IMPLICATIONS OF REGULATORY MODE AND FIT FOR GOAL COMMITMENT, IDENTITY AND PERFORMANCE IN THE DOMAIN OF MULTITEAM SYSTEMS

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ABSTRACT

IMPLICATIONS OF REGULATORY MODE AND FIT FOR GOAL COMMITMENT, IDENTITY AND PERFORMANCE IN THE DOMAIN OF MULTITEAM SYSTEMS

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Individuals resident in multiteam systems face complex task environments which tax the resources at their disposal. Performance is determined, in no small way, by how these limited resources are allocated and by the degree to which they are brought to bear. This study investigated the role played by regulatory mode, goal commitment and identity in determining an individual's incremental contribution to performance across the three levels of a multiteam system. Findings from a laboratory study of 20 multiteam systems and 179 participants indicate that a strong commitment to goals at the component team level and strong identification at that level positively affect performance across all levels. Results also suggest that too strong an identification with the multiteam system and too strong a commitment to the goals of the system may serve, ultimately, to undermine performance. Implications for leaders of multiteam systems and suggestions for future research are also discussed.

DEDICATION

To my loving wife Maria, my children Rebecca, Sean and Teresa, and my grandchildren Oden, Eulalia, Livinia, Jack, Ophelia and those yet to be: You are the wind in my sails, my reason for being and my joy; *eres mi vida*. To John Hollenbeck my mentor, teacher and my friend: I doubt I can ever really thank-you enough or truly repay you for all you have done. (But I will try.) To Dan Ilgen: like John, my debt to you is large; thank you for everything. To Joy Elizabeth and Nikos (and Ed): *un pour tous, tous pour un*. To my committee, Brent Scott, Joe Cesario and Russ Johnson: Send me back to the beginning of this journey and I'd still pick each and every one of you. To Olinda and Lou: Nothing I can say would ever suffice; I love you.

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Introduction

A sales team from Indigo Computer is preparing a proposal for a major new network installation and the network engineer becomes so focused on the technical details that he fails to properly brief the sales representative before the client meeting. The sales representative is unprepared to answer all the questions raised by the client and they lose the sale. A sub-team from Gulf Consulting redesigns a client's supply chain optimizing it for cost but fails to align the proposed changes with another sub-team developing a new business unit strategy based on differentiation. The new supply chain is successful at reducing costs but fails to support the new service-focused business model. The client loses market share. These are two examples of countless business situations where individuals can become so committed to goals and identify so strongly with their role at one level that they ignore the requirements of higher order goals and thus fail to achieve them. The purpose of this dissertation is to investigate this phenomenon to gain a better understanding of the factors involved.

Multiple goals and priorities is a not so uncommon fact of life in complex organizations, yet little is known about the determinants of goal prioritization in these settings (Schmidt & DeShon, 2007) and their subsequent effect on performance contribution. The hierarchy of goals associated with complex organizational systems in combination with resource limitations (e.g., internal psychological resources such as cognition and external resources such as time) often creates a situation whereby individuals can become so focused on a particular goal or set of goals that they fail to focus on or outright ignore other important goals (Shah & Kruglanski, 2008). This highlights an important research question: When faced with a hierarchy of goals, where each level in the hierarchy is associated with a specific level in the organization (e.g., individual, work group or department, function or business unit) and goals at each level are an

amalgamation of goals originating at that level and at levels lower in the hierarchy, what determines an individual's goal focus and, ultimately, their performance contribution? The answer, I contend, lies in understanding the self-regulation of goal commitment and activated identity.

Goal commitment is of interest because it has been linked to an unwillingness to abandon or to lower an original goal and has been shown to inhibit consideration of alternative or competing goals (Campion & Lord, 1982; Hollenbeck & Klein, 1987; Shah, Friedman, & Kruglanski, 2002). Research has also clearly shown that goal commitment increases persistence at and performance on focal tasks, often at the expense of alternative tasks (Schmidt & DeShon, 2007; Shah et al., 2002). Thus a conundrum clearly exists – goal commitment leads to higher performance but does so by inhibiting alternative goals, yet the success of the system overall is dependent on effectively addressing multiple goals that compete for the same limited resources. This is exactly the situation illustrated in the opening paragraph. Individuals became so committed to one level of goals that they ignored, and thus failed to adequately address other, higher order goals resulting in negative performance consequences for the organization. Goal commitment has not been adequately studied in the context of complex organizational systems with an interconnected goal hierarchy, thus extant research cannot speak to the conundrum facing individuals in these systems.

Understanding identity in the context of complex organizations is important as well because the specific identity that is active at a given moment in time affects behavior, and thus performance, through its influence on both cognitive and motivational mechanisms (Brewer & Gardner, 1996; Ellemers, Spears, & Doosje, 2002). Yet as Farmer and Van Dyne point out, "quantitative knowledge is particularly limited concerning identity-based action in organizational

contexts" and "little if any quantitative research has been conducted into how this affects role performance in organizations" (2010, p. 505). Individuals in complex organizations have opportunity to identify with their role, their sub-team, the organization overall, or some combination of these, and the behavior resulting from activating these different identities may affect the performance of the organization in important ways. For example, too strong an identification with the role of supply chain expert could lead individuals to a focus on the lower order goals of the supply chain sub-team at the expense of the project's higher-order, super-ordinate goals. Thus activated identity is implicated in the decision dilemma articulated earlier through its direct affects on behavior and performance.

Theory and empirical work in the area of self-regulation have shown that these processes play a central and critical role in goal-directed behavior and performance (e.g., Shah et al., 2002). Self-regulation is the psychological process by which an individual brings thinking and behavior in line with some preexisting and desired set of standards, rules, norms, ideals, and/or goals (Forgas, Baumeister, & Tice, 2009). "It is not unrealistic to propose that psychology has thus far identified only two main variables that contribute to human success across almost the full range of human striving. These are intelligence and self-regulation" (Forgas et al., 2009, pp. 5-6).

Regulatory mode orientation concerns the psychological state of goal pursuit. The assessment dimension is implicated in processes of evaluation and selection (resource targeting) while the locomotion dimension is implicated in the commitment of limited psychological resources (Kruglanski et al., 2000). Individuals high on the assessment dimension are most concerned with evaluating alternative goals and available means to decide which are best to pursue while individuals high on the locomotion dimension are most concerned with movement

irrespective of outcome valence (Kruglanski et al., 2000). For example, the network engineer may very well have been a high locomotion oriented individual, thus singularly focused on the goal of network design because it offered ample movement despite the fact that the expected value of this activity was nil unless the team closed the sale. Had this individual been stronger on the assessment dimension, he or she may have chosen to allocate their limited resources differently.

Regulatory fit affects an individual's attainment expectations, the value that individuals attribute to an activity, and the value individuals attach ex-ante to outcomes (Brockner, Paruchuri, Idson, & Higgins, 2002; Higgins, 2000, 2005; Higgins, Idson, Freitas, Spiegel, & Molden, 2003). Individuals experience regulatory fit when the means of goal pursuit available to them match their regulatory orientation. Thus, enactment of a role oriented toward a particular regulatory orientation is likely to "feel right" to individuals high in that orientation, causing them to experience fit and thus identify more strongly with it. Importantly, the concept of value employed here goes beyond the hedonic experience of pleasure; it includes the experience of motivational force (Higgins, 2006). Motivational force is the combined effect of the expectation of goal attainment and the attractiveness of goal attainment (Vroom, 1964), two primary determinants of goal commitment (Erez & Kanfer, 1983; Hollenbeck & Klein, 1987; Locke, Saari, Shaw & Latham, 1981). Collectively, these arguments strongly suggest that processes of self-regulation will influence an individual's commitment to goals and their activated identity.

Finally, multiteam systems are a recently identified organizational form, and only a smattering of empirical studies have investigated the unique mechanisms at work in these complex systems (Davison, Hollenbeck, Barnes, Sleesman, & Ilgen, 2012). Multiteam systems (MTSs) are complex organizational entities organized as highly specialized component teams

whose members have a distinct skill set and expertise. Component teams are highly interdependent, and pursue a unique set of proximal goals that collective aim at achieving a set of higher order, and more distal, super-ordinate system goals. Thus a key attribute of multiteam systems is that goals are hierarchically organized with individual goals nested in component team goals which are nested in the overall goals of the system (Mathieu, Marks, & Zacarro, 2001). This is a perfect context in which to study the phenomenon of interest in this dissertation.

This dissertation sought to take a critical step toward understanding the psychological and social mechanism that determine the focus and contribution of individuals situated in a complex organizational setting with hierarchically arranged goals by gaining an understanding of the regulatory process driving activated identity and goal commitment in the context of multiteam systems. The ultimate objective of this dissertation was to gain an understanding of the role played by regulatory mode, identity and goal commitment in driving or inhibiting incremental performance contribution across the goal levels of a multiteam system.

Contextual Background: "Systems of Teams" or "Teams of Teams"

The complexity and dynamism of today's business environment is increasingly forcing organizations to shift from structures of work centered around more traditional stand alone teams to newer organizational forms consisting of systems of teams. This unique organizational form, which includes *teams-of-teams* (Hoegl, Weinkauf, & Gemuenden, 2004) and *multiteam systems* (Mathieu et al., 2001), representatively consists of a network of highly interdependent teams (or higher level organizational entities such as strategic business units), organized as a tightly coupled activity system capable of 'real time' mutual adjustment, where each team possesses specialized skills, capabilities, and functions that distinctly contribute to achieving a shared, super-ordinate goal. Systems of teams are, in fact, ubiquitous in today's business environment. For example, one could successfully argue that extant organizational forms that cross ever more permeable organizational boundaries, for example strategic alliances and joint ventures, are systems of teams. It could also be argued that every collective of sub-organizations within a corporation whose representatives come together as a task force or that is led by a program manager or program management team or that is based on a matrix structure is a system of teams.

Organizations have long been conceptualized as multilevel systems where individuals are nested in teams, teams are nested in organizational sub-units, and these sub-units are nested in organizations (Klein & Kozlowski, 2000; Thompson, 1967). While there has been a great deal of research targeted at individuals, stand alone teams, and organizations, several scholars have noted the dearth of research on large organizational sub-units. For example, Gist and colleagues called upon researchers to "extend beyond the study of groups in isolation to the study of groups as part of a system of organizational activity" (Gist, Locke, & Taylor, 1987, p. 253).

Multiteam System (MTS)

Mathieu and colleagues extended extant organizational theory and advanced our conception of complex, organizational systems through the articulation of "a new 'teams-of-teams' organizational form that [they] refer to as multiteam systems" (2001, p. 289). A multiteam system is a network of two or more non-reducible and uniquely distinct *component teams* consisting of interdependent members, where all component teams exhibit input, process, and output interdependence with at least one other team in the system. This network of teams forms a tightly coupled activity system, with each member team possessing specialized skills, capabilities, and functions that uniquely contribute to achieving a (set of) shared, super-ordinate goal(s). For example, an emergency response team, consisting of teams from the fire department, the police department, the rescue or ambulance squad (i.e., emergency medical technicians or EMTs), an emergency room team, other specialized hospital based teams such as surgery, post-op, and critical care units, is an example of a network of highly specialized component teams that work together in a network fashion to accomplish a set of super ordinate goals (see Mathieu et al., 2001 for a more complete discussion).

The specific division of labor and organizational structure of an MTS stems from both their target task domain (i.e., goal set) and the technologies employed. This means that a multiteam system can be wholly contained within a single legal entity (e.g., corporation), for example a task force or project team hastily formed to address an urgent product or market issue such as a product recall, or it can be comprised of teams from several different legal entities as might be the case for the emergency response example outlined above (Mathieu et al., 2001). Importantly, due to the high degree of interdependence across teams, issues regarding the sharing of information and other resources (Ancona & Caldwell, 1988), goal prioritization, and the

ability to flexibly adapt to the shifting demands of the task environment often arise. Thus while KSAOs are important prerequisites to accomplishing work effectively at all levels, and while intra-team coordination is an additional important aspect at the level of the work group or team, what is especially critical and distinctive at the level of the MTS is the need for effective inter-team coordination (i.e., boundary spanning activities; Davison & Hollenbeck, 2011) and real time, mutual adjustment.

Goal structure of a multiteam system. A critical feature of multiteam systems articulated by Mathieu and colleagues is the notion of goal hierarchies. Mathieu and colleagues stipulate that "Goal hierarchies within MTSs give rise to multiple kinds of *functional process interdependencies* among component teams" (2001, pg. 294). In fact, it is arguably the other way around.

The structure of goals in a multiteam system is an artifact of the division of labor that is embodied in the structure of the system and thus it is specific to each MTS. Since the division of labor is contingent on the demands of the task environment (Lawrence & Lorsch, 1967) and the technology employed (Keller, 1994), the goal structure of a multiteam system is fundamentally driven by these factors as well. Because of functional specialization, each of the component teams in the system has associated with it a set of proximal goals, some exclusive and some interdependently shared with other component teams in the system. Goals are nested hierarchically, with goal interdependence increasing from lower to higher levels such that the MTS super-ordinate goal is at the apex of the hierarchy (Mathieu et al., 2001).

The objectives of a multiteam system are pursued and accomplished over the course of a series of both overlapping and serial performance episodes, thus timing (i.e., temporal order) and priority (i.e., importance) are crucial attributes that must also be incorporated into the goal

structure. In essence, the goal structure is a rule set; a roadmap that serves to inform and guide the activities of a multiteam system. By depicting the linkages among component team objectives, their priority and importance, the goal structure of a multiteam system represents the beginning foundation of a shared mental model of the task domain that serves to clarify how the objectives of the individual component teams come together to accomplish the super-ordinate goals of the system.

Failure to attend to the needs of the other component teams in the system can result in the sub-optimization of the overall system and an inability of the system to achieve super-ordinate goal. Too exclusive a focus on the goals at one level can lead to a lack of focus on the goals of another level. Thus while a strong commitment to goals is prototypically depicted as good for performance, too strong a commitment to a sub-set of goals in the hierarchy can be problematic in the multiteam system context.

Key Construct Theories

Goals

There is certainly no shortage of research on goal constructs (Austin & Vancouver, 1996), and topics as far ranging as motivation (Locke, Latham, & Erez, 1988), learning (Kanfer & Ackerman, 1989), performance, and personality (Cropanzano, James, & Citera, 1993) have all been included, in one way or another, in the goals literature. Recently, however, goals research has sub-divided into two focused topic areas, goal setting and goal striving. "Goal setting refers to antecedents to action such as goal choice and goal acceptance (Klein, Austin & Cooper, 2008). Goal striving refers to striving to meet the goal (Kanfer & Kanfer, 1991; Lord & Levy, 1994)" (Mitchell, Harman, Lee & Lee, 2008, p. 198). Goal striving, or self-regulation, entails the psychological processes and behaviors that occur between setting a goal and accomplishing or failing to accomplish it, including the regulation of multiple goals vying for the same limited resources.

Goal setting. The pioneering work of Locke and colleagues (Locke, 1968; Locke & Latham, 1990a; Locke, Latham, & Erez, 1988), Hollenbeck and colleagues (Hollenbeck & Klein, 1987; Hollenbeck, O'Leary, Klein, & Wright, 1989), and several others provides the theoretical foundation upon which theories of goal setting in the organizational sciences sit. Goal setting research focuses mainly on the content of particular goals and how goals are chosen (Mitchell et al., 2008). Goals establish the standards by which attainment is measured, with discrepancies between current performance and desired end states serving to initiate and fuel motivational processes (Locke & Latham, 1990a). As aptly put by Kruglanski, "Goals energize our behavior and guide our choices; they occupy our thoughts and dominate our reveries" (1996, p.599).

Desired end states or goals can be either externally imposed or intrinsically generated standards of performance, and these standards can be either hopes, wishes, and aspirations (i.e., 'ideals') or duties, obligations, and responsibilities (i.e., 'oughts') (Higgins, 1997). Research has found that difficult yet clear and specific goals are more motivating than vague or easy goals (Hollenbeck, Williams, & Klein, 1989; Locke & Latham, 1990b), and that commitment to a goal is positively related to the amount of resources (e.g., cognitive, emotional, self-regulatory) allocated to it (Diefendorff & Lord, 2008). Once a goal is accepted (committed to), performance feedback provides the mechanism by which progress toward a goal is assessed (Erez, 1977), and by which discrepancies are identified. Performance discrepancies, in turn, serve to stimulate both emotional reactions and cognitive evaluations of competence, and serve as an impetus to action (i.e., motivation to close the gap) (Locke & Latham, 1990b). While most of the goal setting literature has focused on antecedents to action enacted to achieve an established and static goal, some research has considered the process of goal revision which is an alternative taken as a result of either failing to achieve a goal or upon the realization that a pursued goal is unachievable (Klein et al., 2008).

Goal commitment. Goals are the object or aim of actions, and the relationship between goals and performance is strongest when people are committed to their goals (Locke & Latham, 2002). Thus goal commitment is critical because it is a necessary condition for goals to influence behavior (Klein & Wright, 1994). It can have a main effect on performance, and research has consistent shown that "highly committed individuals exert more effort, and are more persistent toward goal attainment, than individuals who are less committed to the goal" (Seijts & Latham, 2000a, p. 316). Further, "the beneficial effect of goal setting on performance has been replicated across a wide variety of participants, tasks, criterion measures, settings, and countries using a

multitude of research designs (Bandura, 1997; Locke & Latham, 1990b)" (Seijts & Latham, 2000a, p. 315). As a central component of goal setting theory, these same characteristics can be attributed to goal commitment.

As the review by Tubbs and Dahl (1991) demonstrates, a plethora of conceptualizations and definitions of goal commitment have been proposed. The construct of goal commitment, as conceptualized in task goal theory, is defined as "one's attachment to or determination to reach a goal, regardless of the goal's origin" (Locke, Latham, & Erez,1988, p.24), "implies the extension of effort, over time, toward the accomplishment of an original goal and emphasizes an unwillingness to abandon or to lower the original goal (Campion & Lord, 1982)" (Hollenbeck & Klein, 1987 p.212). Similar definitions have been put forward by Naylor and Ilgen (1984), Kernan and Lord (1988), and most recently by DeShon and Landis (1997). Importantly, choice, effort, and persistence are common elements of all of these definitions (Seijts & Latham, 2000b).

It is important to note that goal commitment and goal acceptance are similar but distinguishable concepts, although they are often used interchangeably in the literature. The former implies that the focal individual is psychologically bound to a goal without concern for its originating source (i.e., regardless of whether it is self-set or assigned), which is not necessarily the case in the latter situation (Campion & Lord, 1982; Hollenbeck & Klein, 1987; Hollenbeck, O'Leary et al., 1989; Locke et al., 1988). As articulated by Locke and colleagues, "Goal commitment implies a determination to try for a goal (or to keep trying for a goal), but the source of the goal is not specified. It could be an assigned goal or a participatively set goal or a goal that one set on one's own. Goal acceptance implies that one has agreed to commit oneself to a goal assigned or suggested by another person" (Locke et al., 1981, p. 143).

Locke and colleagues suggested that "goal acceptance or commitment can be considered a form of choice, (i.e., the choice between accepting or rejecting a goal that was assigned or set participatively)," and that the factors underlying an individual's goal choice and goal commitment "fit easily into two major categories, which are the main components of expectancy theory" (Locke et al., 1981, p. 144); i.e., expectations of success (i.e., expectancy) and perceived value of attaining or trying for the goal (i.e., valence). These two components are often expressed as a quasi-mathematical model:

$$\text{Force (F)} = \text{Expectancy} \times \text{Valence}.$$

This model essentially states that the strength of the tendency of a focal individual to act in a certain way, denoted "Force" (a throw back to Lewin, 1951), depends on the strength of their expectancy that the act will result in a set of outcomes and on the value of these outcomes to them.

Expectancy theory (Vroom, 1964; Lawler, 1971) is based on the supposition that individuals decide to act in a certain way because they are motivated by their expectations regarding the outcomes likely to result from that specific set of behaviors. It predicts that "individuals will be motivated to put forth effort if they believe that their effort will result in good performance (expectancy); that this performance will lead to secondary outcomes, such as rewards, recognition, or satisfaction (instrumentality); and if they assign a high positive valence to the secondary outcomes" (Erez & Isen, 2002, p. 1055). Expectancy and instrumentality are cognitive representations of an individual's subjective perceptions of reality based on their own experiences, their self-construal, and their observations of others, whereas valence is a representation of what the individual values (i.e., their value system).

An important consequence of Locke and colleagues (1981) perspective is that it established expectancy theory as the theoretical underpinning for task goal theory's conception of goal commitment. Researchers in this tradition employ expectancy theory to argue that strength of goal commitment is primarily influenced by the degree to which an individual believes that they can attain the goal (i.e., self-efficacy) and by factors that make goal attainment important to the individual such as the outcomes that they expect as a result of pursuing and attaining the goal (e.g., Erez & Kanfer, 1983; Hollenbeck & Klein, 1987; Locke et al., 1981). The combination of these factors is sometimes referred to as Motivation Force, represented by the quasi-mathematical model:

Motivational Force (MF) = Expectancy x Attractiveness,

where Attractiveness = Instrumentality x Utility.

Theorists argue that individuals select the option with the greatest motivational force when deciding among behavioral options. In other words, behavior selection is determined by the desirability of the outcomes in their totality; i.e., where both primary outcomes such as performance on the task and secondary outcomes such as rewards, recognition, and satisfaction are considered.

Empirical research has provided considerable support for this expectancy theory based conceptualization (Klein & Wright, 1994). A meta-analysis conducted by Klein (1991) found the average weighted effect size for the relationship between expectation of goal attainment and goal commitment to be 0.19, and between attractiveness of goal attainment and goal commitment to be 0.43. A later meta-analysis conducted by Klein and colleagues found the weighted mean effect size between goal commitment and expectancy, attractiveness, and motivational force to be 0.36, 0.29, and 0.33 respectively, when corrected for measurement error (Klein et al., 1999).

Further, research has consistently demonstrated that personal and situational factors have a main as well as an interactional effect on both expectation of goal attainment and the attractiveness of goal attainment as hypothesized by Hollenbeck and Klein in their expectancy theory model of goal commitment (Klein et al., 1999).

Goal striving. Goal striving encompasses those cognitive, emotional, and behavioral processes involved in attaining one or more pre-established goals (Pervin, 1989). Known in the psychology literature under the auspices of self-regulation (the active control of psychological processes, both cognitive and emotional, for the purpose of attaining goals; Diefendorff & Lord, 2008; Gollwitzer & Bargh, 1996), goal striving has been conceptualized and studied in the organizational sciences literature as three distinct yet interrelated areas. The first of these, how individuals learn and acquire new skills over time, is the focus of Kanfer and colleagues (Kanfer & Ackerman, 1989; Kanfer & Heggestad, 1997; Kanfer, 1996). Research in this area is particularly interested in how individual differences in personality and ability influence an individual's allocation of resources across time (i.e., at different points on of the learning curve).

Based on concepts originally articulated by Powers (perceptual control theory; 1973), researchers in the control theory tradition conceptualize goal striving as a dynamic, goal discrepancies driven process that influences behavior differentially over time (Campion & Lord, 1982; Klein, 1989; Lord & Hanges, 1987; Lord & Levy, 1994). Control system theories of self-regulation have been criticized by Bandura and Locke (2003) as being overly mechanical however, research findings support the validity of these models as one component of a more complex system involving cognitive, emotional and other psychological dimensions.

The third area, action theory, conceptualizes goal striving as a sub-part of an "action cycle" (Frese & Zapf, 1994; Gollwitzer, 1990, 1996; Kuhl, 1984). Gollwitzer (1990) described

an action cycle as consisting of the four phases goal setting (mind-set: deliberative), planning (mind-set: implemental), goal pursuit(mind-set: actional), and goal attainment / revision (mind-set: evaluative), whereas Lord and colleagues categorize these four phases as referent establishment, planning and goal maintenance, action, and evaluation and feedback (Lord, Diefendorff, Schmidt, & Hall, 2010). Importantly, the planning- and action-phases are thought to be relatively automatic.

Cognitions and emotions change within phases and can differ substantially between phases. For example, Kuhl (1984, 1986) argues that a key function of the planning phase is to prepare oneself to guard against and outright ignore disruptive thoughts and emotions that may occur during the subsequent goal pursuit phase (i.e., goal shielding). Activated during the planning and goal maintenance phase, *goal shielding*, "the processes by which active goals and related information are protected from interference from information related to competing goals" (Lord et al., 2010, p.551), occurs prototypically without conscious thought or attention. Importantly, Shah et al., (2002) found that goal shielding plays a central role in the relationship between goal commitment and both task persistence and task performance.

Multiple goals. Employing theory imported from the control theory of self-regulation (Carver & Scheier, 1998), expectancy theory (Vroom, 1964), and goal setting theory (Locke & Latham, 1990), researchers in the traditions of motivation, goal setting, and goal striving are increasing turning their focus to understanding the determinants of goal prioritization and goal-directed behavior when individuals are faced with alternative and competing goals. Despite the richness of theory – or perhaps because of it as this theory was developed, for the most part, based on single, isolated goals – multiple goal studies have obtained varying results suggesting a

level of complexity yet to be revealed (Schmidt & DeShon, 2007). Four recent studies are illustrative of the direction of current research in this area.

A laboratory study conducted by Schmidt and DeShon (2007) investigated the effects that goal discrepancies, monetary incentives, and time remaining to complete a goal have on goal prioritization. Facing comparable tasks with equivalent goals they found that greater goal discrepancies influenced goal-directed behavior with greater attention given to goals with the largest discrepancies early in time, but this focus shifts to the goals with the highest expectancy of completion as the deadline to complete the goals approaches. Further, monetary incentives focused attention on the goals offering the highest payout. These findings are consistent with the research emerging out of both the expectancy theory and the goal commitment literatures (Hollenbeck & Klein, 1987; Vroom, 1964).

Building on concepts from the control theory of self-regulation (Carver & Scheier, 1998) and the expectancy theory literatures, Vancouver and colleagues (Vancouver, Weinhardt, & Schmidt, 2010) developed a computational model to investigate factors that might explain the shift in resource allocation focus over time reported in the Schmidt and DeShon (2007) study. Unlike traditional uses of expectancy theory that employ static conceptions of valence and expectancies, the model employs dynamic valence and expectancies which allows them to investigate the effect of changes in these two variables on resource allocation over time. The model indicates that differences in valence outweigh differences in expectancies throughout most of the allocated time for task completion thus accounting for choice of task based on discrepancy. However as the completion deadline approached expectancies play an ever greater role in choice of task.

A study conducted by Schmidt and Dolis (2009) investigated how the allocation of limited psychological resources is influenced over time by goal difficulty, progress toward goal achievement, and goal attainment expectancy. A key contribution of this article is the introduction of a new construct, dual-goal expectancy, defined by these authors as "individuals' beliefs regarding the likelihood of meeting both goals within the allotted time" (p. 680). They posit and show in a laboratory study that when dual-goal expectancy is high, resources are allocated to the goal furthest from attainment. Conversely, when dual-goal expectancy is low (all else being equal), resources are allocated to the goal that is closest to being met. In addition, this study found that dual-goal expectancies change over time which, the authors argue, could account for shifts in the allocation of resources such as those reported in the Schmidt and DeShon (2007) study.

Ethiraj and Levinthal (2009) employed a computerized model to investigate the effects that three different decision prioritization strategies have on multiple performance goals at the organizational level: (1) goal myopia, focus on a singular goal; (2) spatial differentiation, the assignment of different goals to different departments; and (3) temporal differentiation, goal myopia within a limited time period where a different goal is given singular focus in each time period. They found that lacking a prioritization strategy, the pursuit of multiple goals leads to a "lock-in to the status quo" (p. 19); i.e. future performance that, at best, matches existing performance. They also found that each of the three goal priority strategies serve to mitigate what they call the "status quo bias", although to differing degrees and in different circumstances. This study clearly has important implications for multiteam systems that both employ a goal hierarchy akin to the spatial differentiation strategy articulated in the article, and face a dynamic task environment that requires the adoption of a temporal differentiation strategy. That said, the

research question in this study – When faced with a hierarchy of goals, where each level in the hierarchy is associated with a specific level in the organization (e.g., individual, work group or department, function or business unit) and goals at each level are an amalgamation of goals originating at that level and at levels lower in the hierarchy, what determines an individual's goal focus? – differs from that addressed by this research.

While this line of research clearly has important implications for multiteam systems, the proposed study differs in some key and significant ways. Although one study by Wright and colleagues did investigate the effects of goals and incentives on helping behaviors (Wright, George, Farnsworth, & McMahon, 1993), an important feature that almost all of the multi goal studies have in common is that the multiple goals facing individuals in these studies are all performance goals directly related to a job or a task for which the focal individual is personally responsible and incentivized to achieve. In cases such as these the decision is one of maximizing personal performance or gain independent of the influence or impact on others. While closely related and informative, this is a different decision scenario than the one underlying this study, the decision to allocate limited resources to the achievement of more distal goals of a collective versus the allocation of these same resources to the achievement of proximal goals for which the focal individual is directly accountable.

Identity

As defined by Tajfel (1972) *social identity* represents "the individual's knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership" (p. 292). A primary motivational premise underlying social identity theory (Turner, 1975; Tajfel & Turner, 1979) is simply that individuals are driven to develop and maintain a positive self-concept or positive sense of self. The theory argues that individuals

possess a basic desire to view their social groups and thus themselves more favorably, and to gain the respect and admiration of salient others (collectively referred to as the *need for positive regard*; Hetts, Sakuma, & Pelham, 1999), thus people are driven by self-enhancement motives to undertake behaviors that maximize the value of the groups they belong to. Individuals seek to accomplish this by enhancing the status of the groups to which they belong (*in-group bias*) and/or denigrating the groups they do not belong to (*out-group derogation*). Increasing the value of the groups to which an individual belongs increases the value of the individual's social self which influences, in turn, feelings of self-esteem, self-respect, and self-worth. Finally, social identities can be threatened by challenging the individual's membership in the group, the uniqueness of the individual in relation to other members of the group, or the clarity of the boundary between the group and other groups.

Fundamental to social identity theory, but often overlooked, is the notion that the self-concept, or *identity* of an individual, consists of *both a personal identity and a social identity*. In this view, self-concept consists of both an individual or personal self reflecting all the idiosyncratic aspects of the self (personalized identity, "what makes me *I*", different from everyone else), and a social self reflecting prototypical attributes of social categories and groups to which the individual belongs that are assimilated into the individual's self-concept (depersonalized social identity, "what makes me *We*", part of something beyond myself). Further, social identities are categorizations of the self into ever more socially inclusive units that depersonalize the self-concept, "a shift toward the perception of self as an interchangeable exemplar of some social category and away from the perception of self as a unique person" (Turner, Hogg, Oakes, Reicher, & Wetherall, 1987, p. 50).

Activated identity. The personal identity is an attribute of the individual that is relatively stable over time whereas the social identity is much more dynamic, shifting over time. Cues in the immediate environment (i.e., social context) in combination with an individual's knowledge, understanding, and theories about the social world influence which identity prototypes – self- and group- categorization schemas (or prototypes) stored in memory (Hogg & Terry, 2000; Turner, 1982, 1985; Turner et al., 1987)– are accessed and what aspects of these identities are made active as heuristics for perceiving and understanding the behavior of individuals, including one's own behavior (Ellemers, Spears, & Doosje, 2002). Importantly, identity affects behavior through its influence on both cognitive and motivational mechanisms, and differences in behavioral patterns can be explained by contextually driven shifts in the social identity portion of the self-concept.

Also of importance due to the proposed laboratory context of this study, minimal group studies have demonstrated that individuals behave in accordance with group identity even when there is no preexisting basis for the identity (Tajfel & Turner, 1979). Research on minimal groups indicates that even when categorization is based on random assignment, the mere recognition that one belongs to a social category suffices to produce in-group identification (Hogg & Abrams, 2003). Further, members of artificial groups created for experimental purposes – i.e., with neither a history, nor a future, nor meaningful interaction with other group members – often perceive their group as better than other groups (i.e., in-group bias), and arbitrary distinctions between "us and them" suffice to elicit commitment (Roccas, Sagiv, Schwartz, Halevy, & Eidelson, 2008).

Within a given social context an individual can be categorized along a continuum of attributes ranging from total uniqueness (*individuation*) on one end to total submersion in the

socially relevant context on the other (*deindividuation*). Brewer (1991) viewed identity as a compromise between the need to validate the self-concept by being categorized as similar to significant (salient) others (*assimilation* need) and the need to be seen as different and unique (*differentiation* need). She argued that individuals avoid being identified with social categories that are either too inclusive or too differentiating and seek, instead, an optimal group identity that simultaneously satisfies the need for assimilation or inclusion in a group and the need for differentiation through the distinctions between the focal group and other groups. She called this *optimal distinctiveness* defined as a state of equilibrium between the need for assimilation and the need for differentiation (Brewer, 1991).

Brewer and Gardner (1996) argued that an individuals self-representation (i.e., self-construal or simply self) is "associated with corresponding transformations of the bases for content of the self-concept, the frame of reference for evaluations of self-worth, and the nature of social motivation" (p. 84). By "bases for content of the self-concept" Brewer and Gardner were referring to the concept of the extended self-concept whereby an individual incorporates aspects of salient others into their self-concept (Aron, Aron, & Smollan, 1992; Tropp & Wright, 2001). "Frame of reference for evaluations of self-worth" shifts from the self-evaluation of personal traits and characteristics based on direct comparisons to relevant others (Pelham, 1995; Pelham & Swann, 1989; Suls & Wills, 1991), to evaluations of role behavior in specific contexts (Markus & Kitayama, 1991; Stryker, 1991), to status of the in-group in comparison to salient other groups (Turner at al., 1987) as activated identity shifts from individual to relational to group. Finally, "the nature of social motivation" refers to the change in the basic goals of social interaction.

Brewer and Gardner use this argument to delineate the self into the self as an individual, the interpersonal or relational self, and the collective or group self. In this conception, the individual whose activated identity is individualistically oriented is driven to promote and advance self-interests, and conceives of self for purposes of comparison based on individual traits and characteristics. The individual whose activated identity is relationally oriented is concerned with promoting the interest of and procuring benefit for important (significant) others, and conceives of self in terms of roles in the social network (Markus & Kitayama, 1991). The individual whose activated identity is group oriented is primarily concerned with ensuring the welfare and status of their in-group in relation to relevant other out-groups, and conceive of self in terms of the group prototype (see Brickson, 2000 Table 1 on page 85).

While relational and group identities are both social extensions of the self, the fundamental social premise underlying them differs. As the moniker implies, the relational (or interpersonal) self is based on social connections best described as personal bonds or attachment whereas group (or collective) identities are derived from the depersonalized identification with a symbolic group or social category (e.g., stereotype or exemplar) and thus do not require personal contact or personal relationships, although these can exist (Brewer & Gardner, 1996; Turner et al., 1987). This perspective is consistent with earlier work carried out by Prentice and colleagues (Prentice, Miller, & Lightdale, 1994). who found that two types of group identities exist, one based on attachments to other group members, which they termed *common-bond* groups, and one based on collective or prototypical group identities, which they termed *common-identity* groups. Finally, research based on the conceptual work of Brewer and Gardner (1996) conducted by Johnson and others has explored the degree to which a focal individual is dispositionally oriented to be more or less individual, relational, or collective in their *chronic self-concept* (Johnson &

Chang, 2008; Johnson, Chang, & Rosen, 2010; Johnson & Saboe, in press; Johnson, Selenta, & Lord, 2006).

