork than discretionary individual feedback, but that both team and individual feedback contribute to individual motivation. Similarly, a study by Hofmann et al. (2003) showed that leadership climate (a team-level variable) and followers’ perceptions of leader–member exchange (an individual-level

variable) uniquely contributed to soldiers' motivation to behave safely at work. Further, [Kark et al. \(2003\)](#) have found that transformational leadership (an ambient input) positively predicted collective efficacy to a greater extent than it did self-efficacy. Likewise, a study by [Chen and Bliese \(2002\)](#) found that an ambient group-level input (leadership climate) predicted collective efficacy to a greater extent than it did self-efficacy, whereas several individual-level discretionary stimuli (work experience, role clarity, and psychological strain) predicted self-efficacy, but not collective efficacy. Finally, [Chen et al. \(in press\)](#) found that empowering leadership climate more strongly predicted team empowerment, whereas team members' individual perceptions of leader-member exchange more strongly predicted individual empowerment. Collectively, these studies and theoretical assertions provide support for the following set of propositions:

Proposition 5. The impact of discretionary inputs on motivational processes (relative to ambient inputs) is greater at the individual level than the team level; in contrast, the impact of ambient inputs on motivational processes (relative to discretionary inputs) is greater at the team level than the individual level.

Proposition 5a. Discretionary inputs directly and positively affect individual motivational processes, and indirectly affect team motivational processes through their effects on individual motivational processes.

Proposition 5b. Ambient inputs positively affect individual motivational processes both directly and through their effects on team motivational processes.

Proposition 5c. Ambient inputs positively affect team motivational processes both directly and through their effects on individual motivational processes.

In addition to their "main effects," ambient inputs may also interact with discretionary inputs to affect individual motivational processes. Work motivation theories highlight the importance of situational affordances, or the "motivational fit" between the person and his/her environment ([Kanfer & Heggstad, 1997](#); [Mitchell, 1997](#)). That is, individuals who are pre-disposed to be motivated (e.g., have higher levels of achievement motivation) are unlikely to be motivated in situations that do not allow them to express their motivational tendencies. For instance, [Hackman and Oldham's \(1976\)](#) Job Characteristics Model asserts that employees with higher growth needs strength would react more positively to more complex and challenging jobs

than those lower on growth needs strength. We submit that such person-by-situation interactions are particularly prevalent in team settings, where the environment (i.e., the team) can have powerful effects on individual team members.

From a motivational-fit perspective, the most likely nature of interaction between ambient and discretionary inputs will involve positive effects of ambient inputs on the positive discretionary inputs → individual motivational processes effects. For instance, as shown in Fig. 2, leadership climate (an ambient input) is likely to enhance the positive influence of need for achievement (a motivational trait, or a discretionary input) on individual motivational processes. This interaction suggests that a good fit between an individual predisposition to be motivated (i.e., need for achievement) and situational cues that support that predisposition (e.g., a motivating climate developed by the leader) would result in the highest possible motivation, whereas low levels of any input can lead to substantially lower motivation. Note that this kind of motivational-fit interaction can generalize to other discretionary inputs, beyond individual differences inputs. For instance, Hofmann et al. (2003) have found a very similar interaction effect involving leader–member exchange and leadership climate. In Hofmann et al.’s study, the positive effect of leader–member exchange on motivation to act safely increased as leadership safety climate increased. Thus, such

