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FOR MYSELF OR FOR THE GROUP: THE ROLE OF INDIVIDUAL DIFFERENCES, STRUCTURAL FACTORS AND GOAL COMMITMENT IN INDIVIDUALS' GROUP TASK PERFORMANCE IN PARALLEL TEAMS

By

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ABSTRACT

FOR MYSELF OR FOR THE GROUP:
THE ROLE OF INDIVIDUAL DIFFERENCES, STRUCTURAL FACTORS AND GOAL COMMITMENT IN INDIVIDUALS' GROUP TASK PERFORMANCE IN PARALLEL TEAMS

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This dissertation examined the reactions of parallel team members (parallel teams are teams that run alongside the formal structure of the organization) to the dilemma of simultaneously pursuing an individual goal and a group goal. Adopting Kanfer's (1990) motivational framework, I examined how distal constructs (i.e., individual differences and team structural factors) and proximal constructs (individual and group goal commitment) influence parallel team members' performance in a group task (in the presence of an individual task).

Overall, results of this experimental study (n= 318) conducted in the United States and Singapore demonstrated that individual differences (horizontal collectivism and agreeableness) indirectly influenced members' performance in the group task via group goal commitment, while conscientiousness had a direct positive influence. Results, however, demonstrated no direct effects of structural factors (task interdependence and leader status) on goal commitment or performance. Rather, structural factors were more important when considered jointly with individual differences. Specifically, task interdependence interacted with horizontal collectivism and conscientiousness to influence group goal commitment.

Results also indicated that while Singapore subjects discriminated between

individual and group goal commitment, U.S. subjects did not. This raises cultural differences as an important question for future research on goal commitment in the context of parallel teams. Post-hoc results also suggest that using a group goal priority measure (which requires individuals to prioritize individual and group goal) is a potentially promising approach.

In the discussion, I highlight implications of current findings and raise future research questions that can help advance the field's understanding of parallel teams. Given the popularity of parallel teams in organizations, this research can confer considerable practical significance to the field.

To my Good Shepherd, who led me here and gave me Life

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And perhaps the one person who has seen the worst of me during the stressful periods in this process, and yet, is always there for me, is Edwin – my husband. Thank you, my dear, for your loving patience and support in these four years that we were apart.

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INTRODUCTION

Consider the following scenario. X is working under tight deadlines on two tasks: the first is an individual task for which he is accountable alone for his performance, while the second is a group task for which he and his group members (belonging to a task force) are jointly accountable for their performance. Given the limited effort and time, how will X perform in the two tasks?

Although having multiple goals that compete for common resources is a dilemma faced by employees frequently at the workplace (Sniezek, May & Sawyer, 1990), relatively little research, whether theoretical or empirical, has addressed this topic (Austin & Vancouver, 1996; Locke & Latham, 1990). This represents an important gap in the literature because the increasingly team-based nature of organizations (Ilgen & Pulakos, 1999) creates an environment in which a specific form of dilemma – a tension between individual and collective interests, is likely to occur (Sheppard, 1993; Sniezek et al., 1990).

Parallel teams (e.g., employee involvement programs, problem-solving groups, task forces, quality circles) for instance, provide a classic example where group members are responsible for both individual and group tasks, and hence, face the dilemma between individual and collective interests (Colquitt, 1999; Cotton, 1993). This dissertation uses parallel teams as a context to examine one important research question: what factors affect individuals' performance in their group task when they are simultaneously faced with demands from their personal tasks? To address this question, I adopt Kanfer's (1990) distal-proximal framework of motivation to explain how distal factors (e.g., individual differences and situational factors) influence parallel team members'

performance outcomes via the proximal mechanism of goal commitment (Hollenbeck & Klein, 1987; Locke, Shaw, Saari, & Latham, 1981). Before elaborating on this framework, however, I describe some distinctive features of parallel teams in the ensuing section in order to provide a clearer understanding of my research context and the motivation underlying my research questions.

What Are Parallel Teams?

Parallel teams are teams that exist alongside the formal structure of the organization (Cohen & Bailey, 1997). Unlike work teams which are permanent and stable, parallel teams pull people from different work units or jobs to perform functions that are not under the jurisdiction of specific departments or teams (such as special task forces). Recent results of a long term study conducted by the Center for Effective Organizations indicated that almost every organization uses some form of parallel teams, and many use more than one (Lawler, 1999). The popularity of parallel teams may be largely attributed to the potential benefits of employee participation (Cotton, 1993). In addition, the immense success of quality circles in Japan also fueled the adoption of parallel teams by U.S. firms in various industries, ranging from manufacturing firms to service organizations.

Typical purposes of parallel teams include enhancing employee participation without disrupting existing work practices and organizational structure, and resolving a single-time, non-recurring issue with maximum input from a wide range of people (Cotton, 1993). Parallel teams are also similar to the advice/involvement teams characterized by Sundstrom, DeMeuse, & Futrell (1990) in that the output of the team typically includes selection, suggestions, proposals and recommendations. Two features are common to parallel teams (or advice/involvement teams): low differentiation and low

external integration. Differentiation refers to the degree of specialization, independence and autonomy of a work team in relation to other work units (Lawrence & Lorsch, 1969); external integration refers to the degree of coordination and synchronization with suppliers, managers, peers and customers (Sundstrom et al., 1990). Parallel teams typically have low differentiation in that membership is often broadly representative, working time is limited, and the group has a limited life span. External integration is also minimal because parallel teams require little synchronization with other work units (Sundstrom et al., 1990).

One distinctive feature of parallel teams that is particularly germane to this dissertation is that assignment to the team is not full-time, and members have their own daily tasks to manage in addition to their team responsibilities (Cotton, 1993). Hence, parallel team members face a resource allocation dilemma because they need to decide how to devote their effort and time between their own tasks and their group tasks (Colquitt, 1999; Cotton, 1993; Lawler & Cohen, 1992). The dilemma arises because time and effort are finite resources, and commitment of resources to one task usually leads to reduced commitment to the other tasks (Naylor, Pritchard & Ilgen, 1980). This in turn has important ramifications for performance outcomes. Indeed, Lawler and Cohen (1992) observed that the effectiveness of parallel teams is often hindered by competition for the time and resources of their members. Moreover, since parallel team members have limited interaction with their group members, they are often less compelled to contribute to the team compared to members of full-time work teams (Cotton, 1993). This problem is exacerbated by the fact that parallel teams usually possess little organizational legitimacy (Cohen & Lawler, 1992). For instance, the team leader usually has limited mandate over team members, either in terms of setting performance expectations, or

rewarding performance outcomes.

Several field studies have alluded to the problems associated with parallel teams. In a field study of a team-based employee involvement program, May and Schwoerer (1994) found that due to production pressures from their regular jobs, members in the employee involvement team could not find enough time to work on the team's project. Adam (1991) found that one reason for the decline in the size of quality circles in two industrial firms was that employees were "too busy." Adam's results also showed that members of quality circles did not possess better job attitudes (e.g., general satisfaction, job design) compared to employees who were in the control groups, suggesting that the additional group commitments may have more adversarial effects than benefits on employees.

Gaps in Parallel Team Research

Despite the widespread use of parallel teams in organizations, research has paid considerably less attention to parallel teams than to full-time work teams (Cohen & Bailey, 1997). The few studies conducted with quality circles and employee involvement programs were primarily interested in the success of these initiatives, and provided some useful insight for the design and implementation of parallel teams. For instance, Magjuka and Baldwin (1991) found that structural factors such as accessibility to information, heterogeneity of job functions and a large team size facilitated the performance of team-based employee involvement programs. In addition to these factors, May and Schwoerer (1994) suggested team autonomy, leadership and compensation as important variables in implementing employee involvement programs. However, these recommendations reside at the structural level and omit the psychological processes of individuals placed in parallel teams. This lack of focus on the individuals in parallel teams gives rise to two

problems.

First, ignoring individual differences implies that everyone will react positively to such interventions – an assumption that contradicts interactional psychology, which asserts that different situations present different psychological meanings and behavioral potential to different individuals as a result of the differences in individuals' cognitions, abilities and motivations (Schneider, 1983; Terborg, 1981). Second, there is little understanding of the theoretical mechanisms that explain parallel team members' reaction to the resource dilemma presented to them by the individual and group tasks, thus rendering the existing literature on parallel teams relatively a-theoretical. This in part is due to the fact that existing studies did not highlight the resource dilemma inherent in parallel teams, even though this represents one central feature that distinguishes parallel teams from other types of teams.

Hence, one objective of this dissertation is to provide a more in-depth understanding of the factors that influence parallel team members' performance in their group task when faced simultaneously with an individual task to complete. In the next section, I present an overarching framework that guides my theoretical development, and a conceptual model that summarizes my arguments in this dissertation.

Research Framework and Conceptual Model

The research question posed in this dissertation mirrors closely an important question posed in motivation research: what explains the choices that individuals make amidst an array of alternative acts or responses (Vroom, 1964)? Motivation, according to Vroom, is the intra- and inter-individual variability in behavior that is not due solely to individual differences in ability, or to overwhelming environmental demands that coerce action.

Kanfer's (1990) framework of motivation provides an elegant integration of the numerous motivational theories that have been advanced in the field. Kanfer proposed that motivation constructs and theories can be ranged on a distal-proximal continuum. On one end, distal theories are those that posit indirect effects on action, and the emphasis is on motivational constructs that affect goal choice and intended future effort. Examples include theories that involve individuals' needs, personality and interests. On the other end of the continuum, proximal theories are those that posit direct effects on action, with an emphasis on motivational mechanisms that control the initiation and execution of actions. Examples include goal-setting and self-regulation theories.

Following Kanfer's (1990) framework, I examine both distal and proximal factors that may influence parallel team members' performance outcomes. The distal set of determinants includes both personal factors (cultural values and personality) and situational factors (task interdependence and leader status), and hence, is consistent with the perspective of interactional psychology. Besides, including both personal and situational factors is also aligned with the literature on goal commitment -- the proximal motivational construct examined in this dissertation.

Goal commitment has a more proximal relationship to behavior since it describes the amount of determination one has to strive for a goal (Locke et al., 1981), thus suggesting a more direct impact on behavior than personality or situational factors. To understand how goal commitment is influenced by the distal factors in my model, I adopt Hollenbeck and Klein's (1987) expectancy model of goal commitment. Essentially, Hollenbeck and Klein applied Vroom's (1964) expectancy theory to propose that personal and situational factors influence goal commitment via either the expectancy component (the belief that one's acts will be followed by a particular outcome) or the

valence component (how attractive an outcome is to an individual).

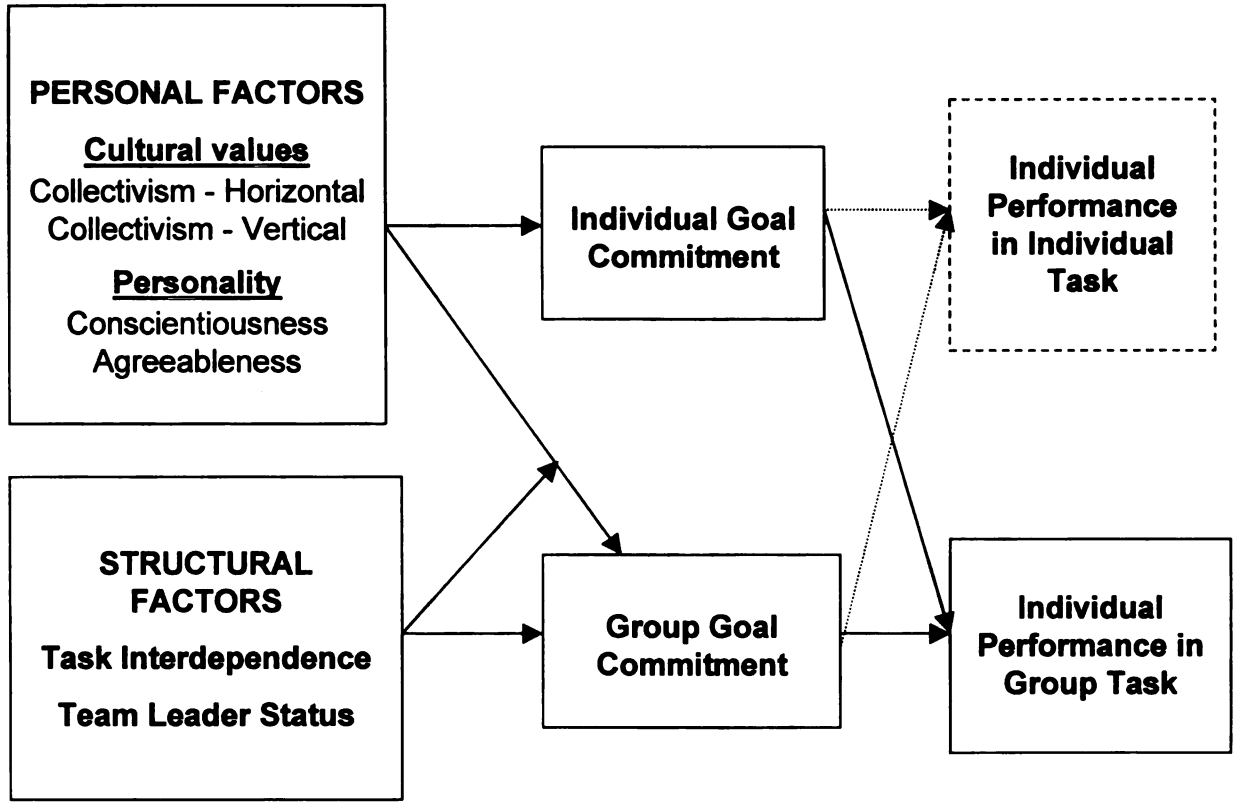
The ultimate outcome of interest in this model is parallel team member's performance in the group task, given that they are simultaneously faced with an individual task. This design therefore captures the dilemma which parallel team members face when they have only limited resources to accomplish both their individual and group tasks. It should be noted that although performance is a joint function of ability and motivation (Gagne & Fleishman, 1959; Maier, 1955), my focus in this dissertation is on the motivational rather than the ability component. As such, the tasks I employed in this dissertation are resource-sensitive in nature (Kanfer & Ackerman, 1989), so that performance is closely related to the amount of personal resources (such as time and effort) individuals choose to expend in the task. This is opposed to resource-insensitive tasks, where performance is limited by task characteristics (e.g., task difficulty) rather than the level of resources devoted by individuals.

So far, I have provided an overview of this dissertation by highlighting an overarching framework, followed by specific theories that I have chosen to address my research question. Figure 1a illustrates a conceptual model that summarizes the relationships of the various constructs examined in this dissertation. Next, I elaborate on these constructs as well as the rationale for examining them in the context of parallel teams.

Constructs

Individual Differences. The individual differences examined in this dissertation are values and personality. Values describe broad tendencies to "prefer certain states of affairs than others" (Hofstede, 1984: 18), while personality traits refer to a person's stable characteristics that account for consistent patterns of response to situations (Pervin,

Figure 1a: A Conceptual Model



1980). Specifically, I examine two cultural values (horizontal collectivism and vertical collectivism) and two personality traits (conscientiousness and agreeableness) because of their relevance to performance in parallel team settings.

Collectivism, defined as the relationship between the self and the group (Hofstede, 1984), has received heightened attention as a result of increasing globalization and the concomitant surge in cross-cultural research. Consistent with recent development in individualism-collectivism (I-C) theory, I adopt a more fine-grained conceptualization that distinguishes between the horizontal and vertical components of collectivism (Chen, Meindl & Hunt, 1997; Probst, Carnevale & Triandis, 1999; Singelis, Triandis, Bhawuk & Gelfand, 1995; Triandis, 1995; Triandis & Gelfand, 1998). Specifically, the horizontal component emphasizes equality, while the vertical component incorporates an element of inequality.

Conscientiousness and agreeableness are two personality traits that have also received extensive attention since the introduction of the Five Factor Model of personality. Conscientiousness involves planning, persistence, and purposeful striving toward goals, while agreeableness revolves around interpersonal relations that includes thoughtful and conscience-governed concern for others (Digman & Inouye, 1986). Both have been found to be important predictors of individual and team performance (e.g., Barrick, Stewart, Neubert & Mount, 1998; Neuman, Wagner, & Christiansen, 1999; Neuman & Wright, 1999).

The criterion for the choice of personality dimensions to include in this dissertation is based on the extent to which my research context will invoke the characteristics of the respective personality dimensions. Conscientiousness and agreeableness are relevant personality dimensions because they relate to goal-

striving/dependability and concern for others respectively -- characteristics that should have theoretical relevance to individuals' reactions to the dilemma of pursuing individual versus collective interests. Other dimensions of the big five seem less applicable. For example, neuroticism and openness relate more to individuals' response tendencies toward uncertain and novel situations, and hence, seem to have little relevance in social dilemmas. Extraversion describes traits such as being sociable, gregarious, assertive, talkative and active (McCrae & Costa, 1985; Barrick & Mount, 1991), and therefore on the surface, may appear to have some relevance to my dissertation. Arguably, extraverts may be more attracted to group work since it offers more external stimuli than working alone. Yet, unlike agreeable people, extraverts are motivated by their personal need for external stimulation rather than by an altruistic concern for others. As such, the relevance of extraversion to social dilemmas appears to be marginal.

Team structural factors. Although existing work on group design offers many group characteristics that can impact group effectiveness, such as group composition (Hackman, 1987), reward structure (Shea & Guzzo, 1987), and group resources (Gladstein, 1984), few of these factors have been examined in the context of parallel teams. One exception is the study conducted by Magjuka and Baldwin (1991), in which group composition factors such as heterogeneity and group size were found to influence the effectiveness of employee-involvement programs (a form of parallel teams). In this dissertation, I choose to focus on two group characteristics that have not been examined in parallel teams – task interdependence and leader status.

Task interdependence, defined as the degree of connectedness between jobs such that performance of one depends on the efforts, skills, and successful performance of others (Kiggundu, 1981; Wageman & Baker, 1997), has been widely advocated as an

integral factor in team effectiveness models (Campion, Medsker, & Higgs, 1993; Guzzo & Shea, 1992). However, since most studies were conducted with full-time work teams, little is known about the effectiveness of task interdependence in eliciting cooperative behavior from parallel team members. Hence, one objective of this dissertation is to assess the effects of task interdependence in a different type of team, where members have their personal tasks to manage in addition to the group task.

The second structural factor is team leader status, which refers to the position that the team leader occupies in the organizational hierarchy. Compared to task interdependence, team leader status has received relatively less theoretical and empirical attention to date. Given that hierarchical relationships occur in practically all types of organizations, it is important for research to pay greater attention to the phenomenon. Besides, in the context of parallel teams, the formal status of the team leader is an important design feature as it reflects the way in which the team is being managed, and possibly, the team's legitimacy in the organization. Thus, in response to the general lack of organizational legitimacy faced by parallel teams (Cohen & Lawler, 1992), it is possible that leader status may offer a solution to the problem.

In addition, both task interdependence and leader status have the merit of being "manipulable," which lend them to be feasible interventions that organizations can implement. For instance, organizations can choose between training parallel team members so that they can individually complete the task with minimal interaction (i.e., low task interdependence), versus assigning tasks according to members' expertise so that they need to rely on one another to complete the entire job (i.e., high task interdependence). Likewise, organizations can choose between appointing a senior company executive versus a junior executive to lead the team.

Goal commitment. Goal commitment, the proximal motivational construct in my model, is an important goal dimension that has not been examined in multiple-goal settings such as parallel teams. Given that parallel team members are faced with two goals: one for their individual task and one for their group task, I argue in this dissertation that parallel team members develop two types of goal commitment: individual goal commitment and group goal commitment. Applying Locke et al.'s (1981) definition, individual goal commitment refers to the amount of determination one has for achieving the goal assigned to the individual task, while group goal commitment refers to the amount of determination one has for achieving the goal assigned to the group task.

Performance outcome. Goal commitment is an important construct because it directly influences individuals' task performance outcomes (e.g., Klein, Wesson, Hollenbeck, & Alge, 1999; Latham & Lock, 1991). In this dissertation, I am specifically interested in parallel team members' performance in their group task. Given the motivational perspective I have adopted, this outcome reflects individuals' willingness to contribute to their group task at the expense of their individual task.

I do not focus explicitly on performance in the individual task for several reasons (hence the dotted lines and box). First, this is consistent with my primary interest, which is the willingness of individuals to contribute to the collective in the presence of competing personal interest. Second, the limited amount of time available for the completion of two tasks with similar requirements necessarily implies a strong negative relationship between the two performance outcomes. As such, it will be redundant to include performance in both the individual and group tasks since they should be complementary of each other.

Potential Contributions of this Dissertation

The research context and questions addressed in this dissertation contribute to existing knowledge in several ways. First, parallel teams have been under-represented in existing research (Cohen & Bailey, 1997) and little is known about the factors influencing parallel team members' performance in their individual and group tasks when they are faced with limited resources. Even though existing research has established several structural and dispositional factors as instrumental in eliciting cooperative behavior from members in the more traditional types of team, such as full-time work teams (for reviews, see Bettenhausen, 1991; Cohen & Bailey, 1997), these findings may not generalize to parallel teams. For instance, Magjuka and Baldwin (1991) found that the size of parallel teams, contrary to expectations, was positively related to group effectiveness. Hence, it is important to assess existing findings concerning group and member characteristics in a non-traditional group setting such as that of parallel teams. It may be that the presence of individual responsibilities faced by parallel team members could reduce or neutralize the benefits of structural interventions on cooperation within teams. Or, it may be that individual differences in personality and cultural values are particularly important in parallel teams, given that different people may be differentially committed to the achievement of their individual and group goals. Therefore, this dissertation provides a theoretical model to understanding the influence of various individual differences and situational factors on individuals' reactions to the dilemma posed by competing individual and group tasks.