Specific to the context of a multiteam system, within component team relations is best conceptualized as a common-bond group because individuals would typically have some degree of interpersonal relationship with the other members of their component team, whereas between component team relations is best conceptualized as a common-identity group because relationships between members of different component teams would typically be much less interpersonal, although this would vary to an extent based on degree of task interdependence.

Role-identity. This perspective is also consistent with earlier theorizing carried out in sociology by Stryker (Identity Theory; 1980; 2008) and McCall and Simmons (Role-identity Theory; 1966). Stryker (1980; 2008) envisioned a multifaceted self with an identity salience structure composed of multiple identities arranged hierarchically. Salience is based on commitment to the identity, and the more salient an identity, the more likely it is to be invoked in an interactional situation (Owens, Robinson, & Smith-Lovin, 2010). Interestingly, a recent study conducted by Stryker, Serpe, and Hunt (2005) showed that intermediate-level social structures such as neighborhood and school, and not more proximal social structures such as fellow workers who are relatives, influenced commitment most by fostering in-group identity-based relationships.

Based on Foote's (1951) conception of situated motivation, McCall and Simmons's (1966) Role-identity Theory argues that social structure and one's position in it serve to define one's situation-induced social identity, and that role-identity serve as the primary determinant of an individual's behavior (Owens et al., 2010). As described by McCall and Simmons, role identity is the "character and the role that an individual devises for himself as an occupant of a

particular social position" (1966, p. 67). These scholars argue that individuals harbor many role-identities organized into a hierarchy of prominence reflecting the role's relative value to the individual's conception of an ideal self, and that commitment to any particular role-identity is intimately related to how much their self-esteem is bound to its successful performance. Importantly, the concept of ideal self as employed in Role-identity Theory incorporates duties and obligations as well as desires and wishes (i.e., a combination of what Higgins refers to as ought -self and ideal-self; 1987; 1989).

Research by Farmer and colleagues (e.g., Farmer, Tierney, & Kung-McIntyre, 2003; Farmer & Van Dyne, 2010), and others, has shown that concepts of role-identity extend to the workplace and that workplace role-identities "are practically important in the workplace because they influence work-related performance" and employee work behaviors (Farmer & Van Dyne, 2010, p. 503). Farmer and Van Dyne go on to stress, however, that "the joint importance of self and situation together has been neither well elucidated nor well explored in role identity research. While a healthy stream of qualitative investigation exists (e.g., Ashforth, Kreiner, Clark, & Fugate, 2007; Kreiner, Hollensbe, & Sheep, 2006), quantitative knowledge is particularly limited concerning identity-based action in organizational contexts. For example, even though researchers have proposed that psychologically important identities are more likely to be activated by contextual factors (Ashforth, 2001; Stryker & Serpe, 1994), little if any quantitative research has been conducted into how this affects role performance in organizations" (2010, p. 505). Finally, because sharing an activated group identity can elicit cooperative and shared problem solving behaviors among group members even in the absence of interpersonal communication, the degree to which members of a multiteam system share activated group identities is conceivably an extremely important determinant of system-wide performance.

Self-regulation

"Self-regulation is the process in which people seek to bring themselves (their behaviors and self-conceptions) into alignment with relevant goals and standards" (Brockner et al., 2002, p. 7). However, the presence of alternative and competing goals often creates an "approach-approach" conflict which, in turn, hampers progress toward any of the desired end states (Lewin, 1935, 1951; Shah et al., 2002; Zeigarnik, 1938). Even so, most individuals are adept at regulating (i.e., self-control) to avoid the temptation of these alternative goals in order to accomplish some focal task. In fact, there is strong evidence that the self-regulatory process of cognitive intergoal inhibition, alternatively known as *goal shielding*, is a habitual and autonomous mental control process that develops early on in the life cycle of humans (Shah et al., 2002). (Note: See Wegner & Wenzlaff, 1996 for a recent review of the mental control literature). While a singular focus and persistence on a task is often touted as a positive attribute because of its positive relationship to task performance, it can be problematic in the context of a multiteam system.

Regulatory mode (Higgins, Kruglanski, & Pierro, 2003; Kruglanski et al., 2000) and *regulatory fit* (Higgins, 2000; 2002) are two aspects of self-regulatory motivational orientations that are key to understanding motivated cognition and goal directed behavior. Regulatory mode denotes two orthogonal dimensions of self-regulation, one concerned with the critical evaluation of alternative goals or means to decide which are best to pursue, as well as the appraisal of performance, and a second concerned with movement from state to state, including commitment of psychological resources to initiate and maintain such movement (Kruglanski et al., 2000). Attributes of these dimensions serve to characterize individuals and contextual features (such as focal activities or roles). *Regulatory fit* connotes the degree of fit between a goal-directed regulatory orientation (e.g., locomotion or assessment) and the means of goal pursuit available to

a focal actor. Studies have shown that fit increases the value individuals ascribe to an activity and that it is a key determinant of individual behavior and performance outcomes.

Goal shielding. One aspect of self-regulation that appears of particular relevance is goal shielding, a self-regulatory process that has been shown to inhibit consideration of alternative or competing goals (Shah at al., 2002). The fundamental premise underlying the concept of goal shielding is that the inhibition of alternative goals increases concentration on a focal goal by amassing limited cognitive and self-regulatory resources, focusing them on current pursuits, and through this mechanism both task persistence and task performance are improved. Although intergoal inhibition is thought to be an autonomous process, it is not indiscriminately applied but, rather, is directed by both internal and external (to the individual) cues. As Shah and colleagues explain, "goal shielding theory assumes that the automatic inhibition of alternative goals is sensitive to (a) the characteristics of the goals themselves, and (b) to the motivational and emotional context in which the self-regulatory activity is unfolding" (2002, p. 1262).

Shah and colleagues (Shah et al., 2002) conducted a series of six empirical studies that investigated "how the activation of focal goals to which the individual was committed inhibits the accessibility of alternative goals" (Shah et al., 2002, p. 1261). *Importantly, this research provides convergent evidence that goal commitment increases the degree to which alternative goals are inhibited.* "All six studies exhibited the theoretically predicted, positive relation between the degree of goal commitment and the inhibition of alternative goals, replicating these effects across a range of methodological approaches …Our findings suggest that the inhibition of alternative goals increases with individuals' level of commitment to the focal goal" (Shah et al., 2002, p. 1277-1278).

Abandoning a goal is most often discussed in the literature under the more encompassing heading self-regulatory failure. This is unfortunate as it leads to the misguided perspective that goal abandonment is universally a bad thing. However, a steadfast commitment to a failing course of action in the face of a changing environment (e.g., *escalation of commitment*) is often quite dysfunctional (Klein et al., 1999). For example, in the case of dynamic task environments such as those encountered by multiteam systems, persistence at a task when that task's goal priority has fallen relative to alternative tasks' goals (or lost meaningful priority at all) can be detrimental to system performance. Goal abandonment in such situations represent the better course of action. Karoly (1993) argued that failures of self-regulation can be attributed to any of three broad causes: (1) failing to start an action in a timely manner; (2) stopping an activity prematurely; (3) failing to stop goal striving when one should.

Interestingly, researchers studying escalation of commitment phenomena observed three decades or more ago that "individuals may selectively filter information so as to maintain their commitment to a policy or course of action (Caldwell & O'Reilly, 1982; Lord, Ross, & Lepper, 1979)" (Staw, 1981, p. 580). With little alteration, these same comments could be used to roughly describe commitment to the activated goal and the key role goal shielding plays in maintaining task persistence (Shah et al., 2002).

Failures of self-regulation can be the result of either conscious or unconscious processes (Diefendorff & Lord, 2008). Unfortunately, conflicts among multiple goals and the problems resulting from failures to regulate appropriately in response to shifting task environment demands "will be confounded when the content of goals suggested by task or environmental cues is inconsistent with chronic goal orientations or higher-level personality structures (e.g., Kozlowski & Bell, 2006). Such incongruities make it difficult to sufficiently activate goals so

that they become conscious (gain access to the GNW [global neuronal workspace]) and active in the PFC [prefrontal cortex]" (Diefendorff & Lord, 2008, p. 183). Note: the PFC is the region of the brain indicated in the control of thoughts and behaviors (Fuster, 2002), whereas the GNW is indicated in conscious processing, enacting the role of "boundary spanner" between key brain systems (Dehaene & Naccache, 2001). Finally, emotions are also indicated as contributing to self-regulatory success and failure. Kuhl and Kazen (1999) suggest that inaction can stem from an individual's inability to escape negative affect when it occurs, their inability to generate positive affect when needed, or some combination of the two.

Regulatory mode. Unlike classic perspectives of self-regulation such as control theory (e.g., Carver & Scheier, 1990) and the rubicon model (e.g., Gollwitzer, 1990) which theorized locomotion and assessment as two sides of the same coin (i.e., inseparable), Kruglanski, Higgins, and colleagues posited and demonstrated that these are two distinct and orthogonal dimensions of regulation (Kruglanski et al., 2000). As explained by Kruglanski and colleagues, "[a]ssessment constitutes the comparative aspect of self-regulation that critically evaluates alternative goals or means to decide which are best to pursue and appraises performance. Locomotion constitutes the aspect of self-regulation concerned with movement from state to state, including commitment of psychological resources to initiate and maintain such movement" (2000, p. 793). Thus assessment is implicated in goal selection and prioritization, the evaluation of different goals and the means available to pursue them in order to prioritize and select which to pursue and in what order, whereas locomotion involves the control of action whereby the individual is driven to move from their current state to some other alternative state (Higgins et al., 2003).

Locomotion and assessment can work independently or interdependently to affect behaviors and outcomes, and at any particular moment one mode may be emphasized over the other. Importantly, the nature and consequences of a goal pursuit will predominantly be influenced by whichever regulatory mode orientation is dominant at that moment. In addition, the regulatory modes of locomotion and assessment vary across individuals (chronic trait) and can be situation induced by specific activities (Higgins et al., 2003).

Locomotion (aka "Just do it"). To a high locomotion oriented individual, change of state is its own reward; it is the journey and not the destination that is important. High locomotors are likely to engage in whatever activity is currently most accessible to them that offers movement irrespective of direction or valence, and without much regard for specific goal pursuit. It is the state of immobility that high locomotors loath. Thus locomotors are mastery oriented (Dweck, 1991; Elliott & Dweck, 1988) and more intrinsically than extrinsically motivated (Deci & Ryan, 1985, 1991), are highly decisive, and prefer forceful, more autocratic leadership styles; for example, coercive, legitimate, and directive (Bass, 1990; Kruglanski, Pierro, & Higgins, 2007; Raven, Schwarzwald, & Kozlowski, 1998) and transformational (Bass, 1990; Benjamin & Flynn, 2006). Of interest, because locomotors are concerned with change, per se, they tend to pay particular attention to the attainment expectancy of goals (i.e., attainable goals promise quick movement) and thus it is possible for resources to be committed to the pursuit of a goal that is not worth the resources allocated to it (Kruglanski et al, 2000; Higgins et al., 2003).

Locomotion is positively related to attentional control, conscientious, emotional stability, vitality, and the Behavioral Activation System (BAS; Carver & White, 1994), especially the 'Drive' sub-scale which measures an individual's motivation to pursue things and their willingness to take risks while pursuing them. During goal pursuit, high locomotors enhance

experiential involvement (i.e., *flow*; Csikszentmihalyi, 1975) by increasing intrinsic motivation and maintenance of commitment to action independent of intrinsic motivation, and by increasing activity involvement (for example effort investment: Brown & Leigh, 1996; job involvement: Kanungo, 1982) and commitment to goal pursuit independent of activity involvement. Finally, locomotion is negatively associated with sensitivity to social criticism and feeling anxious in social interactions, and thus high locomotors are not high self-evaluators or self-monitors (Higgins et al., 2003).

Assessment (aka "Do the right thing"). Assessment is the dimension of self-regulation that is concerned with making value comparisons among available alternatives in order to select the best one. Individuals independently assess the value or importance of the current and end states, and the value or utility of the means by which they might move toward a desired or away from an undesired end state. Assessors are performance oriented (Dweck, 1991; Elliott & Dweck, 1988), seek to avoid errors, and are more extrinsically than intrinsically motivated (Deci, Koestner, & Ryan, 1999; Deci & Ryan, 1991). Because they seek the best alternative, high assessors are not comfortable with ambiguity and thus look at more background information before making a choice than do low in assessment orientation. In other words, assessors tend to adopt a full comparison or compensatory decision making strategy. Also, assessors prefer more democratic and consultative leadership styles, for example, expert, referent, and participative (Bass, 1990; Kruglanski et al., 2007; Raven et al., 1998).

The assessment dimension is positively related to emotional instability, public self-consciousness, private self-consciousness, need for social comparison, and the Behavioral Inhibition System (BIS; Carver & White, 1994) which is consistent with a wait and see attitude. It is negatively related to expectancy. Assessors are influenced by social norms and normative

standards, and thus are concerned with doing the right thing. In contrast to low assessors, high assessors are sensitive to social criticism and feel anxious during social interactions. Concerns with standards and social criticism makes individuals high on the assessment dimension both high self-evaluators and high self-monitors (Mabe & West, 1982; Snyder, 1974) which, in turn, makes them vulnerable to negative affect, lower self-esteem, and lower optimism (Higgins et al., 2003).

Key research findings. The keystone article in the regulatory mode literature is Kruglanski et al., 2000. This article established locomotion and assessment as theoretically distinct self-regulatory imperatives. In addition, this article reports the development of two scales to independently measure locomotion and assessment, along with the results of psychometric tests attesting to their convergent validity, divergent validity, and temporal stability.

In a series of studies conducted in both the laboratory and in organizational settings in Europe, Pierro, and colleagues investigated the relationship between regulatory mode and several phenomena of particular interests to organizational scholars. For example, the results of one of two studies published in 2006 indicate that locomotion is positively related to effort invested in work activities and to both job involvement and successful performance, as assessed by a self-report measure and by manager ratings (Pierro, Kruglanski, & Higgins, 2006b). Further, this study found that job involvement partially mediated the relationship between locomotion and effort, and that effort investment mediated the relationship between locomotion and performance. The second study investigated the relationship between regulatory mode and task motivation (Pierro, Kruglanski, & Higgins, 2006a). As predicted, this study found that locomotion is positively related to intrinsic task motivation and assessment is positively related to extrinsic motivation. This study also reported that locomotion is positively related to effort

investment which is positively related to goal attainment. Finally, this study found that individuals are most likely to attain their goals if they are high on both regulatory mode dimensions.

Kruglanski et al. (2007) investigated locomotion and the need for cognitive closure in the context of organizational change. They found that need for closure was negatively related to coping with change whereas locomotion orientation was positively related to coping with change. They also found that an organizational climate supportive of change attenuated the negative relationship between need for cognitive closure and coping with change, and that post-change work attitudes are determined by degree of success coping with change. Another recent study examined the influence of regulatory modes on immediate versus delayed monetary reward choices (Mannetti et al., 2009). As predicted, this study found that choices in an induced assessment state condition were less impulsive and more far-sighted than those in an induced locomotion state condition, suggesting that it might be possible to induce economically rational inter-temporal choices by prescriptive means that induce an assessment state orientation. Pierro et al. (2008) conducted three laboratory studies to examine the affects of regulatory mode orientations on engaging in counterfactual thinking and experiencing post-decisional regret. They found, as predicted, that when contemplating a decision with a negative outcome high (versus low) locomotion was associated with less counterfactual thinking and less regret, whereas the opposite was true for high (versus low) assessment. These results held for both chronic and experimentally induced mode orientations.

An innovative study undertaken by Mauro and colleagues (Mauro, Pierro, Mannetti, Higgins, & Kruglanski, 2009) varied the regulatory mode composition of 4-member teams to study the affect of regulatory mode composition on performance speed and accuracy. One third

of the teams were composed of exclusively high locomotion oriented individuals, one third were composed of exclusively high assessment oriented individuals, and one third consisted of a mix of regulatory mode oriented individuals. As expected, teams consisting of exclusively high locomotion oriented individuals performed assigned tasks faster than teams consisting of exclusively high assessment oriented individuals, and teams consisting of exclusively high assessment oriented individuals out performed teams consisting of exclusively high locomotion oriented individuals on measures of accuracy. Echoing findings at the individual level, the mixed teams performed tasks as fast as the teams consisting of only locomotors and as accurate as the teams consisting of only assessors.

Finally, regulatory mode has also been investigated from the perspective of regulatory fit (Avnet & Higgins, 2003; Higgins, 2000). I have included the studies and articles that investigated fit employing concepts drawn from regulatory mode theory in the section on regulatory fit that immediately follows this section.

Regulatory fit (aka "It feels right"). It is a fundamental reality of human nature that humans are motivated to approach pleasure and avoid pain. Known as the *hedonistic principle*, this theoretical concept has underpinned much of the scholarship in the area of motivation. Higgins (1997) argued that scholars need to look beyond this enduring principle to gain an understanding of the distinct principles that underlie it. His *theory of self-regulatory focus* introduced the concept of regulatory focus as a distinct principle of hedonistic self-regulation based on an individual's desire to move their current states closer to some desired end-states. This theory posits that how the hedonic principle of approaching pleasure and avoiding pain operates is contingent upon the nature of the accessible and currently activated goals, where goals are broadly defined as "representational structures that guide the system in its pursuit of a

reference or end state" (Markman & Brendl, 2000, p. 98); i.e., the standards and needs an individual seeks to satisfy.

The theory of regulatory fit emerged as a corollary of regulatory focus theory. Dubbed "feels right" in the literature (e.g., Cesario, Grant, Higgins, 2004; Cesario & Higgins, 2008; Higgins, 2000; 2005), theory suggests and studies have shown that individuals experience regulatory fit when they pursues a goal in a manner that sustains their regulatory orientations (Higgins et al., 2003; Higgins, 2005). Regulatory fit has been shown to influence judgments and decision making, feelings and emotions, attitude and behavior change, and task performance (Higgins, 2005).

The vast majority of research into the concept of regulatory fit conducted to date has investigated fit from the perspective of regulatory focus orientation (Higgins, 1997). However, one of the first studies to look at regulatory fit from the perspective of mode and not focus employed the findings from previous research based on regulatory focus fit to predict outcomes based on regulatory mode fit (Avnet & Higgins, 2003). Avnet and Higgins argue that their study generalizes fit beyond regulatory focus to other motivational domains, and that the phenomenon of value from fit transfers specifically to fit based on regulatory mode orientations. This theoretical extension to the original premise of regulatory fit theory is further established by Higgins when he stipulates that "fit effects can be found for other orientations as well" (2005, p. 210). The specific example that Higgins uses to illustrate this point is the Avnet and Higgins study involving regulatory mode.

Individuals experiencing regulatory fit attribute greater value to what they are doing and this *value from fit* increases (is added on top of) the value expect or resulting from the outcomes of the activity (Higgins, 2000, 2002). As a result of fit, an individual's interest in activities is

greater (Higgins, Cesario, Hagiwara, Spiegel, & Pittman, 2010) and their motivation during goal pursuit is stronger. This, in turn, leads to increased effort at goal pursuit (Pierro et al., 2006a; Spiegel, Grant-Pillow, & Higgins, 2004). In addition, because activities and tasks vary in being more or less related to locomotion or assessment, the effort invested by an individual in an activity or task depends on whether the mode that is emphasized fits the requirements of the activity undertaken (Pierro et al., 2006b).

Key research findings. Empirical studies conducted by Higgins and associates have identified and demonstrated five *value consequences* of regulatory fit: "(a) people are more inclined toward goal means that have higher regulatory fit (Crowe & Higgins, 1997; Higgins et al., 1994), (b) people's motivation during goal pursuit is stronger when regulatory fit is higher (Forster, Higgins, & Idson, 1998; Shah, Higgins, & Friedman, 1998), (c) people's (prospective) feelings about a choice they might make is more positive for a desirable choice and more negative for an undesirable choice when regulatory fit is higher (Idson, Liberman, & Higgins, 2000; 2004), (d) people's (retrospective) evaluations of past decisions or goal pursuits is more positive when regulatory fit was higher (Freitas & Higgins, 2002; Higgins et al., 2003; Idson et al., 2004), and (e) people assign higher value to an object that was chosen with higher regulatory fit (Higgins et al., 2003)" (Higgins, 2000, pp. 1217-18; citations not in the original). Due to its value from fit precept, regulatory fit concepts appear in a number of recent marketing studies investigating influences on customer choice and satisfaction (e.g., Aaker & Lee, 2006; Avnet & Higgins, 2006; Higgins, 2002; Higgins & Scholer, 2009; Mogilner, Aaker, & Pennington, 2008).

A substantial amount of fit research has been conducted recently in the areas of information processing and perception, persuasion, and social influence, and several studies have shown that regulatory fit plays a key role in these areas. Much of this work, however, involved

regulatory focus based fit (e.g., Cesario & Higgins, 2008; Friedman & Forster, 2001; Lee & Aaker, 2004; Hong & Sternthal, 2010; Koenig, Cesario, Molden, Kosloff, & Higgins, 2009). Research has investigated the affects of fit in a plethora of other areas as well. Motivation during goal pursuit (Spiegel et al., 2004), emotions related to anticipating desirable versus undesirable choices (Idson et al., 2004), decision confidence (Chernev, 2009), proximal versus distal purchase decisions made by consumers (Mogilner et al., 2008), and leadership styles and leader – follower relations (De Cremer, Mayer, van Dijke, Schouten, Bardes, 2009; Kark & Van Dijk, 2007; Neubert, Kacmar, Carlson, Roberts, & Chonko, 2008) for example.

One of the first studies to look at regulatory fit from the perspective of mode and not focus was the study reported by Avnet and Higgins (2003). Drawing on previous research that found the promotion and prevention based regulatory fit increases an individual's perception that a decision they made was "right," and thus value is transferred to the decision outcome (Higgins, 2000, 2002; Higgins et al., 2003), these authors predicted that the same monetary value effect of regulatory fit could be generalized to locomotion and assessment orientations. Results confirmed the authors' predictions; participants that employed a decision strategy that fit their regulatory mode orientation (i.e., a compensatory strategy for assessors and a non-compensatory strategy for locomotors) were willing to pay upwards of 40% more for a book light than were their counterparts in the non-fit condition.

Recently, Henderson and associates (Henderson, de Liver, & Gollwitzer, 2008) investigated whether an implemental (locomotion oriented) mind-set fostered stronger attitudes. They found that participants who made a decision about how to act, or who planned the implementation of a decision, expressed more extreme attitudes toward an issue unrelated to the decision, and exhibited more accessible and less ambivalent attitudes toward a variety of objects

unrelated to the decision, than did participants who held off from making a decision. Another recent study looked at relationship between the assessment dimension and negotiator behavior (Appelt, Zou, & Higgins, 2010). These authors found that while low assessors were responsive to feelings of fit and non-fit, fit effects were eliminated and in some cases even reversed for high assessors and replaced, instead, by correctness concerns even to the point of overcorrecting.

A third recent study of persuasive communications employing printed advertisements investigated fit from the perspective of regulatory mode. This study found that locomotion orientated individuals experienced fit and thus were more persuaded by exposure to "dynamic" versus "static" visual images and, conversely, assessment orientation individuals experienced fit and thus were more persuaded by "static" versus "dynamic" images (Mannetti, Giacomantonio, Higgins, Pierro, & Kruglanski, 2010).

The concept of regulatory fit has also been used to explain evaluations of significant others, both group members and leaders, and their influence on focal actors. Benjamin and Flynn (2006) found that transformational leadership (Bass, 1990) is more effective at increasing motivation and at eliciting positive evaluations from locomotion oriented individuals relative to assessment oriented individuals. Studies conducted by Kruglanski and colleagues in four diverse organizational contexts “consistently show that individuals high in locomotion prefer a ‘‘forceful’’ leadership style, represented by ‘‘coercive’’, ‘‘legitimate’’, and ‘‘directive’’ kinds of strategic influence, whereas individuals high in assessment prefer an ‘‘advisory’’ leadership style, represented by ‘‘expert’’, ‘‘referent’’, and ‘‘participative’’ kinds of strategic influence” (Kruglanski, Pierro, & Higgins, 2007, p. 137).

Model Development and Hypotheses

Model Overview

Multiteam systems are a recently identified organizational form, and only a smattering of empirical studies have investigated the unique mechanisms at work in these complex systems. The structuring of labor into highly specialized component teams means that a particular component team is best capable of addressing a particular set of task demands and thus each component team pursues a somewhat unique set of proximal goals that collective aim at achieving a set of higher order, and more distal, super-ordinate system goals (Davison et al., 2012). In other words, goals are nested hierarchically with goal interdependence increasing from lower to higher levels such that the MTS super-ordinate goal is at the apex of the hierarchy (Mathieu et al., 2001).

This means that individuals in a multiteam system also face a hierarchy of multiple goals and priorities. As discussed in the Introduction, the hierarchy of goals associated with complex organizational systems in combination with resource limitations (e.g., internal psychological resources such as cognition and external resources such as time) often creates a situation whereby individuals can become so focused on a particular goal or set of goals that they fail to focus on or outright ignore other important goals (Shah & Kruglanski, 2008). This highlights an important research question: When faced with a hierarchy of goals, where each level in the hierarchy is associated with a specific level in the organization (e.g., individual, work group or department, function or business unit) and goals at each level are an amalgamation of goals originating at that level and at levels lower in the hierarchy, what determines an individual's goal focus? This is, at its core, a question of self-regulation, goal commitment, and activated identity.

Research conducted by Shah and colleagues (2002) indicates that commitment to the current goal increases task persistence and inhibits the consideration of alternative goals, and that degree of commitment to this goal determines the willingness of individuals to redirect actions to the pursuit of alternative or competing goals. This research and research conducted by Higgins and others (Higgins, 2000, 2005; Kruglanski et al., 2000) suggests that process of self-regulation are key determinants of goal commitment and behavior. Further, research by Brewer and colleagues (Brewer, 1991; Brewer & Gardner, 1996) indicates that activated identity also plays a key role in behavior. To gain insight into the willingness of individuals in the context of multiteam systems to redirect actions to the pursuit of alternative or competing goals, this dissertation investigates the affect of self-regulation on identity and goal commitment, and the influence of these variables on (incremental) performance at the three levels of a multiteam system: individual, component team, and MTS. The proposed model is illustrated in Figure 1.

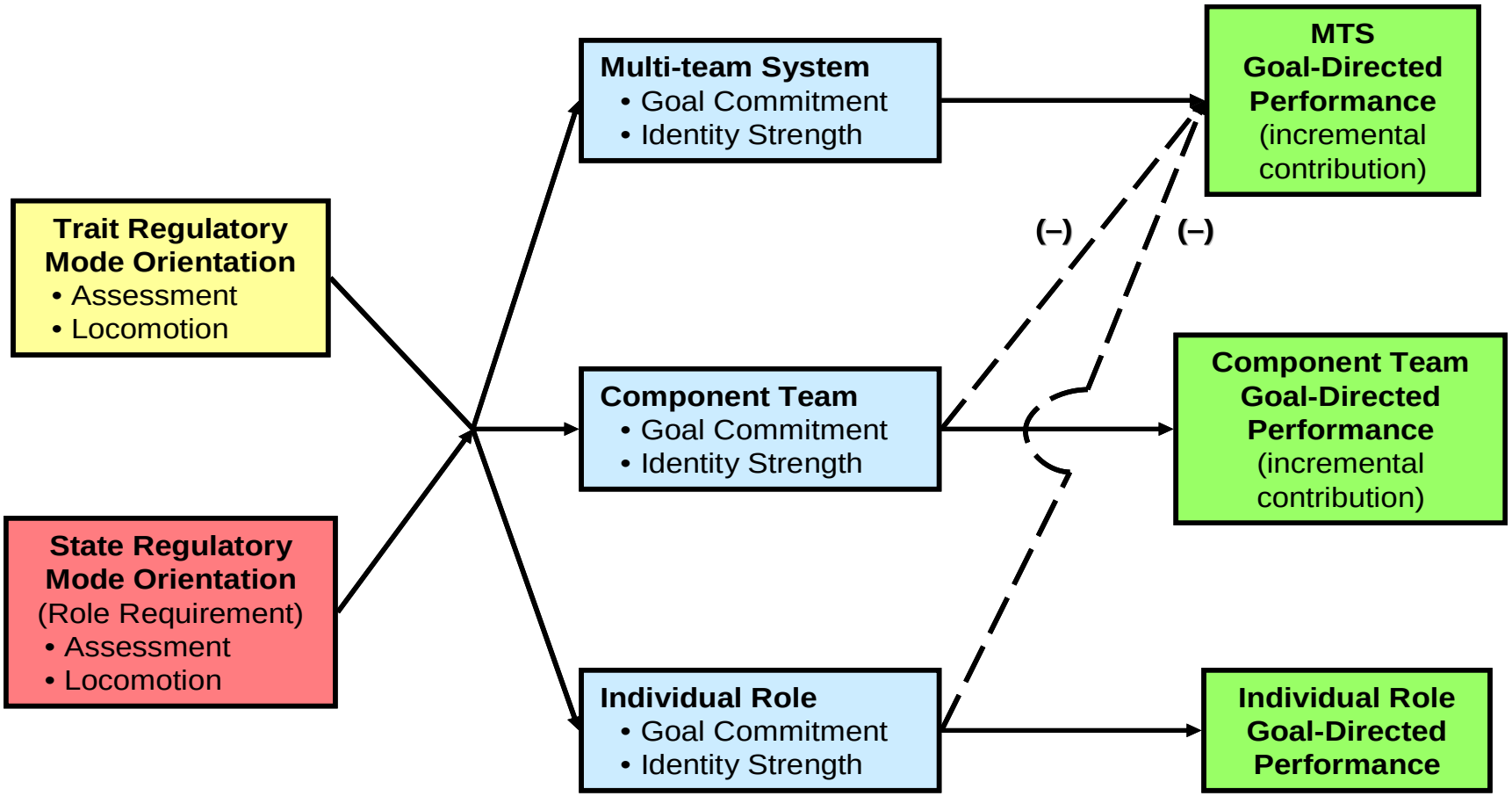

Figure 1. Hypothesized Model

Notes: All variables measured at the individual level

Dashed lines represent an effect hypothesized for goal commitment only.

For interpretation of the references to color in this and all other figures, the reader is referred to the electronic version of this dissertation.

Hypotheses Derived from Theories of Self-regulation

Goal commitment as criterion. The presence of multiple goals often creates an "approach-approach" conflict which, in turn, hampers progress toward any of the desired end states (Lewin, 1935, 1951; Shah et al., 2002; Zeigarnik, 1938). Even so, most individuals are adept at regulating (i.e., self-control) to avoid the temptation of alternative goals in order to accomplish some focal task. While a singular focus and persistence on a task is often touted as a positive attribute because of its positive relationship to task performance, it can be problematic in the context of a multiteam system because system performance is dependent on satisfactory performance at all levels in the hierarchy.

Self-regulation is the psychological process by which an individual brings thinking and behavior in line with some preexisting and desired set of standards, rules, norms, ideals, and/or goals (Forgas, Baumeister, & Tice, 2009). To this point, theory and empirical work in the area of self-regulation strongly suggest that these processes play a central role in goal-directed behavior and performance (e.g., Shah et al., 2002). In addition, goal commitment, defined as "one's attachment to or determination to reach a goal, regardless of the goal's origin" (Locke, Latham, & Erez,1988, p.24), is a necessary condition for goals to influence behavior (Klein & Wright, 1994). As the psychological process through which individuals align their thinking and behavior with pre-existing goals, it stands to reason that self-regulation is involved in the process of goal commitment.

Locke and colleagues suggested (Locke et al., 1981), and research has shown (Klein & Wright, 1994), that expectations of success (i.e., expectancy) and perceived value of attaining or trying for a goal (i.e., valence) are the main factors underlying the degree to which individual's commit to the goal. The concept of motivational force suggests that when these two factors are

high, goal commitment will be strong. Individuals experiencing regulatory fit attribute greater value to what they are doing and this value from fit increases the value of expect outcomes (Higgins, 2000, 2002). Thus valence should be high for individuals experiencing regulatory fit. In addition, Koenig and colleagues (2009) found that information processing is more or less contingent upon the experience of incidental fit or non-fit. Thus expectancy should be high for individuals experiencing regulatory fit as well because their information processing is positively biased (i.e., they will accept success cues and reject failure cues). These arguments strongly implicate regulatory fit in the process of goal commitment.

Regulatory fit occurs when individuals pursue goals in a manner that sustains their regulatory orientations (Higgins et al., 2003; Higgins, 2005), thus individuals are more inclined toward goal means that offer higher regulatory fit (Crowe & Higgins, 1997; Higgins et al., 1994). Fit has been shown to influence judgments and decision making, feelings and emotions, attitude and behavior change, and task performance (Higgins, 2005). Mode is the regulatory orientation concerned with psychological state during goal pursuit (Higgins, Kruglanski, & Pierro, 2003; Kruglanski et al., 2000). Locomotion is the dimension of regulatory mode that is concerned with the commitment of psychological resources to initiate and maintain movement. Assessment is the dimension that is concerned with making value comparisons among available alternatives in order to select the highest value alternative.

Because activities and tasks vary in being more or less related to locomotion or assessment, the effort invested by an individual in an activity or task depends on whether the mode that is emphasized fits the requirements of the activity undertaken (Pierro et al., 2006b). Individuals enacting a role whose activities provide the means of goal pursuit that match their trait regulatory mode orientation experience regulatory fit. This leads to greater interest in

activities, stronger motivation during goal pursuit, and increased effort at goal pursuit (Higgins, Cesario, Hagiwara, Spiegel, & Pittman, 2010; Pierro et al., 2006a; Spiegel, Grant-Pillow, & Higgins, 2004). These same effects are known to result from strong goal commitment (Locke & Latham, 1990, 2002).

Finally, research that has explored the impact of regulatory orientation on persuasion has found that individuals enacting a role whose activities matches their trait regulatory mode orientation are more apt to attend to situational cues that match and confirm this orientation, and thus are more susceptible to being influenced by them. (e.g., Cesario et al., 2004; Cesario & Higgins, 2008; Friedman & Forster, 2001; Hong & Sternthal, 2010; Koenig et al., 2009; Lee & Aaker, 2004; Mannetti et al., 2010). In other words, individuals enter a situation with a dispositional regulatory orientation and cues emerging from the situation that match (or not) this orientation serve to reinforce (or not) this orientation; i.e., situations that match an individual's dispositional regulatory orientation "just feel right." Goal commitment research has consistently demonstrated that personal and situational factors have an effect on both expectation of goal attainment and the attractiveness of goal attainment. Thus the regulatory fit findings based on the combination of trait and situational cues align nicely with the expectancy theory model of goal commitment hypothesized by Hollenbeck and Klein (1987).

Collectively, theory and research findings strongly suggest that regulatory fit is positively related to goal commitment; thus I posit,

> *Hypothesis 1a.* For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with commitment to goals at the individual level.

Hypothesis 1b. For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with commitment to goals at the component team level.

Hypothesis 1c. For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with commitment to goals at the MTS level.

Hypothesis 2a. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with commitment to goals at the individual level.

Hypothesis 2b. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with commitment to goals at the component team level.

Hypothesis 2c. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with commitment to goals at the MTS level.