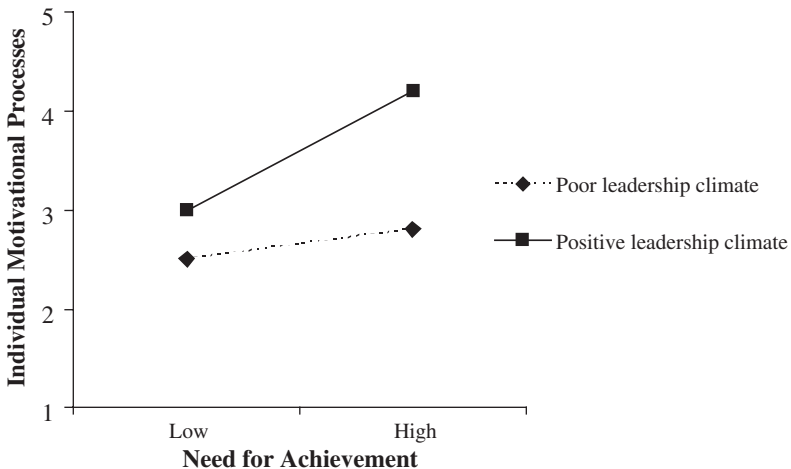


Fig. 2. Interaction of Team and Individual Predictors of Individual Motivational Processes.

person-by-situation (or ambient X discretionary inputs) interactions again reflect the powerful top-down effects of ambient stimuli on individual motivational processes in teams.

Proposition 5d. Ambient inputs moderate the effects of discretionary inputs on individual motivational processes, such that the effects of discretionary inputs on individual motivational processes become more positive as ambient inputs become more positive.

DISCUSSION

This chapter sets out the foundations and outline of a multilevel approach for studying motivational processes in teams. We suggest that this approach provides a more comprehensive account of the complex interplay between the individual and the team as a whole, the manner by which diverse context affects individual and team motivation processes, and the intertwined effects of these processes on individual and team performance. The overarching advantage of the multilevel approach over the more limiting single-level approach includes the ability to examine motivational processes *in and of* teams, as well as their antecedents and outcomes, in a more comprehensive and precise fashion. As such, studies following the new approach are likely to account for additional variance in both individual and team performance that would not otherwise be tapped by single-level studies, given they would consider unique cross-level (i.e., individual and team) effects on performance in and of teams. Moreover, the theoretical model we delineate can help inform organizations and managers about how to effectively motivate simultaneously individual team members and teams a whole.

Implications for Future Research

The integrative multilevel model of motivation delineated in this chapter yields three more immediate implications for the way we study motivation in modern work organizations, as well how motivational processes operate in the context of work teams. First, the proposed model is consistent with the vital need to better understand individual and team work behaviors over time (e.g., Ancona, Goodman, Lawrence, & Tushman, 2001; George & Jones, 2000; Harrison, Price, Gaven, & Florey, 2002; Kozlowski, Gully, Nason, & Smith, 1999). Although the temporal dimension has long been recognized in individual theories of motivation (see Kanfer, 1990) and group

theories of performance (e.g., Gersick, 1988; Tuckman & Jensen, 1977), few studies have examined motivation from an integrated perspective. Our multilevel model suggests that one way to coordinate these perspectives is by conducting longitudinal studies on a time scale that allows us to account for individual and team phenomena, as well as unique cross-level phenomena and other changes in individual–team interconnectedness as they naturally unfold over time (e.g., Chen & Kanfer, 2005; Chen et al., 2005b). In particular, to fully capture the individual and team motivational processes that we have delineated, researchers should at a minimum measure goal generation processes prior to task engagement and measures of goal striving processes during or following task engagement. In addition, researchers may find that individual performance at Time 1 may serve as a discretionary input for team members performing at Time 2, and, likewise, team performance at Time 1 may serve as an ambient input for teams performing at Time 2. Studying motivational processes as they unfold over time and across multiple performance episodes can enrich our understanding of behavior in complex social systems such as organizational teams (Marks et al., 2001; Lindsley, Brass, & Thomas, 1995).

The second implication of our model for future research pertains to how we conceptualize relationships between the individual and the collective. In accord with general living systems approaches, we emphasize the operation of motivational processes in terms of the multiplicity of pathways (i.e., direct, indirect, and interactive bottom-up and top-down effects) by which individual team members and the collective are interconnected and influence individual and team effectiveness. As discussed, a number of potentially promising areas for future research may be derived from our adaptation of general systems perspectives, including for example, understanding the ambient antecedents that facilitate or hamper dominant top-down influences, the influence of team member diversity on goal generation effectiveness, and identification of potential natural substitutes or neutralizers (cf. Kerr & Jermier, 1978) of self-organizing processes during team goal striving.