In addition, I highlight the role of goal commitment in a novel setting such as parallel teams. Specifically, I conceptualize goal commitment as a more proximal mechanism that explains the influences of dispositional and situational characteristics on individuals' group task performance. This approach provides a more in-depth

understanding of the role of distal factors on behavior, and thus, can help advance theoretical development in the relevant domains of research such as values, personality and team interventions. Personality research, for instance, has typically neglected to explain the mechanisms underlying personality effects on behavior (cf. Barrick, Mount & Strauss, 1993; Graziano, Hair & Finch, 1997).

Further, the popularity of parallel teams in organizations confers considerable practical significance to research that seeks to understand what factors influence parallel team members' performance in their group task. Given that parallel team members need to juggle between their individual tasks and group tasks, there are two potential risks posed by parallel teams to organizations. First, as pointed out by existing research (e.g., Adam, 1991; May & Schwoerer, 1994), the task assigned to parallel team members may not receive adequate attention due to their concurrent individual workload. The consequences of such neglect can be serious if the parallel team is formed to address a critical issue. On the contrary, problems may also arise if parallel team members over-emphasize their team assignments at the expense of their individual workload. This ironical downside of teamwork can occur if members fail to comprehend the significance of their individual tasks vis-à-vis the significance of their group tasks to the organizations. Hence, understanding what factors influence parallel team members' motivation to contribute to competing group task and individual task can provide important insight to organizations on how to design parallel teams in order to promote an optimal division of employees' resources.

Boundary Conditions

As with all research, my conceptual model is based on several assumptions which will limit the generalizability of the model to other contexts. First, consistent with my

motivational focus, I have assumed that the two tasks do not demand different skills or abilities. Second, I have also assumed a "zero-sum" game (i.e., a strong negative relationship between performance outcomes in both tasks) which negates the possibilities of any expansion of one's resources (e.g., working over-time).

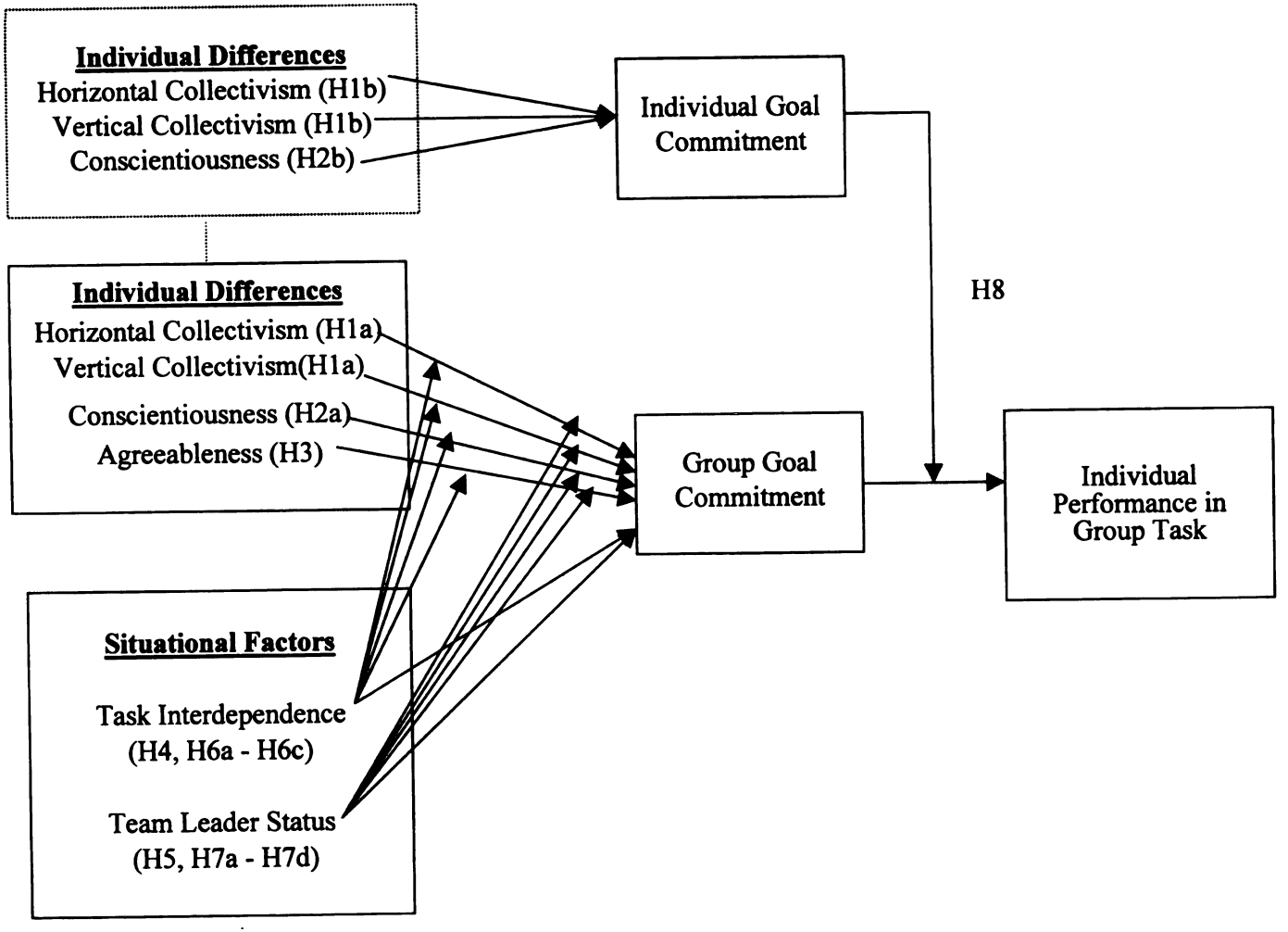
Third, I have restricted the structural variables to those relating to the design of the parallel team, such as task interdependence and team leader status. There are potentially many structural features of the organization that can influence members' commitment to their individual goal (e.g., compensation system), but are not within the scope of this thesis. In part, this is to maintain the group context as the focal point of my research questions. Moreover, organizations are likely to have greater ease and flexibility in altering the design of parallel teams than to change existing organizational structures. Indeed, one common objective of parallel teams is to elicit employee participation without disrupting existing work practices and organizational structure (Cotton, 1993). As such, investigating parallel team interventions is likely to provide greater practical insight than interventions aimed at changing individual work structure.

Outline of Dissertation

To summarize, this dissertation examines factors that influence parallel team members' performance in their group tasks in the presence of competing demands from their personal tasks. I propose that individual and structural factors affect members' individual goal commitment and group goal commitment, which in turn, influence their performance in the group task. The remaining chapters in this dissertation are organized to provide theoretical and empirical support for my hypotheses. Figure 1b presents an empirical model depicting my hypotheses.

Chapter 1 presents a literature review on goal commitment, and elucidates its role

Figure 1b: An Empirical Model



in a multi-goal environment, such as that of parallel teams. Chapter 2 proposes the antecedents and consequences of goal commitment relevant to the current dissertation. The antecedents are individual differences of team members and structural features of parallel teams. The outcome of interest is parallel team members' performance in their group task. Chapter 3 describes the methodology and statistical analyses designed to test these propositions. Chapter 4 reports the results. Chapter 5 concludes this thesis with a discussion of the implications of the findings.

CHAPTER 1

THE ROLE OF GOAL COMMITMENT IN PARALLEL TEAMS

A unique feature of parallel teams is that parallel team members have two sets of organizationally-relevant acts to accomplish (individual and group tasks), compared to either non-team members (only individual tasks) or regular, full-time team members (only group tasks). This chapter explicates the role of goal commitment in such multiple goal environments. As shown in Figure 1a, I theorize that goal commitment serves as a proximal construct in explaining the distal influence of individual differences and structural factors on parallel team members' performance in their group task.

This chapter is organized in three sections. First, I review the literature on goal commitment. Next, I discuss the role of goal commitment in the broader context of a multiple-goal environment. I then apply goal commitment to parallel teams and discuss its conceptualization in this dissertation.

Goal Commitment

Goal commitment, defined as the determination to try for a goal (Locke at al., 1981), involves the extension of effort, over time, toward the accomplishment of a goal. In essence, it emphasizes an unwillingness to abandon or to lower the original goal. (Campion & Lord, 1982).

During the early stages of its inception, goal commitment was viewed primarily as a necessary condition for the setting of difficult goals to lead to higher performance. According to Locke (1968), people who are not committed to attaining a goal, when confronted with a hard task, are likely to decide that the goal is impossible to reach and therefore, stop trying for that goal. Hence, Locke attributed the inconsistent findings of

the goal difficulty-performance relationship in the existing literature to the potential moderating effect of goal commitment. Yet, despite the central role that goal commitment is purported to play in the goal-setting literature, it has received relatively little attention compared to other goal dimensions such as goal specificity and goal difficulty. For instance, Hollenbeck and Klein (1987) noted that 61% of the 109 empirical studies they reviewed did not mention goal commitment; in another 12% of the studies, goal commitment was mentioned but not empirically assessed. In the remaining studies that did examine goal commitment, the authors found the treatment of the construct to be inconsistent with Locke's (1968) original formulation of goal commitment.

Subsequent to several reviews of goal commitment that unanimously pointed for more work to be done on the construct (e.g., Hollenbeck & Klein, 1987; Locke, Latham, & Erez, 1988), a more systematic program of research began to emerge in the field. These studies may be further categorized as having at least one of the two themes: establishing the measurement properties and/or establishing the nomological network of goal commitment. While both types of studies are important in the advancement of goal commitment research, my focus in this chapter is on the latter. I defer the discussion of measurement issues to Chapter 3 when I present the goal commitment measures used in this dissertation.

Two theoretical models articulating the nomological network of goal commitment were proposed in the 80s, one by Hollenbeck and Klein (1987), and the other by Locke et al. (1988). The two models differ in several ways. First, while Hollenbeck and Klein (1987) adopted a specific theory to explain the antecedents of goal commitment, Locke et al. adopted a more general cognitive processing model. Second, the specific antecedents proposed in the two models differ from each other. Nonetheless, the two models are

similar in that these antecedents can be categorized broadly into situational (Locke et al. labeled as external and interactive) and personal (Locke et al. labeled as internal) factors.

Of particular relevance to this dissertation is Hollenbeck and Klein's (1987) elaboration of the expectancy model of goal commitment. This model is built upon Vroom's (1964) expectancy theory, which asserts that the force on a person to perform an act is a function of the sum of products of the valences of all outcomes and the strength of the person's expectancies concerning these acts. Valence refers to the person's anticipated satisfaction with a particular outcome, or the degree of attractiveness the outcome holds for that individual. Expectancy refers to the belief that the act will be followed by the attainment of these outcomes, or in other words, the expectation that effort will lead to the attainment of a goal.

Although early research has suggested integrating Vroom's (1964) expectancy theory into the goal-setting literature (e.g., Dachler & Mobley, 1973; Locke et al., 1981; Oldham, 1975; Steers, 1975), few studies have explicitly explained goal effects using the theory of expectancy. Using the expectancy model of goal commitment, Hollenbeck and Klein (1987) provided some compelling reinterpretation of past research in the goal-setting literature. In essence, the authors proposed that both situational and personal factors can influence individual's goal commitment via either the attractiveness or the expectancy of attaining the goal.

For goal attractiveness, Hollenbeck and Klein (1987) proposed that situational factors such as the nature of the goal (whether it is public, self-set or explicit), the type of reward structure, and the presence of competitive pressure, should influence the attractiveness of goal attainment. Further, the authors argued that individuals who are high in need for achievement, endurance, Type A personality, organizational

commitment and job involvement are likely to attach greater values to the outcomes associated with goal attainment.

For expectancy of goal attainment, Hollenbeck and Klein proposed that situational factors such as the presence of social influence (e.g., knowledge of other's goals, commitment and performance), complex tasks, performance constraints and supervisor supportiveness can influence one's beliefs about attaining the goals. In addition, personal factors such as ability, past experiences of success, self-esteem and locus of control are posited to influence expectancy beliefs. Specifically, individuals who possess more of such factors are likely to have greater expectancy beliefs than those who possess less.

Besides proposing main effects of situational and personal factors on goal attractiveness and goal expectancy, Hollenbeck and Klein also argued for interactive effects, both within as well as across, the situational and personal categories. For instance, volition (a situational factor) may be related to commitment only where there are not substantial constraints on performance (also a situational factor). Or, a person's self-esteem may be related to goal commitment only when that person also experiences a high level of job involvement (i.e, a person-person interaction). Finally, personal variable can also interact with situational variable to influence goal commitment. One example is that involving Type A personality and the presence of competitive pressure. Competition may enhance the goal commitment of individuals with Type A personality, but not those with Type B personality.

Several meta-analyses have examined the cumulative empirical evidence for the proximal (i.e., goal valence and expectancy) and distal predictors of goal commitment (e.g., Klein, 1991; Klein et al., 1999; Wofford, Goodwin, & Premack, 1992). In a recent

meta-analysis by Klein et al. (1999), goal attractiveness and expectancy (proximal predictors) were found to be significantly related with goal commitment. For distal predictors, Klein et al. found situational factors such as volition, goal specificity (or explicitness), feedback, task information, incentives, social influence, supervisor supportiveness and publicness to be positively associated with goal commitment. Task complexity was found to be negatively related to goal commitment. Personal factors that were positively associated with goal commitment included ability/past performance, affect, need for achievement, and Type A personality.

While the antecedents of goal commitment have been relatively well validated, the consequences of goal commitment are perhaps more ambivalent. Earlier research in goal-setting has conceptualized goal commitment as an important boundary condition to the relationship between goal difficulty and performance (Locke, 1968) – difficult goals increase performance only when there is commitment to attaining the goal. Empirical research, however, did not provide consistent support for this moderating function of goal commitment (e.g., Erez & Zidon, 1984; Frost & Mahoney, 1976; Wright, O'Leary-Kelly, Cortina, Klein, & Hollenbeck, 1994; Yukl & Latham, 1978). Hollenbeck and Klein (1987) noted that because these studies measured goal commitment differently from one another, it is difficult to attribute the inconsistent result to any specific cause.

Besides serving as a moderator to the goal difficulty-performance relationship, goal commitment can also impact performance directly (Klein et al., 1999; Latham & Locke, 1991). In other words, goal commitment can exert a main effect on performance, averaged across all levels of goal difficulty. This is because the persistence and determination of committed individuals imply greater amount of effort being expended, which holding other factors constant, should result in better performance. Meta-analytic

results from Klein et al.'s (1999) study supported this direct effect of goal commitment on performance, and reported a mean weighted correlation of .23, corrected for unreliability.

In summary, goal commitment is a critical construct in motivation research that is receiving increasing attention. Several meta-analyses have largely substantiated theoretical propositions of some proposed antecedents and consequences of goal commitment. However, despite the vast literature on goal commitment, virtually no study has applied it to a multiple-goal environment. In the next section, I discuss the implications of goal commitment in multiple-goal settings.

Multiple Goals and Goal Commitment

Notwithstanding the fact that having multiple goals is a common occurrence in organizations, relatively little empirical research has addressed how people cope with their multiple goal striving (Austin & Vancouver, 1996; Kernan & Lord, 1990; Locke & Latham, 1990), and fewer still have explicitly examined the role of goal commitment. Nonetheless, the results from some of these studies suggest important implications of goal commitment on individuals' prioritization of the multiple goals.

One study is that by Kernan & Lord (1990), where they compared motivational processes under single and multiple goal conditions. Specifically, they tested two competing theories that could potentially predict the determination of goal priority: cybernetic control theory (Carver & Scheier, 1981) and expectancy-valence theory (Vroom, 1964). Cybernetic control theory predicts that the task that has the greater discrepancy will be assigned a greater priority. On the other hand, expectancy-valence theory predicts that the task that has the greater expectancy of success and valence will be accorded greater priority. Kernan and Lord's (1990) results supported the expectancy-

valence theory that goal priority was determined largely by valence of the outcome (i.e., monetary reward). More specifically, discrepancies between goal and performance, as well as subjects' expectancies had an effect on goal priority only when achieving that goal resulted in a valued outcome.

Another study is that by Schmidt, Kleinbeck and Brockmann (1984), where they conducted an experiment that required subjects to engage simultaneously in a tracking task and a reaction time task. The authors provided feedback and assigned a specific performance goal for one task, but merely encouraged subjects not to reduce the performance of the other task. Their results showed that subjects performed better in the task with feedback and specific goals at the expense of the second task. Schmidt et al. concluded that the task with feedback and goals received a higher priority, and as a result, was allocated more resources.

The results from these two studies may be interpreted in light of the expectancy model of goal commitment discussed earlier (Hollenbeck & Klein, 1987; Locke et al., 1981). Between two competing tasks, the one that provides greater expectancy beliefs (e.g., induced by feedback) and more valued outcomes (e.g., induced by monetary rewards) is likely to result in greater commitment in the individual to pursue that goal. Since greater commitment means greater unwillingness to abandon or lower the original goal, greater amount of resources will be channeled to meet that goal, thus leading to higher levels of performance.

Hence, applied to parallel teams, I argue that individuals' commitment to their individual goal and their group goal will influence their performance in the individual and group tasks respectively. However, before I discuss the specific conceptualization of goal commitment in this dissertation, it is worthwhile to highlight some differences

between existing multiple-goal studies and the parallel team setting examined in this dissertation. The majority of studies that examined multiple goals were interested in the performance outcomes of two concurrent individual tasks (e.g., Erez, Gopher & Arzi, 1990; Kernan & Lord, 1990; Schmidt et. al., 1984), rather than contrasting between an individual task and a group task. Only two published studies have operationalized multiple goals as having both individual and group goals (Matsui, Kakuyama & Onglatco, 1987; Mitchell & Silver, 1990). Both studies, however, did not create a dilemma between achieving the individual goal and the group goal because both goals related to only one task. For instance, in the Matsui et al. (1987) study, subjects in the group goal condition were paired in twos and asked to set both individual and group goals for a perceptual speed task which they worked independently on, while subjects in the individual goal were asked to set individual goals only. The results showed that at the individual level, subjects in the group goal condition performed significantly better than subjects in the individual goal condition. Similarly, the results in a study by Mitchell and Silver (1990) showed that subjects assigned with both individual and group goals performed better in a "tower-building" task, than subjects assigned with only individual goals. In both studies, since subjects essentially worked on one task and group performance was measured by aggregating individuals' performance, there was no tension between achieving individual and group goals.

Therefore, this dissertation differs from Matsui et al.'s (1987) and Mitchell and Silver's (1990) studies in that I examine individuals' performance in their group task when they are simultaneously faced with an individual task that competes for their time and effort. This dissertation also extends beyond the few studies on multiple goals by including the role of individual differences. Finally, this model examines the role of goal

commitment as a proximal construct in influencing performance outcomes.

Goal Commitment in Parallel Teams

The majority of the goal commitment studies were focused on individual task and performance, and fewer studies have examined goal commitment in a group setting (Crown & Rosse, 1995; Weingart & Weldon, 1991). Even less attention has been paid to goal commitment in less traditional group settings such as parallel teams.

Parallel teams present an important and interesting context for examining goal commitment because of their prevalence in organizations, and the fact that unlike traditional teams, there exists concurrently both individual goals and group goals. The presence of multiple goals (individual and group) competing for individuals' finite resources (e.g., time and effort) may enhance the role of goal commitment in determining performance, because unlike single-goal environments, individuals in multiple-goal environments are likely to experience intra-individual goal conflict, defined as the pressure exerted upon individuals to take incompatible actions or achieve incompatible outcomes (Locke, Smith, Erez, Chah, & Schaffer, 1994). As a result, individuals faced with such goal conflict must rely on some mechanism to resolve this conflict. I argue in this dissertation that goal commitment is potentially one such mechanism, such that the task which individuals are more committed to accomplishing will receive greater attention and hence, produce better performance outcomes.

Besides, a multiple-goal setting such as parallel teams may also fit Locke et al.'s (1981) recommendation to study goal commitment using designs that encourage a wide range of goal commitment. For instance, the authors suggested that a within-subject design that involves assigning participants with different goals under different conditions may induce more varied commitment responses by providing a frame of reference.

Likewise, I would argue that presenting competing goals to individuals create conditions that allow individuals to discriminate their commitment to different goals (i.e., intra-individual differences), as well as to observe goal commitment differences between individuals (i.e., inter-individual differences).

The literature review presented earlier suggests that when faced with both individual and group tasks to accomplish, the level of commitment parallel team members have toward achieving the individual goal (hereby termed individual goal commitment) and the group goal (group goal commitment) will influence their performance in the group task. This is illustrated in Figure 1a.

Conceptualizing goal commitment for the individual and group tasks as separate constructs implies that members' commitment to both tasks can be independently influenced by other factors. Conceivably, factors that pertain to the group (e.g., group task difficulty, group goal specificity) will have an impact on group goal commitment but not necessarily on individual goal commitment. Likewise, factors that are relevant specifically to the individual task (e.g., individual task difficulty, personal accountability for individual task) will influence individual goal commitment but not necessarily group goal commitment. Moreover, broader organizational factors such as employees' performance appraisal and/or compensation scheme that influence the expectancy beliefs and values associated with the attainment of both individual and group goals can simultaneously affect both individual and group goal commitment.