The arguments in support of a positive relationship between fit and goal commitment suggest that the relationship between fit and goal commitment will be adversely affected when the means available through an enacted role do not fit the individual's regulatory orientation (i.e., a regulatory non-fit). They suggest that individuals experiencing regulatory non-fit will not attribute greater value due to fit to what they are doing or to expect outcomes. This suggests that valence will be negatively impacted. In addition, they suggest that expectancy will be negatively impacted in a non-fit condition as well because information processing will be negatively biased (i.e., individuals will accept failure cues and reject success cues). Thus I further posit,

Hypothesis 3a. For individuals enacting a situation-induced assessment role, trait locomotion orientation will exhibit a negative relationship with commitment to goals at the individual level.

Hypothesis 3b. For individuals enacting a situation-induced assessment role, trait locomotion orientation will exhibit a negative relationship with commitment to goals at the component team level.

Hypothesis 3c. For individuals enacting a situation-induced assessment role, trait locomotion orientation will exhibit a negative relationship with commitment to goals at the MTS level.

Hypothesis 4a. For individuals enacting a situation-induced locomotion role, trait assessment orientation will exhibit a negative relationship with commitment to goals at the individual level.

Hypothesis 4b. For individuals enacting a situation-induced locomotion role, trait assessment orientation will exhibit a negative relationship with commitment to goals at the component team level.

Hypothesis 4c. For individuals enacting a situation-induced locomotion role, trait assessment orientation will exhibit a negative relationship with commitment to goals at the MTS level.

Despite the predictions that regulatory mode non-fit will negatively impact goal commitment, the study conducted by Pierro and colleagues (2006a) found that individuals are most likely to attain their goals if they are high on both regulatory mode dimensions. These authors use the argument that mode influences motivation and effort invested which then leads to goal attainment. This mediation argument is then employed as the basis for their prediction that

individuals are most likely to reach their goals if they are high on both dimensions. This suggests that the interaction effect is on motivation and effort invested, which suggests the effect is on goal commitment. Therefore I posit,

Hypothesis 5a. For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with commitment to goals at the individual level, and this effect will be stronger for individuals high in trait locomotion orientation relative to those low in trait locomotion orientation.

Hypothesis 5b. For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with commitment to goals at the component team level, and this effect will be stronger for individuals high in trait locomotion orientation relative to those low in trait locomotion orientation.

Hypothesis 5c. For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with commitment to goals at the MTS level, and this effect will be stronger for individuals high in trait locomotion orientation relative to those low in trait locomotion orientation.

Hypothesis 6a. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with commitment to goals at the individual level, and this effect will be stronger for individuals high in trait assessment orientation relative to those low in trait assessment orientation.

Hypothesis 6b. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with commitment to goals at the component team level, and this effect will be stronger for individuals high in trait assessment orientation relative to those low in trait assessment orientation.

Hypothesis 6c. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with commitment to goals at the MTS level, and this effect will be stronger for individuals high in trait assessment orientation relative to those low in trait assessment orientation.

Identity as criterion. A primary motivational premise underlying social identity is that individuals are driven to develop and maintain a positive self-concept or positive sense of self (Turner, 1975; Tajfel & Turner, 1979). This has also been termed the need for positive regard (Hetts, Sakuma, & Pelham, 1999). Social identity not only denotes group membership, it denotes an attribution of "value significance" to group membership (Tajfel, 1972). Individuals are driven by self-enhancement motives to undertake behaviors that maximize the value of the groups they belong to because group value has important implications for feelings of self-esteem, self-respect, and self-worth. Perceived value of attaining or trying for a goal (i.e., valence) are the main factors underlying the degree to which individual's commit to a goal (Locke et al., 1981; Hollenbeck & Wright, 1987). This suggests that goal commitment and identity are positively related.

In addition, McCall and Simmons (1966) argue that individuals harbor many role-identities organized into a hierarchy of prominence reflecting the role's relative value to the individual's conception of an ideal self, and that commitment to any particular role-identity is intimately related to how much their self-esteem is bound to its successful performance. Goal commitment research has repeatedly shown that commitment to a goal is a key determinant of performance (Klein & Wright, 1994; Locke & Latham, 1990, 2002), thus the argument made by McCall and Simmons also suggests a positive relationship between identity and goal commitment.

"Self-regulation is the process in which people seek to bring themselves (their behaviors and self-conceptions) into alignment with relevant goals and standards" (Brockner et al., 2002, p. 7). To this point, Brewer (1991) argues that individuals respond in terms of activated identity when faced with a conflict between goals. As discussed previously, regulatory fit occurs when individuals pursue goals in a manner that sustains their regulatory orientations (Higgins et al., 2003; Higgins, 2005), thus individuals are more inclined toward goal means that offer higher regulatory fit (Crowe & Higgins, 1997; Higgins et al., 1994). Fit has been shown to influence judgments and decision making, feelings and emotions, attitude and behavior change, and task performance (Higgins, 2005). In addition, differences in behavioral patterns can be explained by contextually driven shifts in the social identity portion of the self-concept (Brewer & Gardner, 1996; Hogg & Terry, 2000). This suggests that regulatory fit influences identity activation and is consistent with the earlier argument for a regulatory fit influence on goal commitment. Collectively these arguments suggest that identity and goal commitment will be moderately and positively correlated at the same level in a MTS.

Research based on Brewer's (1991) concept of optimal distinctiveness indicates that individuals facing a social situation seek a self-concept that provides for an optimal balance between similarity to the other members of the group (the 'We' in identity) and uniqueness in comparison to salient others (the 'I' in identity). Importantly, this varies across individuals situated in the same social context which makes it exceedingly difficult to predict the population level relationship across identity levels in a MTS. While one individual in a MTS context may find optimal distinctiveness at the component team level of identity, being similar to others due to the equivalence of roles yet different across many other attributes of salience to the focal individual, another individual may find optimal distinctiveness at the level of the MTS, being

similar to others due to the mutual commitment to a set of shared super-ordinate goals yet unique due to differences in role enacted in the respective component teams and other attributes of salience to the focal individual.

This argues for a positive relationship within individuals across adjacent levels at the levels deemed to be inclusive and unique enough by the individual, and a negative relationship between distal levels. It suggests that an individual in the first example would exhibit both a strong component team identity and individual identity, and the individual in the latter example would exhibit both a strong MTS identity and component team identity. In the first example, the uniqueness attribute of most salience to them might come from a factor unrelated to the MTS social context specifically; for example, the fact that they are the only female or person of color in an otherwise all male or white collective of individuals. The individual in the latter example may or may not also exhibit a strong individual identity depending upon whether or not identification at the component team level provide a strong enough sense of distinctiveness.

Research has shown that the two dimensions of regulatory mode are each related to a distinctly different set of personal attributes (Higgins et al., 2003; Kruglanski et al., 2000). Thus there are important differences across the two dimensions of regulatory mode that offer predictive potential. The assessment dimension is positively related to public self-consciousness, private self-consciousness, and need for social comparison. Individuals high on the assessment dimension are influenced by social norms and normative standards, and thus are concerned with doing the right thing. Their concerned for doing the right thing can be influenced by important or significant others; for example, by those with whom they share an identity. High assessors are sensitive to social criticism and feel anxious during social interactions. Concerns with standards

and social criticism makes individuals high on the assessment dimension both high self-evaluators and high self-monitors.

All three levels of identity in a MTS provide a basis for some combination of social comparison, self-evaluation and/or self-monitoring suggesting that assessors might have some degree of identification at all these levels. However, Brewer (1991) argued that individuals need to validate their self-concept and do this by seeking identities that render them similar to others yet different and unique as well. Thus an individual avoids being identified with categories that they find to be either too inclusive or too differentiating which suggests that assessors will not identify strongly with all levels. Their concern for social norms, normative standards, and doing the right thing suggests that their social motivation is focused on group welfare, which is indicative of a collective identity bias (Brewer & Gardner, 1996; Brickson, 2000). These arguments suggest that individuals high on the assessment dimension will identify most strongly with groups. Therefore I posit,

Hypothesis 7a. For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with component team identity.

Hypothesis 7b. For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with MTS identity.

Brewer's (1991) argument that an individual seeks an optimal identity, one that simultaneously satisfies the need to be similar to salient others and the need to be different and unique, suggests that locomotors will not identify strongly with all levels. Research has shown that locomotion is negatively associated with sensitivity to social criticism and feeling anxious in social interactions and thus high locomotors are not high self-evaluators

or self-monitors (Higgins et al., 2003). High locomotors also tend to be intrinsically as opposed to extrinsically motivated. These attributes imply that their social motivation is focused much more on self-interests than on the welfare of the group (Brickson, 2000). This suggests strong identification at the individual level. Theories of identity argue that members of a component team will tend to form relational attachments to each other, to some degree, and a prototypical role-based group identity at a minimum (Brewer & Gardner, 1996; Prentice et al., 1994; Turner et al., 1987). Collectively these arguments suggest that locomotion oriented individuals will exhibit a strong individual identity and some degree of identification at the component team level. Therefore I posit,

Hypothesis 8a. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with individual identity.

Hypothesis 8b. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with component team identity.

Performance as criterion. As signified by the hierarchical structure of goals in multiteam systems (Mathieu et al., 2001), successful goal attainment at lower levels in a MTS is a necessary prerequisite for goal attainment at higher levels. Because of this, under norms of rationality (Thompson, 1967) individual's highly committed to the goals of a focal level will be committed to the goals of the level below. The reverse, however, is not necessarily true. Drawing on expectancy theory (Vroom, 1964) and the model of goal commitment put forth by Hollenbeck and Klein (1987), lack of commitment to the goals at a focal level will negatively impact expectancy of goal attainment at levels above and thereby goal commitment at those higher levels.

Goals are the object or aim of actions, and the relationship between goals and performance is strongest when goals are deemed difficult but attainable and people are committed to their goals (Locke & Latham, 2002). As articulated by Seijts and Latham, "highly committed individuals exert more effort, and are more persistent toward goal attainment, than individuals who are less committed to the goal" (2000a, p. 316). Goal commitment is a necessary condition for goals to influence behavior (Klein & Wright, 1994), and research has repeatedly shown that goal commitment is a key determinant of performance. Because goal commitment is a key determinant of performance, much like goal commitment, successful performance at the lower levels in a MTS is strongly implicated in performance success at higher levels. Performance at a given level in a multiteam system is an amalgamation of performance resulting from goals originating at that level and performance resulting from goals originating at lower levels. In other words, like goals performance is nested.

Individual role directed performance exists at the lowest level in the hierarchy and constitutes performance against goals originating exclusively at that level. *Component team directed performance* exists at the middle or component team level in the hierarchy and constitutes performance against goals originating exclusively at the component team level. Thus total individual contribution to performance at the component team level consists of two parts, Individual role directed performance and Component team directed performance. Illustrated mathematically,

$$\begin{array}{c}\text{Total individual contribution}\\ \text{to performance at}\\ \text{Component Team level}\end{array} = \begin{array}{c}\text{Individual role}\\ \text{directed performance}\end{array} + \begin{array}{c}\text{Component team}\\ \text{directed performance}\end{array}$$

Likewise, *MTS directed performance* exists at the top or MTS level in the hierarchy and constitutes performance against goals originating exclusively at the MTS level. Thus total

individual contribution to performance at the MTS level consists of three parts, Individual role directed performance, Component team directed performance, and MTS directed performance. Illustrated mathematically,

Total individual contribution to performance at MTS level	=	Individual role directed performance	+	Component team directed performance	+	MTS directed performance

Although the vast majority of research into the concept of regulatory fit conducted to date has investigated fit from the perspective of regulatory focus orientation (Higgins, 1997), one of the first studies to look at regulatory fit from the perspective of mode and not focus employed the findings from previous research based on regulatory focus fit to predict outcomes based on regulatory mode fit (Avnet & Higgins, 2003). Avnet and Higgins argue that their study generalizes fit beyond regulatory focus to other motivational domains, and that the phenomenon of value from fit transfers specifically to fit based on regulatory mode orientations. This theoretical extension to the original premise of regulatory fit theory is further established by Higgins when he stipulates that "fit effects can be found for other orientations as well" (2005, p. 210).

Very little if any extant research has specifically investigated the relationship between regulatory fit based on mode and task performance. However, as previously articulated, previous research based on regulatory focus based fit has demonstrated that regulatory fit effects task performance (Higgins, 2005). Thus I posit,

> *Hypothesis 9a.* For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with individual role performance.

Hypothesis 9b. For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with component team performance.

Hypothesis 9c. For individuals enacting a situation-induced assessment role, trait assessment orientation will exhibit a positive relationship with MTS performance.

Hypothesis 10a. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with individual role performance.

Hypothesis 10b. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with component team performance.

Hypothesis 10c. For individuals enacting a situation-induced locomotion role, trait locomotion orientation will exhibit a positive relationship with MTS performance.

Relationships between Goal Commitment and Performance

As discussed in detail previously, while goal commitment at a focal level is a necessary condition, it is not a sufficient condition for commitment to the goals of higher levels. Drawing on expectancy theory and the Hollenbeck and Klein model once again, attaining the higher level goals may not be attractive to a focal individual; i.e., the individual may not attribute any (or enough) value to trying for or attaining the incremental or more super-ordinate goals at the higher level. Further, expectancy may be lower at the higher level because the performance of other individuals or component teams becomes a factor. Thus under norms of rationality (Thompson, 1967) an individual highly committed to the goals of the MTS will be committed to the goals of their component team and their individual goals, but an individual might be highly

committed to their individual goals, or individual goals and component team goals, and not to the goals of the level or levels above. These arguments suggest that goal commitment at a focal level will be positively related to incremental performance at that level regardless of whether the focal individual is enacting an assessment oriented role or a locomotion oriented role.. Therefore I posit,

Hypothesis 11a. For individuals enacting a situation-induced assessment role, individual goal commitment will exhibit a positive relationship with individual role directed performance.

Hypothesis 11b. For individuals enacting a situation-induced assessment role, component team goal commitment will exhibit a positive relationship with component team directed performance.

Hypothesis 11c. For individuals enacting a situation-induced assessment role, MTS goal commitment will exhibit a positive relationship with MTS directed performance.

Hypothesis 12a. For individuals enacting a situation-induced locomotion role, individual goal commitment will exhibit a positive relationship with individual role directed performance.

Hypothesis 12b. For individuals enacting a situation-induced locomotion role, component team goal commitment will exhibit a positive relationship with component team directed performance.

Hypothesis 12c. For individuals enacting a situation-induced locomotion role, MTS goal commitment will exhibit a positive relationship with MTS directed performance.

As previously discussed, the goal set both broadens and increases additively at successively higher levels in the MTS hierarchy. Too exclusive a focus on the goals at one level,

however, can lead to a lack of focus on the goals of a higher level, a phenomenon the goal shielding and multiple goals literature suggest is exceedingly possible (Schmidt & DeShon, 2007; Shah et al., 2002). Goal shielding theory asserts that commitment to an accessible, focal goal deters attention away from competing goals by inhibiting the recognition of distracting or non-confirmatory information thereby focusing cognitive resources on the focal goal related task(s) at hand.

Shah and colleagues (Shah et al., 2002) conducted a series of empirical studies that investigated the determinants of goal shielding and the role of goal shielding in task persistence and task performance. More specifically, they investigated "how the activation of focal goals to which the individual was committed inhibits the accessibility of alternative goals" (Shah et al., 2002, p. 1261), and further, how this dynamic was exhibited vis-à-vis task persistent behavior and performance. Several of these studies tested and showed that strong commitment to a currently active goal set both inhibited the accessibility of alternative goals, and was positively and significantly related to persistence at the current task. In other words, goal commitment generally increases an individual's tendency to inhibit alternatives.

In addition, multiteam systems are collectives of teams where all component teams exhibit input, process, and output interdependence with at least one other team in the system (Mathieu et al., 2001). Thus individuals must, at times, attend to the needs of other component teams. Failure to attend to these needs can result in the sub-optimization of the overall system and an inability of the system to achieve super-ordinate goals. This brings to mind the old adage, "winning the battle while losing the war."

Because of resource limitations (e.g., internal psychological resources such as cognition, and external resources such as time) members of a multiteam system facing difficult goals

cannot do it all even if they wanted to. Collectively these arguments suggest that contributions to performance at higher levels in the MTS goal structure, above and beyond (excluding) the direct contribution made by performance impacting (measured against) lower level goals, will be negatively related to goal commitment at the lower levels. Further, because of component team specialization (a focal individual's goals are more clearly aligned with other individuals on the same component team) I would expect this relationship to only be exhibited between the two lower levels in the hierarchy (i.e., the component team and individual levels) and the MTS level. Therefore I posit,

Hypothesis 13a. For individuals enacting a situation-induced assessment role, individual goal commitment will exhibit a negative relationship with MTS directed performance.

Hypothesis 13b. For individuals enacting a situation-induced assessment role, component team goal commitment will exhibit a negative relationship with MTS directed performance.

Hypothesis 14a. For individuals enacting a situation-induced locomotion role, individual goal commitment will exhibit a negative relationship with MTS directed performance.

Hypothesis 14b. For individuals enacting a situation-induced locomotion role, component team goal commitment will exhibit a negative relationship with MTS directed performance.

Relationships between Identity and Performance

As discussed previously, a primary motivational premise underlying social identification is the desire to develop and maintain a positive self-concept or positive sense of self (Turner,

1975; Tajfel & Turner, 1979). Thus individuals are driven by self-enhancement motives to undertake behaviors that maximize the value of the groups they belong to because group value has important implications for feelings of self-esteem, self-respect, and self-worth. One way that individuals can realize value is by attaining goals (i.e., performance).

Identity affects behavior through its influence on both cognitive and motivational mechanisms, and differences in behavioral patterns and thus performance can be explained by contextually driven shifts in the social identity portion of the self-concept (Ellemers et al., 2002). In addition, salience of an identity is directly related to commitment, and the more salient an identity, the more likely it is to be invoked in an interactional situation and thus to influence performance (Owens, Robinson, & Smith-Lovin, 2010).

Finally, perceived value of attaining or trying for a goal (i.e., valence) is one of the two main factors underlying the degree to which individual's commit to a goal (Locke et al., 1981; Hollenbeck & Wright, 1987) which suggests that identity and goal commitment are positively related. This suggests, in turn, that identity will exhibit a similar relationship with performance as goal commitment (i.e., a positive relationship). However, while identity and goal commitment are related, they are distinct constructs as well. Thus identity and goal commitment may influence incremental performance differently at different levels.

As discussed in detail previously, each dimensions of regulatory mode is related to a distinctly different set of personal attributes (Higgins et al., 2003; Kruglanski et al., 2000) and these differences offer predictive potential. Individuals high on the assessment dimension are concerned with doing the right thing, and their concerned for doing the right thing can be influenced by important or significant others; for example, by those with whom they share an identity. Attributes associated with the locomotion dimension imply that the social motivation of

individuals high on this dimension is focused much more on self-interests than on the welfare of the group suggesting a strong bias toward identification at the individual level. Therefore I posit,

Hypothesis 15a. For individuals enacting a situation-induced assessment role, component team identity will exhibit a positive relationship with component team directed performance.

Hypothesis 15b. For individuals enacting a situation-induced assessment role, MTS identity will exhibit a positive relationship with MTS directed performance.

Hypothesis 16a. For individuals enacting a situation-induced locomotion role, individual identity will exhibit a positive relationship with individual role directed performance.

Hypothesis 16b. For individuals enacting a situation-induced locomotion role, component team identity will exhibit a positive relationship with component team directed performance.

Mediation

The predicted relationships between regulatory fit and performance, between regulatory fit and goal commitment, and between goal commitment and performance suggest that goal commitment intervenes in the relation between regulatory fit and performance, and thus might account for the relation between them. This is precisely the definition of mediation given by Baron and Kenny: "In general, a given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and the criterion" (1986, p. 1176). Therefore I posit,

Hypothesis 17a. For individuals enacting a situation-induced assessment role, the relationship between trait assessment orientation and individual role directed performance will be mediated by individual goal commitment.

Hypothesis 17b. For individuals enacting a situation-induced assessment role, the relationship between trait assessment orientation and component team directed performance will be mediated by component team goal commitment.

Hypothesis 17c. For individuals enacting a situation-induced assessment role, the relationship between trait assessment orientation and MTS directed performance will be mediated by MTS goal commitment.

Hypothesis 18a. For individuals enacting a situation-induced locomotion role, the relationship between trait locomotion orientation and individual role performance will be mediated by individual goal commitment.

Hypothesis 18b. For individuals enacting a situation-induced locomotion role, the relationship between trait locomotion orientation and component team directed performance will be mediated by component team goal commitment.

Hypothesis 18c. For individuals enacting a situation-induced locomotion role, the relationship between trait locomotion orientation and MTS directed performance will be mediated by MTS goal commitment.

The predicted relationships between regulatory fit and performance in combination with the predicted relationships between regulatory fit and identity and between identity and performance also suggest that identity intervenes in the relation between regulatory fit and performance, and thus might account for the relation between them. Therefore I posit,

Hypothesis 19a. For individuals enacting a situation-induced assessment role, the relationship between trait assessment orientation and component team directed performance will be mediated by component team identity.

Hypothesis 19b. For individuals enacting a situation-induced assessment role, the relationship between trait assessment orientation and MTS directed performance will be mediated by MTS identity.

Hypothesis 20a. For individuals enacting a situation-induced locomotion role, the relationship between trait locomotion orientation and individual role performance will be mediated by individual identity.

Hypothesis 20b. For individuals enacting a situation-induced locomotion role, the relationship between trait locomotion orientation and component team directed performance will be mediated by component team identity.

Method Section

Participant Sample

A total of 179 participants recruited from the undergraduate population at Michigan State University were involved in this study. Each of 20 multiteam systems was composed of nine members, four on each of two component teams and one information liaison enacting a role that was independent of either component team. (Note: one multiteam system was short a participant thus the researcher enacted the role of information liaison for this system.) Participants were randomly assigned to roles.

Leadership Development Simulator (LDS)

This study was conducted as a laboratory manipulation utilizing the Leadership Development Simulator (LDS) to enact a task environment requiring use of a multiteam system organizational form. The Leadership Development Simulator (LDS), jointly developed by the United States Air Force and Michigan State University, was specifically designed to present a complex multiteam system task environment in which participants must collaborate to effectively manage a large number of resources in a short amount of time. In LDS, teams of up to 14 people, subdivided into two component teams and a coordination team, integrate multiple sources of information and coordinate activities with the common objective of finding and engaging targets located in a predefined but active environment. Importantly, LDS is programmed to capture objective measures associated with individual behaviors and decisions, coordinated action and collective cognitive, as well as performance at the individual, component team, and MTS level. (See Davison et al., 2012 for a detailed description of LDS.)

LDS task environment. The task environment in the LDS consists of a grid, 16 rows (1-16) by 16 columns (A-P), totaling 256 cells (see Figure 2).

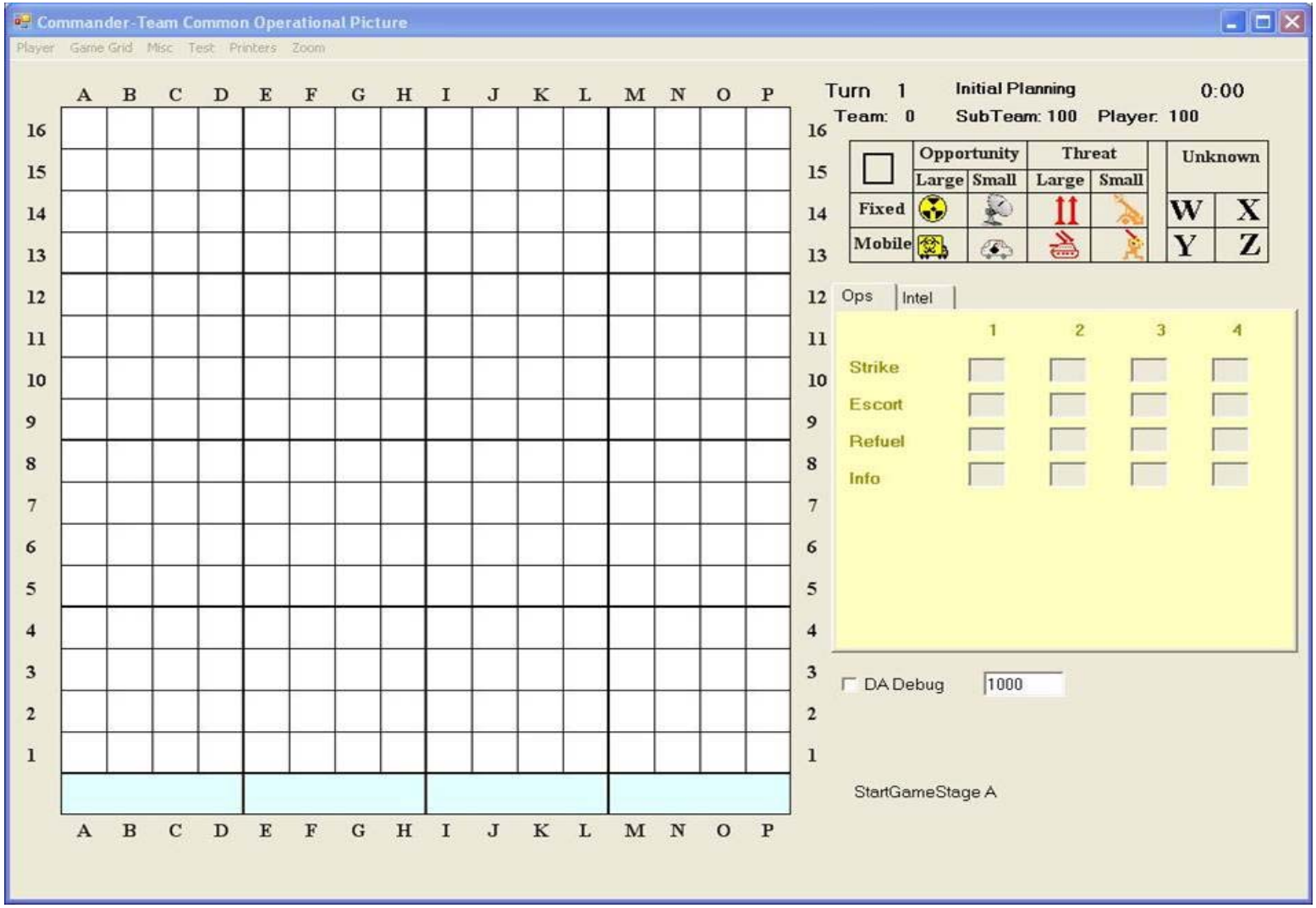

Figure 2. LDS Game Grid

The LDS task environment is further divided into Far West (Columns A-D), Mid West (Columns E-H), Mid East (Columns I-L), and Far East (Columns M-P) regions, as well as Southern (Rows 1-8) Northern (Rows 9-16), Central (Rows 5-12) and Border (Rows 1-4 and Rows 13-16) sectors. At the start of the simulation teams were presented with a blank grid, however, hidden throughout the 256 distinct cells of the task environment were a variety of targets of differing characteristics and point values. Some targets, *opportunities*, were purely offensive in nature and gained the team points when effectively engaged (thus successfully engaging opportunities attacks represented a promotion oriented task), while others, *threats*, attacked the team's RPAs and cost the team points when not properly engaged (thus avoiding the loss of RPAs represented a prevention oriented task). In addition, some targets were large, some small, some were stationary throughout the game while others were mobile, and some required coordinated effort to be engaged (i.e., more than one RPA) while others did not. Mobile targets moved one space in any direction between rounds except between rounds three and four, rounds six and seven, and rounds nine and ten when they became momentarily stationary. Thus these rounds (four, seven, and ten) were critical action phases when the team was best able to successfully engage mobile targets. Point values varied across targets, and targets were permanently removed from a scenario's task environment once they destroyed. Finally, the team's bases could be attacked by mobile targets that moved into Row 1, and the team lost points when this occurred.

Prior to engaging in a scenario, teams were provided with an initial intelligence report and given 5 minutes to engage in a planning session to determine goals, mission priorities, and initial tactics. Teams then engaged the simulation in an episodic or round-based fashion involving overlapping action and transition phases (Marks, Mathieu & Zacarro, 2001) delineated

as three sequential sub-phases: Sub-team Action (2 minute 30 seconds in length), Execution (under a minute in length), and Analysis (1 minute in length). Each round began with the Sub-team Action sub-phase during which time component team staff members processed intelligence feedback from the last round and deployed their respective assets (each deployment is denoted a *mission*). The deployed assets then interacted with the task environment during the Execution sub-phase of a round, and feedback detailing the results of these interactions (i.e., based on the deployment of their assets) was provide at the start of the final sub-phase, Analysis. Feedback was used by members of the multiteam system to develop a common representation of the environment and to develop a plan of action for the next round. Importantly, feedback needed to be processed correctly in order to be useful – incorrect processing of feedback is a key source of subsequent decision errors in LDS – and there was only a very short period of time to synthesize this information into a common representation of the environment (denoted the *Common Operational Picture* or *COP* for short) before the start of the next round.

Common Operational Picture (COP). The Common Operational Picture (COP) was a computerized tool that enabled the team to build a graphically displayed representation of the task environment as they collectively perceived it (Figure 3 is an illustration of a sample COP). A member of the MTS not specifically assigned to either of the component teams, the information liaison, acted in the capacity of team scribe building and updating the COP. The information liaison placed icons representing the target type indicated onto the COP at the location specified by component team staff members; they were only allowed to utilize information as provided by component team members. Thus, component team members were ultimate responsible for the accuracy and thoroughness of the COP.

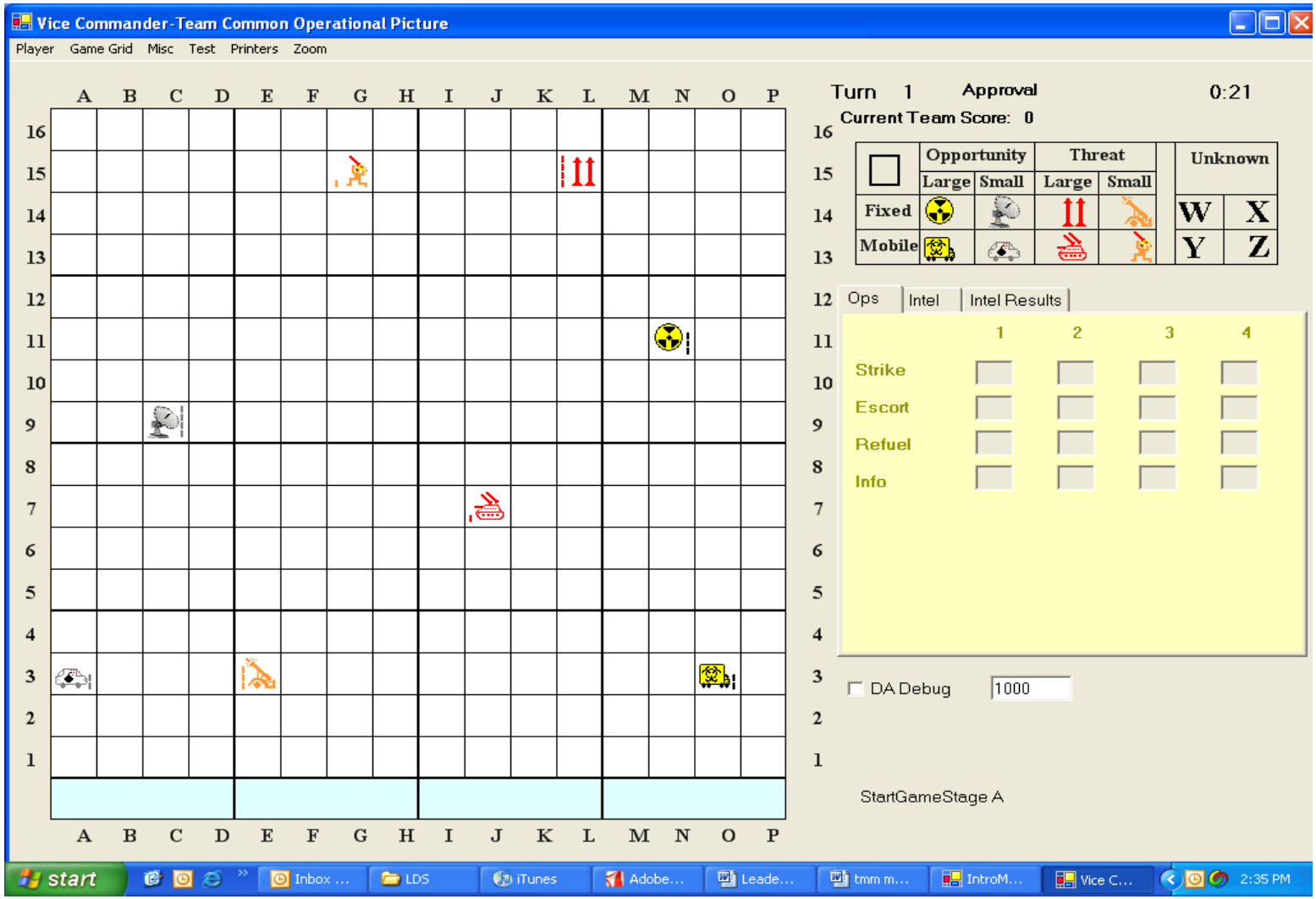

Figure 3. Sample Common Operational Picture (COP)

Importantly, no single team member could acquire or process all of the environmental information in LDS and thus all members had to collaborate to build an effective COP. The COP was continuously displayed on three monitors mounted on the walls, in clear view of all participants, and was thus available for reference throughout the exercise.

MTS assets. The assets available to the MTS consisted of both operations assets capable of engaging targets and intelligence assets capable of passively observing the environment. Operations assets directly engaged the environment, and thus were capable of destroying and be destroyed by enemy targets in the environment. There were four different types of operations assets: Strike RPAs (Remotely Piloted Aircraft), Escort RPAs, Refuel RPAs, and Info RPAs. Strike RPAs were the only asset capable of engaging opportunities, while Escort RPAs were the only asset capable of destroying threats. Refuel RPAs enabled other operations assets to reach distant portions of the environment (the top half of the grid, the 'North'). Info RPAs were used to gather information about the environment from three adjacent locations, the cell to which they were deployed and the cells immediately to the north and to the south of this location. All other assets, whether an operations or an intelligence asset, could only gather information from the location to which they were deployed. In addition, it took two Strike RPAs to capitalize on a large opportunity, one Strike RPAs to capitalize on a small opportunity, two Escort RPAs to destroy a large threat, and one Escort RPAs to destroy a small threat. Operations assets also gathered intelligence information and the information gathered by operations assets was perfectly accurate (in contrast to intelligence assets whose information accuracy was probabilistically determined based on location as will be described next). There were four RPAs of each type for a total of 16 operations assets.

Intelligence asset were capable of being deployed to a single location during a round, and were used to gather information regarding that location in the environment. They passively observed the environment and could not be destroyed, thus intelligence asset did not directly contribute to the team's score, although the information they gathered was a critical enabler of the overall success of the MTS. There are four different types of intelligence assets labeled Communications, Human, Allied, and Visual, and the accuracy of the information gathered by intelligence assets was probabilistically determined based on the accuracy of the deployed asset in that particular location. Each of the four types was 95% accurate and 5% inaccurate in one of the four sectors of the environment, and only 5% accurate (i.e., 50% inaccurate) outside this sector. For example, a particular scenario could be programmed such that all Communications assets are 95% accurate (5% inaccurate) in the north sector (Rows 9-16), all Human assets are 95% accurate (5% inaccurate) in the central sector (Rows 5-12), all Allied assets are 95% accurate (5% inaccurate) in the border sector (Rows 1-4 and Rows 13-16), and all Visual assets are 95% accurate (5% inaccurate) in the south sector (Rows 1-8). Correspondingly, all Communications assets would thus only be 5% accurate (95% inaccurate) in the south sector, all Human assets would only be 5% accurate (95% inaccurate) in the border sector, all Allied assets would only be 5% accurate (95% inaccurate) in the center sector, and all Visual assets would only be 5% accurate (95% inaccurate) in the north sector. Intel asset – sector accuracies were a manipulation that was predetermined for each scenario and programmed in LDS. There were eight intelligence assets of each type for a total of 32 intelligence assets.