A third fertile area for future research pertains to the boundary conditions that could affect the generalizability of our model, such as our implicit assumption that the proposed processes and relationships generalize across different types of teams and organizational contexts. Several authors have noted that team and leadership processes differ across different types of teams, such as action, management, production, project, and service teams (Sundstrom, 1999; Zaccaro & Marks, 1999). Whether or not the underlying motivational processes generalize across different teams remains an open question that deserves empirical investigation. While the theoretical

processes we have delineated may generalize well, their manifestations and the relative importance of different motivational processes may vastly differ across different types of teams. For instance, in management teams, it is more difficult to distinguish between goal generation and goal striving processes, given these teams engage mostly in establishing *organizational* strategies and plans, as opposed to merely team goals and plans. In particular, top-management teams' main task involves setting the vision, direction, and objectives for the organization, the implementation of which is often left to a host of other teams within the organization. Goal striving activities of management teams may entail monitoring of how other teams (e.g., project and sales teams in high-tech firms) implement the organizational goals the management team has generated. Therefore, the extent to which members of top management teams engage in effective goal generation processes, rather than goal striving processes, is more likely to directly affect their performance, and the firm's performance.

In addition, while work design in most teams is common to all team members (Campion, et al. 1993, 1996), it is possible that in cross-functional project teams or in certain action/performing teams (e.g., surgical teams) work design vastly differs across members, and thus it reflects discretionary, as opposed to ambient input. For instance, job characteristics dimensions such as task significance are likely much higher for neurosurgeons than nurses who assist the surgeon during brain surgeries. Therefore, researchers should carefully choose the most relevant ambient and discretionary inputs in their particular study contexts. As a general guide, relative to discretionary inputs, ambient inputs are likely to have greater between-team variance and smaller within-team variance (as reflected by the intra-class correlation; cf. Chen et al., 2004). Furthermore, it is possible that explicit testing of propositions 5a–5d would reveal that different ambient and discretionary inputs would affect different components of the motivational process, and that only some, but not all discretionary and ambient inputs would interact to affect individual motivation. Testing such possibilities would no doubt result in greater generalizability and refinement of the multilevel theoretical model we proposed.

Finally, another important boundary condition for our model is the extent to which the team is actually interdependent. As suggested by Kozlowski and Bell (2003), different forms of interdependence in teams (e.g., task, reward, or goal interdependence; cf. Saavedra et al., 1993) can greatly affect the validity and impact of team-level phenomena. For instance, in Chen et al.'s (in press) study, the extent to which team empowerment related to team performance, and the relationship between team and

individual performance, varied greatly depending on the extent to which team members had to work closely with each other to accomplish their team's task. In particular, the team-level and cross-level relationships involving empowerment and performance were significant and positive in highly interdependent teams, but were generally non-significant in low interdependent teams. Clearly, more research is needed to test these and other potential boundaries of our model.

Throughout this chapter, we have cited several studies that lend initial support to most of the propositions in our theoretical model. Obviously, however, the viability of the full model and its ability to complement and extend existing theories of leadership, work design, individual and team motivation remains an empirical question. Thus, studies to provide more complete tests of our theoretical propositions vis-à-vis other models and in various organizational settings are especially important at this stage.

Managerial Implications

Our explicit treatment of individual and team motivational processes as separate, yet inter-linked entities has important implications for managerial practices directed at facilitating effectiveness in teams. Perhaps the most important practical implication pertains to the relative efficacy of organizational interventions targeted at the team as a whole compared to individuals who comprise the team. Our model suggests that organizational interventions and managerial practices directed at teams as a whole (e.g., team re-design, improvement of leadership climate, development of a team performance feedback system) have a stronger initial influence on team motivation than on individual motivation. Over time, however, cross-level influences of team-level interventions on individual motivational mechanisms may operate to increment and sustain both team and individual motivation. Work design interventions, for example, may enhance team member motivation by promoting individual and team goal setting, increasing self- and team-regulatory activities, and/or enhancing self- and team efficacy.