Hence, I contend that there are four possible categories of individuals with various combinations of individual and group goal commitment. Some individuals may be equally highly committed to both their individual and group goals, while others may be equally uncommitted to both. Although there are no intra-individual differences in the

level of commitment to both goals for all these individuals, there are inter-individual differences between those who are equally committed and those who are equally uncommitted to, the two goals. Consequently, although both groups of individuals are likely to allocate resources equally between individual and group tasks, the total amount of resources allocated to both tasks will differ between the two groups. On the other hand, there are also individuals who may be more committed to the individual goal than to the group goal, and vice versa. In these cases, the goal that individuals are more committed to will receive a greater amount of resources vis-a-vis the other goal.

In this dissertation, my interest is to examine inter-individual differences in parallel team members' performance in their group task, when faced with competing individual and group tasks. The central thesis, based on the expectancy model of goal commitment, is that individuals should be more committed to the task that promises more attractive outcomes and a greater possibility of attaining those outcomes.

In the next chapter, I propose dispositional and situational antecedents of parallel team members' individual goal commitment and group goal commitment, as well as the impact of the two goal commitment constructs on performance in the group task.

CHAPTER 2

ANTECEDENTS AND CONSEQUENCES OF GOAL COMMITMENT

The antecedents of goal commitment examined in this dissertation, following Hollenbeck and Klein's (1987) model, are classified into individual differences and structural factors. Individual differences are relatively stable characteristics that describe individuals, while the structural factors refer to design features of the team that may be altered by external interventions.

This chapter is organized in four sections. In the first section, I propose the relationships between individual differences (cultural values and personality) and individual and group goal commitment. In the second section, I focus on the relation between structural factors (task interdependence and team leader status) and individual and group goal commitment. In the third section, using a person-situation framework, I propose the joint influence of individual differences and structural factors on group goal commitment. Finally, in the fourth section, I propose the joint influence of individual and group goal commitment on parallel team members' performance in their group task.

Individual Differences as Antecedents

Although a number of empirical studies have examined the effects of personal factors on goal commitment, very few have used the more recent constructs advanced in the domain of personality and values research. For instance, the value orientation of individualism-collectivism (I-C; Hofstede, 1984; Markus & Kitayama, 1991; Triandis, 1995) and the Five Factor Model of personality (e.g., Costa & MaCrae, 1992) have rarely been incorporated in goal commitment studies. The recent meta-analysis by Klein et al. (1999) confirmed this observation: neither I-C nor the Big Five personality traits were

included in their meta-analytic review. Instead, some examples of the more established personal factors for goal commitment are ability/past performance, affect, need for achievement, and Type A personality.

Therefore, one aim of this dissertation is to expand the range of individual differences associated with goal commitment by including I-C and personality variables. Specifically, I examine two types of I-C (horizontal and vertical collectivism) and two personality characteristics (conscientiousness and agreeableness) for their influence on individual goal commitment and group goal commitment of parallel team members.

The role of these individual differences in organizational behavior is widely established. For instance, Kanfer's (1990) distal-proximal framework of motivation states that distal motivational theories (such as personality-based theories) can affect behavior through proximal motivational constructs such as goal-setting. Borman, White, Pulakos, and Oppler (1991) proposed that personality influence the "will-do," rather than the "can-do" aspects of the job, suggesting motivational effects of personality variables. Austin and Vancouver (1996) remarked that individual characteristics cause individuals to impute a relatively permanent amount of importance for specific goals (Austin & Vancouver, 1996). Likewise, Cropanzano, James and Citera's (1992) goal-based model of personality argues that response tendencies at the high end of the hierarchy (such as personality or values) influence specific task goals at the bottom of the hierarchy. Hence, the authors advance that a lower-order goal is important to the individual insofar as it fulfills a higher-order goal.

In the ensuing sections, I provide a literature review of the values and personality constructs included in my dissertation. This is followed by hypotheses for their relationships with individual and group goal commitment.

Cultural Values

With the rapid globalization and diversification of businesses, cultural values play an important role in determining the success of management initiatives such as teamwork (Boyacigiller & Adler, 1991; Earley, 1989; 1993; Erez & Earley, 1993; Erez & Somech, 1996; Kirkman & Shapiro, 1997). Erez and Earley (1993) proposed that cultural values influence the extent to which employees perceived managerial techniques to contribute to their personal goals. Indeed, there have been numerous examples that demonstrate how different motivational techniques and managerial practices emerge in different cultures, and how their effectiveness changes when transferred across cultures.

Cross-cultural researchers assert that a theoretical approach to understanding cultural influence is to specify the aspect of culture germane to the area of inquiry (Hofstede, 1984; Lytle, Brett, Barsness, Tinsley, & Janssens, 1995). One dimension of culture that has received extensive research attention is individualism-collectivism (I-C), defined as "the relationship between the self and collectivity" (Hofstede, 1984: 148). Other similar labels that revolve around this theme of "self versus others" include self-orientation vs collectivity-orientation (Parsons & Shils, 1951), cooperation vs individualism (Mead, 1967), and independent vs interdependent self-construals (Markus & Kitayama, 1991). Although initial cross-cultural research focused on cultural differences at the national or cultural level (e.g., Bochner & Hesketh, 1994; Chan, Gelfand, Triandis & Tzeng, 1996; Hofstede, 1984), more recent studies have also examined differences in the cultural values of individuals (e.g., Earley, 1989, 1993; Farh, Earley & Lin, 1997; Wagner, 1995). I adopt the latter perspective and construe culture as an individual-level construct.

Triandis (1995) characterizes an individualist as one who views the self as

independent of others, focuses on personal goals, acts upon personal beliefs and values, and emphasizes task outcomes. A collectivist, on the other hand, construes the self as an interdependent entity, adopts group goals, acts according to social norms, and stresses interpersonal relationships.

The different emphasis that individualists and collectivists place on their personal and group goals has many implications for group work. For instance, social loafing, defined as the reduced performance of individuals who work as part of a group rather than alone (Latane, Williams & Harkins, 1979), has been found to occur more in individualists than collectivists (Earley, 1989, 1993; Karau & Williams, 1993). Results of a meta-analysis of social loafing studies revealed that the magnitude of social loafing was larger for subjects from Western cultures than for those from Eastern cultures (Karau & Williams, 1993). In an experiment involving managerial trainees, Earley (1989) found that social loafing was present only among individualists (primarily Americans) but not among collectivists (primarily Chinese). Earley (1989) suggested several reasons for this finding.

First, the interdependent nature of collectivists (Markus & Kitayama, 1991) predisposes them to view their individual responsibility as indispensable in attaining group outcomes. Individualists, being more concerned with their self interest, are more likely to rely on others to attain collective goals and redirect effort to pursue personal outcomes. Second, since collectivists value group outcomes more than individualists, they gain greater satisfaction and feelings of accomplishment from attaining group goals than individualists. Third, because collectivists view their contributions as an important and role-defined aspect of group membership, they anticipate other group members to also contribute to group performance. However, the self-centered nature of individualists

results in less assurance that all members will contribute equally to the group outcome. Consequently, individualists may contribute less because they do not want to appear as the "sucker" who shoulders the burden of attaining collective goals for other group members (Orbell & Dawes, 1981).

I-C also has significant relevance to cooperation with others, defined as the "willful contribution of personal effort to the completion of interdependent jobs" (Wagner, 1995: 152). Empirical evidence shows that collectivists are generally more cooperative than individualists. For instance, Wagner (1995) found that the aspect of I-C that concerns personal independence and self reliance had a direct effect on peer-evaluated cooperative behavior - individualists who reported greater independence and self-reliance were less cooperative than collectivists who reported greater interdependence and reliance on groups.

In the above studies, I-C was construed as a unidimensional construct. Recently, Triandis and his colleagues proposed that individualism and collectivism can be further decomposed into vertical and horizontal components (Probst et al., 1999; Singelis et al., 1995; Triandis, 1995; Triandis & Gelfand, 1998). This horizontal-vertical distinction acknowledges that there are different emphases on horizontal and vertical social relationships (Triandis, 1995). Generally, horizontal patterns stress the element of equality, where one's self is construed as more or less like every other self. Vertical patterns, by contrast, consist of hierarchies in which the self is seen as different from other selves. Collectivism emphasizes interdependence with others, while individualism stresses the autonomous self. Crossing the horizontal-vertical dimension with I-C results in four subdimensions: horizontal individualism (H-I), vertical individualism (V-I), horizontal collectivism (H-C) and vertical collectivism (V-C.

Such a refined I-C scale has both advantages and disadvantages. The advantage is that the horizontal-vertical distinction may potentially address deficiencies associated with an overly abstract scale (i.e., the unidimensional approach). Chen et al. (1997) suggested that using the horizontal and vertical dimensions can increase the precision of I-C theory when the dimension is suitably matched to the behavior in question. For instance, horizontal collectivism may be more appropriate when studying cooperative and helping behaviors, while vertical collectivism may be more suitable for research on intergroup competition and need for socialized power.

One disadvantage of the horizontal-vertical I-C distinction, however, is that it broadens a construct that is already diffuse (Earley & Gisbon, 1998). In particular, the construal of individualism and collectivism as separate continua gives rise to considerable confusion regarding the interpretation of I-C. As an example, it is ambivalent whether a person who has low collectivism (i.e., weak interdependent self-concept) can be considered individualistic (i.e., independent self-concept).

For conceptual parsimony and clarity, I adopt a middle-ground approach proposed by Chen et al. (1997), which included the horizontal-vertical distinction only for collectivism. The authors reasoned that no such distinction was necessary for individualism because the "self-centered" nature of individualists suggests that the nature of their relationships with others (whether equal or unequal) is irrelevant. Hence, the authors avoided the confusing nuances of the four-factor structure by proposing that individuals who have low scores for vertical or horizontal collectivism are essentially individualistic in nature.

Horizontal and Vertical Collectivism. As discussed earlier, a major common attribute between H-C and V-C is the emphasis on interdependence with others (Singelis

et al., 1995; Triandis, 1995). Both horizontal and vertical collectivists emphasize the self as part of the group. However, horizontal collectivism stresses equality among group members, and is concerned with fostering common goals and social harmony.

Vertical collectivism, on the other hand, emphasizes inequality among members, especially with regard to social status. Hence, members within the group view one another as different, some having more status than others. This characterization of V-C is similar to Hofstede's (1984) power distance, defined as the extent to which those with less power expect and accept that power is distributed unequally (Earley & Gibson, 1998). Thus, similar to the concept of power distance, individuals with high V-C are more sensitive to authority pressure. For instance, Singelis et al. (1995) observed that in Japan, a highly vertically collectivistic culture, it is important for people to know the relative status of the speaker in order to decide on the use of an appropriate language.

Empirically, Ng and Van Dyne (2001) demonstrated that individuals with high V-C reacted more positively to status and power than those with low V-C in a study on minority influence. Specifically, the authors found that amongst individuals who were exposed to a high-status minority influence agent (someone who advocates a different idea from the majority), those with high V-C were more likely to be influenced by the agent than those with low V-C. By contrast, individuals with high V-C, when exposed to a low-status minority influence agent, were less likely to be influenced compared to those with low V-C.

Two other studies provided support to the theory that V-C stresses inequality while H-C emphasizes equality. In a study of reward allocation preferences in China, Chen et al. (1997) found that vertical collectivists favored differential reward allocation (e.g., based on performance, status) but not horizontal collectivists. In another

experimental study involving prisoner's dilemma games, Probst et al. (1999) found that V-C interacted with the type of prisoner's dilemma but not H-C. Specifically, vertical collectivists cooperated more in single prisoner's dilemma games, and less in intergroup prisoner's dilemma games in order to maximize group gains over individual games. On the other hand, horizontal collectivists did not differ in their cooperation in either type of social dilemma. Thus, Probst et al.'s (1999) results supported the notion that vertical collectivists were concerned with sacrificing self-interests for their groups, while horizontal collectivists were more guided by equality matching, whereby resources should be divided equally regardless of the type of social dilemma.

What are the implications of H-C and V-C for parallel team members' commitment to their individual and group goals? Cropanzano et al.'s (1992) goal hierarchy model suggests that individuals' higher-level H-C and V-C orientation would influence their commitment to lower-level task goals. Specifically, since both horizontal and vertical collectivists emphasize interdependence with other group members (Markus & Kitayama, 1991; Probst et al., 1999; Triandis, 1995), their higher-order goals concern the ability to contribute to the pursuit of group goals (Chen et al., 1997). Therefore, I argue that the attractiveness of achieving the group goal is positively associated with individuals' H-C or V-C orientation.

Further, given that collectivists are more likely to believe that other group members will also contribute to the group task (Earley, 1989), they should also perceive a stronger link between their effort toward the group task and the attainment of the group goal. By contrast, because individualists are more skeptical about the amount of effort other group members will put in, they have less reasons to expect that their own effort toward the group task will result in the attainment of the group goal.

Taken together, I propose that because individuals with high H-C or V-C are likely to have greater valence and expectancy associated with achieving the group goal, they are more committed to the group goal than individuals with low H-C or V-C. On the other hand, the reverse is true for individual goal commitment, since individuals high in H-C or V-C are likely to attach lower values to their individual goal compared to those with low H-C or V-C.

Hypothesis 1a: Collectivism (both horizontal and vertical) is positively associated with group goal commitment.

Hypothesis 1b: Collectivism (both horizontal and vertical) is negatively associated with individual goal commitment.

As Chen et al. (1997) pointed out, the distinction between H-C and V-C will be useful when studying specific behavior, or when specific contexts are involved. I defer my discussion on how H-C and V-C may exert different influences on goal commitment to a later section when I consider the structural factors of the team.

Personality

A critical impetus to the resurgence of personality research is the establishment of the five factor model (FFM) (Mount & Barrick, 1995). There is now widespread consensus that most personality traits can be described by five dimensions, namely conscientiousness, agreeableness, extraversion, openness and neuroticism (Costa & McCrae, 1992). Furthermore, these factors have also been replicated in other cultures. For instance, McCrae and Costa (1997) administered translated versions of the Revised NEO Personality Inventory (Costa & McCrae, 1992) in six cultures (German, Portuguese, Hebrew, Chinese, Korean and Japanese) and found that the five factor structure was closely reproduced, thus suggesting that the personality trait structure is universal.

Another factor that spurs the interest in personality research is meta-analytic evidence demonstrating that personality is a predictor of individual performance (e.g., Barrick & Mount, 1991; Hough, Eaton, Dunnette, Kamp, & McCloy, 1990). This finding significantly heightens the implications personality has for organizational sciences.

In this dissertation, I focus on two of the five personality characteristics. The omission of the other three personality traits does not imply that they are unimportant. Rather, as discussed earlier, I chose conscientiousness and agreeableness because they are theoretically relevant to the resource dilemma induced by the multiple-goal context of parallel teams. In addition, they also provide an interesting contrast in terms of their effect on goal commitment, as illustrated by my hypotheses below.

Conscientiousness. According to a literature review by Barrick and Mount (1991), conscientiousness reflects the qualities of being dependable, careful, responsible, hardworking, achievement-oriented, and persevering. Costa and McCrae (1992) described conscientious individuals as likely to adhere to their obligations, possess high aspiration levels and willingness to work hard to attain goals, and to carry out tasks to their completion. Hence, because highly conscientious people are hardworking, achievement-oriented and perseverant, they tend to do what needs to be done in order to accomplish work

Of the five dimensions of personality, conscientiousness has been identified as the most consistent predictor of performance, cutting across all occupational groups and all job-related criteria (Barrick & Mount, 1991; Hough et al., 1990). In addition to performance, Organ and Ryan's (1995) meta-analysis on organizational citizenship behavior (OCB) also revealed a positive relationship between conscientiousness and OCB, the latter referring to behavior which is discretionary and which goes beyond

existing role expectations (Van Dyne, Cummings & Parks, 1995). This finding is also consistent with the finding that personality is likely to affect the "will-do, " rather than the "can-do" aspect of job performance (Borman et al., 1991).

A significant contribution to personality research is the further specification of the mediating mechanisms between personality traits and the outcome variables. In a study involving sales representatives, Barrick et al. (1993) found that the positive effects of conscientiousness on sales volume were mediated through autonomous goal-setting and goal commitment. Conscientious sales representatives were found to set sales goals on their own, and were also more committed to these goals. Similarly, Gellatly (1996) found that the relationship between conscientiousness and performance was mediated by expectancy and goal level. Specifically, conscientious individuals reported higher levels of expectancy, which led them to set more difficult goals, which in turn caused higher task performance.

Both Barrick et al.'s and Gellatly's findings corroborated with Cropanzano et al.'s (1992) general framework that higher-order response tendencies (such as personality) influence specific lower-level goals. For instance, Cropanzano et al. proposed that individuals high in the response tendency of behavioral regulation focus on the manner in which their behavior is enacted and therefore, are likely to set goals, monitor them, and stick closely to their standards. The characteristics of conscientious individuals seem to correspond to the response tendency that Cropanzano et al.'s described as "high in behavioral regulation," thus leading to my next proposition.

Conscientious individuals, due to their dutiful and achievement-oriented nature, are likely to perceive attaining both individual and group goals to be important, and hence, should be more committed to both their individual and group goals compared to

individuals with low conscientiousness. This is similar to research that has found that individuals with high need for achievement (Hollenbeck, Klein, O'Leary, & Wright, 1989; Hollenbeck, Williams, & Klein, 1989; Ivancevich & McMahon, 1977) are more committed to their goals, perhaps due to their inherent desire to excel in tasks assigned to them.

Besides, conscientious individuals may also posses greater expectancy beliefs concerning their effort and outcomes, since they generally feel more competent and are more self-disciplined. Hence, I propose that

Hypothesis 2a: Conscientiousness is positively associated with group goal commitment.

Hypothesis 2b: Conscientiousness is positively associated with individual goal commitment.

Agreeableness. Agreeableness is a personality dimension that involves maintaining positive interpersonal relationships, with one end of the continuum representing individual motives toward selfishness, and the other end representing concerns for altruism (Digman & Inouye, 1986; Digman & Takemoto-Chock, 1981). According to Costa and McCrae (1992), agreeableness can be further specified by six subfacets: the tendency to trust others, to be frank and straightforward, to be altruistic and selfless, the willingness to cooperate, the lack of arrogance, and the tendency to express sympathy (tender-mindedness).

Findings on the relationship between agreeableness and job performance are mixed. In the meta-analysis by Barrick and Mount (1991), agreeableness was not found to relate with job performance, even in jobs containing a large social component (e.g., sales). However, in a separate meta-analysis, Tett, Jackson, & Rothstein (1991) found

that agreeableness had the strongest relationship with job performance. Ones, Mount, Barrick and Hunter (1994) provided several explanations for the discrepant findings, including the fewer studies and smaller sample size in Tett et al.'s meta-analysis, differences in the nature of the jobs and criterion measures examined, and differences in the process of assigning preexisting scales to personality dimensions.

While the impact of agreeableness on individual job performance may be equivocal, there is stronger theoretical basis to expect agreeableness to affect performance in the context of teams. Graziano et al. (1996) proposed that agreeable people are less competitive by disposition, since their tendency toward interpersonal harmony induces them to value cooperation. This in turn can bias the way in which individuals collect and interpret information, such that agreeable people are more likely to generate positive attributions for others' behavior. Graziano et al. (1996) conducted an experiment with three-person groups involved in an interdependent task, and found that the relationship between group agreeableness and group performance was partially mediated by competitiveness. Members in more agreeable groups perceived less competition and hence, had better group performance as a result of better coordination. Likewise, Neuman and Wright (1999) found that individuals' agreeableness was positively associated with task performance (e.g., problem solving, planning) and interpersonal skills (e.g., conflict resolution, communication), as rated by their peers. In another study, LePine and Van Dyne (2001) hypothesized and found that agreeableness was positively related to cooperation in a group task context.

These studies suggest that agreeable people, by their cooperative, amiable and helpful nature, are likely to attach greater values to the achievement of the group goal than those low in agreeableness. Moreover, since agreeable individuals are more trusting

of others' intentions, they should be less skeptical about their group members' contribution, which can otherwise reduce the expectancy that their effort will lead to the achievement of the group goal.

Since agreeableness relates to interpersonal interaction, I propose that it is relevant in social contexts involving interdependence with others, but not in situations involving only individual striving. Thus, I expect agreeableness to exert an impact on group goal commitment but not on individual goal commitment.

Hypothesis 3: Agreeableness is positively associated with group goal commitment.

To summarize, I have proposed that parallel team members differ in their individual and group goal commitment as a function of their cultural values and personality. Specifically, parallel team members with high collectivism (horizontal and vertical) are likely to be more committed to the group goal than those low in collectivism. For individual goal commitment, the reverse is true. Conscientious individuals are likely to be more committed to both individual and group goals than those low in conscientiousness. Finally, agreeable individuals are likely to be more committed to the group goal, compared to those low in agreeableness.

Structural Factors

Another category of antecedents proposed in Hollenbeck and Klein's (1987) model of goal commitment is structural factors. In this dissertation, I examine two structural factors that relate to the design of the parallel team: task interdependence and team leader status. As explained at the outset of my dissertation, I am restricting my scope of interest to team-related structural factors and excluding factors that focus more on the individual task. As such, my next few hypotheses deal with the effects of these

team-related factors on group goal commitment and not individual goal commitment, since these structural factors pertain to the group, rather than to the individual task.