MTS objective and scoring. The super-ordinate objective for the MTS was to maximize total score. Score was influenced by three types of events: points were gained with the destruction of an opportunity, and teams lost points when their RPAs were destroyed or their

bases were attacked. In other words, teams could only gain points by successfully engaging opportunities and they lost points when an RPA was destroyed or their base was attached; they did not gain points by destroying threats. Teams were awarded four points for capitalizing on a small opportunity and 16 points for capitalizing on a large opportunity. Teams lost eight points for each asset destroyed and eight points for each attack on a base. Destroyed assets were replenished at the start of each round in order to insure round by round comparability of resources and targets are removed from the environment once they are destroyed adding to the dynamic nature of the task environment. Targets were placed in the task environment in a predetermined fashion at the start of a scenario thus insuring that the task environment facing every MTS in the study was equivalent at the start of a scenario.

Specifics of the Laboratory Manipulation

MTS structure and participant roles. The nine-person MTS consisted of a four-person operations component team and a four-person intelligence component team, with the ninth member of the MTS serving in the capacity of information liaison, a role that was independent of either component team (see Figure 4). The entire MTS was located in a small room with each component team sitting at their own table at opposite ends of the room. The information liaison sat at a table in the middle of the room between the two component teams. Thus, there was nothing that physically prevented any member of the MTS from talking to any other member. Importantly, the time allocated to each round was also purposefully set short to negate the possibility of protracted negotiation or discussion and to keep cognitive load high; i.e., to force each individual to take decisions in ‘real time’ and, thereby, mimic or portray as closely as possible in a lab setting, the environment and situation facing a typical ‘real’ multiteam system.

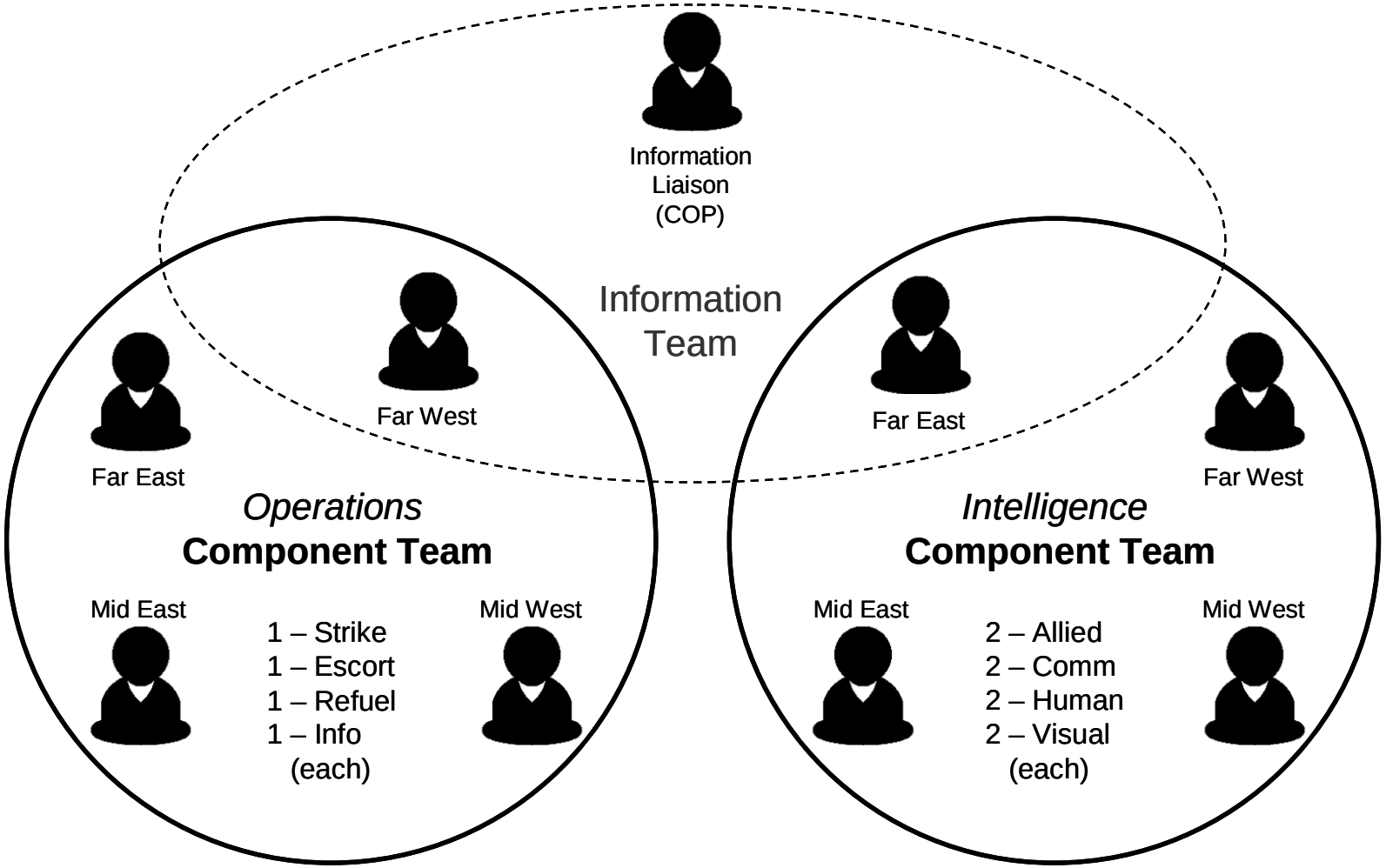

Figure 4. LDS Team Structure

To motivate active participation, subjects were able to earn a bonus of $10. There were multiple ways that a participant could earn the bonus – a high individual performance score, a high unit performance score, a high organization performance score, or high performance on a score calculated as the equal combination of the three. Participants did not know performance results until after the exercise was completed thus their actions were driven by their perceptions of performance and not feedback of actual performance. This approach was based on the findings of the multiple goals literature (e.g., Schmidt & DeShon, 2007).

Component teams. Each member of a component team had the same resources and capabilities as all other members of that component team. Each member of the Operations component team had control of one of each type of operations asset (i.e., one Strike RPA, one Escort RPA, one Refuel RPA, and one Info RPA), and each member of the intelligence component team had control of two of each type of intelligence asset (i.e., two Allied, two Communications, two Human, and two Visual. Members of the operations component team made 4 decisions per round while each intelligence component team member made 8 decisions per round.

Importantly, the two dimensions of regulatory mode, locomotion and assessment, were assumed to be prescriptively manipulated by the roles enacted in LDS. By the nature of the task and responsibilities, operations component team members were expected to be induced into a locomotion orientation while intelligence component team members were expected to be induced into an assessment orientation. Note that this manipulation only addressed two of four possible state conditions: high locomotion and high assessment. This is a limitation of the study, and an opportunity for future research, that is discussed in the Discussion Section.

Information team. Information exchange was facilitated through the use of an information team. This team was comprised of the information liaison, a member of the MTS not specifically assigned to either of the component teams, and a randomly selected representative from each of the two component teams. The two component team representatives assisted the information liaison by double checking that the information relayed from their respective sub-team appeared on the COP correctly. The information team had no formal authority and thus was not capable of editing or changing asset deployment decisions made by component team staff members (i.e., no team or member was tasked with leadership or coordination).

Two steps were taken to minimize the influence and impact of the information liaison role. First, direction given to the information liaison during training was intended to insure they understood their role was a passive one. As the following statement taken directly from the training script illustrates, the direction given the information liaison was crystal clear: "only information that is provided by the sub-team member is to be placed on the COP … nothing more … nothing less. It is their responsibility to provide target type, location, and a rating of confidence regarding the accuracy of the information. *Never* prompt them for information." Second, the researcher sat next to the information liaison thoroughout the whole of the performance episode to insure that the information liaison did not deviate from this instruction.

Updating of the COP could continue through the Sub-team Action sub-phase, and the time allocated to the Analysis sub-phase was purposely set short to force overlap of the COP update and asset deployment activities. This constraint was an important part of the manipulation as it required component team members to make a decision each round regarding how to best spend their limited time during the Sub-team Action sub-phase – deploying their assets

effectively, which directly impacted lower level goals, or updating the COP, which had greater implications for higher level goals.

Based on the information received from the members of the component teams, the information liaison was also able to indicate the degree of accuracy of the information on the COP through the use of *confidence indicators* that appear like "cell phone strength of reception indication bars" at the side of each icon displayed on the COP (see the example of a COP above).

Table 1. Confidence Indicator Codes

No indicator bar	N/A	No indication provided
1 indicator bar	Low confidence	Target identified by intel; accuracy unverified
2 indicator bars	Medium confidence	Not used
3 indicator bars	High confidence	Target identified by intel; accuracy verified
4 indicator bars	Ground truth	Target identified by operations

Every MTS in the study was trained on the meaning of the confidence indicators, and a chart containing the descriptions of the indicators was prominently displayed on the wall in plain sight of all participants to facilitate use of a common language and to minimize confusion.

Goal structure. The super-ordinate goal of the MTS is to maximize total score (net points). This is accomplished by accurately identifying a large number of targets, the key contribution of the intelligence component team, and by deploying the appropriate RPAs to destroy the targets, the key contribution of the operations component team. In support of this, the Operations component team was tasked with maximizing the number of targets destroyed (i.e. both large and small) while minimizing the number of assets lost to enemy attack (i.e., both RPAs and bases). The Intelligence component team was tasked with maximizing the amount of target information resulting from intelligence queries displayed on the COP while minimizing

the communication of incomplete information. At the individual performer level, members of the Operations component team were tasked with the goal of destroying targets independently (i.e., small targets that do not require coordinated action) without the loss of assigned assets (i.e., RPAs) while Intelligence component team members were tasked with the goal of accurately identifying targets and avoiding the underutilization of assets (i.e., non-deployments and bad queries).

Figure 5 provides further details of the goal hierarchy and associated goal targets. The goals and goal targets were clearly explained during the training and this information was prominently displayed on the wall in plain sight of all participants. Specific measures of performance against goals, documented in Table 2, are described in detail in the Measures Section.

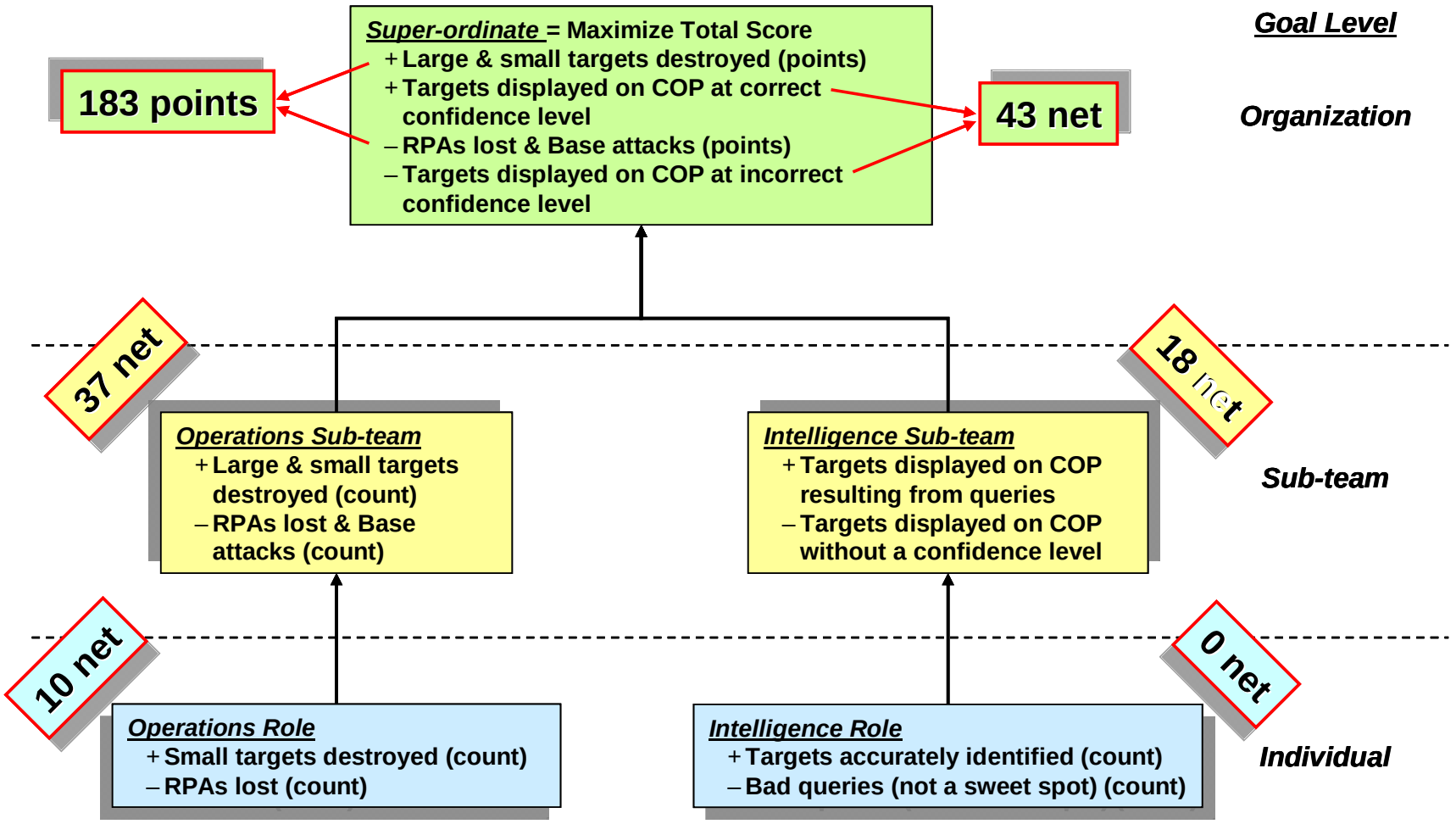

Figure 5. Hierarchy of Goal Measures (with Performance Targets)

Table 2. LDS Objective Measures

Goal level	Measure	Description of measure
MTS*	Total Points (T5)	Points from target destruction minus both assets lost points and bases attacked points
MTS	Targets accurately displayed on COP = 2 * (VC27 + VC28 + VC30 + VC17 + VC18 + VC20) – (VC1 + VC2)	Count of the number of icons displayed on the COP with accurate confidence level indication (3 or 4 bars for verified, 1 bar for unverified) minus icons displayed with an inaccurate indication
Component team – Operations*	Targets destroyed total (T1 + T2)	Count of the number of Ops missions resulting in destruction of a target (threat or opportunity)
Component team – Operations*	RPAs lost and Base attack (T3 + T4)	Count of the number of Ops missions resulting in loss of an RPA or a Base attack
Component team – Intelligence	Targets displayed on COP resulting from queries (V9 + V14)	Count of accepted Intel queries resulting in an any type of icon displayed on the Common Operating Picture
Component team – Intelligence	Targets displayed on COP at unknown confidence resulting from queries (V61 + V62)	Count of accepted Intel queries resulting in an any type of icon displayed on the Common Operating Picture at unknown confidence (i.e., 0 bars)
Individual – Ops*	Small targets destroyed (Extracted from LDS Scores Table)	Count of the number of Ops missions by RPAs assigned to the individual resulting in destruction of a small target (threat or opportunity)
Individual – Ops*	RPAs lost (Extracted from LDS Scores Table)	Count of the number of Ops missions resulting in loss of an RPA assigned to the individual
Individual – Intel	True positive queries (V59)	Count of Intel queries where a target is displayed (Intel Results) and it is the actual (true) target
Individual – Intel	Bad queries (i.e., not deployed to a sweet spot) (V1 – V5)	Count of the total number of Intel queries minus count of Intel queries where an intel asset was sent to a sweet spot (cell where asset type accuracy > 80%)

* - Individual contribution at this goal level extracted from LDS Scores Table

Training. All teams received the same comprehensive training for LDS consisting of a 20 minute illustrated slide presentation followed by 2 rounds of hands-on scripted training and practice using a scenario specifically designed for training purposes. As identity was an important dimension of this study, the training consisted of both organization level training delivered to the group as a whole (e.g., slide presentation) and sub-team specific training delivered independently, but at the same time, to the two component teams (e.g., how to deploy their assets). However, so as not to bias identity activation, the training instructions repeatedly emphasized the multiple ways that participants were able to earn bonus money.

To insure the consistency of training received by all teams the illustrated slide presentation was automated and used pre-recorded voice over, and the hands-on training was conducted utilizing a written protocol and script. The hands on training instructed participants on the ins and outs of asset deployment, how to place target icons on the COP and assign a confidence indicator (CI) to them, how to read intelligence feedback reports, and the different methods they might use to ascertain the accuracies ("sweet spot" sectors) of their intelligence assets (e.g., using a fixed target identified by an operations asset in a previous round as a test target for intel asset types in later rounds). Finally, a survey to check the effectiveness of the training was completed by all participants prior to the start of the simulation (see Appendix C).

LDS scenario specifics. After the training, teams participated in a total of 15 rounds of LDS broken into two time periods. The first time period comprised five rounds and the second time period comprised ten rounds. This longitudinal approach allowed for the temporal separation of measures, and resetting of the task environment for Time Period 2 to insure performance measurement was consistent. As previously delineated, each round was around 4

minutes in length thus Time Period 1 took approximately 30 minutes to complete all in (i.e., including pre-game intelligence briefing and planning), and Time Period 2 ran under an hour.

Time Period 1. The information provided in the pre-scenario intelligence briefing for Time Period 1 was as follows: "cluster of large targets somewhere in Rows 13 thru 16, middle of the grid contain a mixture of small, mobile and fixed targets, and Rows 1 thru 4 are empty." Further, in this time period, all Visual and Communications assets were 95% accurate (5% inaccurate) in the border sectors (rows 1-4 and rows 13-16), and all Allied and Human assets were 95% accurate (5% inaccurate) in the central sector (rows 5-12).

Time Period 2. As previously explained, the task environment was reset for time period 2 to insure performance measurement was consistent (i.e., every RP / MTS faces the same environment at the beginning of the performance measurement period). The information provided in the pre-scenario intelligence briefing for Time Period 2 differed slightly from the Time Period 1 briefing: "large targets in the top few rows of the grid, middle of the grid contain a mixture of small, mobile and fixed targets, some targets in Rows 5 through 8 are headed south, and Rows 1 and 2 are empty." In addition, Time Period 2 included an 'unknown' target as a distraction to create additional cognitive load. Specifically, the icon for one of the known target types had been replaced by the letter 'X' to hide its identity. Thus, unknown target 'X' was the known target type it replaced, only the visual representation on the game grid had been changed. Teams were briefed on the unknown target as part of intelligence briefing given just prior to the last 10 rounds. They were also told that intelligence accuracies may or may not be different in this time period than they were in the time period just completed (they actually were), thus, they needed to be on guard for this and adapt accordingly. This was intended to increase the assessment salience and involvement of the intelligence roles (i.e., need to constantly analyze)

while resetting every multiteam system in the study to the same baseline state at the start of time period 2.

In Time Period 2, all Visual assets were 95% accurate (5% inaccurate) in the central sector (rows 5-12), all Communications assets were 95% accurate (5% inaccurate) in the border sectors (rows 1-4 and rows 13-16), all Allied assets were 95% accurate (5% inaccurate) in the south sector (rows 1-8), and all Human assets were 95% accurate (5% inaccurate) in the north sector (rows 9-16).

Finally, commitment to goals is only a truly meaningful construct when goals are difficult (Hollenbeck, Williams, & Klein, 1989). Thus stretch goals were assigned – overall MTS goals, goals for each of the component teams, and individual role goals – based on extant normative data on performance from teams that had previously experienced LDS. (Figure 5 illustrates the goal hierarchy in LDS and documents the assigned goals.) Goals were discussed and delineated during both the training and the intelligence briefing held prior to each time period, and participants documented their goal targets in the survey conducted prior to start of the first round.

Surveys. At the time of registration, a week or more prior to arriving for the study, research participants completed a survey to measure chronic individual differences in regulatory mode and self-concept. Trait regulatory mode was measured this using the 24-item Regulatory Mode Questionnaire (RMQ) developed by Kruglanski and colleagues, the most widely used measure of regulatory mode in the literature (Kruglanski et al., 2000; included as Appendix A). Twelve of the items are specific to assessing the assessment dimension of regulatory mode, and twelve items are specific to assessing the locomotion dimension of regulatory mode. Trait self-concept was measured using the 15-item Levels of Self-concept Scale (LSCS) developed by Selenta and Lord (2005; included as Appendix B). The LSCS comprises three subscales

measuring self-concept across three levels; the comparative identity subscale measures self-concept at the individual-level, the concern for others subscale measures self-concept at the relational-level, and the group achievement focus subscale measures self-concept at the collective-level.

After the intelligence briefing for Time Period 2 but prior to actual game play ("Time 1"), RPs completed a survey consisting of six scales to measure their goal commitment and degree of identification at each of the three levels in the multiteam system (i.e., individual, component team, and multiteam system levels). Three of these scales are adapted from the nine item Hollenbeck and colleagues goal commitment scale (Hollenbeck, O'Leary et al., 1989; see Appendix D). Individual identity was measured utilizing a 5-item scale adapted from the comparative identity subscale of the Levels of Self-concept Scale, LSCS (Johnson et al., 2006; see Appendix E). Two eight item scales adapted from Roccas and colleagues group identification scale (Roccas, Sagiv, Schwartz, Halevy, & Eidelson ,2008) were employed to measure identities at the component team and the multiteam system levels (see Appendix F).

As a check the effectiveness of the enacted role regulatory orientation manipulation, RPs completed a short survey consisting of the RMQ items altered to reference current time (i.e., "right now") at the end of Time Period 2 (see Appendix G). Lastly, prior to the start of Time Period 1 ("Time 0"), but after the pre-scenario intelligence briefing, RPs completed a survey instrument developed to provide feedback regarding the effectiveness of the training (see Appendix C). This latter survey was collected solely to check the proficiency of the training and was not specifically used in any analyses.

Overview of Analysis

This study investigated phenomena at the individual level in the context of a multi-team system. Thus group membership effects (i.e., lack of independence) were a potentially important source of variance for the phenomenon of interest. I conducted ANOVAs to test for lack of independence and where the evidence supported lack of independence (i.e., meaningful variance exists at the group levels of the model) I grand mean centered study variables before utilizing OLS regression to test the hypotheses. Interaction terms employed to test moderation were created from the main effect variables grand mean centered to minimize issues associated with nonessential multicollinearity (per Cohen, Cohen, West and Aikens, 2003, p. 267). The regression coefficients resulting from this methodology represent a combination of individual-level effects and the effects of membership in a group. Finally, the hypothesized relationships are all directional predictions therefore single tailed tests of significance were employed where required to alleviating concerns related to power.

Measures. The model of the hypothesized relationships (see Figure 1) investigated in this study contained three criterion variables and eight predictor variables, all measured at the individual level, and two situation-induced regulatory mode conditions resulting from the requirements of specific roles. Cronbach's Alpha was calculated for all self-report scales used in this study; the internal consistency of these scales ranged from acceptable to excellent (See Table 3).

Table 3. Scale Reliabilities

Scale	Items	Cronbach's Alpha
Trait assessment (RMQ)	12	.85
Trait locomotion (RMQ)	12	.84
Comparative identity subscale (Trait individual identity)	5	.76
Concern for others subscale (Trait relational identity)	5	.74
Group achievement focus subscale (Trait collective identity)	5	.68
Individual level goal commitment	5	.84
Component team level goal commitment	5	.87
MTS level goal commitment	5	.88
Individual role identity	5	.85
Component team identity	8	.88
Multiteam system identity	8	.92
State assessment (RMQ-based)	12	.82
State locomotion (RMQ-based)	12	.87

Objective performance (criterion variable at level-1). In order to mirror the goal hierarchy in a MTS, this study employed a three tiered approach to performance measurement. As this study was interested in investigating the determinants of performance focus, it was important that performance contribution from behaviors directed primarily at each specific level in the goal hierarchy be delineated. Therefore, the incremental performance targeted at the specific goals of a focal level was used in the respective analyses of that level. In addition, to allow for the temporal separation of predictor (e.g., goal commitment and identity) and criterion

variables, performance was measured over the ten rounds of Time Period 2 only. The end of this time period is denoted "Time 2."

Specifically, performance contribution by an Operations component team member at the individual level was measured as the number of small targets destroyed by the focal member minus the number of RPAs under their control that were destroyed, and incremental performance contribution at the component team level was measured as the number of large targets destroyed with the involvement of RPAs under a focal member's control minus the number of base attacks. Operations component team member incremental performance contribution at the MTS level was measured as the points resulting from the deployment of assigned assets minus the number of targets destroyed plus the number of RPAs destroyed and base attacks. (Note: incremental performance contribution at the MTS level represents the weighted point value net of the activity oriented measure of performance at the component team level.) Performance of Intelligence component team members at the individual level was measured as the number of targets accurately identified by assigned assets (i.e., true positives) minus the number of bad queries (i.e., missions that do not target the intelligence asset's sweet spot zone), and incremental performance contribution at the component team level was measured as the number of targets resulting from a focal member's queries displayed on the COP minus the number of targets displayed on the COP without a confidence level indication. Finally, Intelligence component team member incremental performance contribution at the MTS level was measured as the number of targets displayed on the COP with the correct confidence indication (i.e., accurately displayed) minus the number of targets displayed on the COP with an incorrect confidence indication (i.e., inaccurately displayed). Figure 5 presents this information in graphic form and Table 2 presents it in table format.

Chronic regulatory mode (predictor variables at level-1). Chronic regulatory mode orientation was measured at the time that participants register for the study thus providing temporal separation between this measure and participation in the experiment. As discussed previously, I plan to measure chronic regulatory mode orientation using the 24-item Regulatory Mode Questionnaire (RMQ) developed by Kruglanski and colleagues (Kruglanski et al., 2000; Appendix A). Thorough psychometric testing of these scales was conducted and reported in Kruglanski et al. (2000):

> "Overall, the correlation between the two indexes was quite small, but it was reliable in the large omnibus sample, r(4256) = .11, $p < .001$. The very small amount of overlapping variance (about 1%) is consistent with the proposition that the locomotion and assessment scales are measuring distinct psychological dimensions." (p. 802)
>
> "… we found that our Assessment and Locomotion Scales are unidimensional and possess satisfactory degrees of internal consistency and temporal stability. These properties were demonstrated across numerous replications, including a cross-cultural replication with an Italian sample. Our Locomotion and Assessment Scales satisfactorily distinguished between groups that on a priori grounds may be expected to emphasize one tendency more so than another.
>
> Our Locomotion and Assessment Scales related in a theoretically predicted way to several individual difference constructs and demonstrated discriminant validity in regard to other constructs …" (p. 812).

Chronic self concept (control variables at level-1). Three levels of chronic self-concept were also measured at the time that participants register for the study thus providing temporal

separation between this measure and participation in the experiment. As discussed previously, chronic self-concept was measured using the 15-item Levels of Self-concept Scale (LSCS) developed by Selenta and Lord (2005; included as Appendix B). The LSCS contains multiple subscales at each of the three levels of self-concept, however in accordance with the technique employed by Johnson and colleagues, only the first scale at each level was used in this study as these are "most indicative of their respective self-concept level" (Johnson et al., 2006, p. 180). As discussed by Johnson et al. (206, p. 180):

> LSCS items are "based on a set of constructs reflected in the literature on self-concept levels (e.g., Brewer & Gardner, 1996). Evidence for the validity of the LCSC was established using a two-step process. First, factor analytic evidence established the distinction among the three self-concept levels and specific item–factor associations. Second, regression analyses involving values (Schwartz, 1992), self-consciousness (Scheier & Carver, 1985), masculinity–femininity (Spence & Helmreich, 1978), and individuals' sex (Gabriel & Gardner, 1999) demonstrated the convergent and discriminant validity of the self-concept subscales."

Goal commitment (predictor variable at level-1). Three scales were used, one per hierarchical level in a multiteam system (i.e., one per goal level), adapted from the Hollenbeck and colleagues goal commitment scale (Hollenbeck, O'Leary et al., 1989; see Appendix D).This scale has been described as "a general, flexible measure in that it can be used to assess goal commitment regardless of goal origin or timing" (Seijts & Latham, 2000, p. 320), and is one of the most commonly used measures of goal commitment (Klein et al., 1999; Wright, O'Leary, Cortina, Klein, & Hollenbeck, 1994).

The psychometric properties of the original scale were thoroughly tested in a manner that is consistent with recommendations for construct validity analysis (see Hollenbeck, O'Leary et al., 1989). Analyses using a single sample (Hollenbeck, Williams, & Klein, 1989) and a collection of three independent samples (from Hollenbeck, Williams, & Klein, 1989; Klein, 1987, and Wright, 1987) strongly suggest use of either a four or seven item version of the scale. Both of these versions reveal uni-dimensionality when factor analyzed, and good internal consistency reliabilities (Cronbach's alpha of .71 for the four item scale in the multi-sample analysis and alphas of .88 and .80 in the two studies for the seven item scale).

An analysis conducted by Klein and colleagues (1999) combined the results of 17 independent samples and 2,918 respondents. Utilizing meta-analytic techniques and confirmatory factor analysis, this study found that a five item version of the scale maximized fit of the uni-dimensional goal commitment model. Based on this result, I plan to employ the five item scale. Further, as was used in the construct validation studies, I will employ a 7-point Likert response scale anchored by *strongly agree / strongly disagree,* with negative items recoded so that a high score on the scale is indicative of high goal commitment. This scale was used to measure both degree of commitment to component team goals and to MTS goals.

Identity (predictor variables at level-1). As with goal commitment I used three scales to measure identities at the different hierarchical levels in a multiteam system (see Appendices D and E). At the individual level I employed a 5-item scale adapted from the comparative identity subscale of the Levels of Self-concept Scale (LSCS; Johnson et al., 2006). Comparative identity emphasizes one's abilities, performance, and general standing relative to that of others. The LSCS is based on the constructs reflected in the literature on self-concept levels (e.g., Brewer & Gardner, 1996). Factor analysis was used to establish the distinction among the three self-

concept levels in the LSCS, and regression analysis involving several different theoretically related and unrelated constructs was used to demonstrate the convergent and discriminant validity of the self-concept subscales (Johnson et al., 2006). Lastly, Johnson and colleagues reported that the comparative identity subscale exhibited a high degree of internal consistency ($\alpha = .90$).

Two eight item scales adapted from Roccas and colleagues group identification scale (Roccas et al.,2008) were employed to measure identities at the component team and the multiteam system levels (see Appendix F). The Roccas et al. scale integrates conceptions from four closely related perspectives – social identity, individualism–collectivism, nationalism–patriotism, and identification with organizations – into a conceptualization of identity consisting of four distinct modes (sub-dimensions): "importance (how much I view the group as part of who I am), commitment (how much I want to benefit the group), superiority (how much I view my group as superior to other groups), and deference (how much I honor, revere, and submit to the group's norms, symbols, and leaders)" (Roccas et al., 2008, p. 280). The scale utilized a 7-point response scale anchored by *strongly agree / strongly disagree*.

The eight items that were used encompass two of the four sub-dimensions of the scale, Importance (four items) and Commitment (four items). Importance represents the degree to which an individual perceives the group as an important part of their self-definition, and the degree to which they define themselves in terms of the group (i.e., think of the group in terms of "we" rather than "they"). "It follows directly from Tajfel's definition of social identity and is consistent with the emphasis on the cognitive aspects of identity in self-categorization theory (e.g., Turner et al., 1987). This mode also captures an element of Triandis's definition of collectivism ("closely linked individuals who see themselves as parts of one or more

collectives"). It is especially related to horizontal collectivism, which refers to shared goals and a sense of similarity to other group members." (Roccas et al., 2008, p. 283).

Commitment refers to the desire to contribute to the welfare of the group. Like Importance, it is closely linked to Tajfel's definition of social identity, thus studies from the social identity perspective frequently emphasize it, and it refers specifically to horizontal collectivism. In addition, "This mode of identification also captures a key element in Triandis's definition of collectivism ("willing to give priority to the goals of these collectives over their own personal goals"). … Finally, this mode is central to organizational research, especially to studies on organizational commitment (e.g., Meyer & Allen, 1997; Mowday, 1998; Mowday et al., 1979)" (Roccas et al., 2008, p. 284).

In a series of studies conducted by Roccas and colleagues (Roccas et al., 2008) on both work and military samples, this scale was shown to fit the proposed four mode model better than alternative one factor and two factor models. For example, three samples drawn from work organizations yielded the following fit indices: $\chi^2 / df = 2.87$ ($\chi^2 = 849.65$, $df = 296$), CFI = .92, and RMSEA = .052. Although the eight items to be adapted for use in this study represent two of these four factors, Importance and Commitment, I expect that a one factor model will adequately fit the data because these two factors correlated highly in all of the reported studies (e.g., r = .79, .76, .77).

Enacted role (state) regulatory mode (manipulation check). The structure employed in this study was purposely chosen because it places half of the participants in a prescriptively locomotion oriented task role (i.e., "Operations team member") and the other half in a prescriptively assessment oriented task role (i.e., "Intelligence team member"). As a check of this manipulation, after completing all 15 rounds RPs completed a short survey consisting of the

RMQ items adjusted to reflect current state orientation to check the effectiveness of the regulatory mode manipulation (see Appendix G). Sample survey questions are: “During the scenario just completed, I didn’t mind doing things even if they involved extra effort” and “I am a "workaholic" will read “I could easily have continued on playing the first game” (two questions from the Locomotion scale). In addition, the instructions for the RMQ were altered and read: “Take a few moments to reflect back on your participation in the scenario of LDS which you have just completed. Then, please answer the following question with only these reflections in mind; i.e., how you feel right now based on your participation in the scenario.”

Results

Table 4 presents descriptive statistics and correlations for all key study variables across both situation-induced conditions, Table 5 presents the same for the situation-induced assessment condition only, and Table 6 for the locomotion condition only. Scale reliability (Cronbach's Alpha) was calculated for all self-reported scales used in this study and documented along the diagonal of Tables 4, 5 and 6. Table 7 contains goodness-of-fit statistics resulting from confirmatory factor analysis employing LISREL 8.8 (Jöreskog & Sörbom, 1996) for the scales used in this study, and Table 8 contains the results of tests conducted to determine the situation-induced regulatory mode state of research participants in the two study conditions. Tables 9, 10 and 11 contain the results of one-way random effects ANOVAs conducted to determine the proportion of the variance explained at the level of the multiteam system (i.e., degree of interdependence). Tables 12 through 24 contain the results of the OLS regression tests of the study hypotheses. All reported point estimates are standardized and tests of significance are two-tailed unless otherwise specified.

Measurement Model Goodness-of-Fit

Prior to conducting the analyses the goodness-of-fit properties of the measurement models for all latent constructs were investigated utilizing confirmatory factor analysis (CFA); Table 7 presents a summary of the results. All analyses were conducted using LISREL 8.8 (Jöreskog & Sörbom, 1996). The chi-squared goodness of fit statistic is sensitive to sample size and to violations of multivariate normality assumptions, therefore, four other fit statistics recommended in the measurement literature were used (see Bollen & Long, 1993; http://davidakenny.net/cm/fit.htm).