In contrast, organizational interventions designed to enhance team motivation through individual motivational processes alone (e.g., selection of individuals with higher levels of motivational traits, developing better leader-member relationships, and providing employees with individual feedback) may result in more motivated individual team members but not

necessarily more motivated teams. For instance, team leaders who develop high mutual trust with some team members, but low trust with others, may find that their team has a few motivated individuals, but that members in the team are unwilling to coordinate and cooperate with each other. Likewise, staffing a team with experienced members who are high on achievement motivation may not lead to improved individual or team motivation unless leaders develop a positive leadership climate that empowers the team to collectively self-manage their work, given such members expect (and rightfully so) to be empowered with high levels of authority and to perform meaningful work (cf. [Chen et al., in press](#)). Thus, in the worst case scenario, strategies which rely too much on managing the team via discretionary inputs, and not enough on ambient inputs, may even operate paradoxically by raising negative affect and reducing team motivation. Still, discretionary inputs (e.g., individual feedback) may work very effectively in some situations, such as handling a disruptive or a poorly performing member of a team ([LePine & Van Dyne, 2001](#)). Ideally, our model implies that managers should ensure that a good fit exists between ambient- and discretionary-oriented practices.

Consistent with extant models of individual motivation, our integrative model explicitly recognizes the dynamic nature of motivation. As such, another important practical implication of the theoretical model developed in this article is that the efficacy of a given intervention may depend on timing vis-à-vis the team's history. Managers should carefully consider when to target interventions to individual team members, and when to target them to the team as a whole. For instance, integrating our theoretical model with [Kozlowski et al.'s \(1999\)](#) theory of team compilation, we would expect that managerial practices utilizing discretionary input (e.g., developing good leader-member relationships, providing individual feedback) would be more critical during early stages of team development, when individuals learn to perform individual roles and thus focus on self-regulation more than team regulation. In contrast, managerial practices that use ambient inputs (e.g., helping the team process information inputs, providing team feedback) would be more beneficial during later stages of team development, when members are more concerned with the regulation of team goals and tasks. Thus, an important implication of our model is that managers must attend more closely to the type and functional purpose of various practices and interventions in order to manage individuals and teams more efficiently. Managers who focus their efforts mostly on motivating individuals or solely on motivating teams are unlikely to produce the best possible results with their teams.

CONCLUSION

Interdependent work teams are a ubiquitous feature of today's organizational landscape. Understanding motivation in these teams is not simply a matter of understanding the dynamics of individual motivation or of team motivation, but rather understanding the development, maintenance, and repair of multi-level motivational processes "in situ." Our model builds upon theories of individual and team motivation, as well as broad general systems and multi-level perspectives, to provide a preliminary model of motivation in the team context. Three key features of this model include: (1) the proposed parallelism between individual and team motivational processes, (2) the operation of the "double interact" in cross-level influences between individual and team motivation, and (3) the common organization of person and situational/contextual factors in terms of their impact selectivity. Obviously, the proposed model is new and remains to be empirically evaluated and subsequently revised. Nonetheless, there is one implication of this perspective that is unlikely to change – namely, the importance of individuals in teams. In contrast to managerial practices that follow the common "there is no 'I' in 'TEAM'" attitude, our model suggests that managers should allocate resources to motivating *both* the individual and the collective to maximize their teams' potential. The critical question for future research is not whether or not managers should motivate the individual, but *when* and *how* effective managers achieve a seamless integration of motivational practices across levels.

NOTES

1. Consistent with others (e.g., Kozlowski & Bell, 2003), we use the terms teams and groups interchangeably throughout the manuscript, though we recognize that interdependence is higher in teams than in groups in general.

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