Task interdependence. Kiggundu (1981) defined task interdependence as the connectedness between jobs such that the performance of one is dependent on the successful performance of the other. In other words, task interdependence requires group members to exchange information, resources, coordinate roles, or otherwise perform their work such that the outcomes of one individual are influenced by the actions of another (Kiggundu, 1983; Saavedra, Earley & Van Dyne, 1993).

Different work groups face varying degree of task interdependence. Thompson's (1967) hierarchy of pooled, sequential and reciprocal methods of coordination describes an increasing level of dependence among group members. Pooled interdependence refers to a situation where "each part renders a discrete contribution to the whole," and hence, has the least amount of interdependence (p. 54). Sequential interdependence requires one member to act before another member can act, and hence, has a greater degree of interdependence. Members with sequential interdependent tasks assume different roles and perform different parts of the task in a prescribed order. Reciprocal interdependence refers to the situation in which "the outputs of each become inputs for the others" (Thompson, 1967: 55), and has the highest degree of interdependence in Thompson's typology. Generally, group members are specialists with different expertise, and group performance requires the careful coordination of group members.

Task interdependence is generally thought to enhance cooperation among group members because of its motivating potential (Campion et al., 1993; Kiggundu, 1983; Shea & Guzzo, 1987; Steiner, 1972). Since members in an interdependent task perform a unique role (Saavedra et al., 1993), they are more likely to experience greater

responsibility (Kiggundu, 1983; Pearce & Gregersen, 1991; Wageman, 1995) and indispensability (Kerr & Bruun, 1983; Sheppard, 1993). Using expectancy theory (Vroom, 1964), Sheppard (1993) argued that increasing task uniqueness in groups can increase individuals' perception of the contingency between their personal contributions and the performance of the collective. This strengthens the expectancy component (i.e., the effort-performance relationship), thereby reducing the social loafing phenomenon.

Accordingly, I propose that the degree of interdependence in the group task should influence group goal commitment positively.

Hypothesis 4: Task interdependence is positively associated with group goal commitment.

Team Leader Status. The status system of a group reflects the distribution of power among its members (Levine & Moreland, 1998) - some members within a group have higher status than others. Similarly, Earley (1999) referred to status as the relative power of a person. In this dissertation, I am interested in the status of the team leader vis-à-vis that of group members, and its impact on group members' group goal commitment. I conceptualize status as the leader's hierarchical position in the organization.

How may the formal status of parallel team leaders affect team members? It is likely that parallel team members who have a high status leader will perceive their group as possessing greater organizational legitimacy, compared to those who are led by a low status leader. This is because appointing a high status leader for the team suggests that the team's mission is important enough to warrant a leader with considerable power and clout in the organization. Besides, group members under high-status leaders may perceive that their leaders possess greater reward power, and thus, attach greater values to attaining the group goal, compared to those led by low-status leaders. Thus, assigning

high status leaders to head parallel teams may alleviate motivational problems arising from members' perceived lack of organizational support and legitimacy (Cohen & Lawler, 1992). Accordingly, I propose that

Hypothesis 5: Team leader status is positively associated with group goal commitment.

Person by Situation Interactions

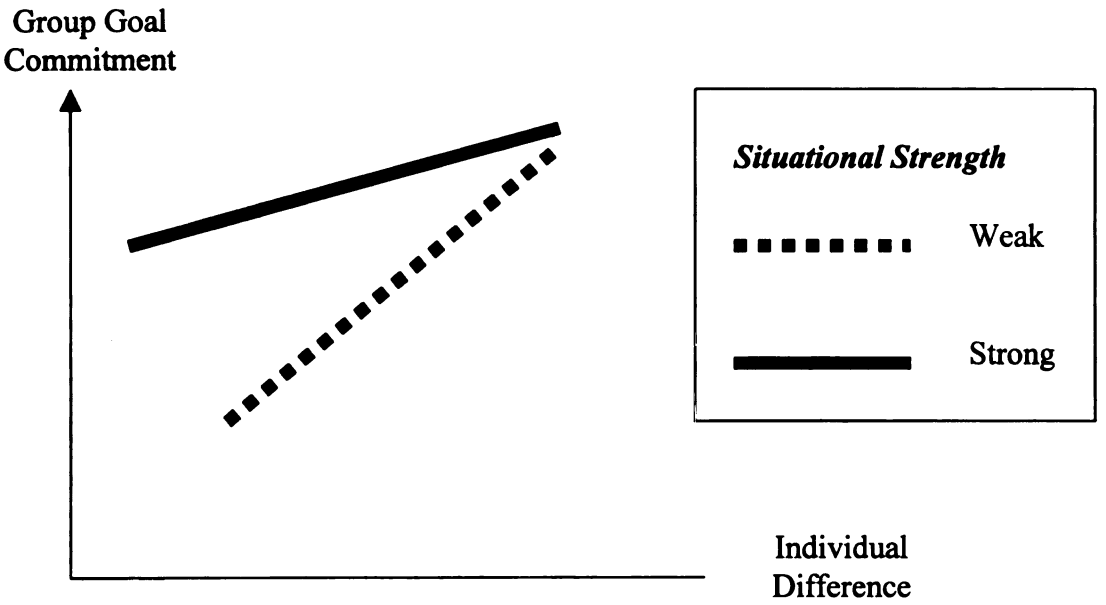
In addition to the main effects advanced earlier, I further propose that the individual differences and structural factors interact with each other to influence goal commitment. I adopt Mischel's (1977) situational strength argument to explain the majority of these interactions. One exception is the hypothesis involving V-C and team leader status, which I will discuss in greater detail later.

Mischel (1977) proposed that situations can be characterized by their relative "strength." Strong situations are situations when there are well recognized and strongly accepted rules of conduct which constrain and direct behavior. Weak situations, on the other hand, are ambiguously structured. Mischel argued that situational strength will moderate the trait-behavior relationship, such that under strong situations, inter-individual variability in behavior is low, and individual traits have low predictive power. Conversely, ambiguously structured situations will allow for greater variation in the interpretation of behavior, and hence, are more conducive for examining the effects of individual characteristics such as personality.

Following Mischel's arguments, a general pattern of relationship between individual differences, situational factors, and the outcome of interest is depicted in Figure 2. The figure shows that the relationship between individual differences (i.e., cultural values and personality) and group goal commitment should be weaker under

strong situations than weak situations. In other words, the influence of individual differences on group goal commitment is constrained by strong situational cues. However, when the situation is relatively ambiguous, individual differences should play a more important role in influencing individuals' group goal commitment.

Figure 2: A general framework depicting Mischel's situational strength argument



The first set of my interactive hypotheses concerns task interdependence. Here, I am interested in how task interdependence as a situational factor will have different effects on parallel team members' group goal commitment, depending on members' values and personality. Using Mischel's (1977) situational strength thesis, I argue that high task interdependence creates a strong situation for group members because it signals to them that their contribution to the group task is critical and indispensable. As such, individuals' cultural values and personality should have less influence on their group goal commitment. Conversely, low task interdependence creates a weak situation in which expectations for contribution to the group are more ambiguous. In this instance, values

and personality should play a greater role in influencing individuals' group goal commitment.

Applied to collectivism, I expect that group goal commitment should vary less between individualists and collectivists under high task interdependence, than under low task interdependence situations. Thus, I propose that in the absence of strong situational cues to promote contribution to the group task, both horizontal and vertical collectivists are likely to be more committed to the group goal compared to those low in H-C or V-C. When strong situational cues are present, group members should be less affected by their collectivism orientation.

Hypothesis 6a: Task interdependence moderates the relationship between collectivism (horizontal and vertical) and group goal commitment, such that the relationship is stronger for individuals in groups with low task interdependence than for those with high task interdependence.

Applying this argument to conscientiousness, I propose that high task interdependence should restrict the effect of conscientiousness on group goal commitment. This logic is similar to the one adopted by Barrick and Mount (1993), who found that the positive relationship between conscientiousness and job performance was greatest for those who had high autonomy (i.e., weak situation) and least for those who had low autonomy in their jobs (i.e., strong situation). However, instead of job autonomy, I propose that low task interdependence serves as a weak situation that allows the effects of conscientiousness to be observed. Since no study has empirically verified this interaction, the next hypothesis can potentially add insight into existing personality research.

Hypothesis 6b: Task interdependence moderates the relationship between conscientiousness and group goal commitment, such that the relationship is stronger for individuals in groups with low task interdependence than for those with high task interdependence.

I extend the same reasoning to agreeableness and propose that agreeableness of parallel team members should have less influence on their group goal commitment in the high task interdependence, rather than in the low task interdependence condition. This also mirrors the argument underlying Barrick and Mount's (1993) finding that the relationship between agreeableness and job performance was strongest for jobs with high autonomy and weakest for jobs with low autonomy. Thus, the next hypothesis states that

Hypothesis 6c: Task interdependence moderates the relationship between agreeableness and group goal commitment, such that the relationship is stronger for individuals in groups with low task interdependence than for those with high task interdependence.

The next set of hypotheses focuses on the interactive effects between individual differences and team leader status. This is premised on the notion that since not everyone will respond the same way to authority figures, it is important to consider the role of cultural values and personality in conjunction with the status of the leader.

With regards to collectivism, I propose that team leader status interacts with both H-C and V-C, albeit in a different manner. For H-C, I apply the same logic used in Hypotheses 6a-6c. Given that legitimate authority evokes conformity pressure (Cialdini & Trost, 1998; Michener & Burt, 1975), teams led by a high status leaders are likely to create a "strong" situation for their members such that individual differences in members' H-C should have less influence on their behavior. Conversely, teams led by low status

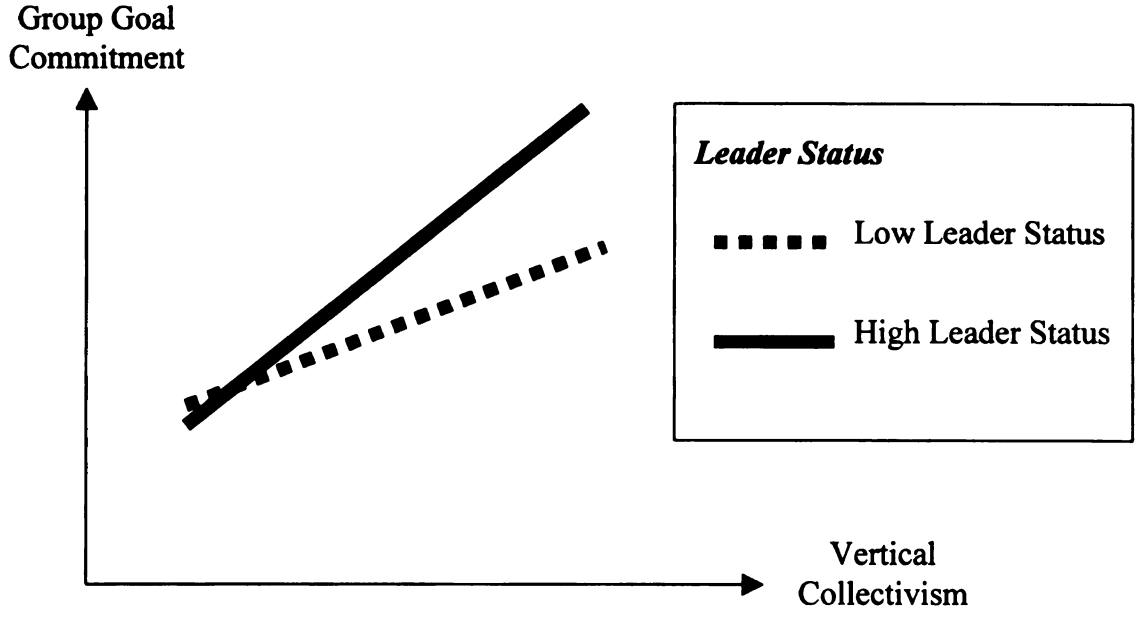
leaders provide more discretion for members' behavior, thus allowing members' H-C orientation to play a greater role. Hence,

Hypothesis 7a: Team leader status moderates the relationship between horizontal-collectivism and group goal commitment, such that the relationship is stronger for individuals in groups with low team leader status than for those with high team leader status.

For V-C, I propose a different form of interaction. As discussed earlier, the distinction between the two dimensions of collectivism is the emphasis on inequality among group members. Unlike horizontal collectivists, vertical collectivists are sensitive to inequality of status (particularly with regards to social status), and tend to view one another as different, some having more status than others. An inherent assumption is that high status individuals possess authority and enjoy benefits that individuals with low status are not entitled to (Singelis et al. 1995).

Since vertical collectivists are sensitive to status differences, I predict that the positive relationship between V-C and group goal commitment is influenced by the status of the team leader. Due to their sensitivity to differences in social status and their deference to authority (e.g., Ng & Van Dyne, 2001; Singelis et al., 1995), vertical collectivists are likely to perceive the group goal as considerably more important when they are led by a leader who has high status than when led by one with little status. On the contrary, individuals low in V-C are likely to be oblivious to the leader's status, since they pay little attention to inequalities in social relationships. Hence, unlike the situational strength logic employed for earlier hypotheses, I propose in my next hypothesis that the relationship between V-C and group goal commitment is stronger when team leader status is high than when team leader status is low (see Figure 3).

Figure 3: Proposed interaction between V-C and leader status on group goal commitment



The departure from the situational strength argument is premised on the rationale that individuals with different V-C orientation do not necessarily view high team leader status as a "strong" situation, since they have divergent opinions regarding power and authority. Accordingly, the next hypotheses states that

Hypothesis 7b: Team leader status moderates the relationship between vertical collectivism and group goal commitment, such that the relationship is stronger for individuals in groups with high status team leaders than for those with low status team leaders.

The status of the team leader also has implications for conscientiousness and agreeableness. As with the situational strength rationale adopted for H-C, I propose that the effects of conscientiousness and agreeableness on group goal commitment are stronger in teams led by low status leaders, than in teams headed by high status leaders.

Hypothesis 7c: Team leader status moderates the relationship between conscientiousness and group goal commitment, such that the

relationship is stronger for individuals in groups with low status team leaders than for those with high status team leaders.

Hypothesis 7d: Team leader status moderates the relationship between agreeableness and group goal commitment, such that the relationship is stronger for individuals in groups with low status team leaders than those with high status team leaders.

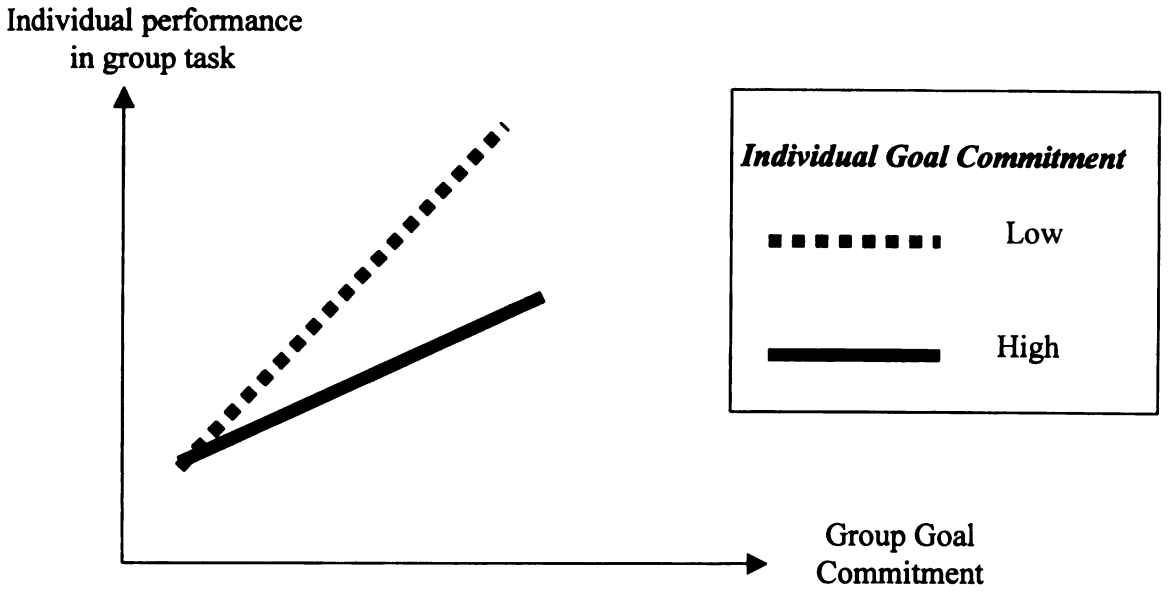
To recapitulate, I have argued that parallel team members' commitment to their individual goal and group goal is determined by (1) individual differences such as values and personality; (2) the team structure such as task interdependence and team leader status; and (3) the interaction between the individual differences and structural factors.

Consequences of Goal Commitment

The next central question in this thesis is the impact of goal commitment on performance outcomes. As described in the literature review of goal commitment in Chapter 1, goal commitment has been demonstrated to have important implications on task performance. Here, I argue that parallel team members' performance in their group task depends on how committed they are to their respective individual and group goals. Specifically, I propose that individual and group goal commitment will jointly affect individuals' performance in the group task. The interaction is presented in Figure 4 to aid the ensuing discussion.

Figure 4 shows that performance in the group task is a function of both individual and group goal commitment. First, the graph depicts a positive relationship between group goal commitment and performance in the group task. This is consistent with existing research that has shown that goal commitment has a direct impact on the performance of the relevant task (e.g, Klein et al., 1999).

Figure 4: Proposed interaction between individual and group goal commitment on individual performance in the group task



But more importantly, Figure 4 suggests that the positive relationship between group goal commitment and performance in the group task is contingent on the degree of individual goal commitment. When there is low individual goal commitment, the relationship between group goal commitment and performance in the group task is expected to be stronger. On the other hand, if individual goal commitment is high, the relationship between group goal commitment and performance in the group task will be attenuated.

This argument is based on the fact that individuals have a finite amount of resources (Naylor et al., 1980) and hence, are restricted in the total amount of time and effort they can supply. Therefore, even if individuals are motivated to perform a task, the actual amount of effort they can put into that task is constrained by the amount of effort they need to contribute to other tasks. To the extent that the individual is equally committed to several goals, s/he is constrained by how much s/he can contribute to any

one task. On the other hand, if the individual is highly committed to one goal and not to the other, s/he will be willing to work hard on one task at the expense of the other.

Figure 4 reflects the above argument. When individuals are committed to both the individual and group goals, performance in the group task is suppressed by the fact that resources also need to be channeled to the individual task. Hence, group goal commitment has a weaker relationship with performance in the group task because resources are also being channeled to the individual task. By contrast, the link between group goal commitment and performance in the group task will be stronger when individuals are less committed to the individual goal because in this case, there are more resources available for individuals with high group goal commitment to dedicate these resources to the group task.

Hypothesis 8: The positive relationship between group goal commitment and individual performance in the group task is moderated by individual goal commitment, such that the relationship is stronger under low individual goal commitment than under high individual goal commitment.

Thus far, I have developed theoretical arguments for the effects of both distal (cultural values and personality) and proximal factors (goal commitment) on individuals' performance in the group task in the presence of competing demands from their individual tasks. In the next chapter, I present the methodology used to test the hypotheses advanced in this chapter.

CHAPTER 3

METHOD

Setting

I simulated a parallel team environment in a laboratory setting to test my hypotheses. As Kerlinger (1986: 369) pointed out, the primary aim of laboratory experiments is to "test hypotheses derived from theory, to study the precise interrelations of variables and their operation, and to control variances under research conditions that are uncontaminated by the operation of extraneous variables." Hence, I chose an experimental design to test my theory because of two reasons. First, laboratory experiments can eliminate extraneous influences that may contaminate or confound the independent and/or dependent variables through the random assignment of subjects. Second, laboratory experiments provide a means to assess for evidence of causal, and not merely correlational, relationships among the variables that the study examines.

Power Analysis

The power of a statistical test is the probability that it will yield statistically significant results (Cohen, 1987). For multiple regression analyses, Cohen (1987; Cohen & Cohen, 1983) recommended using the f^2 statistic as an index of effect size to determine the sample size required by a particular study. The f^2 statistic is defined as the proportion of systematic variance explained by a set of predictors, over and above what is accounted for by another set of predictors (see Equation 4.5.1. in Cohen & Cohen, 1983: 155).

I based the computation of my expected f^2 statistic on studies with similar research questions and design. Two examples are Earley's studies on social loafing

(1989, 1993). Both studies examined the main and interaction effects of collectivism and structural features of the group (e.g., shared responsibility), used a pancultural sampling strategy involving Chinese and U.S. subjects, adopted an experimental design, and did not involve actual interaction among group members during performance of the group task.

According to the R^2 reported in Earley's studies, the f^2 that can be expected from my study is .04 – an effect size that Cohen (1987) classified as small. Setting my significance criterion to be .05, and desired power at .80, the sample size required for my study was 310 (see Equation 4.5.2 in Cohen & Cohen, 1983: 155).

Participants

I employed a pan-cultural sampling strategy and recruited subjects from an individualistic and a collectivistic country to avoid the statistical problem of restrictive ranges on each cultural dimension within each nation (e.g., Earley, 1989; 1993; Leung & Bond, 1989). According to Hofstede's (1984) study, the U.S. is an individualistic society, while Singapore, being an Asian culture, is more collectivistic. Participants were undergraduate students enrolled in a management course in two large universities in the U.S. and in Singapore. In both countries, the experiment was incorporated into the course curriculum, and eight cash awards were awarded to top performers in each country.