Table 4. Descriptive Statistics and Correlations (both conditions)

	Variables	Mean	s.d.	1		2		3		4		5	
1.	MTS-level performance contribution	0.00	1.00	-									
2.	Component team-level performance contribution	0.00	1.00	0.62	**	-							
3.	Individual role performance contribution	0.00	1.00	0.40	**	0.17	*	-					
4.	State assessment (T2)	3.60	0.74	0.06		0.09		0.07		***0.82***			
5.	State locomotion (T2)	4.14	0.84	0.21	**	0.18	*	0.20	*	0.40	**	***0.87***	
6.	MTS goal commitment (T1)	4.75	1.15	0.04		0.12		-0.08		0.31	**	0.46	**
7.	Component team goal commitment (T1)	4.95	1.12	0.04		0.11		-0.03		0.43	**	0.50	**
8.	Individual goal commitment (T1)	4.77	1.20	-0.08		-0.04		0.01		0.35	**	0.36	**
9.	MTS identity (T1)	4.76	1.14	0.17	*	0.20	*	-0.07		0.19	*	0.37	**
10.	Component team identity (T1)	5.40	0.97	0.14	†	0.24	**	-0.02		0.26	**	0.44	**
11.	Individual role identity (T1)	2.57	0.92	-0.05		-0.07		0.05		0.27	**	-0.04	
12.	Trait collective identity (pre-lab)	4.05	0.52	-0.04		0.18	*	0.02		0.24	**	0.21	**
13.	Trait relational identity (pre-lab)	4.42	0.42	-0.12		0.04		-0.05		0.14	†	0.08	
14.	Trait individual identity (pre-lab)	3.34	0.70	0.02		0.08		0.01		0.30	**	0.07	
15.	Trait assessment (pre-lab)	4.02	0.70	-0.04		-0.05		0.07		0.32	**	0.02	
16.	Trait locomotion (pre-lab)	4.44	0.58	-0.04		0.03		-0.08		0.14	†	0.23	**

Notes. N = 159 individual-level observations from 20 MTSs. Scale reliabilities are on the diagonal.

** $p < .01$ (two-tailed tests).

* $p < .05$ (two-tailed tests).

† $p < .10$ (two-tailed tests).

Table 4 (cont'd)

	Variables	Mean	s.d.	6		7		8		9		10	
6.	MTS goal commitment (T1)	4.75	1.15	***0.91***									
7.	Component team goal commitment (T1)	4.95	1.12	0.84	**	***0.87***							
8.	Individual goal commitment (T1)	4.77	1.20	0.62	**	0.60	**	***0.87***					
9.	MTS identity (T1)	4.76	1.14	0.65	**	0.54	**	0.31	**	***0.92***			
10.	Component team identity (T1)	5.40	0.97	0.54	**	0.56	**	0.27	**	0.67	**	***0.88***	
11.	Individual role identity (T1)	2.57	0.92	-0.02		0.10		0.13		-		-	
12.	Trait collective identity (pre-lab)	4.05	0.52	0.27	**	0.25	**	0.28	**	*0.22*	**	0.33	**
13.	Trait relational identity (pre-lab)	4.42	0.42	0.16	*	0.13	†	0.17	*	0.10		*0.12*	
14.	Trait individual identity (pre-lab)	3.34	0.70	-0.01		0.11		0.14	†	0.07		*0.12*	
15.	Trait assessment (pre-lab)	4.02	0.70	-0.04		0.06		-0.05		-		*0.10*	
16.	Trait locomotion (pre-lab)	4.44	0.58	0.16	*	0.20	*	0.15	†	0.10		0.16	*

	Variables	Mean	s.d.	11		12		13		14		15		
11.	Individual role identity (T1)	2.57	0.92	***0.85***										
12.	Trait collective identity (pre-lab)	4.05	0.52	0.14	†	***0.68***								
13.	Trait relational identity (pre-lab)	4.42	0.42	0.13		0.45	**	***0.74***						
14.	Trait individual identity (pre-lab)	3.34	0.70	0.38	**	0.28	**	0.22	**	***0.76***				
15.	Trait assessment (pre-lab)	4.02	0.70	0.36	**	*0.20*	*	0.18	*	0.58	**	***0.85***		
16.	Trait locomotion (pre-lab)	4.44	0.58	0.09		0.51	**	0.36	**	0.23	**	0.20	*	***0.84***

Table 5. Descriptive Statistics and Correlations (high state assessment condition only)

	Variables	Mean	s.d.	1		2		3	4	
1.	MTS-level performance contribution	-5.53	9.70	-						
2.	Component team-level performance contribution	4.53	5.31	0.47	**	-				
3.	Individual role performance contribution	-24.62	14.66	0.22	*	0.29	**	-		
4.	MTS goal commitment (T1)	4.51	1.15	0.00		0.08		-0.08	***0.88***	
5.	Component team goal commitment (T1)	4.71	1.13	0.05		0.09		0.06	0.83	**
6.	Individual goal commitment (T1)	4.61	1.21	-0.17		-0.16		0.13	0.60	**
7.	MTS identity (T1)	4.66	1.08	0.20	†	0.18		-0.07	0.59	**
8.	Component team identity (T1)	5.29	0.97	0.08		0.29	*	-0.06	0.39	**
9.	Individual role identity (T1)	2.56	0.93	-0.15		-0.15		0.13	-0.02	
10.	Trait collective identity (pre-lab)	4.04	0.53	-0.36	**	0.04		-0.02	0.18	
11.	Trait relational identity (pre-lab)	4.38	0.42	-0.29	*	0.02		-0.04	0.10	
12.	Trait individual identity (pre-lab)	3.34	0.73	-0.10		-0.04		0.11	-0.05	
13.	Trait assessment (pre-lab)	4.01	0.74	-0.13		-0.13		0.15	-0.17	
14.	Trait locomotion (pre-lab)	4.39	0.60	-0.24	*	-0.12		-0.17	0.17	

Notes. N = 79 individual-level observations from 20 4-member Intelligence component teams. Scale reliabilities are on the diagonal.

** $p < .01$ (two-tailed tests).

* $p < .05$ (two-tailed tests).

† $p < .10$ (two-tailed tests).

Table 5 (cont'd)

	Variables	Mean	s.d.	5		6		7		8		9	
5.	Component team goal commitment (T1)	4.71	1.13	***0.86***									
6.	Individual goal commitment (T1)	4.61	1.21	0.55	**	***0.83***							
7.	MTS identity (T1)	4.66	1.08	0.54	**	0.25	*	***0.90***					
8.	Component team identity (T1)	5.29	0.97	0.50	**	0.21	†	0.54	**	***0.86***			
9.	Individual role identity (T1)	2.56	0.93	0.15		0.20	†	-0.02		-0.01		***0.85***	
10.	Trait collective identity (pre-lab)	4.04	0.53	0.21	†	0.25	*	0.03		0.28	*	*0.17*	
11.	Trait relational identity (pre-lab)	4.38	0.42	0.05		0.05		0.03		-0.04		0.21	†
12.	Trait individual identity (pre-lab)	3.34	0.73	0.11		0.14		0.01		0.09		0.50	**
13.	Trait assessment (pre-lab)	4.01	0.74	-0.02		-0.10		-0.07		0.07		0.47	**
14.	Trait locomotion (pre-lab)	4.39	0.60	0.24	*	0.23	*	0.01		0.11		0.31	**

	Variables	Mean	s.d.	10		11		12		13		14
10.	Trait collective identity (pre-lab)	4.04	0.53	***0.65***								
11.	Trait relational identity (pre-lab)	4.38	0.42	*0.41*	**	***0.78***						
12.	Trait individual identity (pre-lab)	3.34	0.73	*0.36*	**	0.21	†	***0.78***				
13.	Trait assessment (pre-lab)	4.01	0.74	*0.31*	**	0.14		*0.69*	**	***0.87***		
14.	Trait locomotion (pre-lab)	4.39	0.60	0.47	**	*0.30*	**	0.35	**	0.21	†	***0.85***

Table 6. Descriptive Statistics and Correlations (high state locomotion condition only)

	Variables	Mean	s.d.	1	2	3	4
1.	MTS-level performance contribution	3.38	26.31	-			
2.	Component team-level performance contribution	1.46	2.61	0.77 **	-		
3.	Individual role performance contribution	1.14	2.72	0.58 **	0.06	-	
4.	MTS goal commitment (T1)	4.99	1.10	0.07	0.16	-0.09	***0.88***
5.	Component team goal commitment (T1)	5.19	1.08	0.04	0.13	-0.14	0.83 **
6.	Individual goal commitment (T1)	4.93	1.17	0.01	0.07	-0.12	0.62 **
7.	MTS identity (T1)	4.87	1.19	0.15	0.21 †	-0.08	0.71 **
8.	Component team identity (T1)	5.50	0.97	0.20 †	0.19 †	0.03	0.68 **
9.	Individual role identity (T1)	2.57	0.91	0.05	0.02	-0.03	-0.02
10.	Trait collective identity (pre-lab)	4.07	0.52	0.27 *	0.31 **	0.07	0.36 **
11.	Trait relational identity (pre-lab)	4.46	0.41	0.05	0.07	-0.05	0.19 †
12.	Trait individual identity (pre-lab)	3.35	0.68	0.14	0.21 †	-0.10	0.02
13.	Trait assessment (pre-lab)	4.03	0.66	0.06	0.04	-0.02	0.10
14.	Trait locomotion (pre-lab)	4.48	0.56	0.18	0.20 †	0.02	0.13

Notes. N = 80 individual-level observations from 20 4-member Operations component teams. Scale reliabilities are on the diagonal.

** $p < .01$ (two-tailed tests).

* $p < .05$ (two-tailed tests).

† $p < .10$ (two-tailed tests).

Table 6 (cont'd)

	Variables	Mean	s.d.	5		6		7		8		9	
5.	Component team goal commitment (T1)	5.19	1.08	***0.86***									
6.	Individual goal commitment (T1)	4.93	1.17	0.64	**	***0.86***							
7.	MTS identity (T1)	4.87	1.19	0.54	**	0.35	**	***0.93***					
8.	Component team identity (T1)	5.50	0.97	0.60	**	0.32	**	0.79	**	***0.89***			
9.	Individual role identity (T1)	2.57	0.91	0.05		0.05		-0.01		0.00		***0.85***	
10.	Trait collective identity (pre-lab)	4.07	0.52	0.29	*	0.30	**	0.38	**	0.38	**	*0.11*	
11.	Trait relational identity (pre-lab)	4.46	0.41	0.19	†	0.28	*	0.14		0.27	*	0.05	
12.	Trait individual identity (pre-lab)	3.35	0.68	0.11		0.13		0.13		0.15		0.26	*
13.	Trait assessment (pre-lab)	4.03	0.66	0.16		0.00		0.02		0.12		0.24	*
14.	Trait locomotion (pre-lab)	4.48	0.56	0.13		0.05		0.17		0.20	†	-0.14	

	Variables	Mean	s.d.	10		11		12		13		14
10.	Trait collective identity (pre-lab)	4.07	0.52	***0.72***								
11.	Trait relational identity (pre-lab)	4.46	0.41	*0.49*	**	***0.70***						
12.	Trait individual identity (pre-lab)	3.35	0.68	*0.19*	†	0.24	*	***0.74***				
13.	Trait assessment (pre-lab)	4.03	0.66	*0.08*		0.22	†	*0.45*	**	***0.83***		
14.	Trait locomotion (pre-lab)	4.48	0.56	0.54	**	*0.43*	**	0.10		0.19	†	***0.83***

Table 7. Confirmatory Factor Analysis of Scales Employed in this Study

	X^2 / df	RMSEA	90% Confidence Interval	Closeness of Fit	SRMR	NNFI
Trait Regulatory Mode Questionnaire (2 factor)	1.60	0.062	(0.050, 0.073)	$p = 0.05$	0.084	0.93
Multiteam System Goal Commit at T1	1.56	0.060	(0, 0.100)	$p = 0.32$	0.031	0.99
Component Team Goal Commit at T1	1.17	0.033	(0, 0.081)	$p = 0.67$	0.033	0.99
Individual Role Goal Commit at T1	1.30	0.044	(0, 0.088)	$p = 0.54$	0.034	0.99
Identity at T1 (3 factor)	1.63	0.063	(0.045, 0.080)	$p = 0.10$	0.066	0.97
State Regulatory Mode Questionnaire (2 factor)	1.44	0.053	(0.038, 0.066)	$p = 0.36$	0.071	0.97

Steiger's (1990) Root Mean Square Error of Approximation (RMSEA) and Hu and Bentler's (1999) Standardized Root Mean Square Residual (SRMR) are measures of the average standardized residuals of the predicted covariance matrix from the observed covariance matrix. As absolute measure of (bad) fit they presume that the best fitting model has a fit statistic of zero, thus, lower values for these statistics are better. MacCallum, Browne and Sugawara (1996) suggest that RMSEA values less than .01, .05, and .08 indicate excellent, good, and acceptable fit to the data, respectively while Browne and Cudeck (1993) set the rule-of-thumb for acceptable fit at less than .10. Further, the closeness of fit measure is a one-sided test of the null hypothesis that the population RMSEA is .05; a non-significant p (> .05) indicates a close fitting model. A value less than .08 for SRMR is generally considered a good fit (Hu & Bentler, 1999).

The Tucker-Lewis (1993) or Non-normed Fit Index (TLI or NNFI) is an incremental measure of fit selected because it is less affected by sample size than many of the other measures (Bentler, 1990; Bollen, 1990; Hu & Bentler, 1995, 1998). In addition, more parsimonious (i.e., more constrained) models are rewarded by an increase in the fit index because NNFI takes the degrees of freedom of the specified model and the independence model into consideration. Analogous to R^2, a value of one indicates a prefect fit, values over .97 indicate excellent fit, values between .95 and .97 indicate good fit, and values between .90 and .95 indicate acceptable fit (Hu & Bentler, 1999).

As reported in Table 7, all scales employed in this study exceed both the RMSEA and the SRMR metric for acceptable fit with the exception of trait regulatory mode (SRMR = .084), several scales exceed the RMSEA and SRMR metrics for good fit, and all the 90% confidence intervals for RMSEA include .05. In addition, the NNFI statistic indicates that all scales have good to excellent fit except for trait regulatory mode which has an acceptable fit (NNFI = .93).

Finally, Hu and Bentler (1999) recommend a 2-index strategy using a cutoff value close to .95 for NNFI in combination with a cutoff value close to .09 for SRMR. All scales employed in this study exceed this metric with the exception of trait regulatory mode which is arguably close. Therefore, it is reasonable to employ these scales as representations of their respective underlying latent constructs.

Test of Study Conditions

The hypotheses in this study are dependent upon the state regulatory mode of the research participants and, thus, the study was designed to induce one half of the participants into a high assessment state and one half of the participants into a high locomotion state. Specifically, the design expectation was that placing individuals into Intelligence component team roles would induce a high assessment state (situation-induced assessment condition) and that placing individuals into Operations component team roles would induce a high locomotion state (situation-induced locomotion condition). Independent samples means t-tests were employed to compare participant's role (state) regulatory modes across the two component teams. As documented in Table 8, there was no significant difference in state assessment between the two component teams (difference in means = -.071, $t(157) = -.604$, p = n.s.) but there was a significant difference in state locomotion (difference in means = -.664, $t(157) = -5.44$, $p < .01$).

Table 8. Component team-level Independent-samples Means Tests of Regulatory Mode

	Trait		State (enacted role)	
Component Team	Assessment	Locomotion	Assessment	Locomotion
Mean: Intelligence*	4.011	4.394	3.564	3.805
Operations*	4.030	4.484	3.635	4.470
Difference	-.020	-.090	-.071	-.664
Significance (2-tailed)	t(157) = -.176 p = .860	t(157) = -.975 p = .331	t(157) = -.604 p = .547	t(157) = -5.440 p = .000

* - Levene's Test for Equality of Variances was not significant.

These findings suggest that assignment to an Operations component team role induced a high locomotion state whereas assignment to an Intelligence component team role may not have induced a high assessment state. Therefore, only the hypotheses for the situation-induced high locomotion condition were tested solely under the assumption that the manipulation was successful. The hypotheses for the situation-induced high assessment condition were tested twice. The situation-induced high assessment condition hypotheses were first tested under the assumption that the manipulation worked as intended; i.e., that the manipulation check was erroneous. The hypotheses were then tested employing the assumption that the manipulation check was accurate; i.e., that the manipulation had not worked as intended. The second set of tests utilized interaction terms created by multiplying centered study variables with the centered manipulation check variable for state assessment. (Note: post hoc analyses employing both of the self-reported measures of regulatory mode state condition are included in the discussion.)

Lack of Independence Tests

Table 9 documents that 0.2% of the variance in individual role goal commitment, 12.6% of the variance in component team goal commitment, and 13.5% of the variance in MTS-level goal commitment occurred at the group (MTS) level in Intelligence component teams. In Operations component teams, 7.2% of the variance in individual role goal commitment, 19.5% of the variance in component team goal commitment, and 15.7% of the variance in MTS-level goal commitment occurred at the group level. These results suggest lack of independence of the goal commitment data with the possible exception of individual role goal commitment.

Table 9. Proportion of Goal Commitment Variance at the MTS-level

Dependent Variable	Individual-level (Level-1) Variance (σ^2)	MTS-level (Level-2) Variance (τ_{00})	Variance at MTS-level $\tau_{00} / (\sigma^2 + \tau_{00})$
Intelligence component team (Situation-induced assessment)			
Individual role goal commitment	1.460	0.003	0.2%
Component team goal commitment	1.119	0.162	12.6%
MTS goal commitment	1.147	0.179	13.5%
Operations component team (Situation-induced locomotion)			
Individual role goal commitment	1.275	0.100	7.2%
Component team goal commitment	0.937	0.227	19.5%
MTS goal commitment	1.026	0.190	15.7%

Note. The variance components were obtained from one way ANOVA with random effects HLM models (Raudenbush & Bryk, 2002). σ^2 = individual-level (level-1) variance in the dependent variable. τ_{00} = team-level (level 2) variance in the dependent variable. Portion of variance at the level of the group is computed as $\tau_{00} / (\sigma^2 + \tau_{00})$.

As documented in Table 10, 0.2% of the variance in individual role identity, 0.3% of the variance in component team identity, and 7.6% of the variance in MTS-level identity occurred at the group level in Intelligence component teams. In Operations component teams, 3.4% of the variance in individual role identity, 31.2% of the variance in component team identity, and 2.4% of the variance in MTS-level identity occurred at the group level. These results suggest that lack

of independence of the identity data may be of minimal concern with the possible exception of component team identity for members of the Operations component teams.

Table 10. Proportion of Identity Variance at the MTS-level

Dependent Variable	Individual-level (Level-1) Variance (σ^2)	MTS-level (Level-2) Variance (τ_{00})	Variance at MTS-level $\tau_{00} / (\sigma^2 + \tau_{00})$
Intelligence component team (Situation-induced assessment)			
Individual role identity	0.859	0.002	0.2%
Component team identity	0.938	0.003	0.3%
MTS identity	1.081	0.089	7.6%
Operations component team (Situation-induced locomotion)			
Individual role identity	0.806	0.028	3.4%
Component team identity	0.649	0.294	31.2%
MTS identity	1.387	0.034	2.4%

Note. The variance components were obtained from one way ANOVA with random effects HLM models (Raudenbush & Bryk, 2002). σ^2 = individual-level (level-1) variance in the dependent variable. τ_{00} = team-level (level 2) variance in the dependent variable. Portion of variance at the level of the group is computed as $\tau_{00} / (\sigma^2 + \tau_{00})$.

Finally, Table 11 documents that 60.9% of the variance in individual role performance contribution, 62.3% of the variance in component team performance contribution, and 73.7% of the variance in MTS performance contribution occurred at the group level in Intelligence component teams. In Operations component teams, 0.3% of the variance in individual role

performance contribution, 68.1% of the variance in component team performance contribution, and 45.2% of the variance in MTS performance contribution occurred at the group level.

Table 11. Proportion of Performance Variance at the MTS-level

Dependent Variable	Individual-level (Level-1) Variance (σ^2)	MTS-level (Level-2) Variance (τ_{00})	Variance at MTS-level $\tau_{00} / (\sigma^2 + \tau_{00})$
Intelligence component team (Situation-induced assessment)			
Individual role performance contribution	87.658	136.532	60.9%
Component team performance contribution	10.836	17.915	62.3%
MTS performance contribution	25.419	71.385	73.7%
Operations component team (Situation-induced locomotion)			
Individual role performance contribution	7.369	0.019	0.3%
Component team performance contribution	2.238	4.778	68.1%
MTS performance contribution	386.183	317.977	45.2%

Note. The variance components were obtained from one way ANOVA with random effects HLM models (Raudenbush & Bryk, 2002). σ^2 = individual-level (level-1) variance in the dependent variable. τ_{00} = team-level (level 2) variance in the dependent variable. Portion of variance at the level of the group is computed as $\tau_{00} / (\sigma^2 + \tau_{00})$.

Thus lack of independence of the performance contribution data appears to be a substantial concern with the possible exception of individual role performance contribution in the situation-induced locomotion condition. As a consequence, study hypotheses were tested first employing

OLS regression and then a second time employing hierarchical linear modeling. These latter tests did not provide information that materially impacted the findings, thus, only the HLM results for supported hypotheses (i.e., with significant OLS results) are reported in the Discussion Section.

Results Involving Goal Commitment

Goal commitment as criterion. The results of the regressions testing the relationships between trait regulatory mode and goal commitment in the assumed (i.e., manipulation was successful) situation-induced assessment condition, Hypotheses 1, 3 and 5, are reported in Table 12. Table 13 reports the results of the regressions testing the relationships between trait regulatory mode and goal commitment, Hypotheses 1, 3 and 5, under the assumption that the manipulation did not work. Hypothesis 1 predicted that trait regulatory assessment would exhibit a positive relationship with all three levels of goal commitment in the situation-induced high assessment state. As reported in Table 12 Step 1, trait regulatory assessment does not exhibit a statistically significant relationship with either individual role goal commitment or component team goal commitment (β = -.159, p = n.s. and β = -.074, p = n.s., respectively). Trait regulatory assessment does exhibit a marginally significant relationship with multiteam system goal commitment (β = -.212, $p < .10$) but the direction is opposite to that posited in Hypothesis 1c.

Table 12. Models Examining Regulatory Mode – Goal Commitment Relationships in High State Assessment Condition (Hypothesis 1, 3, & 5)

Predictor \ Criterion		Individual role goal commitment (*β*) Model 1		Component team goal commitment (*β*) Model 2		Multiteam system goal commitment (*β*) Model 3	
		Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Step 1	Intercept		.022		-.008		-.004
	Trait assessment	-.159	-.149	-.074	-.078	-.212†	-.213†
	Trait locomotion	.260*	.281*	.260*	.252*	.216†	.213†
Step 2	Trait assessment x Trait locomotion		-.108		.041		.018
	ΔR^2	.075†	.017	.065†	.003	.072†	.000
	R^2	.075†	.093†	.065†	.067	.072†	.073

Notes. N = 79 observations from 20 Intelligence component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Table 13. Models Examining Regulatory Mode – Goal Commitment Relationships Employing State Assessment Measure (Hypothesis 1, 3, & 5)

Predictor \ Criterion		Individual role goal commitment (*β*) Model 1			Component team goal commitment (*β*) Model 2			Multiteam system goal commitment (*β*) Model 3		
		Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Step 1	Intercept		.052	.053		.009	.015		.033	.027
	Trait assessment	-.255*	-.268*	-.269*	-.184†	-.183†	-.166	-.301**	-.307**	-.310**
	Trait locomotion	.232*	.303**	.321*	.227*	.218*	.111	.190†	.213†	.187
	State assessment	.391**	.479**	.478**	.449**	.466**	.461**	.367*	.425**	.430**
Step 2	Trait assessment x State assessment		-.093	-.089		-.050	-.081		-.093	-.097
	Trait locomotion x State assessment		-.231*	-.205		.030	-.043		-.075	-.144
Step 3	Trait assessment x Trait locomotion			-.016			.003			.060
	Trait assessment x Trait locomotion x State assessment			-.031			.176†			.049
	ΔR^2	.217**	.056†	.001	.252**	.003	.031	.197**	.015	.007
	R^2	.217**	.274**	.275**	.252**	.255**	.286**	.197**	.213**	.220*

Notes. N = 79 observations from 20 Intelligence component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

As reported in Step 2 of Table 13 trait regulatory assessment exhibits a statistically significant mean (weighted average across all observed values of state assessment) negative relationship with goal commitment at all three levels (β = -.268, p < .05, β = -.183, p < .10 and β = -.307, p < .05, for individual role, component team and multiteam system goal commitment, respectively). These results are opposite to the hypothesized direction and do not vary across levels of assessment state (β = -.093, p = n.s., β = -.050, p = n.s. and β = -.093, p = n.s., for individual role, component team and multiteam system goal commitment, respectively). Hypotheses 1a, 1b, or 1c are not supported.

Hypothesis 3 predicted that unlike trait regulatory assessment, trait regulatory locomotion would exhibit a negative relationship with all three levels of goal commitment in the situation-induced assessment condition. As reported in Table 12 Step 1, trait regulatory locomotion exhibits statistically significant positive relationships with individual role goal commitment (β = .260, p < .05), component team goal commitment (β = .260, p < .05), and multiteam system goal commitment (β = .216, p < .10). The direction of the relationship is opposite to that predicted in Hypotheses 3a, 3b, and 3c, however. Table 13 Step 2 indicates that trait regulatory locomotion exhibits a statistically significant mean (weighted average across all observed values of state assessment) positive relationship with goal commitment at all three levels (β = .303, p < .01, β = .218, p < .05 and β = .213, p < .10 respectively for individual role, component team and multiteam system goal commitment). These results are opposite to the hypothesized direction as well. Further, these models suggest that the relationship between trait regulatory locomotion and individual role goal commitment is the only one to vary with state assessment (β = -.231, p < .05). The simple slope does not turn negative until state assessment exceeds the mean plus 1.31 s.d., however; it is still slightly positive at the normative value for high state assessment equal to

the mean plus 1 s.d. (see Figure 6). Collectively, these results suggest that Hypotheses 3a, 3b, and 3c are not supported.

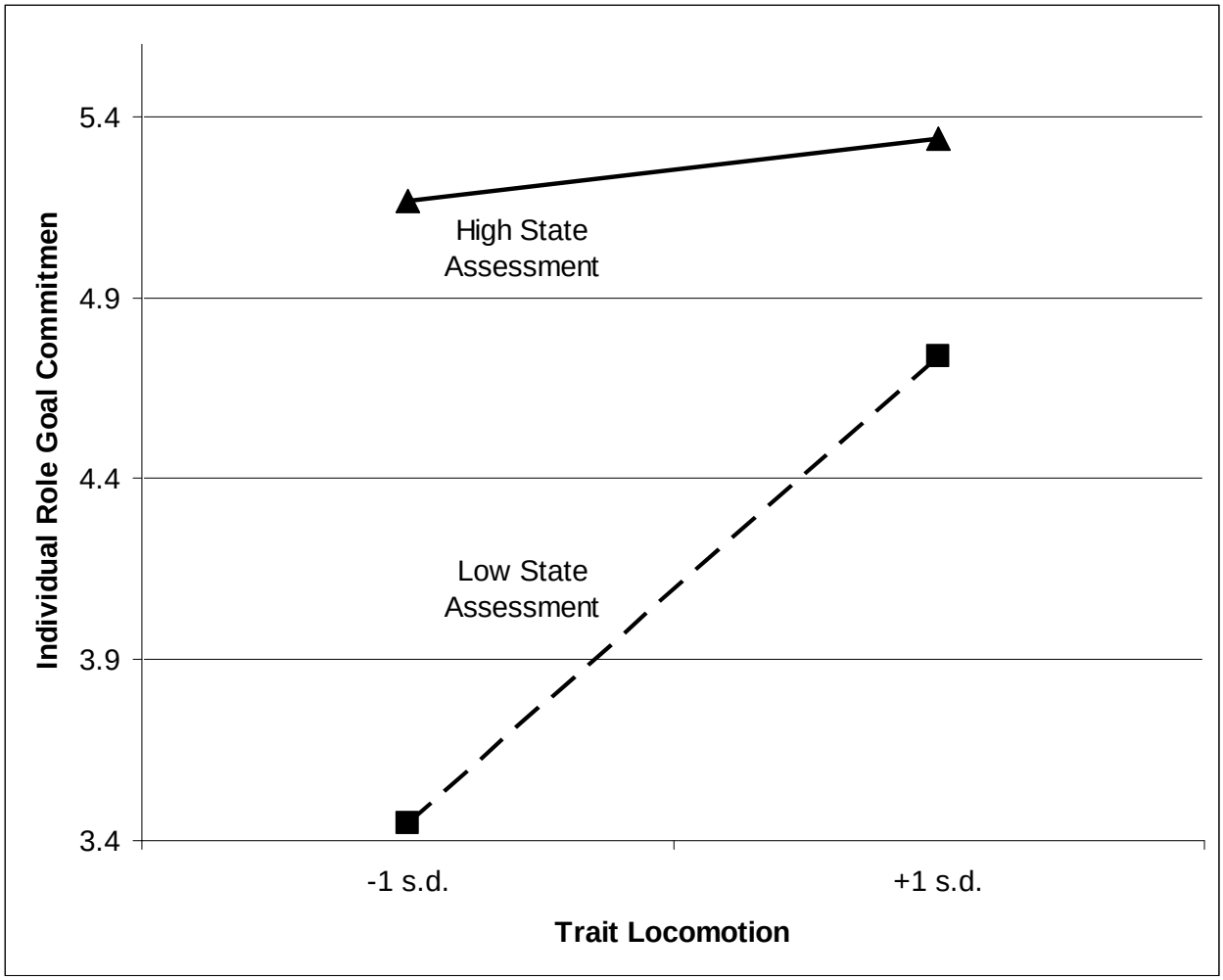

Figure 6. Plot of Trait Locomotion x State Assessment Interaction

Hypothesis 5 predicted that the interaction of trait regulatory assessment with trait regulatory locomotion would exhibit a positive relationship with all three levels of goal commitment in the situation-induced assessment condition. As reported in Table 12 Step 2, the interaction of trait regulatory assessment with trait regulatory locomotion does not exhibit a relationship with goal commitment at any of the three levels (β = -.108, p = n.s. for individual role goal commitment; β = .041, p = n.s. for component team-level goal commitment; β = .018, p

= n.s. for multiteam system-level goal commitment). The results under the assumption that the manipulation was unsuccessful, reported in Table 13 Step 3, support these findings for individual role goal commitment (β = -.016 for the mean effect and -.031, p = n.s. for the moderated effect) and multiteam system goal commitment (β = .060 for the mean effect and .049, p = n.s. for the moderated effect). Thus, Hypotheses 5a and 5c are not supported.

The results reported in Table 13 Step 3 for component team goal commitment (Model 2) suggest a relationship between the interaction of trait regulatory assessment with trait regulatory locomotion that varies across levels of state assessment (β = .176 p < .10). Figures 7 and 8 contain plots of these interactions. The top plot in Figure 7, representing the high state assessment condition, indicates that trait assessment orientation exhibits a negative relationship with commitment to goals at the component team level, and that this effect is stronger for individuals low in trait locomotion orientation relative to those high in trait locomotion orientation. (Note: Figure 8 is an alternative illustration of this relationship.) This indicates that Hypothesis 5b is not supported.

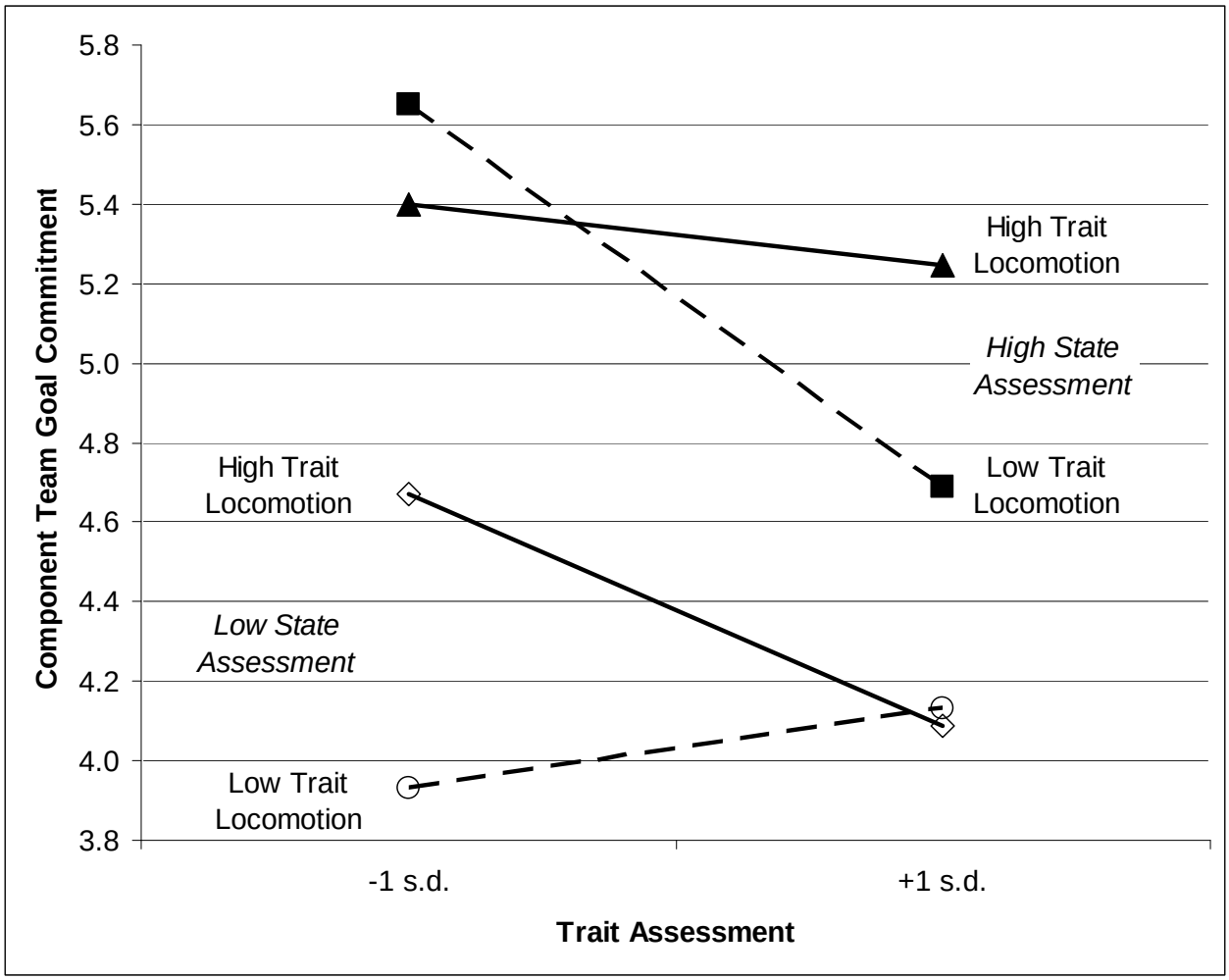

Figure 7. Plot of Trait Assessment x Trait Locomotion x State Assessment Interaction

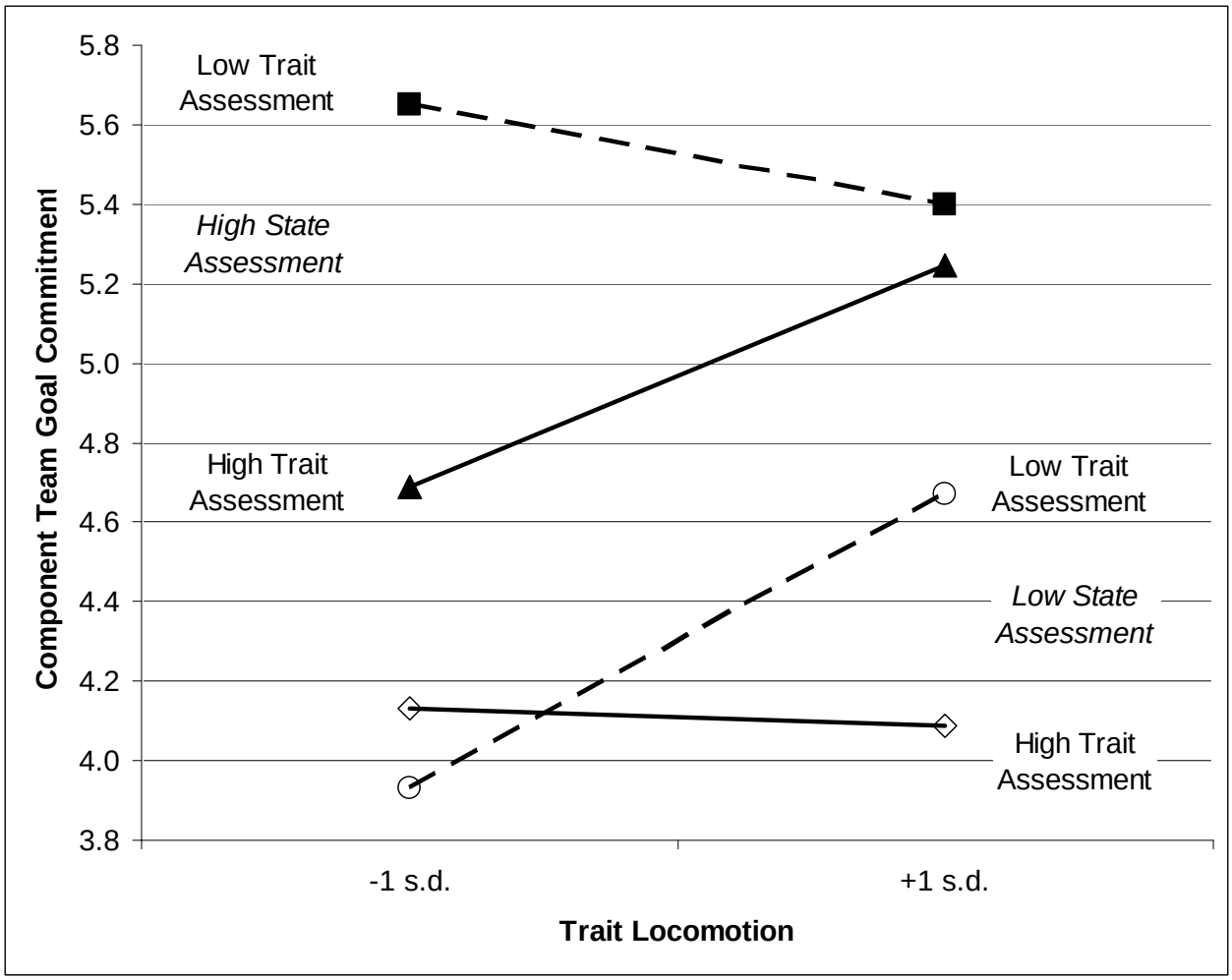

Figure 8. Plot of Trait Locomotion x Trait Assessment x State Assessment Interaction

The results of the regressions testing the relationships between trait regulatory mode and goal commitment in the situation-induced locomotion condition, Hypotheses 2, 4 and 6, are reported in Table 14. Hypothesis 2 predicted that trait regulatory locomotion would exhibit a positive relationship with all three levels of goal commitment. As reported in Table 14 Step 1, trait regulatory locomotion does not exhibit a relationship with goal commitment at any of the three levels (β = .052, p = n.s. for individual role goal commitment; β = .109, p = n.s. for component team-level goal commitment; β = .115, p = n.s. for MTS-level goal commitment). Hypotheses 2a, 2b, and 2c are not supported.

Table 14. Models Examining Regulatory Mode – Goal Commitment Relationships in High State Locomotion Condition (Hypothesis 2, 4, & 6)

Predictor \ Criterion		Individual role goal commitment (*β*) Model 1		Component team goal commitment (*β*) Model 2		Multiteam system goal commitment (*β*) Model 3	
		Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Step 1	Intercept		.014		-.009		.001
	Trait assessment	-.012	.000	.136	.128	.076	.077
	Trait locomotion	.052	.057	.109	.106	.115	.116
Step 2	Trait assessment x Trait locomotion		-.074		.049		-.007
	ΔR^2	.003	.006	.036	.003	.022	.000
	R^2	.003	.008	.036	.039	.022	.022

Notes. N = 80 observations from 20 Operations component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Hypothesis 4 predicted that unlike trait regulatory locomotion, in the situation-induced locomotion condition trait regulatory assessment would exhibit a negative relationship with all three levels of goal commitment. As reported in Table 14 Step 1, trait regulatory assessment exhibits no relationship with individual role goal commitment (β = -0.12, p = n.s.), no relationship with component team goal commitment (β = .136, p = n.s.), and no relationship with multiteam system goal commitment (β = .076, p = n.s.). These results do not support Hypotheses 4a, 4b, and 4c.

Hypothesis 6 predicted that the interaction of trait regulatory assessment with trait regulatory locomotion would exhibit a positive relationship with all three levels of goal commitment in the situation-induced locomotion condition. As reported in Table 14 Step 2, and equivalent to the findings for the situation-induced assessment condition, the interaction of trait regulatory assessment with trait regulatory locomotion does not exhibit a relationship with goal commitment at any of the three levels (β = -.074, p = n.s. for individual role goal commitment; β = .049, p = n.s. for component team-level goal commitment; β = -.007, p = n.s. for MTS-level goal commitment). Hypotheses 6a, 6b, and 6c are not supported.

Performance as criterion. Hypothesis 9 predicted that trait regulatory assessment would exhibit a positive relationship with all three levels of incremental performance in the situation-induced assessment condition. The results of the regressions testing these relationships are reported in Tables 15, 16 and 17 for the individual level, component team level and multiteam system level, respectively. Model 1, Step 1 reports the results under the assumption that the manipulation worked as intended and Model 1, Step 3 reports the results under the assumption that the manipulation did not worked as intended. As reported in Model 1, Step 1, trait regulatory assessment does not exhibit a statistically significant relationship with any level of performance

contribution (β = .149, p = n.s., β = -.128, p = n.s. and β = -.132, p = n.s. for individual performance contribution, component team performance contribution and multiteam system performance contribution, respectively). The results from the alternate test reported in Model 1, Step 3 produce equivalent findings. Trait regulatory assessment does not exhibit a statistically significant relationship with any level of performance contribution (β = .106, p = n.s. for the mean effect and .001, p = n.s. for the moderated effect for individual performance contribution, β = -.111, p = n.s. for the mean effect and -.072, p = n.s. for the moderated effect for component team performance contribution and β = -.117, p = n.s. for the mean effect and .006, p = n.s. for the moderated effect for multiteam system performance contribution). Hypotheses 9a, 9b, and 9c are not supported.

The results of the regressions testing the relationships between trait regulatory mode and performance in the situation-induced locomotion condition, Hypothesis 10, are reported in Step 1 of Table 18. Model 1 reports results for individual role performance contribution, Model 2 for component team performance contribution and Model 3 for multiteam system performance contribution. Hypothesis 10 predicted that trait regulatory locomotion would exhibit a positive relationship with all three levels of performance contribution in the situation-induced locomotion condition. As reported in Table 18, trait regulatory locomotion does not exhibit a statistically significant relationship with either individual performance contribution (β = .016, p = n.s.) or multiteam system performance contribution (β = .179, p = n.s.). Thus, Hypotheses 10a and 10c are not supported. Trait regulatory locomotion does exhibit a positive relationship with component team performance contribution that is marginally significant, however (β = .197, $p <$ .10). A one-tailed test for significance based on directional prediction indicates support for Hypothesis 10b.

Table 15. Effects of Goal Commitment on Individual Role Performance in High State Assessment Condition (Hypothesis 9, 11, 13, & 17)

Predictor \ Criterion		Individual role performance (β)								
		Model 1			Model 2			Model 3		
		Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Step 1	Intercept			.000			.003			.004
	Trait assessment	.149	.106	.106				.164	.128	.131
	Individual level goal commitment				.133	.075	.074	.150	.104	.103
Step 2	State assessment		.162	.162		.164	.161		.120	.107
Step 3	Trait assessment x State assessment			.001						.011
	Individual level goal commitment x State assessment						-.008			-.019
	ΔR^2	.022	.025	.000	.018	.023	.000	.044	.011	.001
	R^2	.022	.047	.047	.018	.041	.041	.044	.056	.056

Notes. N = 79 observations from 20 Intelligence component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Table 16. Effects of Goal Commitment on Component Team Performance Contribution in High State Assessment Condition (Hypothesis 9, 11, 13, & 17)

Predictor \ Criterion		Component team performance contribution (β)								
		Model 1			Model 2			Model 3		
		Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Step 1	Intercept			.019			.021			.026
	Trait assessment	-.128	-.110	-.111				-.126	-.089	-.087
	Component team level goal commitment				.091	.162	.163	.088	.147	.145
Step 2	State assessment		-.067	-.034		-.165	-.167		-.135	-.108
Step 3	Trait assessment x State assessment			-.072						-.061
	Component team level goal commitment x State assessment						-.049			-.025
	ΔR^2	.016	.004	.006	.008	.022	.003	.024	.014	.005
	R^2	.016	.020	.026	.008	.030	.033	.024	.038	.043

Notes. N = 79 observations from 20 Intelligence component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Table 17. Effects of Goal Commitment on Multiteam System Performance Contribution in High State Assessment Condition (Hypothesis 9, 11, 13, & 17)

Predictor \ Criterion		Multiteam system performance contribution (β)								
		Model 1			Model 2			Model 3		
		Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Step 1	Intercept			-.001			.014			.007
	Trait assessment	-.132	-.117	-.117				-.135	-.117	-.111
	Multiteam system level goal commitment				.001	.031	.037	-.021	-.001	.005
Step 2	State assessment		-.056	-.059		-.096	-.120		-.056	-.074
Step 3	Trait assessment x State assessment			.006						.004
	Multiteam system level goal commitment x State assessment						-.046			-.027
	ΔR^2	.017	.003	.000	.000	.008	.002	.018	.003	.000
	R^2	.017	.020	.020	.000	.008	.011	.018	.020	.021

Notes. N = 79 observations from 20 Intelligence component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Table 18. Effects of Goal Commitment on Performance Contribution in High State Locomotion Condition (Hypothesis 10, 12, 14, & 18)

Predictor \ Criterion		Individual role performance contribution (*β*) Model 1			Component team performance contribution (*β*) Model 2			Multiteam system performance contribution (*β*) Model 3			
		Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 4
Step 1	Trait locomotion	.016		.022	.197†		.183	.179		.173	
Step 2	Individual level goal commitment		-.117	-.118							.010
	Component team level goal commitment					.131	.106				.036
	MTS level goal commitment								.073	.051	
	ΔR^2	.000		.000	.039†		.011	.032		.003	
	R^2	.000	.014	.014	.039†	.017	.050	.032	.005	.035	.000 .001

Notes. N = 80 observations from 20 Operations component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Hypotheses 11 predicted that all three levels of goal commitment would exhibit a positive relationship with their respective level of performance contribution in the situation-induced assessment condition. The results of the regressions testing these relationships are reported in Tables 15, 16 and 17 for the individual level, component team level and multiteam system level, respectively. Model 2, Step 1 reports the results under the assumption that the manipulation worked as intended and Model 2, Step 3 reports the results under the assumption that the manipulation did not worked as intended. As reported in Model 2, Step 1, individual role goal commitment does not exhibit a relationship with individual role performance contribution (β = .133, p = n.s.), component team goal commitment does not exhibit a relationship with component team performance contribution (β = .091, p = n.s.), and multiteam system goal commitment does not exhibit a relationship with multiteam system performance contribution (β = .001, p = n.s.). The results from the alternate test reported in Model 2, Step 3 produce equivalent findings. Goal commitment does not exhibit a statistically significant relationship with any level of performance contribution (β = .074, p = n.s. for the mean effect and -.008, p = n.s. for the moderated effect at the individual level, β = .163, p = n.s. for the mean effect and -.049, p = n.s. for the moderated effect at the component team level and β = .037, p = n.s. for the mean effect and -.046, p = n.s. for the moderated effect at the multiteam system level). Hypotheses 11a, 11b, and 11c are not supported.

The results of the regressions testing the relationships between goal commitment and performance in the situation-induced locomotion condition, Hypothesis 12, are reported in Step 2 of Table 18. Hypothesis 12 predicted that all three levels of goal commitment would exhibit a positive relationship with their respective level of performance contribution in the situation-induced locomotion condition. As reported in Table 18, individual role goal commitment does

not exhibit a relationship with individual role performance contribution (β = -.117, p = n.s.), component team goal commitment does not exhibit a relationship with component team performance contribution (β = .131, p = n.s.), and multiteam system goal commitment does not exhibit a relationship with multiteam system performance contribution (β = .073, p = n.s.). Hypotheses 12a, 12b, and 12c are not supported.

Hypotheses 13 and 14 predicted that individual role and component team goal commitment would exhibit negative relationships with multiteam system performance contribution in both the high state assessment condition and the high state locomotion condition. As reported in Table 19, individual level goal commitment (Model 1) and component team level goal commitment (Model 2) do not exhibit a relationship with multiteam system performance contribution under either the situation-induced assessment manipulation was successful assumption (Step 1: β = -.166, p = n.s. and β = .055, p = n.s., respectively) or the manipulation was unsuccessful assumption (Step 3: β = -.151, p = n.s. for the mean effect and .022, p = n.s. for the moderated effect at the individual level, and β = .117, p = n.s. for the mean effect and -.108, p = n.s. for the moderated effect at the component team level). As reported in Step 4 of Model 3 in Table 18, individual role goal commitment and component team goal commitment also do not exhibit a relationship with multiteam system performance contribution in the situation-induced locomotion condition (β = .010, p = n.s. and β = .036, p = n.s., respectively). Hypotheses 13a, 13b, 14a and 14b are not supported.

All hypotheses of mediation were tested utilizing the procedure described by Baron and Kenny (1986). The results of the models testing goal commitment as a mediator of the relationship between trait assessment orientation and performance, Hypothesis 17, are reported in Tables 15, 16 and 17 for the individual level, component team level and multiteam system

level, respectively. Step 1 reports the results under the assumption that the manipulation worked as intended and Step 3 reports the results under the assumption that the manipulation did not worked as intended. The results of the models testing goal commitment as a mediator of the relationship between trait locomotion orientation and performance, Hypothesis 18, are reported in Table18 Models 1, 2 and 3 for the individual level, component team level and multiteam system level, respectively. As already discussed, none of the hypothesized relationships between goal commitment and performance contribution (Hypotheses 11 and 12) were statistically significant thus mediation by goal commitment is disproved. Thus, Hypotheses 17a, 17b, 17c, 18a, 18b, and 18c are not supported.

Table 19. Effects of Other Goal Commitment on Multiteam System Performance Contribution in High State Assessment Condition (Hypothesis 9, 11, 13, & 17)

Predictor \ Criterion		Multiteam system performance contribution (β)					
		Model 1			Model 2		
		Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Step 1	Intercept			-.008			.046
	Individual level goal commitment	-.166	-.154	-.151			
	Component team level goal commitment				.055	.113	.117
Step 2	State assessment		-.032	-.025		-.135	-.140
Step 3	Individual role level goal commitment x State assessment			.022			
	Component team level goal commitment x State assessment						-.108
	ΔR^2	.027	.001	.001	.003	.015	.013
	R^2	.027	.028	.029	.003	.018	.031

Notes. N = 79 observations from 20 Intelligence component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Results Involving Identity

Identity as criterion. Hypothesis 7 predicted that trait regulatory assessment would exhibit a positive relationship with component team level identity and multiteam system identity in the situation-induced assessment condition. The results of the regressions testing these relationships are reported in Table 20 Step 2 under the assumption that the manipulation worked as intended and Step 4 under the assumption that the manipulation did not worked as intended. Trait regulatory assessment does not exhibit a relationship with either component team identity (β = -.030, p = n.s.) or multiteam system identity (β = -.147, p = n.s.) under the assumption that the manipulation worked as intended. The tests conducted under the assumption that the manipulation did not worked as intended yield equivalent results (β = -.032, p = n.s. for the mean effect and -.006, p = n.s. for the moderated effect at the component team level, and β = -.108, p = n.s. for the mean effect and -.185, p = n.s. for the moderated effect at the multiteam system level). Hypotheses 7a and 7b are not supported.

The results of the regressions testing the relationships between trait regulatory mode and identity in the situation-induced locomotion condition, Hypothesis 8, are reported in Model 1 of Tables 21 and 22. Hypothesis 8 predicted that trait regulatory locomotion would exhibit a positive relationship with individual level identity and component team level identity in the situation-induced locomotion condition. As reported in Step 2, trait regulatory locomotion exhibits a significant but negative relationship with individual level identity (β = -.318, $p < .05$) after controlling for trait identity, and no relationship with component team identity (β = -.048, p = n.s.). Hypotheses 8a and 8b are not supported.

Table 20. Models Examining Regulatory Mode – Identity Relationships in High State Assessment Condition (Hypothesis 7)

Predictor \ Criterion		Component team identity (*β*) Model 1				Multiteam system identity (*β*) Model 2			
		Step 1	Step 2	Step 3	Step 4	Step 1	Step 2	Step 3	Step 4
Step 1	Intercept				.061				.056
	Trait individual identity	.003	.023	.022	-.026	-.010	.091	.091	.016
	Trait relational identity	-.187	-.188	-.187	-.221†	.020	.018	.018	.005
	Trait collective identity	.359**	.364*	.341*	.339*	.029	.048	.037	-.001
Step 2	Trait assessment		-.030	-.052	-.032		-.147	-.158	-.108
	Trait locomotion		-.006	-.005	.039		-.017	-.017	.068
Step 3	State assessment			.113	.174			.057	.243†
Step 4	Trait individual identity x State assessment				-.284				-.387*
	Trait relational identity x State assessment				.158				.258*
	Trait collective identity x State assessment				-.061				.285†
	Trait assessment x State assessment				-.006				-.185
	Trait locomotion x State assessment				-.009				-.209
	ΔR^2	.109*	.000	.012	.079	.002	.011	.003	.274**
	R^2	.109*	.110	.121	.201	.002	.013	.016	.289*

Notes. N = 79 observations from 20 Intelligence component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests); * $p < .05$ (two-tailed tests); † $p < .10$ (two-tailed tests).

Table 21. Effects of Regulatory Mode and Identity on Individual Role Performance in High State Locomotion Condition (Hypothesis 8, 16, & 20)

Predictor \ Criterion		Individual identity (*β*) Model 1		Individual role performance contribution (*β*) Model 2			
		Step 1	Step2	Step 1	Step 2	Step3	Step 4
Step 1	Trait individual identity	.261*	.163	-.104	-.104	-.100	-.100
	Trait relational identity	-.053	-.015	-.095	-.093	-.095	-.092
	Trait collective identity	.085	.240†	.134	.138	.136	.142
Step 2	Trait assessment		.206†				
	Trait locomotion		-.318*		-.009		-.014
Step 3	Individual identity					-.013	-.016
	ΔR^2	.076	.086*	.025	.000	.000	.000
	R^2	.076	.161*	.025	.025	.025	.025

Notes. N = 80 observations from 20 Operations component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Table 22. Effects of Regulatory Mode and Identity on Component Team Performance Contribution in High State Locomotion Condition (Hypothesis 8, 16, & 20)

Predictor \ Criterion		**Component team identity (*β*)** Model 1		**Component team performance contribution (*β*)** Model 2			
		Step 1	Step2	Step 1	Step 2	Step3	Step 4
Step 1	Trait individual identity	.062	.033	.179	.181	.174	.176
	Trait relational identity	.102	.103	-.135	-.152	-.143	-.161
	Trait collective identity	.320*	.346*	.341**	.307*	.316*	.280†
Step 2	Trait assessment		.065				
	Trait locomotion		-.048		.077		.080
Step 3	Component team identity					.080	.082
	ΔR^2	.159**	.004	.133*	.004	.005	.004
	R^2	.159**	.163*	.133*	.137*	.139*	.143*

Notes. N = 80 observations from 20 Operations component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Performance as criterion. Hypothesis 15a predicted that component team identity would exhibit a positive relationship with component team performance contribution in the situation-induced assessment condition while Hypothesis 15b predicted that multiteam system identity would exhibit a positive relationship with multiteam system performance contribution. The results of the regressions testing the relationships between identity and performance contribution in the situation-induced assessment condition, Hypotheses 15a and 15b, are reported in Model 1 of Tables 23 and 24, respectively. As reported in Step 2, under the assumption that the manipulation worked as intended component team identity exhibits a positive and statistically significant relationship with component team performance contribution ($\beta = .307$, $p < .05$), and multiteam system identity exhibits a relationship with multiteam system performance contribution ($\beta = .218$, $p < .05$).

These results hold up under the assumption that the manipulation did not worked as intended. As reported in Step 4, component team identity exhibits a positive and statistically significant mean effect relationship with component team performance contribution ($\beta = .302$, $p < .05$) and multiteam system identity exhibits a positive and statistically significant mean effect relationship with multiteam system performance contribution ($\beta = .261$, $p < .05$). Neither of these relationships appear to be affected by state assessment level, however (-.178, p = n.s. for the moderated effect at the component team level and .012, p = n.s. for the moderated effect at the multiteam system level); therefore they are positive in the high state assessment condition. Thus, Hypotheses 15a and 15b are supported.

The results of the regressions testing the relationships between identity and performance contribution in the situation-induced locomotion condition, Hypotheses 16a and 16b, are reported in Model 2 of Tables 21 and 22, respectively. Hypothesis 16a predicted that individual

identity would exhibit a positive relationship with individual role performance contribution in the situation-induced locomotion condition while Hypothesis 16b predicted that component team identity would exhibit a positive relationship with component team performance contribution. As reported in Step 3, neither individual identity nor component team identity exhibit a relationship with performance contribution at their respective level (β = -.013, p = n.s. and β = .080, p = n.s., respectively). Hypotheses 16a and 16b are not supported.

Hypotheses of mediation were tested utilizing the procedure described by Baron and Kenny (1986). The results of the models testing identity as a mediator of the relationship between trait assessment orientation and performance for the situation-induced assessment condition are reported for the component team level (Hypothesis 19a) in Table 20 Model 1 and Table 23, and Table 20 Model 2 and Table 24 for the multiteam system level (Hypothesis 19b). As previously discussed, trait assessment orientation does not exhibit a relationship with either component team level (Hypothesis 7a) or multiteam system level performance (Hypothesis 7b) in the situation-induced assessment condition. Therefore, there is no relationship to mediate and, thus, Hypotheses 19a and 19b are not supported.

Table 23. Effects of Regulatory Mode and Identity on Component Team Performance Contribution in High State Assessment Condition (Hypothesis 15, & 19)

Predictor \ Criterion		Component team performance contribution (*β*)					
		Model 1				Model 2	
		Step 1	Step2	Step 3	Step 4	Step 1	Step 2
Step 1	Intercept				.022		.022
	Trait individual identity	-.060	-.060	-.041	-.079	.069	.068
	Trait relational identity	.000	.058	.059	.099	.052	.104
	Trait collective identity	.065	-.045	-.021	-.052	-.027	-.042
Step 2	Component team identity		.307*	.323**	.302*	.304*	.296*
Step 3	State assessment			-.143	-.119		-.105
Step 4	Trait individual identity x State assessment				.019		-.026
	Trait relational identity x State assessment				-.171		-.199
	Trait collective identity x State assessment				.083		.080
	Component team identity x State assessment				-.178		-.193
Step 5	Trait assessment					-.195	-.230
Step 6	Trait assessment x State assessment						.060
	ΔR^2	.005	.084*	.019	.030	.104*	.054
	R^2	.005	.089	.108	.138	.109	.163

Notes. N = 79 observations from 20 Intelligence component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Table 24. Effects of Regulatory Mode and Identity on Multiteam System Performance Contribution in High State Assessment Condition (Hypothesis 15, & 19)

Predictor \ Criterion		Multiteam system performance contribution (*β*)					
		Model 1				Model 2	
		Step 1	Step2	Step 3	Step 4	Step 1	Step 2
Step 1	Intercept				-.051		-.038
	Trait individual identity	.051	.053	.055	.079	.091	.065
	Trait relational identity	-.170	-.175	-.175	-.169	-.176	-.177
	Trait collective identity	-.306*	-.312*	-.310*	-.301*	-.307*	-.301*
Step 2	Multiteam system identity		.218*	.218*	.261*	.213*	.236†
Step 3	State assessment			-.012	-.062		-.021
Step 4	Trait individual identity x State assessment				.133		.228
	Trait relational identity x State assessment				.046		.031
	Trait collective identity x State assessment				.076		.101
	Multiteam system identity x State assessment				.012		-.017
Step 5	Trait assessment					-.057	-.006
Step 6	Trait assessment x State assessment						-.141
	ΔR^2	.153**	.047*	.000	.027	.049	.035
	R^2	.153**	.200**	.201**	.228*	.202**	.237†

Notes. N = 79 observations from 20 Intelligence component teams. All coefficients standardized.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

The results of the models testing identity as a mediator of the relationship between trait locomotion orientation and performance for the situation-induced locomotion condition are reported in Step 1 of Table 18 Model 1 and Model 2 of Table 21 for the individual role level

(Hypothesis 20) and Step 1 of Table 18 Model 2 and Model 2 of Table 22 for the component team level (Hypothesis 20), respectively. Per Table 18, trait regulatory locomotion does not exhibit a relationship with individual role performance contribution (Hypothesis 10a) and only a marginally significant relationship with component team performance contribution (Hypothesis 10b) in the situation-induced locomotion condition. This latter relationship disappears entirely, however, when controls for trait identity are present in the regression (see Table 22, Step 2). In addition, identity does not exhibit a relationship with performance at either level (Hypotheses 16a and 16b). Hypotheses 20a and 20b are not supported.

Discussion

Study Hypotheses

Goal commitment as criterion. The confluence of the expectancy theory model of goal commitment (Hollenbeck & Klein, 1987) and the regulatory fit theory (Higgins, 2000, 2002) form the basis of the theoretical argument supporting the goal commitment as criterion hypotheses in this study. The expectancy theory model of goal commitment argues that attractiveness of goal attainment (i.e., valence) and expectancy of goal attainment (i.e., expectancy) are the key determinants of the degree to which individuals commit to a goal. In addition, the theory stipulates that there are personal and situational factors that influence valence and expectancy, and that these factors work both independently and interdependently to influence valence and expectancy.

Regulatory fit theory suggests that individuals experiencing regulatory fit increase the value of expect outcomes (i.e., valence) and that outcome attainment expectations (i.e., expectancy) increase because information processing is positively biased toward accepting success cues and rejecting failure cues (Koenig et al., 2009). Pursuing this reasoning further, individuals experiencing regulatory misfit should discount the value of expect outcomes (i.e., valence) and information processing should be positively biased toward accepting failure cues and rejecting success cues thus decreasing outcome attainment expectations (i.e., expectancy). Stated more directly, regulatory fit should exhibit a positive influence on goal commitment while misfit should exhibit a negative influence on goal commitment. Notably, this is one of only a handful of studies to apply the concept of fit to regulatory mode; most studies of regulatory fit are regulatory focus based in the literature.

The regulatory fit argument suggests that trait assessment should exhibit a positive relationship with all levels of goal commitment in the high state assessment condition, and that trait locomotion should exhibit a negative relationship with all levels of goal commitment in the case of Intelligence component team membership as this is a non- or misfit condition. As reported in Table 12, trait assessment exhibited a marginally significant relationship with multiteam system level goal commitment in the case of Intelligence component team membership, although in the opposite (negative) direction (β = -.212, p < .10). The results reported in Table 13 indicate that trait assessment exhibited a relationship with all levels of goal commitment although in the direction opposite to that hypothesized (negative) once again. Finally, trait locomotion was found to be positively related to all three levels of goal commitment by both tests (i.e., assuming the manipulation worked and assuming it did not).

Similar arguments were made for the high state locomotion condition. Hypothesis 2 predicted that trait regulatory locomotion would exhibit a positive relationship with all three levels of goal commitment and Hypothesis 4 predicted that trait regulatory assessment would exhibit a negative relationship with all three levels of goal commitment. As documented in Table 14, neither of the trait regulatory mode dimensions exhibited a relationship with goal commitment in this condition. While none of the fit argument based hypotheses were supported, the analyses produced some interesting and potentially meaningful results.

Model 1, Table 13 indicates that the relationship between trait locomotion and individual role goal commitment is influenced (moderated) by state assessment. This relationship, plotted in Figure 6, indicates a positive relationship between trait locomotion and individual role goal commitment in the high state assessment condition, not the hypothesized negative relationship. The difference in the relationship in the low state assessment condition versus the high state

assessment condition suggests that inducing a high assessment state not only increases commitment to individual goals (a main effect), it compensates for low trait behavioral drive (e.g., low trait locomotion).

Perhaps the most interesting findings are depicted in the plots of the 3-way interaction of trait assessment, trait locomotion and state assessment, Figures 7 and 8. Mirroring the individual goal commitment finding, the difference in the relationship in the low state assessment condition versus the high state assessment condition indicates a main effect; inducing a high assessment state generally increases commitment to component team goals. However, commitment to goals at the component team level is negatively influenced by trait assessment orientation. Locomotion has a positive relationship with component team goal commitment when state and trait assessment are matched (e.g., both high or both low), however, this relationship is increasingly retarded to the point of turning negative as the degree of alignment between state and trait assessment decreases. Thus, trait locomotion accentuates goal commitment at the component team level when there is a strong fit between state and trait assessment, and plays little to no role when state and trait assessment are mismatched.

Lastly, Figures 7 and 8 indicate that commitment to goals at the level of the component team is lowest when all three (trait assessment, trait locomotion, and state assessment) are low, as theory would indicate, and greatest when both trait regulatory orientations are low and state assessment is high. This latter result suggests that trait and state assessment levels are driven by different factors: trait assessment primarily by self-monitoring, self-evaluation and need for social comparison concerns and state assessment primarily by the critical evaluation of alternatives in order to select the highest value alternative to pursue. Collective goals inhibit self-monitoring, self-evaluation and social comparison (within the collective) whereas the goals of a

collective in which the focal individual is a member may very well represent the highest value alternative to pursue.

Notably, while state assessment influences the relationships between trait regulatory orientations and goal commitment at lower and more proximal levels in the multiteam system hierarchy it does not appear to affect them at the higher, most distal system level. It does exhibit a main effect across all goal commitment levels, however. This suggests that managers might be able to increase employee commitment to goals by enacting interventions that increase the assessment state of their employees. Future research should investigate these extremely interesting phenomena further to better understand the influence of state and trait regulatory mode orientations on goal commitment.

Identity as criterion. The results documented in Tables 20, 21 and 22 provide the basis for some insights. Hypothesis 7 predicted that trait regulatory assessment would exhibit a positive relationship with component team level identity and multiteam system identity when state assessment was high, and Hypothesis 8 predicted that trait regulatory locomotion would exhibit a positive relationship with individual level identity and component team level identity when state locomotion was high. Neither of these hypotheses was supported. Trait assessment does not appear to exhibit the hypothesized relationship with identity at either the component team or multiteam system level. Likewise, trait locomotion does not appear to exhibit the hypothesized relationship with identity at either the component team or multiteam system level.

The results documented in Table 21 suggest the potential of a relationship between both dimensions of regulatory mode and individual identity in the high state locomotion condition, although the relationship between trait regulatory locomotion and individual identity was found to be negative which is contrary to the prediction based on a regulatory fit argument (i.e.,

Hypothesis 8a which was not supported). While not hypothesized, the positive relationship between trait assessment and individual identity (Table 21, Model 1, Step 2; $\beta = .206$, $p < .10$) follows readily from regulatory mode theory. Assessors are high self-monitors and self-evaluators with a strong need for social comparison. This suggests that assessors will identify more strongly at the individual level than will individuals low in trait assessment orientation. Still, mirroring the conclusion emerging from the goal commitment as criterion analyses, these findings provide little if any support for the regulatory fit theoretical argument.

Performance as criterion. Drawing once again on the fit theoretical argument discussed previously Hypothesis 9 predicted that trait assessment would exhibit a positive relationship with incremental performance contribution at all three levels in a high assessment state; no prediction was made for trait locomotion. Likewise, Hypothesis 10 predicted that trait locomotion would exhibit a positive relationship with incremental performance contribution at all three levels in a high locomotion state and no prediction was made for trait assessment. The results reported in Tables 15, 16, 17 and 18 suggest that trait assessment does not have a relationship with any level of incremental performance contribution regardless of regulatory mode state and that trait locomotion had a relationship with component team incremental performance contribution in the high locomotion state condition (Hypothesis 10b). This finding did not hold up under the test conducted post hoc employing hierarchical linear modeling techniques to account for the nesting of individuals, however ($\gamma = .077$, p = n.s. for grand-mean centered trait locomotion and $\gamma = .058$, p = n.s. for group-mean centered trait locomotion).

Somewhat of a surprise, goal commitment did not exhibit a relationship with performance at any level or across levels in either condition (Hypotheses 11, 12, 13 or 14). It is important to note, however, that Hollenbeck and Klein's (1987) expectancy theory model of goal

commitment implicates goal commitment in the role of moderating the relationship between goals and performance. Thus, these results may simply reflect the lack of a main effect; the analysis does not address goal commitment in a moderating role. Alternatively, it could be that the relationship between goal commitment and performance contribution across the levels of a multiteam systems is more complex; i.e., curvilinear. Goal shielding research has shown a positive relationship between myopic focus on a goal and goal attainment, however, this research has also shown that too strong a commitment to a focal goal can be detrimental to performance against alternative goals (Lord et al., 2010; Shah et al., 2002). This supposition was tested in the post hoc analysis (discussed in the Curvilinear Models of Goal Commitment section later in this document).

Tests of the relationship between identity and performance based on the fit theoretical argument did yield some limited results (see Tables 21 through 24). Component team level identity and multiteam system level identity were positively related to objective measures of incremental performance contribution at the same level in the case of Intelligence component team membership as posited by Hypotheses 15a and 15b ($\beta = .307$, $p < .05$ and $\beta = .218$, $p < .05$ for component team and multiteam system level incremental performance contribution, respectively). However, identity did not exhibit a relationship with performance contribution in the high state locomotion condition (Hypotheses 16a and 16b were not supported). In addition, tests of Hypotheses 15a and 15b conducted post hoc employing hierarchical linear modeling techniques failed to replicate these results. Component team identity did not exhibit a relationship with component team performance contribution ($\gamma = .120$, p = n.s. for grand-mean centering and $\gamma = .073$, , p = n.s. for group-mean centering) and multiteam system identity did not exhibit a relationship with multiteam system performance contribution ($\gamma = .012$, , p = n.s. for

grand-mean centering and γ = -.028, , p = n.s. for group-mean centering) once clustering was taken into account.