Based on the power analysis reported above, I recruited a total of 324 participants, but used only 318 in my data analyses. The responses of four participants from the U.S., and 2 from Singapore were excluded because they appeared not to have understood the instructions of the experiment. For instance, some of these students thought they had 25 minutes to work on each set of task; others thought they needed to choose to work on one set of task only.

38% of the 318 participants were males (U.S. = 73; Singapore = 48), and 62% were females (U.S. = 85, Singapore = 112). There were significantly more female participants from Singapore than from the U.S. ($\chi^2_{(df=1)} = 8.85$, $p < .01$). However, this should not bias my analyses given that (1) I use individual level measures of cultural values (hence, country is not a substantive variable of interest), and (2) gender is a control variable in all my analyses.

Experiment

Participants were told to assume the role of a junior manager in a large manufacturing firm. Participants were told that in addition to their regular job duties as a manager, they also belong to a team that manages college recruitment of entry-level staff. Participants' overall performance was determined by their performance in their individual task as well as their group's performance (i.e., everyone in the group will receive a same score for the group's performance).

Tasks. Participants were given twenty-five minutes to work on two sets of tasks: an individual task (i.e., regular job duties as a junior manager) and a group task (i.e., duties as a member of the recruitment team). Both tasks were comparable in terms of complexity. I describe them in greater detail below.

The individual task was adapted from Saavedra et al.'s (1993) merit bonus task. Participants were told that one of their regular job functions was to conduct annual performance appraisal of their subordinates. The steps for evaluating a subordinate involved (1) reading a short description of the subordinate; (2) rating him or her on four dimensions (effort, ability, performance and team-orientation) using a 3-point scheme (low, average, high); (3) assigning weights to each dimension based on the division of the subordinate (a weighting scheme was provided); (4) computing a merit increase for the

subordinate based on the weighted scores; (5) making a merit increase recommendation (low, moderate or high). Thus, there was a correct and unique numerical solution for every subordinate, which served as the performance index for participants in their individual tasks.

The group task required participants to make hiring recommendations for job applicants and involved similar steps as the individual task in arriving at the correct solution. Participants were asked to read descriptions of job applicants and rate them on four dimensions (academic performance, confidence, understanding of job nature, and team-orientation) using a 3-point scheme (low, average, high). As with the individual task, each division had different weighting schemes for job applicants. Participants had to go through the 5 steps outlined above to arrive at a decision of whether to hire, reject, or keep the applicant temporarily on hold.

Manipulations. The experiment was a 2 (low vs high group task interdependence) X 2 (low vs high team leader status) fully crossed factorial design. Participants in all conditions were assigned goals for their individual and group tasks.

Task interdependence was manipulated by leading participants to either believe that they could process an entire job application without input from other group members, or that they needed input from others in order to complete a job application. In actuality, the nature of the task was the same in both task interdependence conditions. In the high task interdependence condition, participants were told that there were three sequential parts to the job applicant evaluation task, and that each group member could complete only one part of the task. Specifically, the three components of the task were: (1) preparing job applicant's evaluation form for rating, (2) rating job applicant, (3) preparing an official letter of recommendation to top management. In actual fact, all

participants in this condition were given only the second step of the task to complete (i.e., rating job applicant). To enhance the reality of the interdependent nature of the task, participants received evaluation forms that contained handwritten information of job applicants so that it appeared as though another group member had already completed the first part of the group task. In addition, the research assistant routinely collected participants' completed forms in the guise of passing these forms to the "next group member" for "him/her" to complete the third step of the task.

In the low task interdependence condition, participants were told that they could complete the entire evaluation of the job applicant by themselves and that no input from other group members was needed.

Team leader status was manipulated by informing participants of their hierarchical position in the firm vis-à-vis the team leader's both verbally and through an organizational chart (see Appendix A). In the high team leader status condition, participants were told that the idea of a recruiting team staffed by junior managers from the various divisions originated from the vice-president. As a result, the vice-president was given the mandate by top management to head the team and to handle the current campus recruitment drive. In the low team leader status condition, participants were told that the idea of the recruiting team came from a junior manager in the HR division. Subsequently, he was asked by top management to head the team and handle the campus recruitment drive.

Procedure. There were two parts to the study. First, participants took part in a 75-minute experiment on campus. Second, about one week later, they completed two questionnaires measuring cultural values and personality.

The experiment was conducted in a classroom on campus. Every participant

received a package containing the following materials as s/he arrived.

1. Consent form (see Appendix A).
2. A one-page write-up on the role to be assumed in a hypothetical company in this experiment and an organizational chart (see Appendix A).
3. A package containing reference and practice materials for the individual and group tasks.

Every session was conducted with three groups, each comprising 6 participants. Each person in the group was randomly assigned the role of a junior manager of a division (there were 6 divisions altogether). After signing the consent form, participants read a one-page summary describing the background of the hypothetical company and their roles as a junior manager and a member of a campus recruitment team. An organizational chart was appended to the background information and participants were told to familiarize themselves with the hierarchy of the organization. After participants read their roles, I described to them the two tasks that they needed to complete during the experiment. One was the subordinate evaluation task assigned by their immediate supervisor in the division (i.e., individual task), and the other was the job applicant evaluation task assigned by the recruitment team leader (i.e., the group task).

To ensure that participants understood their tasks, I trained them with several practice samples of subordinate and applicant evaluations. The training and practice lasted for about 15 minutes. This was followed by a short "ice-breaking" session for participants belonging to the same group to get to know one another.

Goals. Before timing the actual performance, two sets of goals were assigned. Participants were told that the goal for the individual task was to complete all 20 subordinate evaluations within the 25 minutes.

For the group task, a total group goal (to be achieved by the entire group) and an individual goal (to be achieved by individual group members) were assigned. While the goal for individual group members was held constant at 20 for the entire sample, the total group goal varied according to the task interdependence condition. Specifically, the total group goal was 40 for the high task interdependence condition and 120 for the low task interdependence condition. This discrepancy was necessary so that the total group goal (at the group level), when translated to the group goal for the individual member, was 20. These figures were derived using the following logic. For the high task interdependence condition, since participants were told that a complete evaluation required the input of three persons, and given that there were six members in the group (each person to complete 20 evaluations), the total group goal was 2X20 = 40. In the low task interdependence condition, since members could complete one evaluation by him/herself, the total group task was 6X20 = 120. Thus, in actuality, the goals at the individual level were identical across all the conditions.

When the goals were assigned, participants filled up a questionnaire that asked for their individual goal commitment, group goal commitment, and group goal priority. Once everyone had completed the questionnaire, I distributed the actual tasks and started timing for 25 minutes. In the high task interdependence condition, the RA and I went round to collect completed applicant evaluation forms in order to make participants believe that they were involved in an interdependent group task.

When the 25 minutes were up, participants were told to stop working on the tasks and to fill up a short questionnaire that included manipulation checks for task interdependence and team leader status.

Measures

Individualism-Collectivism. Given the proliferation of I-C scales in the field, a secondary objective of this dissertation is to compare these various measures for their content and empirical properties. To keep the length of the I-C survey manageable, I used three existing scales that have received considerable attention in organizational research. The first was the original 32-item horizontal-vertical I-C scale developed by Singelis et al. (1995). This was the first scale that attempted to make the distinction between the horizontal and vertical dimensions of I-C. Specifically, H-C was measured with 8 items (e.g., "If a co-worker gets a prize, I would feel proud;" "The well-being of my co-workers is important to me"), V-C with 8 items (e.g., "Parents and children must stay together as much as possible"), H-I with 8 items ("I often do my own thing;" "One should live one's life independently of others"), and V-I with 8 items ("Winning is everything;" "It annoys me when other people perform better than I do").

The second scale (Triandis & Gelfand, 1998) was a shorter version of Singelis et al.'s horizontal-vertical I-C scale in which four out of the 16 items were not found in the original scale. One item tapped at V-C ("It is important to me that I respect the decisions made by my groups") and the other 3 items tapped at H-I ("I'd rather depend on myself than others;" "I rely on myself most of the time; I rarely rely on others;" "My personal identity, independent of others, is very important to me").

The third scale was a 20-item scale reported in Wagner's (1995) study, which was in turn constructed from existing measures from Wagner and Moch (1986; 9 items), Erez and Earley (1987; 2 items), and Triandis and colleagues (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988; Hui, 1988; 9 items). The factor analysis reported in Wagner's (1995) study indicated that a 5-factor structure was appropriate. The five factors described (1) personal independence and self-reliance; (2) importance accorded to

competitive success; (3) value attached to working alone; (4) norms about subordination of personal needs to group interests; and (5) beliefs about the effects of personal pursuits on group productivity.

In comparing the content of these various instruments, it appears as though there is some convergence between Wagner's (1995) 5 factors of I-C and the horizontal-vertical I-C conceptualization. For instance, the first factor describing personal independence, and the third factor describing preference to work alone, are similar to the concept of H-I – the dimension of I-C that characterizes people as self-reliant, but who are not particularly interested to distinguish themselves from others (Triandis & Gelfand, 1998). Wagner's (1995) second factor, competitive success, captures the definition of V-I – the dimension that describes people who want to be distinguished and to acquire status (Triandis & Gelfand, 1998). The fourth and the fifth factors which described norms and beliefs about subordinating one's personal needs to the group's interest (Wagner & Moch, 1986) are similar to V-C, the dimension that describes people who emphasize the integrity of the group, and are willing to sacrifice their personal goals for the sake of the group.

Since this dissertation purports to examine H-C and V-C, I used all the H-C and V-C items in Singelis et al.'s (1995) and Triandis and Gelfand's (1998) scales. I also included items from the two factors reported in Wagner's (1995; Wagner & Moch, 1986) study because they appeared to capture elements of V-C. My objective is to assess if they overlap with existing items by Singelis et al. (1995) and Triandis and Gelfand (1998) to tap at the latent construct of V-C.

To recapitulate, H-C was measured with 8 items from the original Singelis et al. (1995) scale, while V-C was measured with items from three different scales: 8 items

from Singelis et al. (1995), 1 item from Triandis & Gelfand (1998), 4 items on norms concerning subordinating personal interests to group interests from Wagner & Moch (1986), and 3 items on beliefs about the effects of pursuing personal interests on group productivity from Wagner & Moch (1986). Hence, a total of 24 items were examined for H-C and V-C.

A complete list of the items for I-C is presented in Appendix B.

Conscientiousness and Agreeableness. The Personal Characteristics Inventory (PCI) developed by Barrick and Mount (1995) was used to assess participants' conscientiousness and agreeableness. The PCI has been administered to over 2,000 individuals, including students, managers, sales representatives, retail clerks, and production workers. The factor structure of the PCI replicates the big five dimensions established by other instruments, such as the NEO P-I-R (Costa & McCrae, 1992). I chose to administer the PCI since it comprehensively measures the five personality constructs with considerably fewer items, while maintaining reasonable alpha and test-retest reliabilities (alphas for the Big Five primary scales ranged from .82 to .87).

Conscientiousness in the PCI comprises three subscales: dependability, achievement striving and efficiency, while agreeableness comprises two subscales: cooperation and consideration. Each subscale consists of 10 items. Since my hypotheses involving personality were made with the broad dimensions of conscientiousness and agreeableness, my analyses were conducted with the general personality constructs rather than with their sub-dimensions.

Goal Commitment. The measures of group goal commitment and individual goal commitment were based on the 9-item goal commitment scale developed by Hollenbeck et al. (1989). Although other operationalizations of goal commitment can be found in

existing literature [e.g., single-item self-reported measures (e.g., Erez & Zidon, 1984; Yukl & Latham, 1978) and the discrepancy measure of self-set versus assigned-goal (e.g., Tubbs, 1993; Tubbs & Dahl, 1991)], Hollenbeck et al.'s (1989) scale widely-used and well-validated. For instance, Klein, Wesson, Hollenbeck, Wright and Deshon (in press) tested the measurement properties of the 9-item scale using a combination of meta-analytic and structural equation modeling techniques. This novel method combined the individual strengths of meta-analysis and structural equation modeling to provide a robust assessment of the goal commitment measure. Results of the study suggested that a subset of the full scale, consisting of five items, best reflected a unidimensional goal commitment construct. In addition, this sub-scale was found to hold up well under different situations, such as measurement timing (i.e., whether goal commitment was measured before, during/after the task), goal origin (self-set versus assigned goal), and task complexity.

In my study, consistent with prior research, I used the full 9-item scale and modified items to tailor them to the group goal and the individual goal respectively. Hence, group goal commitment consisted of 9 items such as "I am strongly committed to pursuing the goal for my group task;" "It's hard to take the goal for my group task seriously (R);" "Quite frankly, I don't care if I achieve the goal for my group task or not (R)." Likewise, individual goal commitment consisted of 9 items that referred to the individual task, such as "I am strongly committed to pursuing the goal for my individual task;" "It's hard to take the goal for my individual task seriously (R);" "Quite frankly, I don't care if I achieve the goal for my individual task or not (R)." Appendix B presents a complete list of the 18 items measuring both group and individual goal commitment.

Group Goal Priority. In addition to the goal commitment scales described above, I

also included a four-item group goal priority scale that asked subjects how committed they were to achieving the group goal vis-à-vis the individual goal (e.g., "achieving the goal for my individual task is a greater priority than achieving the goal for my group task (R)"; "it means more to me that I achieve the goal for my individual task than to achieve the goal for my group task"). Thus, this scale requires respondents to prioritize the individual and group goals.

Including the group priority scale in my study serves two purposes. First, given that no prior study has examined two parallel set of goal commitment items for an individual and group task, little is known about whether the two goal commitment constructs can be discriminated when used concurrently. Hence, the group priority scale is another approach for assessing commitment when there are multiple tasks and multiple goals. Second, including the group goal priority scale allows me to assess the relationships of individual and group goal commitment with another relevant construct, thereby providing additional evidence for their construct validity. In this case, I expect group goal commitment to be positively, while individual goal commitment to be negatively, related to group goal priority.

Performance Outcomes. The primary dependent outcome is individuals' performance in their group task. This is the total number of correct job applicant evaluations made by each participant. A correct job applicant evaluation includes having accurate scores for all dimensions of the evaluation as well as making the right hiring decision. An individual's performance in the group task ranged from 0 to 20.

The dual-task nature of parallel teams suggests that another important outcome, even though it is not explicitly proposed in my hypotheses, is individuals' performance in their individual task. This is the total number of correct employee evaluations made by

each participant. A correct employee evaluation includes having accurate scores for all dimensions of the evaluation as well as making the right merit increase recommendation. As with individuals' performance in the group task, individuals' performance in the individual task ranged from 0 to 20.

Control variable. I control for gender in all my analyses, since it is possible that females, being traditionally more nurturing and less competitive, may view group goal differently from their male counterparts (Eagly, 1987; Eagly and Wood, 1991). Male is coded 1, and female is coded 2.

Manipulation checks. Manipulation check for task interdependence was assessed with four items adapted from Pearce and Gregerson's (1991) task interdependence scale ("I need to obtain information/materials from other group members to complete my portion of the group task;" "I can complete my portion of the group task without any contribution from my group members (R);" "My own performance in the group task is dependent on receiving accurate input from other group members;" "The way I perform my group task has a significant impact on other group members"). Results of a pilot (n=111) demonstrated that perceived task interdependence was significantly higher in the high task interdependence condition (mean = 4.03) than in the low task interdependence condition (mean = 2.07; $p < .01$). The coefficient alpha for the scale was .82.

Manipulation check for team leader status was assessed with six items such as "My team leader has higher status in the organization than me;" "My team leader has greater organizational influence over others than me;" "My team leader has greater power in the organization than me." Pilot subjects in the high leader status condition reported higher levels of perceived leader status (mean = 3.87) than those in the low leader status condition (mean = 2.35; $p < .01$). The coefficient alpha for the scale was .94.

Data Analyses

Before testing my hypotheses, I used a combination of exploratory and confirmatory factor analysis techniques to assess the validity and cultural equivalence of the constructs in my model. My general approach to creating variables for testing my substantive relationships is as follows. First, I performed a principal component factor analysis (with varimax rotation) of items measuring the personality, values, and goal commitment constructs. Items that did not load on to the anticipated factor, or those which demonstrated high cross-loadings (i.e., loadings of .40 or more, and where the difference with items from other factors is less than .30), were discarded. I then conducted confirmatory factor analyses on the surviving items to assess the goodness-of-fit, as well as the measurement equivalence of the construct between the U.S. and Singapore samples.

The test of measurement invariance is to establish "whether or not, under different conditions of observing and studying phenomena, measurement operations yield measures of the same attribute" (Horn & McArdle, 1992). Hence, establishing measurement equivalence is a prerequisite for any substantive conclusions to be drawn from cross-cultural studies. In this dissertation, perhaps the most fundamental and critical form of measurement equivalence to establish is configural invariance – whether the pattern of salient (nonzero) and nonsalient (zero or near zero) factor loadings is similar across the U.S. and Singapore samples (Steenkamp & Baumgartner, 1998). A lack of configural invariance would suggest that a construct is operationalized differently in the two countries, rendering it impossible to create a common scale for the entire pool of subjects. To test for configural invariance, I conducted separate confirmatory factor analyses for the U.S. and Singapore samples, and compared their significant versus non-

significant paths. Only items that had significant factor loadings in both countries were used to create scales for my subsequent data analyses.

To test the substantive relationships proposed in my dissertation, I performed hierarchical ordinary least squares regressions in all my statistical analyses. The general analytical strategy involved entering the control variable (gender) in the first block, followed by main effects, followed by product terms when interactions were tested. The statistical significance of the block of variables entered in each step was assessed with an F-test of the change in R-square. Within significant block of variables, I examined the statistical significance of each variable with a t-statistic.

To test whether I-C values and personality influenced group and individual goal commitment (H1 – H3), I conducted two separate sets of regressions, one for group goal commitment, and the other for individual goal commitment. In each set, I entered gender in the first step, and the values and personality in the second step. To test whether structural factors influenced group goal commitment (H4 – H5), I regressed group goal commitment onto the dummy codes representing task interdependence and leader status. To test whether structural factors moderated the relationships between individual differences and group goal commitment (H6 -H7), I conducted two separate sets of moderated regression analyses: one for task interdependence (H6a – H6c) and one for team leader status (Hypotheses 7a-7d). In each of these two regressions, gender was entered in the first step, individual differences in the second step, structural variable in the third step, and the corresponding product terms (individual difference variable X structural variable) in the last step.

To test for the joint effects of individual and group goal commitment on performance in the group task (H8), I entered gender in the first step, individual and

group goal commitment in the second step, and the product term of individual and group goal commitment in the final step.

CHAPTER 4

RESULTS

Measures

H-C and V-C. A principal components factor analysis (with varimax rotation) of the 24 items revealed 6 factors with eigen values greater than 1 which explained 57% of the total variance. Six items exhibited high cross loadings and were discarded (4 V-C items from Singelis et al., 1 V-C item from Triandis & Gelfand; 1 H-C item from Singelis et al.). Another principal components analysis with the remaining 18 items demonstrated 4 factors which explained 57% of the total variance. The first factor extracted consisted of 7 H-C items from Singelis et al. (1995) [eigenfactor value = 4.72]; the second factor consisted of the 4 norm items from Wagner and Moch (1986) [eigenfactor value = 2.18]; the third factor consisted of 4 V-C items from Singelis et al. (1995) [eigenfactor value = 1.88]; and the fourth factor consisted of the 3 belief items from Wagner & Moch [eigenfactor value = 1.43].

A CFA of these 18 items revealed a reasonably good fit for the four-factor structure (RMSEA = .05; CFI = .93; GFI = .91) and all factor loadings were significant at the p=.05 level. In addition, compared to this four-factor structure, an alternative one-factor structure (I-C only; RMSEA = .13; CFI = .57; GFI = .72; $\Delta\chi^2_{(df=6)} = 542$, $p < .01$) or an alternative two-factor structure (H-C and V-C only; RMSEA = .10; CFI = .77; GFI = .82; $\Delta\chi^2_{(df=5)} = 247.58$, $p < .01$) demonstrated significantly poorer fit. I also tested for a two-factor structure (H-C and V-C) where V-C is a second-order construct represented by three lower-level constructs: the Singelis et al.'s V-C scale, and Wagner and Moch's 2 factors. This model was not significantly better than the initial four-factor model ($\Delta\chi^2_{(df=2)}$

= 2.58, p> .05).

Taken together, these results seem to refute my apriori expectation that the two factors in Wagner and Moch's (1986) scale dealing with submitting personal interests to the group interest would collapse with Singelis et al.'s (1995) V-C items to form one V-C factor. One explanation for this could be attributed to the context in which the items were constructed – Singelis et al's items involved family relationships and obligations, while Wagner and Moch's items were concerned with work group relationships and obligations. Further, results also demonstrated that the values-belief distinction of the two subdimensions in Wagner and Moch's scale was robust in the current sample.

For my substantive analyses, I adhered to the original V-C items developed by Singelis et al. (1995). Since results demonstrated that Wagner and Moch's (1986) items could not be combined with the existing V-C measures, and given that these items were not written apriori to measure V-C, I exclude them from the rest of the analyses. Hence, two composites were formed for my analyses: H-C consisting of 7 items (α = .83), and V-C consisting of 4 items from the Singelis scale (α = .65). A within-culture CFA also showed that all the 11 items had significant loadings with their respective factors, thus establishing configural invariance (i.e., the pattern of salient factor loadings is the same) for the H-C and V-C measures across the U.S. and Singapore subjects.