In totality, these findings provide little if any support for the regulatory fit based theoretical arguments employed in this study. The lack of supporting results could be an artifact of the experimental paradigm or indicative of a failure to induce the intended conditions, and thus the lack of findings is not necessarily an indictment of the theory. Future research should test the study hypotheses employing a different experimental paradigm.

Alternatives to the regulatory fit based theoretical arguments can be found in the fundamental tenants of regulatory mode theory (Higgins et al., 2003; Kruglanski et al., 2000). In addition, this study investigated phenomena at the individual level yet it was conducted in the context of a multiteam system and the accuracy of the findings (data interpretation) is highly dependent upon the validity of the two experimental manipulations for state regulatory mode condition. Therefore, included below is a set of post hoc analyses that test suppositions based in theoretical arguments emerging from regulatory mode theory. The post hoc analyses utilized hierarchical linear modeling techniques to account for clustering effects and the self-reported measures of regulatory mode state.

Post Hoc Analyses

Use of multilevel models for analyses. Members of a multiteam system are nested in a task environment whereby they are interdependently linked with the other members in the system. Lack of independence can lead to negatively biased standard errors and, thereby, liberal tests of significance when traditional analysis techniques such as OLS regression are employed (Kenny, Mannetti, Pierro, Levi & Kashy, 2002). The nesting of individuals in multiteam systems can also produce cluster effects (Kish, 1965) that violate the OLS regression assumption of

statistically independent and normally distributed (i.i.d.) random errors of constant variance. Finally, issues associated with non-independence are magnified as group size increases making it a concern of greater salience when analyzing individual data collected in a multiteam system context.

As the analyses documented in Tables 9, 10 and 11 clearly show, lack of independence may be an issue in the data of this study. Hierarchical linear modeling (HLM) corrects for the standard error bias associated with lack of independence of observations resulting in a more statistically accurate and conservative test of predictions. Therefore, HLM techniques were employed in the post hoc analyses to account for the nesting of individuals in a common multiteam system context. Unfortunately, prototypical approaches to HLM analysis employ either group-mean centered coefficients that only reflect within-group effects or grand-mean centered coefficients that are weighted aggregates of within- and between-group effects and thus difficult to interpret (Raudenbush & Bryk, 2002). The research question underlying this study would be best informed by a disaggregation of effects into the pooled-within-group effect (β_W) and the contextual or compositional effect (β_C); i.e., separating the individual or level-1 relationship from the effect of group membership.

Therefore, 2-level hierarchical models were constructed and analyzed in HLM 6.02 utilizing the procedure for disentangling person-level and compositional effects articulated by Raudenbush and Bryk (2002, pp. 139 - 141). This procedure produces a pooled-within-group effect, the person-level effect net of any group membership effect, and a contextual effect, the estimated difference in an outcome variable due to membership in a group whose mean (composition score) for a focal predictor variable differs by one unit from the mean of a comparison group, controlling for the within person effect of the predictor variable (Raudenbush

& Bryk, 2002). This latter effect is "the extent to which the magnitude of the organization-level relationship, β_b, differs from the person-level effect, β_W" (Raudenbush & Bryk, 2002, p. 139).

Measures from the two study conditions, Intelligence component team membership and Operations component team membership, were combined and employed in all post hoc analyses. Incremental performance contribution measures from the two study conditions were standardized within condition before being merged into a single measure at each level. Control variables (e.g., trait identity) and predictor variables of interest were grand mean centered and entered into the model at level-1. Within-group (multiteam system) means for these predictor variables were calculated and included in the level-2 model for the intercept. All interrater agreement effect sizes, reported in Table 25, are medium and support aggregation (LeBreton & Senter, 2008). Significance of the coefficient associated with one of these level-2 variables suggests a contextual effect above and beyond (after controlling for) the within person effect (Enders & Tofighi, 2007). Finally, estimating the slopes and intercept separately for each group can be problematic because group size is relatively small relative to the number of predictor variables in the multilevel models. Therefore, the slopes of the predictor variables were not allowed to vary per the advice of Kenny and colleagues (2002). The multilevel models had two random effects, the intercept and the error.

Table 25. Interrater Agreement Statistics for Contextual (Level 2) Variables (post hoc)

Variable	ICC(1)	ICC(2)	95% Confidence Intervals Lower	95% Confidence Intervals Upper	F-test	Significance
Trait assessment	.116		.067	.227	13.624	$p < .01$
		.927	.873	.966		
Trait locomotion	.115		.066	.225	13.491	$p < .01$
		.926	.871	.965		
Individual role goal commitment	.103		.052	.215	5.582	$p < .01$
		.821	.687	.916		
Component team goal commitment	.103		.052	.215	5.577	$p < .01$
		.821	.687	.916		
Multiteam system goal commitment	.102		.052	.214	5.550	$p < .01$
		.820	.685	.916		
Individual role identity	.103		.052	.216	5.611	$p < .01$
		.822	.689	.917		
Component team identity	.111		.061	.222	9.018	$p < .01$
		.889	.807	.948		
Multiteam system identity	.112		.062	.223	9.055	$p < .01$
		.890	.808	.948		
State assessment	.117		.067	.227	13.685	$p < .01$
		.927	.873	.966		
State locomotion	.115		.066	.225	13.514	$p < .01$
		.926	.872	.965		

Goal commitment as criterion. Regulatory mode theory posits that individuals high on the assessment dimension are high self-evaluators, high self-monitors and are concerned with appraising their individual performance relative to salient others. Further, individuals high on the assessment dimension critically evaluate alternatives, in terms of importance and the utility of means, in order to select the best alternative to pursue; i.e., the alternative that has the greatest chance of reflecting positively on them. Thus high assessors are likely to focus on pursuing goals whose successful attainment can be attributed to their individual actions and to reject goals that cannot be attributed directly to them. Regulatory mode theory also posits that individuals high on the locomotion dimension are concerned with movement irrespective of direction or valence, and without much regard for specific goal pursuit. These arguments fit with the finding of a stronger

commitment to more proximal than to more distal goals in the situation-induced assessment condition, and the findings of positive relationships between trait locomotion and goal commitment in this condition. They also suggest that trait assessment will be negatively related to multiteam system goal commitment and that trait locomotion will be positively related to goal commitment regardless of level and condition.

These post hoc hypotheses were tested by regressing measures of individual, component team and multiteam system level goal commitment on trait assessment, trait locomotion and a dichotomous control variable denoting component team (0 denoting Operations component team and 1 denoting Intelligence component team) and all tests were conducted utilizing HLM as previously noted. Results reported in Table 26 Step 2 provide support for the supposition that trait locomotion is positively related to goal commitment regardless of level ($\gamma = .340$, $p < .05$, $\gamma = .314$, $p < .05$ and $\gamma = .298$, $p < .05$ for individual, component team and multiteam system level goal commitment, respectively). Interestingly, the relationship between trait assessment and multiteam system goal commitment is non-significant ($\gamma = -.105$, $p =$ n.s.). Also of interest, the coefficient for the component team variable is significant in all three regressions. This suggests a contextual effect thus two additional exploratory analyses were conducted.

First, the two self-reported measures of state regulatory mode were included in the regression to test if contextual influences on regulatory mode impact goal commitment. As reported in Step 3 of Table 26, person-level state locomotion also exhibits a positive relationship with goal commitment at all levels ($\gamma = .251$, $p < .10$, $\gamma = .335$, $p < .01$ and $\gamma = .336$, $p < .01$ for individual, component team and multiteam system level goal commitment, respectively) as does person-level state assessment ($\gamma = .493$, $p < .01$, $\gamma = .448$, $p < .01$ and $\gamma = .353$, $p < .01$ for individual, component team and multiteam system level goal commitment, respectively). This

latter effect parallels the main effect discussed previously and illustrated in Figures 6, 7 and 8. The collective regulatory state of the individuals across the focal individual's multiteam system, represented by the contextual variables, do not appear to influence the degree to which a focal individual commits to goals except at the component team level ($\gamma = .540$, $p < .10$).

Second, measures of goal commitment for the two levels other than the focal level were entered in the final step to partition out the interrelationship of the goals in a common hierarchy. As reported in Step 4 of Table 26, goals across the three levels were positively and significantly related at the person-level as expected. Of particular interest, different contextual factors are indicated at each of the three goal levels once the relationship between goals in the hierarchy is accounted for. The degree to which members of the multiteam system are committed to goals of their component team is negatively and significantly related to an individual's commitment to goals at the individual level ($\gamma = -1.219$, $p < .05$). Likewise, the degree to which members of the multiteam system are committed to their individual goals is negatively and significantly related to an individual's commitment to goals at the component team level ($\gamma = -.279$, $p < .05$). These findings indicate that individuals perceive the degree of commitment of those around them and act (adapt) accordingly.

Table 26. Models Examining Regulatory Mode – Goal Commitment Relationships (post hoc)

		Predictor \ Criterion (Intercept and context are Level-2 variables)	**Individual role goal commitment (γ)**			**Component team goal commitment (γ)**			**Multiteam system goal commitment (γ)**		
			Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Context	Step 1	Intercept	4.770**	4.911**	4.187**	4.950**	5.173**	3.169*	4.751**	4.980**	3.581*
	Step 3	State assessment			-.035			-.097			-.325
		State locomotion			.183			.540†			.593
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		-.283*	-.097		-.449**	-.211		-.460**	-.228
		Trait assessment		-.139	-.280*		.052	-.071		-.105	-.187
		Trait locomotion		.340*	.211		.314*	.181		.298*	.161
	Step 3	State assessment			.493**			.448**			.353**
		State locomotion			.251†			.335**			.336**
		Tau	.114*	.122*	.072†	.179**	.173**	.046	.189**	.187**	.099*
		Sigma-squared	1.322	1.277	1.117	1.093	1.017	.828	1.133	1.062	.920

Notes for Tables 26 thru 37. N = 159 observations from 20 multiteam systems.

Person-level variables are at level-1. Context are level-2 variables.

** $p < .01$ (two-tailed tests). * $p < .05$ (two-tailed tests). † $p < .10$ (two-tailed tests).

Table 26 (cont'd)

	Predictor \ Criterion (Intercept and context are Level-2 variables)		Individual role goal commitment (γ)			Component team goal commitment (γ)			Multiteam system goal commitment (γ)		
			Step 1	Step 3	Step 4	Step 1	Step 3	Step 4	Step 1	Step 3	Step 4
Context	Step 1	Intercept	4.770**	4.187**	4.565**	4.950**	3.169*	4.255**	4.751**	3.581*	4.839
	Step 3	State assessment		-.035	.550		-.097	.222		-.325	-.361†
		State locomotion		.183	.127		.540†	.101		.593	-.086
	Step 4	Individual goal commitment						-.279*			.067
		Component team goal commitment			-1.219*						.258
		Multiteam system goal			.780			.175			
Person-level	Step 2	Component team		-.097	.049		-.211	-.052		-.228	-.060
		Trait assessment		-.280*	-.201†		-.071	.074		-.187	-.076
		Trait locomotion		.211	.134		.181	.045		.161	-.017
	Step 3	State assessment		.493**	.222†		.448**	.157†		.353**	-.051
		State locomotion		.251†	.014		.335**	.083		.336**	.061
	Step 4	Individual goal commitment						.139*			.166**
		Component team goal commitment			.340*						.710**
		Multiteam system goal			.341**			.644**			
		Tau	.114*	.072†	.066*	.179**	.046	.000	.189**	.099*	.000
		Sigma-squared	1.322	1.117	.770	1.093	.828	.322	1.133	.920	.357

Most interesting, perhaps, is the finding that neither the degree to which members of the multiteam system are committed to goals of their component team (γ = .258, p = n.s.) nor the degree to which members of the multiteam system are committed to their individual goals (γ = .067, p = n.s.) influence an individual's commitment to goals at the multiteam system level. Rather, the degree to which an assessment orientation is active in peer actors across the system has an influence on goal commitment at the multiteam system level; specifically, a negative influence (γ = -.361, p < .10). Finally, note that component team affiliation is no longer significant once these contextual effects are entered, as expected, and that the results documented in Table 26 suggest that one or both of the non-focal level goal commitment variables may mediate the relationship between state locomotion and goal commitment.

Collectively, these findings indicate that while locomotion is indicated in commitment to goals irrespective of level in the goal hierarchy, context plays a central role in refining the degree of commitment at each level. The degree to which a focal actor commits to individual and component team goals is influenced by the commitment focus of their peer actors. The findings reported above indicate that when an individual perceives an "all for one and one for all" attitude individuals decrease their self-serving focus. Conversely, when they perceive an "everyone for themselves" attitude in their team mates individuals tend to back away from committing to team goals.

Further, the stronger the assessment state orientation collectively within the system the weaker the commitment to the super ordinate goals of the system. Much like the affect of collective commitment to component team goals on a focal individual's commitment to their individual role goals and the affect of collective commitment to individual role goals on a focal individual's commitment to component team goals, individuals may be influenced by their

perception of peer actors' assessment of goal importance or conscious of peer actors' social comparison across the sub-units within the system. This may also be a subtle manifestation of in-group bias or simply indicative of the predilection of individuals high on the assessment orientation to identify more strongly at the individual level (as will be discussed next). Regardless, these results clearly indicate that perceptions of collective orientations, once again, drive individuals to adapt the degree to which they commit to goals accordingly. Future research is needed to investigate these complex phenomena further to better understand the factors leading to states of regulatory orientation that increase goal commitment so that they can be influenced in ways that will facilitate the maximization of system performance.

Identity as criterion. As was the case for goal commitment, post hoc analyses were conducted to test predictions developed directly from the fundamental tenants of regulatory mode theory (Higgins et al., 2003; Kruglanski et al., 2000). High assessment oriented individuals are concerned with self-evaluation, self-monitoring and with appraising their performance relative to salient others. This suggests that assessors will identify strongly at the individual level and abhor the anonymity associated with both component team level and multiteam system level identities. Thus, both trait and state assessment orientation are expected to exhibit a positive relationship with individual role identity.

High locomotion oriented individuals focus on activities that are accessible and that offer a sense of movement. In addition, the locomotion dimension is negatively associated with sensitivity to social criticism and feeling anxious during social interactions. These attributes suggest that locomotors may discount the distinctiveness associated with individual identification when in a social context such as a multiteam system preferring group identification instead.

Thus, trait and state locomotion orientation are expected to exhibit a positive relationship with both component team level and multiteam system level identities.

The same analysis approach employed to test the post hoc goal commitment predictions was adopted to test these hypotheses. Measures for individual, component team and multiteam system level identity were regressed on a dichotomous variable denoting component team (0 denoting Operations component team and 1 denoting Intelligence component team), measures of trait assessment, trait locomotion, state assessment, and state locomotion while controlling for dispositional identities at the individual, relational and collective levels. Results of these tests are reported in Table 27. As documented in Steps 2, the post hoc hypotheses predicted directly from regulatory mode theory (Higgins et al., 2003; Kruglanski et al., 2000) were generally supported for identity as criterion. Trait assessment was positively and significantly related to individual identity ($\gamma = .273$, $p < .05$) but exhibited no relation with component team level identity or multiteam system level identity ($\gamma = .057$, p = n.s. and $\gamma = -.151$, p = n.s.). Trait locomotion did not exhibit the predicted relationship with component team level identity or with multiteam system level identity, however ($\gamma = -.014$, p = n.s. and $\gamma = -.037$, p = n.s.). A subsequent test removing the controls for trait identity from the regression yielded a significant relationship between trait locomotion and multiteam system level identity ($\gamma = .298$, $p < .05$), but the relationship with component team level identity remained elusive ($\gamma = .211$, p = n.s.).

Table 27. Models Examining Regulatory Mode – Identity Relationships (post hoc)

	Predictor \ Criterion (Intercept and context are Level-2 variables)		**Individual role identity (γ)**			**Component team identity (γ)**			**Multiteam system identity (γ)**		
			Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Context	Step 1	Intercept	2.567**	2.566**	3.142**	5.401**	5.504**	5.212**	4.764**	4.862**	5.169**
	Step 3	State assessment			.041			-.167			-.074
		State locomotion			-.165			.181			-.050
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		.002	-.080		-.209	.086		-.198	.135
		Trait individual identity		.337**	.308*		.027	.007		.080	.053
		Trait relational identity		.076	.074		-.168	-.065		.023	.155
		Trait collective identity		.043	.018		.607**	.486**		.492*	.357†
		Trait assessment		.273*	.200†		.057	.068		-.151	-.136
		Trait locomotion		-.050	-.011		-.014	-.125		-.037	-.164
	Step 3	State assessment			.257*			.066			.061
		State locomotion			-.154			.445**			.503**
		Tau	.000	.000	.000	.142**	.120**	.106**	.135*	.126**	.145**
		Sigma-squared	.841	.718	.702	.805	.742	.642	1.168	1.141	1.020

Mirroring trait, person-level state assessment was positively and significantly related to individual identity (γ = .257, p < .05) but exhibited no relation with component team level identity (γ = .066, p = n.s.) and no relation with multiteam system level identity (γ = .061, p = n.s.). Unlike trait, person-level state locomotion exhibited a positive and significant relation with both component team and multiteam system level identity as predicted (γ = .445, p < .01 and γ = .503, p < .01 respectively), and no relationship with individual identity (γ = -.154, p = n.s.). Unlike goal commitment, there was no contextual effect to be explained by component team membership (γ = .002, p = n.s., γ = -.209, p = n.s. and γ = -.198, p = n.s. for individual role, component team and multiteam system level identity respectively); neither state assessment nor state locomotion exhibited a contextual effect (see Table 27, Step 3).

Of note, trait identity continues to explain a significant portion of variance in activated (state) identity even after trait and state regulatory orientations are entered into the regression. Although understandable in the case of individual and multiteam system identity, it is somewhat surprising that trait relational identity does not explain any of the variance in identity at the component team level. Collectively, these findings are in line with the expected relationships.

Performance as criterion. Post hoc analyses to investigate the relationship between state regulatory mode and performance, and the incremental influence of both goal commitment and identity on performance (i.e., variance explained by goal commitment and identity after accounting for variance explained by state regulatory mode) were conducted to test predictions based on the fundamental tenants of regulatory mode theory (Higgins et al., 2003; Kruglanski et al., 2000).

Role of goal commitment. High assessment oriented individuals are high self-evaluators, high self-monitors and are concerned with appraising their individual performance relative to

salient others. They evaluate alternatives in order to select the alternative that has the greatest chance of reflecting positively on them. This suggests that assessors may utilize performance information as feedback for input into the goal selection and commitment process. This is exactly what the results reported in Table 26 (and previously discussed) indicate. State assessment at the person-level was positively related to goal commitment for all three levels of performance, and the relationship between trait assessment and individual goal commitment was negative (γ = -.280, p < .05) once state assessment was accounted for. Theory does not implicate assessment directly in performance, however. Thus neither trait nor state assessment is expected to exhibit a relationship with performance at any level.

High locomotion oriented individuals are concerned with psychological movement irrespective of direction or valence. As discussed previously, locomotion is positively related to attentional control and the 'Drive' sub-scale of the Behavioral Activation System (BAS; Carver & White, 1994) which essentially measures the degree to which an individual is engaged in the pursuit of something. In addition, locomotion orientation is affected by salient cues in the environment (i.e., the performance context). In combination, these arguments suggest that state locomotion will exhibit a positively relationship with performance contribution irrespective of level (i.e., at all levels).

Research has also consistent shown that individuals exert more effort and determination to try for a goal (or to keep trying for a goal) when they are highly committed to a focal goal relative to individuals who are less committed to the goal (Locke et al., 1981; Seijts & Latham, 2000a). However, goal shielding research argues that too strong a commitment to a goal will inhibit consideration and focus on alternative or competing goals (Shah at al., 2002). Goals in multiteam system are structured hierarchically (Mathieu et al., 2001) which means that

successful goal attainment at lower levels is often a prerequisite for goal attainment at higher levels. Thus, there may be a set of goals that are not considered to be alternative or competing. Under norms of rationality (Thompson, 1967), therefore, individuals highly committed to the goals at a focal level higher in the hierarchy should be committed to the goals of the level below. Finally, although Hollenbeck and Klein's (1987) expectancy theory model of goal commitment implicates goal commitment in the role of moderating the relationship between goals and performance, research has shown that goal commitment can have a main effect on performance as well. These arguments suggest that commitment to goals at a focal level of performance will exhibit a positive relationship with performance contribution at that level and that commitment to goals at levels above the focal level may also exhibit a positive relationship with performance contribution at the focal level.

A recent investigation of the impact of coordination on performance in multiteam systems suggests something different may occur in the specific context of a multiteam system. This study found that subjugating one's own performance and the performance of one's component team when it is in a supporting role, is necessary if the system is to achieve high performance at the multiteam system level (Davison et al., 2012). This suggests that commitment to goals at levels above the focal level may exhibit a negative relationship with performance contribution at the focal level; most especially, commitment to the super-ordinate goals of the system may adversely impact performance at the individual level.

Finally, performance in multiteam systems occurs in a social context thus the actions of fellow actors in the system are bound to have an impact on a focal individual's behavior; i.e., it is highly likely that collective behavior or "bandwagon" effects will emerge. This suggests a contextual effect; the performance of a focal individual at a given level may be influenced by the

degree of commitment of their fellow actors in the system. Further, strength of social ties may play a role which suggests that the influence of focal actors will be strongest at the component team level.

To test these predictions, measures representing individual role performance contribution, component team performance contribution and multiteam system performance contribution were regressed on measures of state assessment, state locomotion, individual goal commitment, component team goal commitment and multiteam system goal commitment, controlling for trait regulatory mode and component team (condition) assignment. All tests were conducted in HLM. Results for individual role performance contribution are reported in Table 28. Table 29 contains the results for component team performance contribution and the results for multiteam system performance contribution are reported in Table 30.

The unconditional model (Model 1) was analyzed first to establish the base line for variances. Model 2 is the unconditional model with only the control variables entered. The two dimensions of state regulatory mode were included next in Model 3. The measure for goal commitment at the focal performance level was then added to the model (Model 4a). The next two models (4b and 4c) combine the measure for goal commitment at the focal performance level with one of the two goal commitment measures for a non-focal performance level to alleviate multicollinearity concerns. The final model (4d) contains all three goal commitment measures.

Table 28. Effects of Regulatory Mode and Goal Commitment on Individual Role Performance (post hoc)

		Predictor \ Criterion (Intercept and context are Level-2 variables)	**Individual role performance (*γ*)**						
			Model 1	Model 2	Model 3	Model 4a	Model 4b	Model 4c	Model 4d
Context	Step 1	Intercept	.004	.004	-.401	-.343	-.515	-.599	-.625
	Step 3	State assessment			.666	.685	.628	.669	.674
		State locomotion			-.513	-.480	-.543	-.560	-.558
	Step 4	Individual goal commitment				-.055	-.148	-.190	-.200
		Component team goal commitment					.222		.012
		Multiteam system goal commitment						.276	.273
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		-.001	.261†	.258	.226	.214	.212
		Trait assessment		.047	.082	.071	.080	.053	.055
		Trait locomotion		-.100	-.205	-.197	-.190	-.188	-.185
	Step 3	State assessment			-.168	-.152	-.107	-.122	-.115
		State locomotion			.421**	.428**	.474**	.482**	.485**
	Step 4	Individual goal commitment				-.031	.059	.008	.094
		Component team goal commitment					-.198**		-.043
		Multiteam system goal commitment						-.245**	-.218†
		Tau	.195**	.182**	.186**	.203**	.225**	.229**	.252**
		Sigma-squared	.809	.827	.766	.771	.753	.736	.741

Table 29. Effects of Regulatory Mode and Goal Commitment on Component Team Performance Contribution (post hoc)

		Predictor \ Criterion (Intercept and context are Level-2 variables)	**Component team performance contribution (γ)**						
			Model 1	Model 2	Model 3	Model 4a	Model 4b	Model 4c	Model 4d
Context	Step 1	Intercept	.004	-.001	-.242	-.416	.781	.398	.837
	Step 3	State assessment			.278	.041	.245	-.332	.226
		State locomotion			-.205	-.761	-.580†	-.709	-.571
	Step 4	Individual goal commitment					-.864*		-.837*
		Component team goal commitment				.674	.966*	1.753†	1.074
		Multiteam system goal commitment						-1.095	-.148
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		.012	.189	.172	.171	.180	.179
		Trait assessment		-.126	-.130	-.131	-.133†	-.112	-.120
		Trait locomotion		.060	-.025	-.023	-.035	-.032	-.035
	Step 3	State assessment			.017	.054	.052	.054	.058
		State locomotion			.274**	.306**	.306**	.299**	.298**
	Step 4	Individual goal commitment					.020		-.002
		Component team goal commitment				-.084	-.096	-.192†	-.190
		Multiteam system goal commitment						.133	.132
		Tau	.383**	.389**	.435**	.409**	.274**	.395**	.299**
		Sigma-squared	.629	.633	.603	.602	.606	.600	.604

Table 30. Effects of Regulatory Mode and Goal Commitment on Multiteam System Performance Contribution (post hoc)

		Predictor \ Criterion (Intercept and context are Level-2 variables)	**Multiteam system performance contribution (*γ*)**						
			Model 1	Model 2	Model 3	Model 4a	Model 4b	Model 4c	Model 4d
Context	Step 1	Intercept	.004	-.003	-.918	-1.020	-.463	-.725	-.458
	Step 3	State assessment			.155	.132	.343	-.094	.304
		State locomotion			.064	.096	.114	.003	.100
	Step 4	Individual goal commitment					-.538		-.538
		Component team goal commitment						.653	.132
		Multiteam system goal commitment				.013	.260	-.477	.163
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		.016	.200	.183	.186	.179	.182
		Trait assessment		-.113	-.094	-.109	-.124	-.100	-.117
		Trait locomotion		.097	.016	.029	.035	.030	.038
	Step 3	State assessment			-.057	-.030	-.006	-.011	.006
		State locomotion			.292**	.317**	.322**	.328**	.329**
	Step 4	Individual goal commitment					-.082		-.071
		Component team goal commitment						-.100	-.076
		Multiteam system goal commitment				-.077	-.029	-.004	.020
		Tau	.381**	.398**	.419**	.452**	.414**	.475**	.449**
		Sigma-squared	.631	.633	.607	.606	.605	.607	.607

As reflected in Model 3 of all three analyses, and as predicted, there is no relationship between state assessment and performance contribution at any level (γ = -.168, p = n.s., γ = .017, p = n.s., γ = -.057, p = n.s. at the person-level and γ = .666, p = n.s., γ = .278, p = n.s., γ = .155, p = n.s. at the contextual level for individual, component team and multiteam system level performance contribution, respectively), however, state locomotion at the person-level is positively and significantly related to performance contribution regardless of level (γ = .421, p < .01, γ = .274, p < .01 and γ = .292, p < .01 for individual, component team and multiteam system level performance contribution, respectively).

Surprisingly, and contrary to predictions, person-level goal commitment at the focal level of performance (Model 4) did not exhibit a significant relationship with performance contribution at any of the levels (γ = -.031, p = n.s., γ = -.084, p = n.s. and γ = -.077, p = n.s. for individual, component team and multiteam system level performance contribution, respectively). As discussed previously, these results could simply reflect the fact that goal commitment at the person-level is acting in a moderating role between goals and performance within a focal level as suggested by Hollenbeck and Klein's (1987) expectancy theory model of goal commitment or the relationship might be more complex in nature (e.g., curvilinear). Goal commitment does play a cross-level role, as predicted, however. (Note: these results match the findings of the original study.)

First, both component team and multiteam system level goal commitment at the person-level (Table 28 Models 4b and 4c) exhibited a significantly negative relationship with individual role performance contribution as expected (γ = -.198, p < .01 and γ = -.245, p < .01, respectively). Second, as reported in Model 4b of Table 29, the collective individual goal

commitment of actors in the system exhibited a negative relationship with performance contribution at the component team level (γ = -.864, p < .05) and the collective component team goal commitment of actors in the system exhibited a positive relationship with performance contribution at that level (γ = .966, p < .05). Contextual influence did not exhibit statistical significance at the multiteam system performance contribution level, however (Table 30).

These results strongly suggest that multiteam system context matters materially to performance contribution. The finding that the goal commitment of peer actors in the system affects a focal actor's performance at the component team level, both positively and negatively, is a testament to this. The finding that commitment to higher level goals has a negative impact on performance at the individual level attests to this as well and is consistent with the findings of Davison and colleagues (2012) that superior multiteam system performance requires that individuals and component teams sacrifice lower level metrics, at times (e.g., when in a supporting role), for the greater good. There was no evidence of a negative impact on overall system performance due to an in-group (component team) bias or too strong a focus on goals at the individual level, however.

While this latter finding appears inconsistent with the findings reported in the goal shielding literature (Shah at al., 2002), it may be due to the fact that multiteam systems goals are hierarchically arrange and thus higher level goals encompass lower level goals. The former finding may be an artifact of the laboratory setting; there may not have been enough time for in-group biases to develop. These results may also be, simply, more indicative of a lack of power in the analysis than of the true effect. Future research should investigate this phenomenon across both a greater expanse of time and a larger number of multiteam systems. Also, practicing managers should take note of the influence of peer actors and of "doing the right thing" on

performance with an eye to motivational and reward systems. Lastly, future research should investigate the determinants of state locomotion in the multiteam system context as it is implicated at all levels of performance contribution; understanding these may identify actions that can be undertaken by leaders of these systems to increase performance.

Curvilinear models of goal commitment. Goal research has shown a positive relationship between a determined focus on a goal and goal attainment, however, goal shielding research has shown that too strong a commitment to a focal goal can be detrimental to performance against alternative goals (Lord et al., 2010; Shah et al., 2002). This implies that there may be an optimal degree of goal commitment in task environments involving multiple interdependent goals, and that both greater and lesser commitment may lead to inferior performance in such circumstances. This suggests an "inverted-U" shaped curvilinear relationship between goal commitment and performance.

The task environment encountered by participants in a multiteam system adds an additional dimension of complexity, however. Goals are organized hierarchically and goal attainment at a focal level is interdependent on performance at other levels. (It should be noted that the use of "performance" and not "goal attainment" in the last sentence was purposeful.) Davison and colleagues (2012) showed that the task environment may require participants in a multiteam system to underperform against some sub-set of goals in order to maximize super-ordinate system level performance. Further, the study reported here has shown that goal commitment at levels other than the focal performance contribution level can influence performance contribution at the focal level both positively (e.g., collective-level component team goal commitment and component team performance contribution) and negatively (e.g., person-level multiteam system goal commitment and individual role performance). This suggests that

the relationship between goal commitment and performance, while curvilinear, can be both "inverted-U and U" shaped.

Models containing polynomial terms for goal commitment were introduced into the goal commitment models for performance contribution in order to investigate whether these suppositions are the case. Tables 31, 32 and 33 contain the results of this analysis for individual role performance, component team performance contribution and multiteam system performance contribution, respectively. As the results documented in these tables illustrate, the relationship between goal commitment and performance contribution in multiteam systems is, indeed, curvilinear and both "inverted-U and U" shaped.

The relationship between collective-level multiteam system goal commitment and individual role performance (Table 31) exhibited a curvilinear inverted-U shape with a maximum point of approximately 4.8 on the 7-point Likert response scale (assumes focal individual is at the collective mean). In a similar vain, the relationship between collective-level component team goal commitment and component team performance contribution (Table 32) exhibited an inverted-U curvilinear shape. In addition, the relationship between person-level component team goal commitment and component team performance contribution exhibited a curvilinear U shape. Assuming a focal individual is at the collective mean for component team goal commitment, the maximum point occurs at approximately 5.5 (on the 7-point Likert response scale).

Table 31. Exploratory HLM Models Examining Curvilinear Influence of Goal Commitment on Individual Role Performance (post hoc)

		Predictor (Intercept and context are Level-2 variables)	Model 1	Model 5
Context	Step 1	Intercept	.004	-4.919
	Step 2	State assessment		.545
		State locomotion		-.711
		Individual goal commitment		-4.018
		Component team goal commitment		
		Multiteam system goal commitment		6.380*
		Individual goal commitment squared		.400
		Component team goal commitment squared		
		Multiteam system goal commitment		-.636*
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		.213
		Trait assessment		.038
		Trait locomotion		-.199
		State assessment		-.116
		State locomotion		.482**
		Individual goal commitment		.088
		Component team goal commitment		
		Multiteam system goal commitment		-.246**
		Individual goal commitment squared		
		Component team goal commitment squared		
		Multiteam system goal commitment		
		Tau	.195**	.168**
		Sigma-squared	.809	.736

Table 32. Exploratory HLM Models Examining Curvilinear Influence of Goal Commitment on Component Team Performance Contribution (post hoc)

		Predictor (Intercept and context are Level-2 variables)	Model 1	Model 5
Context	Step 1	Intercept	.004	-10.024
	Step 2	State assessment		.219
		State locomotion		-.777
		Individual goal commitment		-5.280
		Component team goal commitment		10.060**
		Multiteam system goal commitment		
		Individual goal commitment squared		.460
		Component team goal commitment squared		-.920*
		Multiteam system goal commitment		
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		.129
		Trait assessment		-.169†
		Trait locomotion		-.067
		State assessment		.093
		State locomotion		.253*
		Individual goal commitment		.326
		Component team goal commitment		-1.582**
		Multiteam system goal commitment		
		Individual goal commitment squared		-.032
		Component team goal commitment squared		.152**
		Multiteam system goal commitment		
		Tau	.383**	.183**
		Sigma-squared	.629	.581

Table 33. Exploratory HLM Models Examining Curvilinear Influence of Goal Commitment on Multiteam System Performance Contribution (post hoc)

		Predictor (Intercept and context are Level-2 variables)	Model 1	Model 5
Context	Step 1	Intercept	.004	-13.414
	Step 2	State assessment		-.010
		State locomotion		-.091
		Individual goal commitment		
		Component team goal commitment		5.498
		Multiteam system goal commitment		
		Individual goal commitment squared		
		Component team goal commitment squared		-.543
		Multiteam system goal commitment		
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		.153
		Trait assessment		-.125
		Trait locomotion		.014
		State assessment		.017
		State locomotion		.297**
		Individual goal commitment		
		Component team goal commitment		-.927†
		Multiteam system goal commitment		
		Individual goal commitment squared		
		Component team goal commitment squared		.084†
		Multiteam system goal commitment		
		Tau	.381**	.443**
		Sigma-squared	.631	.594

Lastly, the results documented in Table 33 suggest that multiteam system performance contribution may be influenced, in a curvilinear fashion, by person-level component team goal commitment. Interestingly (and arguably not coincidentally), the maximum point occurs at approximately 5.5 (on the 7-point Likert response scale), the same level of component team goal commitment indicated for maximum influence on component team performance contribution. These results should be viewed with caution, however, as the variance explained by this model is arguably lower than other models documented in Table 30 (e.g., Model 4b).

Role of identity. As detailed previously, two closely related motivational premises underlying identification are the desire to develop and maintain a positive self-concept (Turner, 1975; Tajfel & Turner, 1979) and the need for positive regard (Hetts et al., 1999). Attributions of performance reflect on the individual or individuals involved which implies that identification at a focal level may predict performance at that level. Alternatively, the reverse could be argued; performance at a level will influence the degree to which individuals identify with that level. Regardless of causality, this suggests that identification at a focal level will be positively related to performance at that level.

Component teams within a multiteam system enact differentiated roles in order to best meet the needs of the task environment (Davison et al., 2012). The primary performance interface with the task environment is enacted by component teams in point roles while supporting roles are enacted by the other component teams in the system. There are times during a performance episode when maximizing the performance of the system requires members to focus on the needs of others in the system at the expense of their own performance (due to limits on resources such as time, etc.). This is especially true when a focal individual's component team is enacting a support role. In addition, individuals with strong identification at higher levels in

the system may be overly zealous and provide support to others to the detriment of their own performance irrespective of system needs. This implies that component team level identity and multiteam system level identity may be negatively related to individual level performance contribution. This also implies that a collective (contextual) identification at the multiteam system level may positively influence both component team and multiteam system performance.

These predictions were tested utilizing the same methodology as was employed to test the goal commitment predictions. The combined measures of individual role performance contribution, component team performance contribution and multiteam system performance contribution were regressed on measures of state assessment, state locomotion, individual-level identity, component team-level identity and multiteam system-level identity, controlling for component team assignment, trait identities and trait regulatory mode. Results for individual role performance contribution are reported in Table 34. Table 35 contains the results for component team performance contribution and the results for multiteam system performance contribution are reported in Table 36.

The unconditional model (Model 1) was analyzed first to establish the base line for variances. Model 2 is the unconditional model with the control variables entered. The two dimensions of state regulatory mode were included in Model 3 and the measure for identity at the focal performance level was included in Model 4a. The next two models (4b and 4c) employ the measures for identity at the non-focal performance level in combination with the measure at the focal performance level except when concerns with multicollinearity were present. The final model (4d) contains all three measures of identity.

Table 34. Effects of Regulatory Mode and Identity on Individual Role Performance (post hoc)

		Predictor \ Criterion (Intercept and context are Level-2 variables)	**Individual role performance (*γ*)**						
			Model 1	Model 2	Model 3	Model 4a	Model 4b	Model 4c	Model 4d
Context	Step 1	Intercept	.004	.008	-.480	1.015	.377	.511	.449
	Step 3	State assessment			.678	1.055†	1.016†	1.023†	1.028†
		State locomotion			-.504	-.766	-.855†	-.888†	-.901†
	Step 4	Individual role identity				-.692	-.071	-.682	-.717
		Component team identity					.216		.048
		Multiteam system identity						.228	.213
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		-.010	.256	.267†	.288†	.299†	.302†
		Trait assessment		.104	.141	.105	.120	.079	.091
		Trait locomotion		-.112	-.200	-.189	-.211	-.222	-.224
		Trait individual identity		-.107	-.114	-.150	-.151	-.151	-.153
		Trait relational identity		-.135	-.030	-.058	-.071	-.003	-.021
		Trait collective identity		.136	.043	.033	.127	.101	.132
	Step 3	State assessment			-.160	-.197	-.181	-.184	-.180
		State locomotion			.415**	.436**	.538**	.544**	.568**
	Step 4	Individual role identity				.147	.152†	.152†	.154†
		Component team identity					-.226*		-.110
		Multiteam system identity						-.210**	-.160†
		Tau	.195**	.185**	.190**	.195**	.214**	.221**	.241**
		Sigma-squared	.809	.835	.777	.765	.739	.725	.726

Table 35. Effects of Regulatory Mode and Identity on Component Team Performance Contribution (post hoc)

Predictor \ Criterion (Intercept and context are Level-2 variables)			Component team performance contribution (γ)						
			Model 1	Model 2	Model 3	Model 4a	Model 4b	Model 4c	Model 4d
Context	Step 1	Intercept	.004	.003	-.026	-1.965	-1.014	-1.688	-.680
	Step 3	State assessment			.204	.170	.347	.157	.414
		State locomotion			-.191	-.590	-.677	-.520	-.735
	Step 4	Individual role identity					-.310		-.449
		Component team identity				.686†	.607		.150
		Multiteam system identity						.669*	.522
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		.001	.177	.177	.175	.185	.181
		Trait assessment		-.248*	-.239*	-.236*	-.232*	-.235*	-.239*
		Trait locomotion		-.091	-.158	-.154	-.153	-.168	-.163
		Trait individual identity		.188	.180	.181	.190	.173	.185
		Trait relational identity		-.047	.033	.020	.023	.051	.053
		Trait collective identity		.320*	.250	.232	.233	.260	.242
	Step 3	State assessment			-.015	-.014	-.009	-.013	-.009
		State locomotion			.267*	.267*	.263*	.289*	.275*
	Step 4	Individual role identity					-.022		-.021
		Component team identity				.002	.002		.043
		Multiteam system identity						-.039	-.058
		Tau	.383**	.372**	.425**	.351**	.372**	.342**	.372**
		Sigma-squared	.629	.615	.590	.595	.599	.593	.601

Table 36. Effects of Regulatory Mode and Identity on Multiteam System Performance Contribution (post hoc)

		Predictor \ Criterion (Intercept and context are Level-2 variables)	Multiteam system performance contribution (γ)						
			Model 1	Model 2	Model 3	Model 4a	Model 4b	Model 4c	Model 4d
Context	Step 1	Intercept	.004	.002	-.966	-2.329	-1.640	-.345	1.740
	Step 3	State assessment			.145	.108	.134	.557	.800
		State locomotion			.085	-.183	-.055	-.475	-.415
	Step 4	Individual role identity						-.807	-1.230†
		Component team identity					.239		-.816
		Multiteam system identity				.547		.479	.958*
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		.006	.190	.195	.190	.199	.199
		Trait assessment		-.154	-.132	-.127	-.132	-.142	-.142
		Trait locomotion		.088	.019	.011	.021	.016	.010
		Trait individual identity		.085	.081	.075	.081	.064	.061
		Trait relational identity		-.165	-.088	-.078	-.090	-.091	-.070
		Trait collective identity		.081	.020	.019	.013	.014	.024
	Step 3	State assessment			-.063	-.062	-.062	-.077	-.080
		State locomotion			.284**	.299**	.284**	.307**	.303**
	Step 4	Individual role identity						.059	.058
		Component team identity					.002		.025
		Multiteam system identity				-.023		-.024	-.037
		Tau	.381**	.391**	.413**	.365**	.429**	.354**	.324**
		Sigma-squared	.631	.642	.619	.623	.623	.625	.629

None of the focal level identities exhibited the predicted relationship with performance contribution at the person-level (Model 4a; γ = .147, p = n.s., γ = .002, p = n.s., and γ = -.023, p = n.s. for individual, component team and multiteam system level performance contribution, respectively) although component team identity did exhibit a marginally significant relationship with component team performance contribution at the contextual level of analysis (γ = .686, p < .10). This suggests that a focal individual's performance contribution at the component team level is positively influenced by the degree to which fellow actors in the system identify with their component team. The results reported in Model 4c (Table 35) suggest that the degree to which fellow actors in the system identify with the multiteam system as a whole also has a positive influence on a focal individual's performance contribution at the component team level (γ = .669, p < .05).

These findings may represent the willingness of individuals to reach out across component team boundaries to help (i.e., perform the support role). In fact, this explanation gains further support when the results of Model 4b and 4c for individual role performance contribution (Table 34) are considered. As predicted, performance at the individual level is negatively impacted by the degree to which an actor independently (i.e., person-level of analysis) identifies at higher levels in the multiteam system (γ = -.226, p < .05 and γ = -.210, p < .05 for component team and multiteam system level identification, respectively). Finally, trait assessment exhibits a negative relationship with component team performance contribution when trait identity is controlled for (Table 35, Model 2) suggesting that concerns for self-evaluation, monitoring and social comparison may lead individuals to contribute less to the team effort.

Combined models of performance. The results of this post hoc study implicate regulatory mode, goal commitment, and identity in the determination of performance. Most

importantly, the results suggest that these factors have differential influence across the three levels of performance contribution in a multiteam system. For example, trait assessment only appears to have an influence on component team performance contribution whereas state locomotion is implicated at every level of performance contribution. Multiteam system identity exhibits a negative relationship with individual role performance contribution at the person-level (Table 34, Model 4c) whereas it exhibits a positive relationship with component team performance contribution at the contextual level (Table 35, Model 4c). These findings are the result of separate analyses, however, leaving open the question: What is the combined influence (or not) of these factors on performance contribution across the three levels of a multiteam system?

An exploratory analysis was conducted to answer this question employing the previously discussed findings as a guide. The results are reported as Model 2 in Table 37. As expected, some factors lost significance when combined with other factors that exhibited equivalent influences; for example, individually both of the multiteam system factors, goal commitment and identity, exhibit a negative relationship with individual role performance contribution yet both are rendered non-significant when entered simultaneously into the regression. In such cases the factor resulting in the greatest decrease in variance, referenced to the unconditional model (Model 1) was kept.

The combined models all have a greater impact on variance explained than do any of the previous models (1 through 4d) with the possible exception of individual performance contribution. Individual role identity and multiteam system goal commitment at the person-level continue to influence individual role performance contribution; the former positively ($\gamma = .142$, $p < .10$) and the latter negatively ($\gamma = -.222$, $p < .05$). As previously discussed, the negative

influence of multiteam system goal commitment may reflect the intention of the focal individual to "do the right thing" by forgoing individual performance in order to support overall system performance. The contextual influence of identification at the multiteam system level on component team performance contribution is somewhat offset by individual role goal commitment ($\gamma = .721$, $p < .05$ and $\gamma = -.657$, $p < .05$, respectively), and a similar dynamic is apparent at the level of multiteam system performance contribution where the contextual influence of identification at the multiteam system level on multiteam system performance contribution is offset to some extent by multiteam system goal commitment ($\gamma = 1.047$, $p < .01$ and $\gamma = -.779$, $p < .10$, respectively).

The result at the component team performance level may simply reflect the negative consequence of a collective void of team work (an individual performer climate or team norm) in an environment constituting strong task performance interdependencies. The result at the multiteam system performance level, in conjunction with the person-level result for individual role performance contribution, may be a reflection of the negative consequences of goal shielding in the context of a bandwagon effects. Specifically, when a collective gets too focused on achieving the super-ordinate goal individuals may lose perspective and forgo the achievement of the lower order goals necessary to realize high performance at the system level in order to focus more exclusively on the super-ordinate goals. This raises two interesting questions: Is there a point at which subjugating one's own performance becomes detrimental to component team or system performance? Likewise, is there a point at which the subjugation of the performance of component teams in supporting roles becomes detrimental to system performance? Investigating this phenomenon to better understand the dynamics involved would be an interesting and valuable line of research to pursue in the future.

Table 37. Models Combining Determinants of Performance (post hoc)

		Predictor \ Criterion (Intercept and context are Level-2 variables)	**Performance Contribution (γ)**					
			Individual role		**Component team**		**Multiteam system**	
			Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Context	Step 1	Intercept	.004	.576	.004	-.388	.004	-2.964
	Step 2	State locomotion		-.286		.001		.387
		Individual role identity		-.158				
		Multiteam system identity				.721*		1.047**
		Individual goal commitment				-.657*		
		Multiteam system goal commitment		.194				-.779†
Person-level	Step 2	Component team (0 = Operations, 1 = Intelligence)		.201		.169		.170
		Trait assessment				-.260*		
		Trait locomotion		-.137		-.175		-.018
		Trait individual identity		-.160		.202†		
		Trait collective identity				.322*		.018
		State locomotion		.472**		.293**		.302**
		Individual role identity		.142†				
		Multiteam system identity				-.029		.028
		Individual goal commitment				-.055		
		Multiteam system goal commitment		-.222**				-.094
		Tau	.195**	.273**	.383**	.218**	.381**	.266**
		Sigma-squared	.809	.714	.629	.586	.631	.613

Lastly, component team is the only performance contribution level that exhibits a direct relationship with traits. Reflecting the tendency of assessors to seek performance outcomes that can be directly attributed to them, trait assessment is negatively related to component team performance contribution (γ = -.260, p < .05). The finding that both individual (γ = .202, p < .10) and collective (γ = .322, p < .05) identity are positively related to component team performance contribution may be an aberration of Brewer's (1991) optimal distinctiveness perspective. Individuals are both a characterless part of a group, the component team, and a somewhat uniquely distinctive individual performer at this level. Each component team is part of a broader system, yet uniquely qualified and tasked. This may be an artifact of the situation, however. Each multiteam system in the study performed in a vacuum; i.e., there was no comparison system from which to be distinctive. This is often, but not always, the case for multiteam systems. Thus this offers another fertile avenue for future research.

Limitations

Every study has limitations that offer opportunities for learning and improvement that serve as a guide to future research. The intent of this study was to investigate the influences of regulatory mode, goal commitment and identity on the three levels of performance contribution in a multiteam system under specific, controlled conditions – high state assessment and high state locomotion. These conditions were selected for investigation by design because prior research has found that individuals are most likely to attain their goals if they are high on both regulatory mode dimensions (Pierro, Kruglanski, & Higgins, 2006a). Thus, high state assessment and high state locomotion were envisioned to be the two conditions under which maximum multiteam system performance would emerge. While maximum performance is clearly an important outcome, and thus of keen interest to management scholars and practicing managers

alike, it is not the only state of performance that offers valuable insights. Understanding why some multiteam systems underperform their potential can be equally informative. Thus future research should target other performance outcome levels and investigate the influences of regulatory mode orientations other than the high state assessment and high state locomotion conditions.

The assumption that Operations component team roles and Intelligence component team roles would respectively place participants into a high locomotion and a high assessment situation-induced state was untested and turned out to be somewhat tenuous. Fortunately, self-reported measures of state regulatory mode were collected. They proved invaluable to the analyses, although they are not ideal for a couple of reasons. First, while the state regulatory mode measurement tool was based on a psychometrically tested and sound survey instrument, and exhibited a good fit when factor analyzed, the altered scale has never been rigorously tested for construct validity. The scale did exhibit good fit when factor analyzed and the underlying constructs it was intended to measure did perform as predicted by theory, two factors arguably in support of validity. Still, scale validation is an opportunity for future research that would only serve to strengthen the findings of this study should construct validity be demonstrated. Second, the self-reported measures of state regulatory mode were collected immediately *after* the performance episode and thus they may not be a true representation of the state regulatory mode *during* the performance episode. Although participants had no knowledge of actual performance, these measures may suffer from a retrospective measurement bias based on perceptions of performance. Thus the findings of the analyses employing these measures, while informative and illuminating, should be considered cautiously. Future research should be undertaken to validate these findings.

Another limitation of this study is an unavoidable (and age old) consequence of the nature of the research question, determinants of individual performance contribution in a multiteam system context. It is hard, if not outright impossible, to completely disentangle individual-level performance contribution at the level of a collective in a performance hierarchy (e.g., component team- and multiteam system-level) comprising a system of highly interdependent work from the data of one performance episode. While the objective measures and analysis technique employed in this study afford some ability to do this, the degree to which these measures do or do not accurately represent the intended underlying construct is a legitimate concern.

In addition, the simulation exercise employed in this study is but one of a universe of multiteam system performance situations, the performance episode was conducted in a laboratory setting, and the participants in this study were all undergraduate students. While the findings reported here represent a meaningful step toward understanding the complex issues associated with performance contribution in a multiteam system, future research should be conducted employing a variety of performance measurement tools across a series of performance episodes and diverse populations in order to better understand individual performance contribution in multiteam system contexts.

Finally, the use of hierarchical linear modeling techniques provides a more accurate estimation of standard errors and thus a more conservative estimate of significance than does OLS regression, however, the sample size at both levels of the models used in this study was limited. While this represents an efficient use of research resources (a public good) the findings reported here may not tell the full story as the power to detect statistical significant effects was limited. Even so, statistical significance is arguably an overly simplistic yardstick with which to

measure the meaningfulness of a scientific inquiry. Theory informed inference and speculative conjecture supported by empirical results are of potentially greater importance than mere statistical significance, especially at the dawn of a new area of research as is the case for multiteam systems. Against these criteria this study was a resounding success.

Contribution to the Literature

This study was motivated and conceived both to enhance our understanding of what determines the goal focus of individuals situated in the complex organizational context of a multiteam system by gaining an understanding of the regulatory process driving activated identity and goal commitment, and to gain an understanding of the degree to which regulatory mode, identity and goal commitment drive or inhibit incremental performance contribution across goal levels in these contexts. The findings discussed previously are a testament to the successful fulfillment of these intentions. In addition, while the study was undertaken with a priori hypotheses in mind, the design was robust enough to withstand an erroneous assumption and deliver insightful inferences from post hoc theorizing and analysis that meaningfully inform the direction of future research.

This is the first study to join together theories of regulatory mode, identity, goal commitment and multiteam systems into an informed perspective of their collective and interdependent impact on performance. As such it serves to inform and expand the literature of all these areas. Specifically, while finer details such as effect size are still in contention, this study theorizes and demonstrates empirically that incremental performance contribution across levels in the multiteam system goal hierarchy are differentially affected by context through its selective influence on the key psychological processes of regulation, identity and goal commitment. The findings reported herein are also of value to leaders of multiteam systems. For

example, while a layman's perspective would lead to the conclusion that strong identification with the organization and a strong commitment to the goals of the organization is always a good thing, and the more the better, this research suggests that this is not always the case. The results reported here indicate that strong identification with the multiteam system and a strong commitment to the goals of the system may serve, ultimately, to undermine performance.

If teams are truly becoming the fundamental building block of organizations, then multiteam systems will increasingly represent a structure through which organizations accomplish their objectives. In contexts where the nature of the task environment requires modular organization by specialization or broad representation from many different constituencies, the multiteam system organizational form affords a performance advantage (Davison et al., 2012). Yet individuals situated in multiteam systems face a hierarchy of interdependent goals and responsibility associated with multiple organizational levels (e.g., individual, component team, system), embodied in a context fraught with resource constraints (e.g., psychological, time). What factors determine their performance focus, and how focus affects performance contribution are critical questions on the path to understanding the determinants of superior multiteam system performance. Hopefully this study will motivate future work in this important, but empirically under-developed area so that the operational effectiveness of multiteam systems will someday attain their theoretical potential.

APPENDICES

Appendix A: Regulatory Mode Questionnaire (RMQ)
(Administered in pre-lab survey using Qualtrics)

Table 38. Regulatory Mode Questionnaire (RMQ)

Locomotion items	
1.	I don't mind doing things even if they involve extra effort.
2.	I am a "workaholic."
3.	I feel excited just before I am about to reach a goal.
4.	I enjoy actively doing things, more than just watching and observing.
5.	I am a "doer."
6.	When I finish one project, I often wait awhile before getting started on a new one. (reverse-scored)
7.	When I decide to do something, I can't wait to get started.
8.	By the time I accomplish a task, I already have the next one in mind.
9.	I am a "low energy" person, (reverse-scored)
10.	Most of the time my thoughts are occupied with the task I wish to accomplish.
11.	When I get started on something, I usually persevere until I finish it.
12.	I am a "go-getter."
Assessment items	
1.	I never evaluate my social interactions with others after they occur. (reverse-scored)
2.	I spend a great deal of time taking inventory of my positive and negative characteristics.
3.	I like evaluating other people's plans.
4.	I often compare myself with other people.
5.	I don't spend much time thinking about ways others could improve themselves, (reverse-scored)
6.	I often critique work done by myself or others.
7.	I often feel that I am being evaluated by others.
8.	I am a critical person.
9.	I am very self-critical and self-conscious about what I am saying.
10.	I often think that other people's choices and decisions are wrong.
11.	I rarely analyze the conversations I have had with others after they occur. (reverse-scored)
12.	When I meet a new person I usually evaluate how well he or she is doing on various dimensions (e.g., looks, achievements, social status, clothes).

- Kruglanski, A. W., Thompson, E. P., Higgins, E. T., Atash, M. N., Pierro, A., Shah, J. Y., & Spiegel, S. 2000. To "do the right thing" or to "just do it": Locomotion and assessment as distinct self-regulatory imperatives. ***Journal of Personality and Social Psychology***, 79, 793-815.
- Also in: Higgins, E. T., Kruglanski, A. W., & Pierro, A. 2003. Regulatory mode: Locomotion and assessment as distinct orientations. In M. P. Zanna (Ed.), ***Advances in Experimental Social Psychology, Vol 35***, 293-344. San Diego: Academic Press Inc.

Appendix B: Levels of Self-concept Scale (LSCS)
(Administered in pre-lab survey using Qualtrics)

Table 39. Levels of Self-concept Scale (LSCS)

Instructions: The following questions ask you to provide some information about yourself. Please respond by marking the circle to the right of each statement that best represents your answer.

Individual-level (Comparative identity subscale)	
1.	I thrive on opportunities to demonstrate that my abilities or talents are better than those of other people.
2.	I have a strong need to know how I stand in comparison to my coworkers.
3.	I often compete with my friends.
4.	I feel best about myself when I perform better than others.
5.	I often find myself pondering over the ways that I am better or worse off than other people around me.
Relational-level (Concern for others subscale)	
1.	If a friend was having a personal problem, I would help him/her even if it meant sacrificing my time or money.
2.	I value friends who are caring, empathic individuals.
3.	It is important to me that I uphold my commitments to significant people in my life.
4.	Caring deeply about another person such as a close friend or relative is important to me.
5.	Knowing that someone I am close to acknowledges and values the role that I play in their life makes me feel like a worthwhile person.
Collective-level (Group achievement focus subscale)	
1.	Making a lasting contribution to groups that I belong to, such as a student organization or club, is very important to me.
2.	When I become involved in a group project, I do my best to ensure its success.
3.	I feel great pride when my team or group does well, even if I'm not the main reason for its success.
4.	I would be honored if I were chosen by an organization or club that I belong to, to represent them at a conference or meeting.
5.	When I'm part of a team, I am concerned about the group as a whole instead of whether individual team members like me or whether I like them.

- Self-concept Scale (LSCS)
    - Johnson, R. E., Selenta, C., & Lord, R. G. (2006). When organizational justice and the self-concept meet: Consequences for the organization and its members. *Organizational Behavior and Human Decision Processes, 99*, 175-201.
    - Selenta, C., & Lord, R. G. (2005). *Development of the levels of self-concept scale: Measuring the individual, relational, and collective levels*. Unpublished manuscript.

Appendix C: Post-training Survey
(Administered immediately after training using Qualtrics)

Table 40. Post-training Survey

Instructions: This questionnaire consists of statements about the training you have just completed. Please read each statement that follows *carefully*, and take special care to mark the circle that best represents your opinion. Using the 1 to 6 scale to the right of these instructions, please indicate the degree to which you agree or disagree with the following statements by marking the circle to the right of the statement that best represents your opinion.

I know how to place (deploy) and move operations assets (Strike, Escort, Refuel, and Info RPA icons) on the game grid.
I know how to place (deploy) and move intelligence assets (A, C, H, V) on the game grid.
Information obtained from intelligence assets placed in a location that is *not* a "sweet spot" location (i.e., a cell where they are 90% *inaccurate*) is reliable (i.e., can be trusted). (Reverse coded)
Strike, Escort, and Info missions to the bottom-half of the grid (the South, Rows 1-8) require a Refuel RPA. (Reverse coded)
Strike RPAs can be used to destroy any target (i.e., both opportunities and threats). (Reverse coded)
Only intelligence assets find targets. (Reverse coded)
Mobile targets identified in turns 3, 7, and 9 will be in the same location in the next turn.
Sending an intelligence asset type (A, C, H, V) to a location containing a target that is already known to be there (i.e., was identified by an operations asset in a previous round) helps to verify the asset type's accuracy.
It takes 2 Escort RPAs to destroy a large mobile threat but only 1 Escort RPA to destroy a large fixed threat. (Reverse coded)
Points are lost when intelliegence assets (A, C, H, V) are destroyed. (Reverse coded)

1 = Strongly disagree
2 = Disagree
3 = Mildly disagree
4 = Mildly agree
5 = Agree
6 = Strongly Agree

Appendix D: Goal Commitment Measures
(Administered as part of Time 1 survey using Qualtrics)

Individual-level Instructions: This questionnaire consists of statements about the goals assigned specifically to you ("destroying small targets without losing an asset" if you are a member of the Operations sub-team or "accurately identifying targets without wasting intel missions" if you are a member of the Intelligence sub-team). ***Please answer with respect to the goals assigned to you only.***

Component Team-level Instructions: This questionnaire consists of statements about the goals assigned to your sub-team ("targets destroyed" if you are on the Operations sub-team or "queries resulting in an accurate target icon on the COP" if you are on the Intelligence sub-team). ***Please answer with respect to the goals assigned to your sub-team only***.

The researcher has assigned a difficult but attainable goal to your sub-team that represents performance at or above 75% of teams who have already completed this exercise. Please indicate the degree to which you agree or disagree with the following statements by marking the circle to the right of the statement. Read each statement that follows *carefully*, and take special care to mark the circle that best represents your opinion.

MTS-level Instructions: This questionnaire consists of statements about the goals of the organization as a whole. ***Please answer with respect to the overall performance goals of the organization.***

The researcher has assigned difficult but attainable goals for "Total Points Scored" and "COP Accuracy" that represent performance at or above 75% of teams who have already completed this exercise. Please indicate the degree to which you agree or disagree with the following statements by marking the circle to the right of the statement. Read each statement that follows *carefully*, and take special care to mark the circle that best represents your opinion.

Table 41. Goal Commitment Measures

Individual level (Original items)			**Component team**	**MTS**
1	***(R)***	***It's hard to take this [my individual] goal seriously.***	***It's hard to take the goals of the sub-team seriously.***	***It's hard to take the goals of the organization seriously.***
2	(R)	It's unrealistic for me to expect to reach this [my individual] goal.	It's unrealistic for me to expect the sub-team's goals to be reached.	It's unrealistic for me to expect the organization's goals to be reached.
3	(R)	It is quite likely that this [my individual] goal may need to be revised, depending on how things go.	It is quite likely that the goals for the sub-team need to be revised, based on how things are going.	It is quite likely that the goals for the organization need to be revised, based on how things are going.
4	***(R)***	***Quite frankly, I don't care if I achieve this [my individual] goal or not.***	***Quite frankly, I don't care if the sub-team's goals are achieved or not.***	***Quite frankly, I don't care if the organization's goals are achieved or not.***
5		***I am strongly committed to pursuing this [my individual] goal.***	***I am strongly committed to pursuing the goals of the sub-team.***	***I am strongly committed to pursuing the goals of the organization.***
6	***(R)***	***It wouldn't take much to make me abandon this [my individual] goal.***	***It wouldn't take much to make me abandon the sub-team's goals.***	***It wouldn't take much to make me abandon the organization's goals.***
7		***I think this [my individual] goal is a good goal to shoot for.***	***I think the goals of the sub-team are good goals to shoot for.***	***I think the goals of the organization are good goals to shoot for.***
8		I am willing to put forth a great deal of effort beyond what I'd normally do to achieve this [my individual] goal.	I am willing to put forth a great deal of effort beyond what I'd normally do to achieve the sub-team's goals.	I am willing to put forth a great deal of effort beyond what I'd normally do to achieve the organization's goals.
9	(R)	There is not much to be gained by trying to achieve this [my individual] goal.	There is not much to be gained by trying to achieve the goals of the sub-team.	There is not much to be gained by trying to achieve the goals of the organization.

Notes. (R) – Reverse coded

Items 1, 4, 5, 6, and 7 form the 5-item scale (Klein, Wesson, Hollenbeck, Wright, & DeShon, 1999)

Hollenbeck, J. R., O'Leary, A. M., Klein, H. J., & Wright, P. M. (1989). Investigation of the construct validity of a self-report measure of goal commitment. *Journal of Applied Psychology, 74*, 951-956.

Appendix E: Individual-level Identity Measure
(Administered as part of Time 1 survey using Qualtrics)

Instructions: Please indicate the degree to which you agree or disagree with the following statements by marking the circle to the right of the statement. Read each statement that follows *carefully*, and take special care to mark the circle that best represents your opinion.

Table 42. Individual-level Identity Measure

	Original items from Comparative identity subscale	**Individual identity**
1	I thrive on opportunities to demonstrate that my abilities or talents are better than those of other people.	I thrive on opportunities to demonstrate that my abilities are better than those of the other people currently in the lab.
2	I have a strong need to know how I stand in comparison to my coworkers.	I have a strong need to know how I am doing in comparison to the others in the lab right now.
3	I often compete with my friends.	I am competing with the others in the lab right now.
4	I feel best about myself when I perform better than others.	I feel best about myself when I perform better than others currently in the lab.
5	I often find myself pondering over the ways that I am better or worse off than other people around me.	I am often pondering the ways that I am better or worse off than the other people in the lab right now.

- Adapted from Levels of Self-concept Scale (LSCS)
  - Johnson, R. E., Selenta, C., & Lord, R. G. (2006). When organizational justice and the self-concept meet: Consequences for the organization and its members. *Organizational Behavior and Human Decision Processes, 99*, 175-201.
  - Selenta, C., & Lord, R. G. (2005). *Development of the levels of self-concept scale: Measuring the individual, relational, and collective levels*. Unpublished manuscript.

Appendix F: Group-level Identity Measures
(Administered as part of Time 1 survey using Qualtrics)

Table 43. Group-level Identity Measures

Team-level Instructions: This questionnaire consists of statements about how closely you identify with members of the sub-team you were assigned to (i.e., you and the 3 individuals sitting at the same table with you). ***Please answer with respect to the individuals on your sub-team only.***

MTS-level Instructions: This questionnaire consists of statements about how closely you identify with members of the organization as a whole (i.e., everyone in the room). ***Please answer with respect to the individuals on all sub-teams collectively.***

Original item		**Dimension**	**Component team**	**MTS**
1	**I feel strongly affiliated with this group.**	**Commitment**	I feel strongly affiliated with this sub-team.	I feel strongly affiliated with this organization.
2	Other groups can learn a lot from us.	Superiority		
3	**Belonging to this group is an important part of my identity.**	**Importance**	Belonging to this sub-team is an important part of my identity.	Belonging to this organization is an important part of my identity.
4	In times of trouble, the only way to know what to do is to rely on the group leaders.	Deference		
5	**I am glad to contribute to this group.**	**Commitment**	I am glad to contribute to this sub-team.	I am glad to contribute to this organization.
6	Compared to other groups of this kind, this group is particularly good.	Superiority		
7	**It is important to me that I view myself as a member of this group.**	**Importance**	It is important to me that I view myself as a member of this sub-team.	It is important to me that I view myself as a member of this organization.
8	All group members should respect the customs, the institutions, and the leaders of the group.	Deference		

Table 43 (cont'd)

9	**I am strongly committed to this group.**	**Commitment**	I am strongly committed to this sub-team.	I am strongly committed to this organization.
10	Relative to other groups, we are a very moral group.	Superiority		
11	**It is important to me that others see me as a member of this group.**	**Importance**	It is important to me that others see me as a member of this sub-team.	It is important to me that others see me as a member of this organization.
12	It is disloyal to criticize this group.	Deference		
13	**I like to help this group.**	**Commitment**	I like to help this sub-team.	I like to help this organization.
14	This group is better than other groups in all respects.	Superiority		
15	**When I talk about the group members, I usually say "we" rather than "they."**	**Importance**	When I talk about the sub-team members, I usually say "we" rather than "they."	When I talk about the organization members, I usually say "we" rather than "they."
16	There is usually a good reason for every rule and regulation that the group leaders propose.	Deference		

Note: The adapted scale to be used in this study will utilize the four Commitment items (1, 5, 9, 13) and the four Importance items (3, 7, 11, 15).

- Roccas, S., Sagiv, L., Schwartz, S., Halevy, N., & Eidelson, R. (2008). Toward a unifying model of identification with groups: Integrating theoretical perspectives. *Personality and Social Psychology Review, 12*, 280-306.

Appendix G: State Regulatory Mode Questionnaire (based on the RMQ)
(Administered as part of Time 2 survey using Qualtrics)

Table 44. State Regulatory Mode Questionnaire

Instructions: This questionnaire consists of statements about the role you were asked to perform in today's exercise. Please take a few moments to reflect back on your participation in the exercise you have just completed. Then answer the following question with only these thoughts in mind; i.e., how you feel right now based on your participation in this exercise.

Using the 1 to 6 scale to the right of these instructions, please indicate the degree to which you agree or disagree with the following statements by marking the circle to the right of the statement. Read each statement that follows *carefully*, and take special care to mark the circle that best represents your opinion.

Locomotion items		
1.	RMQ	I don't mind doing things even if they involve extra effort.
	Revised	I didn't mind doing the things I had to do, even when they took some extra effort.
2.	RMQ	I am a "workaholic."
	Revised	I could easily have played more rounds.
3.	RMQ	I feel excited just before I am about to reach a goal.
	Revised	I felt excited every time I destroyed / identified a target (Ops / Intel).
4.	RMQ	I enjoy actively doing things, more than just watching and observing.
	Revised	I enjoyed deploying my assets at the start of each round more than watching others deploy their assets or waiting for the execution of my moves.
5.	RMQ	I am a "doer."
	Revised	I was a "doer" in this exercise.
6.	RMQ	When I finish one project, I often wait awhile before getting started on a new one. (reverse-scored)
	Revised	I would have preferred more time between rounds. (reverse-scored)
7.	RMQ	When I decide to do something, I can't wait to get started.
	Revised	When I decided to do something, I couldn't wait to do it.
8.	RMQ	By the time I accomplish a task, I already have the next one in mind.
	Revised	By the time a round ended, I already knew what I wanted to do in the next round.
9.	RMQ	I am a "low energy" person. (reverse-scored)
	Revised	I did not feel all that energized during the game. (reverse-scored)
10.	RMQ	Most of the time my thoughts are occupied with the task I wish to accomplish.
	Revised	Most of the time I was thinking about what I wanted to accomplish.
11.	RMQ	When I get started on something, I usually persevere until I finish it.
	Revised	Once I started something, I finished it.
12.	RMQ	I am a "go-getter."
	Revised	I was a real "go-getter" in this exercise.

Table 44 (cont'd)

Assessment items		
1.	RMQ	I never evaluate my social interactions with others after they occur. (reverse-scored)
	Revised	I did not evaluate the interactions I had with others after they occurred. (reverse-scored)
2.	RMQ	I spend a great deal of time taking inventory of my positive and negative characteristics.
	Revised	I spent time taking stock of my good and my bad moves.
3.	RMQ	I like evaluating other people's plans.
	Revised	I enjoyed evaluating what others on the team were doing.
4.	RMQ	I often compare myself with other people.
	Revised	I would like to compare how I did to how others did.
5.	RMQ	I don't spend much time thinking about ways others could improve themselves, (reverse-scored)
	Revised	I didn't spend much time thinking about ways others could do better. (reverse-scored)
6.	RMQ	I often critique work done by myself or others.
	Revised	I spent time critiquing my moves and the moves others had made.
7.	RMQ	I often feel that I am being evaluated by others.
	Revised	I often felt that other players were evaluating my moves and decisions.
8.	RMQ	I am a critical person.
	Revised	I critically assessed things.
9.	RMQ	I am very self-critical and self-conscious about what I am saying.
	Revised	I was very careful about what I said.
10.	RMQ	I often think that other people's choices and decisions are wrong.
	Revised	I thought that many of the moves and decisions other people made were wrong.
11.	RMQ	I rarely analyze the conversations I have had with others after they occur. (reverse-scored)
	Revised	I rarely analyzed the conversations I had with others after they occurred. (reverse-scored)
12.	RMQ	When I meet a new person I usually evaluate how well he or she is doing on various dimensions (e.g., looks, achievements, social status, clothes).
	Revised	I spent time evaluating others on various dimensions (e.g., looks, personality, attitude, clothes).

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