The specific items are presented in Table 1.

Conscientiousness and Agreeableness. While the PCI is an established personality instrument in the U.S., little is known about its generalizability to Singapore subjects. Hence, I conducted a within-culture principal components analysis (with varimax rotation) to assess whether the 50 items load correctly onto conscientiousness and agreeableness in the two countries. I specified two factors since I am interested in the

Table 1. Confirmatory Factor Analysis for H-C and V-C Measures[a]

Items	H-C	V-C
1. If a co-worker gets a prize, I would feel proud.	.55	
2. The well-being of my co-workers is important to me.	.75	
3. To me, pleasure is spending time with others.	.53	
4. I feel good when I cooperate with others.	.65	
5. It is important for me to maintain harmony within my work group.	.63	
6. If a group member were in difficulty, I would help within my means.	.79	
7. I try my best to help my group members when they are in need.	.77	
8. Parents and children must stay together as much as possible.		.57
9. Family members should stick together, no matter what sacrifices are required.		.69
10. I would do what would please my family, even if I detested that activity.		.68
11. I would sacrifice an activity that I enjoy very much if my family did not approve of it.		.40
RMSEA	**.075**	
GFI	**.93**	
AGFI	**.89**	
CFI	**.92**	
$\chi^2_{(43)}$	**113****	

general dimensions of conscientiousness and agreeableness, rather than with their sub-facets. Results showed that 2 conscientiousness items and 5 agreeableness items loaded differently onto the factors across the two cultures. After removing the 7 items, I conducted a CFA on the remaining 43 items using the entire sample. Given the large number of items, I averaged items with similar factor loadings (based on EFA results) to form composite variables before analyzing them in the CFA (Yuan, Bentler, & Kano, 1997). Specifically, 7 composite variables for conscientiousness (with 4 conscientiousness items each), and 5 composite variables for agreeableness (with 3 agreeableness items each) were formed.

Results of the CFA demonstrated an acceptable fit for a 2-factor structure (RMSEA = .08; CFI = .93; GFI = .92). Moreover, an alternative one-factor structure yielded a significantly worse fit (RMSEA = .16; CFI = .73; GFI = .74; $\Delta\chi^2_{(df=1)} = 263.08$, $p < .01$). Finally, a within-culture CFA demonstrated that all items had significant loadings with their respective factors, thus demonstrating configural invariance of the two personality measures.

Hence, conscientiousness was made up of 28 items ($\alpha = .89$) and agreeableness was made up of 15 items ($\alpha = .79$). Scores for these range from 1 (low) to 3(high).

Goal commitment. A principal components factor analysis showed that the 9 individual goal commitment items and their 9 counterpart group goal commitment items exhibited high cross-loadings and did not always load correctly onto their respective factors. A CFA specifying a two-factor structure confirmed that the error terms of the individual goal commitment items were highly correlated with their counterpart group goal commitment items. For instance, a two-factor CFA that did not allow for correlated errors of similarly worded individual and group goal commitment items yielded a poor fit

(RMSEA = .14; CFI = .61; GFI = .76). When the errors for individual goal commitment items were allowed to correlate with the errors of their counterpart group goal commitment items, the fit indices improved significantly (RMSEA = .06; CFI = .92; GFI = .91; $\Delta\chi^2_{(df=9)} = 620.57$, $p < .01$).

In order to minimize the problem of correlated errors, I selected 4 pairs of individual goal and group goal commitment items that had the least correlated errors between them. A CFA of these 8 items, specifying 2 factors, suggested that one pair be dropped to improve the fit. The resulting 3 pairs of goal commitment items were (1) I am strongly committed to pursuing the goal for my individual (group) task; (2) Quite frankly, I don't care if I achieve the goal for my individual (group) task or not (R); (3) It wouldn't take much for me to abandon the goal for my individual (group) task (R). The CFA result of these 6 items demonstrated a weak fit for a 2-factor structure (i.e., individual goal commitment and group goal commitment) (RMSEA = .11; CFI = .90; GFI = .96). The alternative 1-factor structure demonstrated a significantly worse fit (RMSEA = .12, CFI = .89; GFI = .95; $\Delta\chi^2_{(df=1)} = 4.52$, $p < .05$).

However, a within-culture CFA of the 6 items revealed that the 2-factor structure provided a significantly better fit than the 1-factor structure in the Singapore sample ($\Delta\chi^2_{(df=1)} = 6.97$ $p < .01$), but not in the U.S. sample ($\Delta\chi^2_{(df=1)} = 13$, $p > .05$). A multigroup SEM analysis confirmed that the covariance between individual and group goal commitment differed for the two countries, since releasing the constraint of covariance invariance improved the fit significantly ($\Delta\chi^2_{(df=1)} = 12.42$, $p < .01$). Taken together, these results imply that the U.S. subjects were unable to discriminate between individual goal commitment and group goal commitment. All factor loadings were significant in both samples.

Table 2. Confirmatory Factor Analysis for Individual and Group Goal Commitment Measures[a]

Items	Ind Goal Commit	Group Goal Commit
1. Quite frankly, I don't care if I achieve the goal for my individual task or not (R).	.70	
2. I am strongly committed to pursuing the goal for my individual task.	.36	
3. It wouldn't take much for me to abandon the goal for my individual task (R).	.57	
4. Quite frankly, I don't care if I achieve the goal for my group task or not (R).		.74
5. I am strongly committed to pursuing the goal for my group task.		.52
6. It wouldn't take much for me to abandon the goal for my group task (R).		.62
RMSEA	**.11**	
GFI	**.96**	
AGFI	**.90**	
CFI	**.90**	
$\chi^2_{(8)}$	**44.28****	

[a] Table contents are standardized factor loadings.

Table 3. Confirmatory Factor Analysis for Individual Goal Commitment, Group Goal Commitment and Group Goal Priority[a]

Items	Ind Goal Commit	Group Goal Commit	Group Goal Priority
1. Quite frankly, I don't care if I achieve the goal for my individual task or not (R).	.67		
2. I am strongly committed to pursuing the goal for my individual task.	.39		
3. It wouldn't take much for me to abandon the goal for my individual task (R).	.58		
4. Quite frankly, I don't care if I achieve the goal for my group task or not (R).		.74	
5. I am strongly committed to pursuing the goal for my group task.		.53	
6. It wouldn't take much for me to abandon the goal for my group task (R).		.61	
7. Achieving the goal for my individual task is a greater priority than achieving the goal for my group task.			.59
8. It is more important that I achieve the goal for my group task than for my individual task.			.60
9. It means more to me that I achieve the goal for my individual task than to achieve the goal for my group task.			.56
10. In order to achieve the goal for my group task, I will sacrifice work that I have to do for my individual task.			.60
RMSEA		**.08**	
GFI		**.94**	
AGFI		**.90**	
CFI		**.90**	
$\chi^2_{(32)}$		**98.56****	

[a] Table contents are standardized factor loadings.

For the purpose of adhering to my hypothesized model, I created a 3-item individual goal commitment scale and a 3-item group goal commitment scale using the 6 items described above. The internal consistencies of individual goal commitment and group goal commitment were .55 and .66 respectively. Table 2 presents the CFA results for the 6 items.

Group goal priority. A principal components factor analysis revealed that all the 4 items loaded onto one factor which explained 51% of the total variance. A CFA with group goal priority, individual goal commitment and group goal commitment items specified with a 3-factor structure yielded an acceptable fit (RMSEA = .08; CFI = .90; GFI = .94). An alternative 1-factor structure yielded a significantly worse fit ($\Delta\chi^2_{(df=3)}$ = 229.15, $p < .01$). Table 3 presents the CFA results.

Within-culture CFAs demonstrated that the 3-factor structure was robust in both the U.S. and Singapore samples, and all item-factor loadings were significant. The internal consistency for the four-item group goal priority scale was .68.

Further, group goal priority appeared to have some evidence of convergent and discriminant validity. As expected, it was positively related to group goal commitment ($r = .29$, $p < .01$) and negatively related to individual goal commitment ($r = -.14$, $p < .05$). Likewise, it was positively related to individual performance in the group task ($r = .27$, $p < .01$), and negatively related to performance in the individual task ($r = -.29$, $p < .01$). These relationships were all consistent with the definition of group goal priority, thus providing evidence supporting construct validity.

Finally, a principal components factor analysis (with varimax rotation) of items measuring H-C, V-C, the composite variables of conscientiousness and agreeableness, group and individual goal commitment, and group goal priority, reveal 6 factors (with

eigen factor values greater than 1) which explain 56% of the total variance. Specifically, all the items measuring H-C, V-C, conscientiousness, agreeableness and group goal priority loaded correctly to their respective factors, thus demonstrating discriminant validity for these constructs. Group goal commitment and individual goal commitment items, however, loaded onto the same factor, once again raising caution for subsequent results and interpretations involving these constructs.

Descriptive Statistics

Table 4 presents the descriptives, Cronbach's alphas and inter-item correlations of all the variables examined in this dissertation. Variables that are not in my formal hypotheses, but examined in my post-hoc analyses, are also included. They are individual task performance, group goal priority, country in which the experiment was conducted (1=U.S., 2=Singapore), and the two manipulation checks for task interdependence and leader status (perceived task interdependence and perceived leader status).

Several relationships are worth highlighting. First, as anticipated, individual task performance is negatively correlated with individual performance in the group task ($r = -.56$, $p < .00$). Nonetheless, the magnitude of the trade-off between individual and group performance is not as big as I initially expected, suggesting that other third measures (such as ability) may have influenced performance outcomes.

Second, the correlation between individual goal commitment and group goal commitment in the total sample is .52 ($p < .00$). The positive direction indicates that psychologically, subjects did not make a trade-off between striving to achieve their individual goal and their group goal. Indeed, several findings pointed to construct validity problems with the two goal commitment constructs. For instance, as noted earlier, these two measures did not have discriminant validity in the U.S. sample. Further, the

Table 4. Descriptive Statistics, Cronbach's Alpha, and Correlations of Variables in Study[a]

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10
1. Perf in group task	8.70	5.32	--									
2. Perf in individual task	9.56	5.69	-.56**	--								
3. Group goal commitment	3.82	.58	.23**	-.10†	(.66)							
	3.63	*.50*	*.22***	*-.06*	*(.80)*							
4. Ind goal commitment	3.79	.62	.11†	.03	.52**	(.55)						
	3.62	*.49*	*.05*	*.11**	*.59***	*(.76)*						
5. Group goal priority	3.02	.60	.27**	-.29**	.29**	-.14*	(.68)					
					*.27***	*-.17***						
6. H-C	4.06	.49	.12*	-.08	.14*	.11†	.06	(.83)				
	3.96	*.48*	*.10†*	*-.06*	*.18***	*.14**	*.05*	*(.84)*				
7. V-C	3.70	.62	.07	-.03	-.09	-.07	-.04	.32**	(.65)			
	3.39	*.49*	*.06*	*-.04*	*-.06*	*-.07*	*-.03*	*.37***	*(.68)*			
8. Conscientiousness	2.43	.36	.17**	-.05	.07	.20**	-.05	.27**	.04	(.89)		
	2.39	*.35*	*.17***	*-.05*	*.14**	*.23***	*-.05*	*.24***	*.05*	*(.89)*		
9. Agreeableness	2.37	.36	.15*	-.14*	.16*	.07	.19**	.30**	.02	.27**	(79)	
	2.37	*.34*	*.16***	*-.15**	*.18***	*.09*	*.18***	*.30***	*-.01*	*.35***	*(.82)*	
10. Task Interdependence[b]	.50	.50	.06	-.27**	-.03	-.15**	.08	-.08	.02	-.10	-.05	--
					.08	*-.16***		*-.09*	*.02*	*-.10*	*-.08*	
11. Perceived Task Inter.	3.48	.81	.08	-.19**	.11*	-.01	.18**	.08	.03	.05	.06	.38**
					*.12**	*.01*		*.10*	*.00*	*.06*	*.06*	
12. Team Leader Status[c]	.58	.50	-.02	-.11†	.01	-.03	.02	-.06	-.04	-.08	-.14*	.14*
					-.08	*-.09*		*-.06*	*-.05*	*-.10*	*-.14**	
13. Perceived Leader Stat.	3.13	.83	.01	-.01	-.03	-.01	.04	-.15*	-.01	-.13*	-.22**	.12*
					-.09	*-.04*		*-.11*	*-.02*	*-.14**	*-.24***	
14. Gender[d]	1.62	.49	.09	-.03	-.08	-.03	.07	.08	.03	-.04	.01	-.09
					-.07	*-.07*		*.10*	*.03*	*-.05*	*.04*	
15. Country[e]	1.50	.50	-.20**	.26**	-.16**	-.07	-.06	-.24**	.12*	-.27**	-.37**	.02
					*-.12**	*-.03*		*-.18***	*.16***	*-.29***	*-.38***	

Table 4 (Cont'd).

Variables	11	12	13	14
11. Perceived Task Inter.	(.70)			
12. Team Leader Status[c]	.09	--		
13. Perceived Leader Stat.	.12*	.55**	(.88)	
14. Gender[d]	.08	.14*	.17**	--
15. Country[e]	.10†	.10†	.34**	.17*

[a] Cronbach's alphas are on diagonal. Figures in bold italics found below figures in normal fonts (where applicable) are descriptives/correlations based on original scales

[b] 1= high task interdependence, 0= low task interdependence

[c] 1= high team leader status, 0= low team leader status

[d] 1= male, 2= female

[e] 1= U.S., 2= Singapore

** $p < .01$ * $p < .05$ † $p < .10$

correlations of individual and group goal commitment with performance outcomes are not always in the expected direction. While group goal commitment demonstrated sound relationships with individual performance in the group task ($r = .23$, $p < .00$) and individual task performance ($r = -.10$, $p < .10$), individual goal commitment did not, as evidenced by its weak positive correlation with individual performance in the group task ($r = .11$, $p < .10$) and non-significant relationship with individual task performance ($r = .03$, $p > .05$). These counter-intuitive relationships provided additional evidence that individual goal commitment may not be distinctively different from group goal commitment. Hence, subsequent results involving group goal commitment and individual goal commitment should be interpreted with caution.

As expected, group goal priority is positively correlated with group goal commitment ($r = .29$, $p < .00$) and negatively correlated with individual goal commitment ($r = -.14$, $p < .05$).

Although not formally hypothesized, several relationships with the performance outcome variables are notable. Specifically, three out of the four individual differences have a positive, albeit weak effect on individual performance in the group task: H-C ($r = .12$, $p < .05$), conscientiousness ($r = .17$, $p < .00$), and agreeableness ($r = .15$, $p < .05$). For individual task performance, only agreeableness is significantly negatively correlated ($r = -.14$, $p < .05$). All these relationships are in the expected direction, and suggest that besides influencing performance outcomes via the goal commitment constructs, individual differences may also directly affect performance outcomes.

Interestingly, while the manipulations of group task interdependence and group leader status have no impact on individual performance in the group task, they exert a negative impact on individual task performance (task interdependence: $r = -.27$, $p < .00$;

leader status: r = -.11, p< .10).

Finally, country is significantly correlated with many of the substantive variables. With respect to task performance outcomes, participants from Singapore performed worse in the group task (r = -.20, p< .00) and better in the individual task (r = .26, p< .00), compared to participants from the U.S. Consistent with these findings, Singapore subjects reported lower group goal commitment (r = -.16, p< .01) compared to their U.S. counterparts, although the other related measures of individual goal commitment and group goal priority are not significantly different between the two countries.

With respect to individual differences, Singapore subjects reported lower H-C (r = -.24, p< .00), higher V-C (r= .12, p< .05), lower conscientiousness (r = -.27, p< .00), and lower agreeableness (r = -.37, p< .00). Of interest is the different pattern of relationships between H-C and V-C with the country variable. The correlations suggest that while U.S. subjects had greater concern for harmony and cooperation with co-workers than Singapore subjects, they were less willing to sacrifice their personal interests for the sake of an ingroup such as their family. Thus, these findings reinforce the importance of making the horizontal-vertical distinction of collectivism (Singelis et al., 1995; Triandis, 1995).

Manipulation Checks

A one-way ANOVA indicated that subjects in the high task interdependence condition (coded 1) perceived greater group task interdependence than those in the low task interdependence condition (F = 54.18, p< .00). Similarly, subjects in the high leader status condition (coded 1) reported having a team leader who had greater power in the organization than those in the low leader status condition (F = 131.97, p< .00). Hence, both manipulations worked in the expected direction.

Tests of Hypotheses

Main Effects of Individual Differences (H1 – H3). Hypotheses 1 to 3 dealt with the effects of values and personality on individuals' group goal commitment and individual goal commitment. Specifically, I proposed that collectivism (both H-C and V-C; H1a), conscientiousness (H2a) and agreeableness (H3) would be positively related to group goal commitment. Results in Table 5 show that H-C has a significant positive relationship with group goal commitment (β=.16, p< .05) but VC, unexpectedly, is negatively related with group goal commitment (β= -.14, p< .05). Conscientiousness (β=.01, p> .05) has no effect on group goal commitment, while agreeableness is marginally positively related to group goal commitment (β=.11, p< .10). Hence, results provide partial support for H1a and H3 but not for H2.

Next, H1b proposed that collectivism (both H-C and V-C) would have a negative impact on individual goal commitment while H2b proposed that conscientiousness would have a positive impact on individual goal commitment. Results in the second column of Table 5 approach traditional levels of significance for V-C (β= -.12, p< .10) and conscientiousness (β= .19, p< .01), but not H-C (β= .10, p> .10). Hence, H1b is partially supported and H2b is fully supported.

Main Effects of Structural Factors (H4 – H5). H4 and H5 predicted that task interdependence and leader status would be positively related to group goal commitment. Results in Table 6 (task interdependence) and Table 7 (leader status) did not support either hypothesis (task interdependence: β= -.03, p> .10; leader status: β= .05, p> .10).

Interactions between Individual and Structural Factors (H6 – H7). H6a to H6c proposed that task interdependence would interact with collectivism (both H-C and V-C;

H6a), conscientiousness (H6b) and agreeableness (H6c) to affect group goal commitment. Table 6 shows the results of these interaction terms entered simultaneously into the regression.

While none of the interaction terms in the block is statistically significant, the interaction terms involving H-C and conscientiousness appear to approach significance. Given that statistical tests of moderators typically have very low power (Aquinis, 1995; Evans, 1985), I conducted two separate regression analyses in order to alleviate the problem: one involving H-C X task interdependence, and the other involving conscientiousness X task interdependence (see Table 6a). Results support both interaction terms (H-C X TI : β= -1.44, p< .01; Consc X TI : β= -.85, p< .05).

Figures 5 and 6 present the interaction plots using a median split of the H-C and conscientiousness measures. Figure 5 shows that the effect of H-C on group goal commitment is stronger under a low task interdependence condition than under a high task interdependence condition. However, while I had proposed that H-C will have less of an impact under high task interdependence, Figure 5 suggests the opposite. Hence, results only partially support the prediction advanced in H6a.

Figure 6, however, shows an unexpected pattern of interaction for conscientiousness and task interdependence. While I had predicted that conscientiousness would have a stronger positive effect on group goal commitment under low task interdependence compared to high task interdependence, the graph suggests that conscientiousness exerted opposite effects on group goal commitment under different task interdependence conditions. Specifically, conscientiousness has a positive impact on group goal commitment under low task interdependence, but a negative impact under a high task interdependence condition. Hence, H6b is not supported.

Table 5. Hierarchical Regression Results for Individual Differences and Goal Commitment (H1-H3)[a]

Step	Predictor Variables	Group Goal Commitment		Individual Goal Commitment	
1.	Gender[b]	-.08	*(-.07)*	-.04	*(-.07)*
	R^2	**.01**	***(.01)***	**.00**	***(.00)***
2.	H-C	.16*	*(.18**)*	.10	*(.15*)*
	V-C	-.14*	*(-.12†)*	-.12†	*(-.13*)*
	Conscientiousness	.01	*(.06)*	.19**	***(.20**)***
	Agreeableness	.11†	*(.10†)*	-.01	*(-.02)*
	ΔR^2	**.05****	***(.07**)***	**.06****	***(.07**)***
	Total R^2	**.06**	***(.08)***	**.06**	***(.07)***
	Overall $F_{(5, 264)}$	**3.37****	***(4.12**)***	**3.43***	***(4.42**)***

[a] Table contents are beta-weights. Figures in (italics) are beta weights based on original scales.

[b] Male coded 1, Female coded 2.

** $p < .01$ * $p < .05$ † $p < .10$

Table 6. Hierarchical Moderated Regression Results for Individual Differences and Task Interdependence on Group Goal Commitment (H4, H6a-H6c) [a]

Step Predictor Variables	Group Goal Commitment	
Step 1		
Gender[b]	-.13*	*(-.10†)*
ΔR^2	**.02***	***(.01†)***
Step 2		
Horizontal Collectivism	.17*	*(.19**)*
Vertical Collectivism	-.14*	*(-.13*)*
Conscientiousness	.01	*(.06)*
Agreeableness	.11†	*(.10†)*
ΔR^2	**.05****	***(.07**)***
Step 3		
Task Interdependence (TI)[c]	-.03	*(-.06)*
ΔR^2	**.00**	***(.00)***
Step 4		
TI X Horizontal Collectivism	-.83 (p=.16)	*(-1.00) (p=.11)*
TI X Vertical Collectivism	-.34	*(-.23)*
TI X Conscientiousness	-.57 (p= .17)	*(-.43)*
TI X Agreeableness	.15	*(1.04)*
ΔR^2	**.02**	***(.02)***
Overall R^2	**.09**	***(.10)***
Overall $F_{(10, 259)}$	**2.63****	***(2.88**)***

[a] Table contents are beta-weights. Figures in (italics) are beta weights based on original scales.

[b] Male coded 1; Female coded 2;

[c] High task interdependence coded 1; Low task interdependence coded 0.

** $p < .01$ * $p < .05$ † $p < .10$

Table 6a. Regression Results for H-C X Task Interdependence and Conscientiousness X Task Interdependence [a]

Step Predictor Variables	Group Goal Commitment		Step Predictor Variables	Group Goal Commitment	
Step 1			Step 1		
Gender[b]	-.12*	*(-.10†)*	Gender[b]	-.12*	*(-.10†)*
ΔR^2	**.02***	***(.01†)***	**ΔR^2**	**.02***	***(.01†)***
Step 2			Step 2		
H-C	.16*	*(.19**)*	Conscientiousness	.07	*(.14*)*
ΔR^2	**.02***	***(.04**)***	**ΔR^2**	**.01**	***(.02*)***
Step 3			Step 3		
Task Interdependence[c]	-.04	*(-.07)*	Task Interdependence[c]	-.04	*(-.07)*
ΔR^2	**.00**	***(.01)***	**ΔR^2**	**.00**	***(.01)***
Step 4			Step 4		
H-C X Task Interdependence	-1.44**	*(-1.36*)*	Consc X Task Interdependence	-.85*	*(-.65)*
ΔR^2	**.03****	***(.02*)***	**ΔR^2**	**.02***	***(.01)***
Total R^2	**.07**	***(.07)***	**Total R^2**	**.05**	***(.05)***
Overall $F_{(4, 270)}$	**4.73****	***(5.36**)***	**Overall $F_{(4, 266)}$**	**2.62***	***(2.96*)***

[a] Table contents are beta-weights. Figures in (italics) are beta weights based on original scales.

[b] Male coded 1, Female coded 2. [c] High task interdependence coded 1; Low task interdependence coded 0

** $p < .01$ * $p < .05$ † $p < .10$

Table 7. Hierarchical Moderated Regression Results for Individual Differences, Leader Status and Group Goal Commitment (H5, H7a-H7d)[a]

Step	Predictor Variables	Group Goal Commitment	
Step 1			
	Gender[b]	-.13*	*(-.10†)*
	ΔR^2	**.02***	***(.01†)***
Step 2			
	Horizontal Collectivism	.17*	*(.19**)*
	Vertical Collectivism	-.14*	*(-.13*)*
	Conscientiousness	.01	*(.06)*
	Agreeableness	.11†	*(.10†)*
	ΔR^2	**.05****	***(.07**)***
Step 3			
	Leader Status (LS)[c]	.05	*(-.04)*
	ΔR^2	**.00**	***(.00)***
Step 4			
	LS X Horizontal Collectivism	-.02	*(-.64)*
	LS X Vertical Collectivism	-.48	*(-.30)*
	LS X Conscientiousness	.11	*(-.15)*
	LS X Agreeableness	-.15	*(-.07)*
	ΔR^2	**.01**	***(.01)***
	Overall R^2	**.08**	***(.09)***
	Overall $F_{(10, 259)}$	**2.22***	***(2.61**)***

[a] Table contents are beta-weights. Figures in (italics) are beta weights based on original scales.

[b] Male coded 1; Female coded 2.

[c] High leader status coded 1; Low leader status coded 0

** $p < .01$ * $p < .05$ † $p < .10$

Figure 5. Interaction between H-C and Task Interdependence on Group Goal Commitment

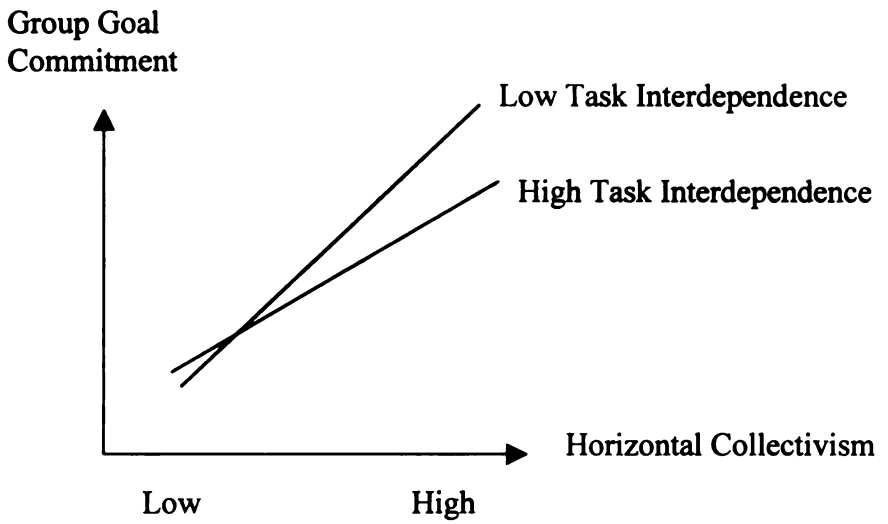
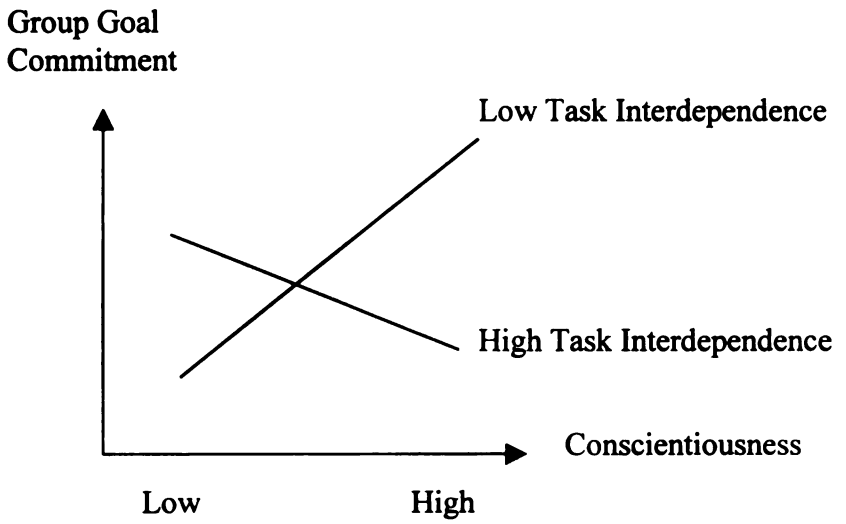


Figure 6. Interaction between Conscientiousness and Task Interdependence on Group Goal Commitment



H7a – H7d predicted that leader status would interact with H-C (H7a), V-C (H7b), conscientiousness (H7c), and agreeableness (H7d) to influence group goal commitment. Results in Table 7 show that none of the interaction terms is significant.

Effects of Goal Commitment. The last hypothesis predicted that group goal commitment would interact with individual goal commitment to affect individual performance in the group task, such that the relationship between group goal commitment and performance would be stronger when individual goal commitment was low. Results in Table 8 did not support the interaction hypothesis – only a main effect of group goal commitment on individual performance in the group task is found ($\beta = .25$, $p < .01$).

Table 8. Hierarchical Moderated Regression Results for Individual and Group Goal Commitment on Performance in Group Task (H8) [a]

Step Predictor Variables	Performance in Group Task	
Step 1		
Gender[b]	.09	*(.09)*
ΔR^2	**.01**	***(.01)***
Step 2		
Individual Goal Commitment (IGC)	-.02	*(-.12†)*
Group Goal Commitment (GGC)	.25**	*(.30**)*
ΔR^2	**.06****	***(.06**)***
Step 3		
IGC X GGC	-.13	*(-.15)*
ΔR^2	**.00**	***(.00)***
Overall R^2	**.07**	***(.07)***
Overall $F_{(4, 313)}$	**5.28****	***(5.90**)***

[a] Table contents are beta-weights. Figures in (italics) are beta weights based on original scales; [b] Male coded 1; Female coded 2

** $p < .01$ * $p < .05$ † $p < .10$

Post-Hoc Analyses

Consistent with the data analytic strategy outlined in Chapter 3, the results reported above employed variables that were created based on results of factor analyses. While the objectives of this approach were to establish discriminant validity and cultural equivalence of the measures, there are limitations arising from the sensitivity of factor analyses to sample size. Specifically, given the relatively small sample size in my dissertation, using factor analyses to create variables may capitalize on sampling error – the deviation between a sample statistic and population parameter that results because the sample size is smaller than the population size. Since the measures examined in this dissertation (i.e., conscientiousness, agreeableness, H-C, V-C, individual and group goal commitment) have been empirically validated by larger samples in previous studies, an alternative approach to creating variables to test my hypotheses is to use the original scales without eliminating items based on factor analyses results. This approach also has the advantage of yielding higher reliabilities because of the greater number of items underlying each variable. Thus, I conducted another set of analyses to test Hypotheses 1 to 8 using the original scales for conscientiousness, agreeableness, horizontal and vertical collectivism, and individual and group goal commitment. The descriptives, Cronbach's alphas and inter-item correlations of the variables using the original scales are reported in bold italics in Table 4 on page 79.

Limitations of the measures also led me to examine four other sets of post-hoc relationships not formally hypothesized in my original model in an attempt to better understand the data and to suggest possible areas for future research. Here, I outline the rationale and report the results of these post-hoc analyses. The first set of analyses was targeted to address the issue of the lack of discriminant validity between individual goal

commitment and group goal commitment demonstrated by the U.S. subjects. Specifically, I replaced the two goal commitment measures with the group goal priority scale – a relative measure that captures one's commitment to the group goal vis-a-vis one's commitment to the individual goal. I then reanalyzed the main and interaction effects of individual differences and structural factors (i.e., H1 – H7) on group goal priority.

The second set of analyses aimed to ascertain if subjects' psychological perceptions of the experimental manipulations, rather than the actual manipulations, would affect goal commitment. Indeed, several scholars have proposed the idea that environments are created through individual and social processes rather than defined by objective realities (e.g., Berger & Luckmann, 1967; Salancik & Pfeffer, 1978; Schutz, 1967; Weick, 1977). For instance, Weick (1977) argues that objects and events cannot become part of a person's environment without the person actually participating in the creation of that environment. This is one explanation why people in the same situation may perceive things differently and consequently, react differently to it. Similarly, Salancik and Pfeffer's (1978) social information theory highlights the importance of understanding how social context, rather than objective task dimensions, can influence employees' attitudes toward their jobs. Hence, taking this social constructionist approach, I replaced the dummy codes representing the experimental manipulations with the manipulation checks that assessed subjects' perceptions of the situation, and examined their impact on group goal priority.

The third set of analyses aimed to ascertain if the effects of values, personality and structural factors on individual performance in the group task were fully or partially mediated by group goal commitment and group goal priority. According to the procedures outlined by Baron and Kenny (1986), I tested for mediation by conducting

three separate regression analyses for each relationship. For instance, to assess if the effect of H-C on individual performance in the group task is fully mediated by group goal commitment, I estimated three regressions (all controlling for gender): (1) regressing group goal commitment on H-C, (2) regressing individual performance in the group task on H-C; and (3) regressing individual performance in the group task on H-C and group goal commitment. A full mediation is supported when the effects of H-C are significant in the first two regressions, but become non-significant when entered simultaneously with group goal commitment in the third regression. I conducted similar tests for all the other individual differences and structural factors (both objective and perceived).

The fourth set of analyses explored whether the country in which the experiment was conducted influenced the pattern of results. In all my prior analyses, country was excluded since it was not a variable of interest on its own. Rather, its function was to prevent the problem of restricted ranges in the cultural measures, which may potentially occur if these values were collected from one homogeneous sample. Nonetheless, it is interesting and important to determine if the data suggest different patterns of relationships in the two cultures. Results of these within-culture analyses can also provide some insight as to whether the theory articulated in this dissertation might apply differentially based on national culture. Here, I examined the bivariate correlations of variables examined in this dissertation within the U.S. and Singapore subsamples. In particular, my focus is on identifying significant correlations that have opposite signs in the two subsamples.

In all the post-hoc analyses outlined above, I reported two sets of results: one based on variables created from factor analyses results, and one based on variables using original scales (presented in (bold italics) in Tables 9-13).

Post-Hoc Results

H1-H8 using original scales. In general, results based on variables created with the original scales did not differ considerably from those based on variables created using factor analyses outcomes. Specifically, two differences were observed. First, the interaction between conscientiousness and task interdependence on group goal commitment (H6b) became non-significant in the current analyses using original scales. This is not surprising given that the significant interaction reported earlier was found only when conscientiousness and task interdependence were entered separately into a regression equation (see Tables 6 and 6a), implying a weak interactive effect which may not be robust. Second, unlike previous analyses, individual goal commitment was negatively related to individual performance in the group task at the traditional level of significance when original scales were used (β= -.12, p< .10). This relationship is logical since individuals more committed to achieving their individual goal should focus more on their individual task at the expense of their group task. However, given that this result was found only under one of the two approaches to creating variables, this relationship should be interpreted with caution.

Group goal priority. Subjects who scored high in group goal priority indicated that they were more committed to achieving the group goal than to the individual goal, and vice versa.

Drawing from the theoretical rationale outlined for H1 and H3, I expected that H-C, V-C, and agreeableness would be positively related to group goal priority. Following the logic that conscientiousness is positively related to both individual goal commitment and group goal commitment (H2a and H2b), I did not expect conscientiousness to influence group goal priority, since conscientious people are likely to view both goals as

equally important. Next, I also expected group task interdependence and team leader status to influence group goal priority positively. Finally, using Mischel's (1977) situational strength argument, I expected the same interactions between individual differences and structural factors on group goal priority. Specifically, under weak situations such as low task interdependence and low leader status, values and personality should have a greater influence on group goal priority than under strong situations.

Results in Table 9 show that agreeableness is positively related to group goal priority ($\beta = .21$, $p < .01$), but not H-C or V-C. Contrary to expectation, conscientiousness had a marginal negative relationship with group goal priority ($\beta = -.12$, $p < .10$). Results also indicated that neither task interdependence (Table 9) nor leader status (Table 10) is significantly related to group goal priority. Next, analyses involving interactions between task interdependence and individual differences (Table 9) show that none of the four interaction terms is statistically significant when entered simultaneously into the equation. However, conscientiousness did interact with task interdependence to influence group goal priority in the absence of the other three interactions ($\beta = -.65$, $p < .10$). Figure 7 shows a completely crossed-over interaction, demonstrating that conscientiousness has a positive impact on group goal priority for individuals under low task interdependence, but a negative impact for those under high task interdependence. This pattern contradicts the anticipated interaction predicted by the situational strength argument, but is consistent with the observed interaction when group goal commitment is used as the dependent variable (see Figure 6).

Analyses involving interactions between leader status and individual differences did not yield any significant results (see Table 10).

Table 9. Post-Hoc: Regression Results for Effects of Individual Differences and Task Interdependence on Group Goal Priority [a]

Step Predictor Variables	Group Goal Priority	
Step 1		
Gender [b]	.06	*(.06)*
ΔR^2	**.00**	***(.00)***
Step 2		
Horizontal Collectivism	.05	*(.04)*
Vertical Collectivism	-.06	*(-.04)*
Conscientiousness	-.12†	*(-.13*)*
Agreeableness	.21**	*(.21**)*
ΔR^2	**.06****	***(.05*)***
Step 3		
Task Interdependence (TI)[c]	.09	*(.09)*
ΔR^2	**.01**	***(.01)***
Step 4		
TI X Horizontal Collectivism	-.36	*(-.32)*
TI X Vertical Collectivism	-.15	*(.04)*
TI X Conscientiousness	-.65 (p= .14)	*(-.83†)*
TI X Agreeableness	.17	*(.41)*
ΔR^2	**.01**	***(.01)***
Overall R^2	**.08**	***(.07)***
Overall $F_{(10, 259)}$	**2.09***	***(2.03*)***

[a] *Table contents* are beta-weights. Figures in (italics) are beta weights based on original *scales.*

[b] *Male coded* 1; Female coded 2;

[c] *High task* interdependence coded 1; Low task interdependence coded 0

** $p < .01$ * $p < .05$ † $p < .10$

Table 10. Post-Hoc: Regression Results for Effects of Individual Differences and Leader Status on Group Goal Priority [a]

Step	Predictor Variables	Group Goal Priority	
Step 1			
	Gender[b]	.06	*(.06)*
	ΔR^2	**.00**	***(.00)***
Step 2			
	Horizontal Collectivism	.05	*(.04)*
	Vertical Collectivism	-.06	*(-.04)*
	Conscientiousness	-.12†	*(-.13*)*
	Agreeableness	.21**	*(.21**)*
	ΔR^2	**.05****	***(.05*)***
Step 3			
	Leader Status (LS)[c]	.03	*(.03)*
	ΔR^2	**.00**	***(.00)***
Step 4			
	LS X Horizontal Collectivism	-.45	*(-.70)*
	LS X Vertical Collectivism	-.58	*(-.38)*
	LS X Conscientiousness	.36	*(.43)*
	LS X Agreeableness	-.18	*(-.17)*
	ΔR^2	**.01**	***(.02)***
	Overall R^2	**.06**	***(.07)***
	Overall $F_{(10, 259)}$	**2.02***	**(1.82†)**

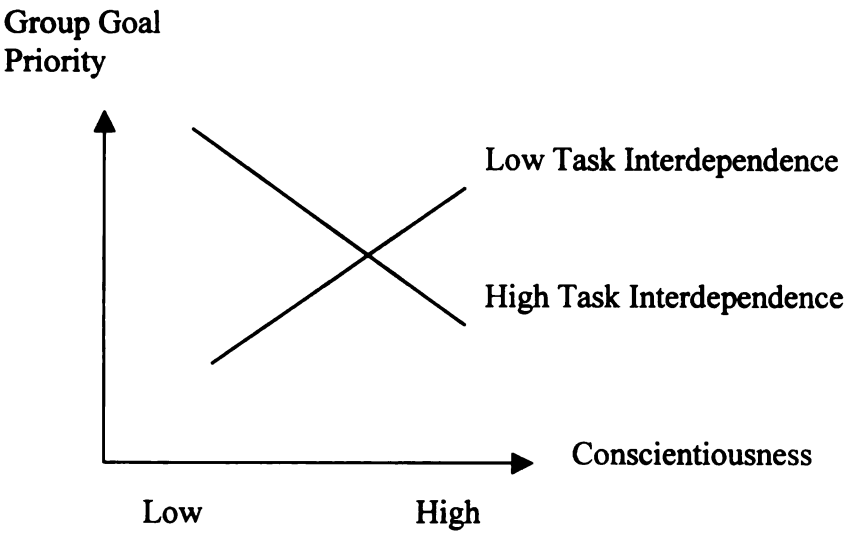
[a] Table contents are beta-weights. Figures in (italics) are beta weights based on original scales.

[b] Male coded 1; Female coded 2;

[c] High leader status coded 1; Low leader status coded 0;

** $p < .01$ * $p < .05$ † $p < .10$

Figure 7. Post-Hoc:Interaction between Conscientiousness and Task Interdependence on Group Goal Priority



Analyses based on variables created with original scales yielded similar results for this set of post-hoc regressions involving group goal priority as the outcome.

Perceptual measures of structural factors. Before testing the effects of perceived task interdependence and perceived leader status on goal commitment, I assessed whether perceptions of the situation were significantly influenced by gender, values and personality after partialling out the effects due to actual manipulations. This test was predicated on the notion that different individuals may construe the same situation differently (e.g., Weick, 1977). For instance, it is plausible that collectivists, given their interdependent self-construal, tend to view a situation as more interdependent than individualists. Or, females or individuals with high V-C may tend to view the group leader as having more power because of their sensitivity to status differences, compared to males or individuals lower in V-C.

Results in Table 11 show very weak support for the above speculations. Actual

task and leader manipulations explain 18% of the variance in perceived task interdependence and 31% in perceived leader status respectively. Female subjects reported greater task interdependence (β= 0.10, p< .10) and greater leader status (β= .15, p< .01), while agreeable individuals tended to report lower levels of leader status (β= -.12, p< . 05). No other individual differences measured in the study are statistically significant in predicting perceptions of the experimental conditions.

Results based on variables created with original scales yielded only one slight difference – H-C was positively related to perceived task interdependence at a marginal level of significance (β= .11, p< .10; see Table 11). This could be that horizontal collectivists, consistent with their emphases on fostering common goal and social harmony, tend to view all group tasks as being more interdependent, regardless of the actual nature of the tasks.

The next set of analyses ascertained whether perceived measures of task interdependence and group leader status, as well as their interactions with individual differences, influenced group goal priority. Specifically, I would expect greater perceived task interdependence and perceived greater leader status to be positively associated with group goal priority. Further, subjects who perceived stronger situations (i.e., greater task interdependence or higher leader status) should be driven more by their perceptions of the situations rather than by their values and personality, compared to subjects who perceived weaker situations.

Results show that perceived task interdependence had a positive impact on group goal priority (β= .19, p< .01) (Table 12) but not perceived leader status (β= .10, p> .10) (Table 13). Further, while none of the interaction terms between perceived task

Table 11. Post-Hoc: Results for Individual Differences on Perceived Task Interdependence and Perceived Leader Status [a]

Step Predictor Variables	Perceived Task Interdependence		Step Predictor Variables	Perceived Leader Status	
Step 1			Step 1		
Task Interdependence[b]	.42**	*(.42**)*	Leader Status[d]	.55**	*(.55**)*
ΔR^2	**.18****	***(.17**)***	**ΔR^2**	**.31****	***(.31**)***
Step 2			Step 2		
Gender[c]	.10†	*(.10†)*	Gender [c]	.15**	*(.15**)*
Horizontal Collectivism	.07	*(.11†)*	Horizontal Collectivism	-.09	*(-.05)*
Vertical Collectivism	-.01	*(-.06)*	Vertical Collectivism	.05	*(.03)*
Conscientiousness	.09	*(.08)*	Conscientiousness	-.03	*(-.02)*
Agreeableness	.04	*(.03)*	Agreeableness	-.12*	*(-.15**)*
ΔR^2	**.03†**	*(.04*)*	**ΔR^2**	**.05****	***(.05**)***
Overall R^2	**.21**	***(.21)***	**Overall R^2**	**.36**	***(.36**)***
Overall $F_{(6, 261)}$	**10.85****	***(11.42**)***	**Overall $F_{(6, 261)}$**	**23.87****	***(23.79**)***

[a] Table contents are beta-weights. Figures in (italics) are beta weights based on original scales.

[b] High task interdependence coded 1; Low task interdependence coded 0

[c] Male coded 1; Female coded 2.

[d] High leader status coded 1; Low leader status coded 0

** $p < .01$ * $p < .05$ † $p < .10$

Table 12. Post-Hoc: Regression Results for Effects of Individual Differences and Perceived Task Interdependence on Group Goal Priority [a]

Step	Predictor Variables	Group Goal Priority	
Step 1			
	Gender[b]	.05	*(.05)*
	ΔR^2	**.00**	***(.00)***
Step 2			
	Horizontal Collectivism	.05	*(.04)*
	Vertical Collectivism	-.08	*(-.03)*
	Conscientiousness	-.11†	*(-.13†)*
	Agreeableness	.21**	*(.21**)*
	ΔR^2	**.06****	***(.05*)***
Step 3			
	Perceived Task Interdependence	.19**	*(.19**)*
	ΔR^2	**.04****	***(.04**)***
Step 4			
	PTI X Horizontal Collectivism	-.55	*(-.32)*
	PTI X Vertical Collectivism	-.34	*(-.33)*
	PTI X Conscientiousness	.42	*(.21)*
	PTI X Agreeableness	-.31	*(-.19)*
	ΔR^2	**.01**	***(.00)***
	Overall R^2	**.11**	***(.09)***
	Overall $F_{(10, 257)}$	**2.93****	***(2.52**)***

[a] Table contents are beta-weights. Figures in (italics) are beta weights based on original scales.

[b] Male coded 1; Female coded 2.

** $p < .01$ * $p < .05$ † $p < .10$

Table 13. Post-Hoc: Regression Results for Effects of Individual Differences and Perceived Leader Status on Group Goal Priority [a]

Step	Predictor Variables	Group Goal Priority	
Step 1			
	Gender[a]	.05	*(.05)*
	ΔR^2	**.00**	***(.00)***
Step 2			
	Horizontal Collectivism	.05	*(.04)*
	Vertical Collectivism	-.06	*(-.03)*
	Conscientiousness	-.11†	*(-.12†)*
	Agreeableness	.21**	*(.21**)*
	ΔR^2	**.05****	***(.05*)***
Step 3			
	Perceived Leader Status (LS)[b]	.10	*(.10)*
	ΔR^2	**.01**	***(.01)***
Step 4			
	PLS X Horizontal Collectivism	-1.36*	*(-1.25*)*
	PLS X Vertical Collectivism	-.35	*(-.18)*
	PLS X Conscientiousness	1.17*	*(.97†)*
	PLS X Agreeableness	1.30**	*(1.57**)*
	ΔR^2	**.07****	***(.07**)***
	Overall R^2	**.13**	***(.13)***
	Overall $F_{(10, 256)}$	**3.76****	***(3.82**)***

[a] Table contents are beta-weights. Figures in (italics) are beta weights based on original scales.

[b] Male coded 1; Female coded 2.

** $p < .01$ * $p < .05$ † $p < .10$

interdependence and individual differences is significant in predicting group goal priority (Table 12), three out of the four interaction terms involving perceived leader status are significant (Table 13). Specifically, perceived leader status interacted with H-C (β= -1.36, p< .05), conscientiousness (β= 1.17, p< .05), and agreeableness (β= 1.30, p< .01) in predicting group goal priority. Figures 8 – 10 illustrate these interactions respectively.

Contrary to expectations, the graphs suggest that H-C (Figure 8) and agreeableness (Figure 9) exert a greater impact on group goal priority under high perceived leader status than under low perceived leader status. In other words, when subjects perceived their group leader to have greater power in the organization, those who were more horizontally collectivistic and more agreeable reported higher levels of group goal priority, compared to those who were less collectivistic and less agreeable.

For conscientiousness, the interaction plot (Figure 10) suggests that the effects of conscientiousness on group goal priority differ under high versus low perceived leader status. Specifically, conscientiousness has a positive relationship with group goal priority under high perceived leader status, but a negative relationship with group goal priority under low perceived status. This pattern also suggests that the perception of leader status matters only for individuals high in conscientiousness.

All analyses based on variables created with original scales yielded similar pattern of results for this set of analyses involving individual differences, perceived measures of structural factors and group goal priority (see Tables 12 and 13).

Tests of Mediation. In this set of analyses, I tested if group goal commitment and group goal priority mediated the effects of the distal individual differences and situational factors on individual performance in the group task.

Following Baron and Kenny's (1986) criteria for mediation, results using

Figure 8. Post-Hoc: Interaction between H-C and Perceived Leader Status on Group Goal Priority

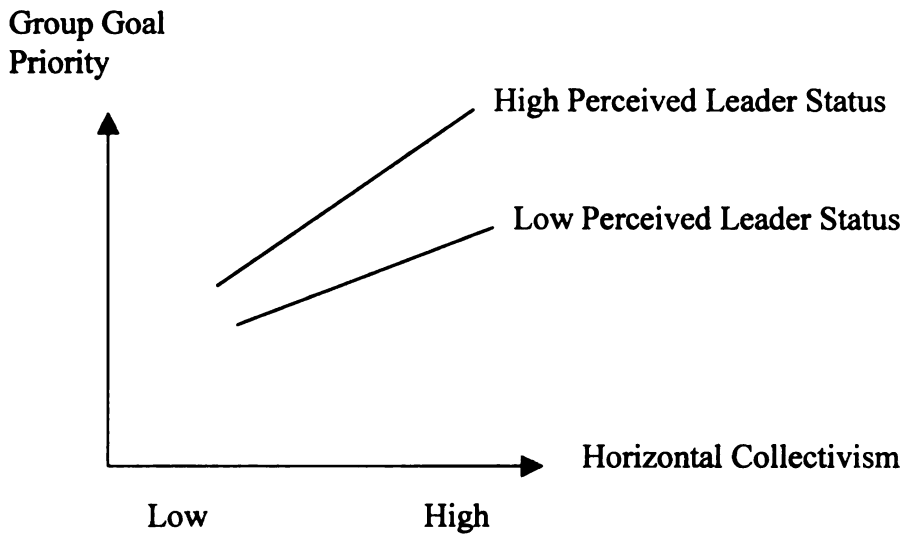


Figure 9. Post-Hoc: Interaction between Agreeableness and Perceived Leader Status on Group Goal Priority

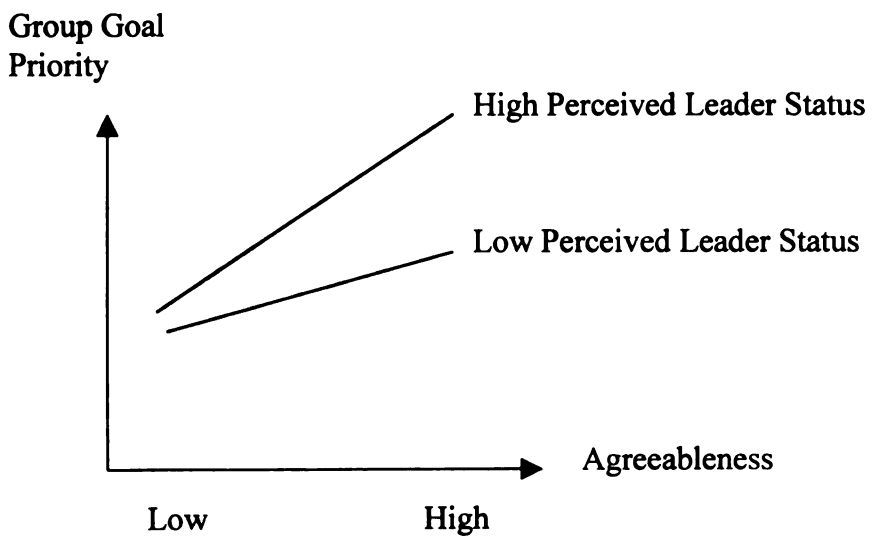
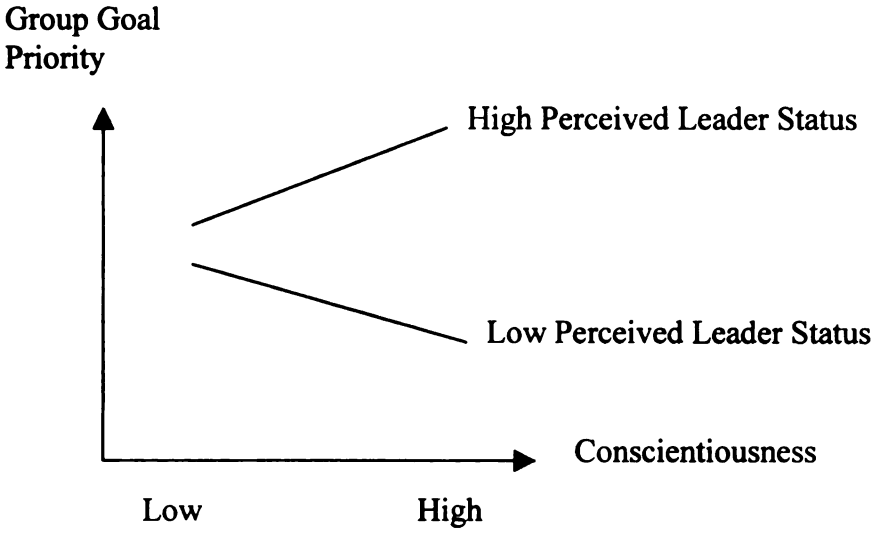


Figure 10. Post-Hoc: Interaction between Conscientiousness and Perceived Leader Status on Group Goal Priority



variables created based upon factor analyses outcomes demonstrated that group goal commitment fully mediated the effects of H-C and agreeableness on individual performance in the group task. Specifically, both agreeableness and H-C were significantly related to group goal commitment (H-C: $\beta = .16$, $p < .05$; agreeableness: $\beta = .16$, $p < .01$), and both were significantly related to individual performance in the group task (H-C: $\beta = .11$, $p < .10$; agreeableness: $\beta = .14$, $p < .05$). When group goal commitment was added with H-C to predict performance, H-C became insignificant ($\beta = .07$, $p > .05$). Likewise, for agreeableness, its effect on performance was not significant when group goal commitment was entered simultaneously (agreeableness: $\beta = .11$, $p < .10$). No other factors were mediated by group goal commitment to influence individual performance in the group task.

Results using variables created with original scales yielded a different picture. Group goal commitment only partially mediated the effects of agreeableness on

individual performance in the group task. Specifically, agreeableness was significantly related to group goal commitment (agreeableness: $\beta = .18$, $p < .01$), and to individual performance in the group task (agreeableness: $\beta = .16$, $p < .05$). When group goal commitment was added in the regression equation, the effect of agreeableness became marginally significant ($\beta = .11$, $p < .10$), thus suggesting partial mediation. Further, group goal commitment did not mediate the relationships of both conscientiousness and H-C with individual performance in the group task.

When group goal priority was examined as the mediator, results using variables based on factor analyses outcomes demonstrated that only agreeableness was mediated by group goal priority to influence individual performance in the group task. Specifically, agreeableness was significantly related to group goal priority in the first equation ($\beta = .19$, $p < .01$), but was non-significantly related to task performance when entered simultaneously with group goal priority in the third equation ($\beta = .09$, $p > .05$), thus demonstrating a full mediation. No other factors were mediated by group goal priority to influence individual performance in the group task.

Results based on variables created with original scales yielded only a slight difference. The relationship between agreeableness and individual performance in the group task was being partially, instead of fully mediated by group goal priority. Specifically, agreeableness was significantly related to group goal priority in the first equation ($\beta = .18$, $p < .01$), but was marginally significantly related to task performance when entered simultaneously with group goal priority in the third equation ($\beta = .11$, $p > .10$), thus demonstrating a partial mediation.

Country differences. A comparison of the bivariate correlations between the U.S.

and Singapore subsamples revealed one contrasting relationship between the leader status manipulation and individual performance in the group task: the correlation was negative in the U.S. sample ($r = -.19$, $p < .05$) but positive in the Singapore sample ($r = .22$, $p < .01$). In other words, having a high status leader in the parallel team had an unexpected negative impact on members' performance in the group task in the U.S., but a positive impact on members' performance in Singapore. The opposite effects also explain why leader status in the entire sample did not have a significant main effect on individual performance in the group task.

Results based on variables created with original scales yielded a similar pattern of results. In the next chapter, I discuss these findings as well as their implications on theory and practice.

CHAPTER 5

DISCUSSION

In light of the growing popularity of parallel teams in organizations, there is a real need for research to understand the unique issues faced by individuals belonging to such teams. I contend that one such issue is the dilemma (between pursuing personal goals versus group goals) created by the concurrent existence of two tasks (i.e., an individual task and a group task). Specifically, the general research question I address is given the limited amount of time, what factors would influence parallel team members' prioritization of goals, and consequently, performance in the group task?

To recapitulate briefly, Kanfer's (1990) distal-proximal framework of motivational theories, as well as Hollenbeck and Klein's (1987) goal commitment theory, provided the rationale for this dissertation to address the effects of three sets of variables: the proximal construct of goal commitment, and distal constructs such as individual differences and situational characteristics. Specifically, I theorized that horizontal and vertical collectivism, conscientiousness, and agreeableness would influence both individual goal commitment and group goal commitment. Task interdependence and team leader status were posited to have main, as well as interactive effects with the individual differences, on group goal commitment. Finally, I proposed that individual and group goal commitment would interact with each other to influence individuals' performance in their group task.

Results based on an experiment conducted with students in the U.S. and Singapore highlighted three main findings. First, construing individual and group goal commitment as separate distinct constructs to reflect the dual-task nature of parallel

teams may or may not be viable. This equivocal conclusion is based on the intriguing phenomenon observed in my data that while the Singapore subjects distinguished between the two goal commitment constructs relatively well, the U.S. subjects did not. Thus, it could be that the viability of having two separate goal commitment constructs in a multiple-goal environment is subject to cultural nuances. Nonetheless, group goal commitment and the alternative construct -- group goal priority (examined in post-hoc analyses), had a significant positive impact on individual performance in the group task. This is a critical link in this study since group goal commitment was posited as the proximal mechanism that links the distal factors with the performance outcome.

The second finding is that individuals with different collectivism orientation and personality traits are likely to react differently to resource dilemma situations posed by competing individual and group tasks in a parallel team environment. Specifically, a robust finding was that agreeable individuals were more committed to their group goal, which in turn led to them to perform better in the group task compared to their counterparts with lower agreeableness. Individuals high in H-C and conscientiousness also performed better in the group task. However, whether these relationships were mediated by group goal commitment depended on how the variables were created (i.e., based on factor analyses outcomes or original scales). This inconsistency suggests caution in interpreting these relationships, and also implies that more research is required in future in order to replicate the results.

The third finding concerns the impact of task interdependence and leader status on team members' group goal commitment/priority. The actual manipulations of task interdependence and leader status had no significant effects, although post-hoc results demonstrated that perceived task interdependence had a positive impact on parallel team

members' group goal priority. It appears that a more fruitful way of theorizing about the effects of task interdependence and leader status in parallel teams is to consider their interactions with individual differences (rather than focusing on main effects) – implying that these structural characteristics invoke different reactions from different people. Specifically, a robust finding is that high task interdependence seemed to "backfire" for individuals with high H-C– they reported less group goal commitment than their high H-C counterparts under low task interdependence. On the other hand, high task interdependence seemed to have no effect on individuals with low H-C.

The remaining of this chapter is organized into four parts to provide a more detailed discussion of my results, as well as to highlight some of the implications, limitations, and future directions of this research. Specifically, the first section discusses the empirical results relating to my formal hypotheses as well as post-hoc speculations, and develops plausible rationale for unsupported or unexpected relationships. The second section highlights the contributions of this study to research and practice. Finally, in the last section, I discuss limitations of the current research, and conclude by proposing several future directions that may further enhance our understanding of parallel teams.

Discussion of Empirical Results

The sequence of presentation in this section is as follows. I first discuss the empirical results relating to goal commitment and group goal priority, since these goal constructs are theorized to be the link between individual differences/structural factors and individual performance in the group task. I then discuss the effects of values, personality, and structural factors (task interdependence and leader status) on the hypothesized outcome of goal commitment, as well as post-hoc outcomes of group goal priority and individual performance in the group task. Finally, I discuss the interactions

between individual differences and structural factors on group goal commitment and group goal priority.

Goal Commitment. Consistent with the dual-task nature of parallel teams, I proposed that parallel team members would develop two sets of goal commitment, one for their individual task and one for their group task. Results from this study, however, demonstrated an intriguing phenomenon: while Singapore subjects discriminated between individual goal commitment and group goal commitment reasonably well, U.S. subjects did not. Given that both groups of subjects were given the same background information, instructions and materials, and went through the same steps during the experiment, I ruled out explanations due to potential confounds or contaminants with the experimental procedures.

One tentative speculation is that because subjects essentially worked independently on both their individual and group tasks, U.S. subjects may have viewed both tasks as equally reflective of their personal competence, and hence, made no distinction between the two goals. This is consistent with Markus and Kitayama's (1991) thesis that individuals in the West, such as the U.S., are typically motivated by individually rooted needs or motives – the motive to enhance self-esteem, the motive to achieve, and the motive to self-actualize. As such, U.S. subjects might have viewed the achievement of both individual and group goals to be equally important to their self-esteem and consequently, treated the performance in both tasks as an overall indicator of their effectiveness.

It may be that Singapore subjects were better able to discriminate between individual and group goal commitment because of their clearer distinction between the self and the surrounding context, or what Markus and Kitayama (1991) termed "self-in-

relation-to-other" construal that is more typical of Eastern or Asian cultures. As such, instead of viewing the achievement of the two tasks as reflecting one's personal competence, they may have viewed the achievement of each task as having different implications on themselves and on the group. This delineation between the self and others could have been made more acute by the possibility that Singapore subjects, being more vertically collectivistic than their U.S. counterparts, might have viewed themselves as distinct from their groups due to the temporary nature of the groups formed in this study.

Another reason could be due to the fact that the goal commitment scales were measured prior to the beginning of the actual tasks. Even though subjects were told that it was impossible to achieve both goals within the limited time, it could be that U.S. subjects, for some reason (e.g., social desirability bias), did not make a psychological trade-off between pursuing the two goals before the commencement of the tasks. One way of ascertaining if this was indeed the case is for future research to measure goal commitment at the start, as well as in the middle, of the performance trials.

Because of the lack of discriminant validity for the goal commitment constructs with the U.S. data, it would be misleading for me to make any inferences based on the results of my analyses for H1 to H7. Thus, I discuss in the next section the results of a set of post-hoc analyses using group goal priority – an alternative measure that taps group goal commitment in relation to individual goal commitment.

Moving beyond construct validity issues, I examined the implications of individual and group goal commitment on individual performance in the group task. Specifically, hypothesis 8 predicted that the relationship between group goal commitment and individual performance in the group task would be moderated by individual goal commitment. Results did not support this interaction. However, group goal commitment

did have a positive impact on individual performance in the group task and contributed 6% of variance explained. Further, results using the original 9-item goal commitment scales also demonstrated that individual goal commitment was negatively related to individual performance in the group task, thus suggesting additive rather than interactive effects. Given the relatively a-theoretical nature of parallel team research to date, these findings suggest that group and individual goal commitment are viable mechanisms underlying members' performance in the group task, and represent an important step in theory development with respect to parallel teams.

The interaction between individual goal commitment and group goal commitment may have failed to produce the predicted results because of two statistical reasons. First, given the high correlation between individual goal commitment and group goal commitment, multicollinearity may have prevented a significant interaction. Second, the relatively restricted ranges in both individual and group goal commitment (standard deviations = .58 and .62 respectively) could have also contributed to the non-significant result.

Group Goal Priority. In addition to addressing the construct validity problem mentioned earlier, analyzing group goal priority also has the benefit of providing another look at the results involving goal commitment. Besides, the group goal priority construct has demonstrated relatively sound properties, as evidenced by the moderate correlations (in the expected direction) with related constructs such as individual and group goal commitment, as well as the performance outcomes.

Nonetheless, there are some caveats to using the group goal priority measure. First, I included it as post-hoc analyses and it obviously contradicts my earlier theoretical formulation that individual goal commitment and group goal commitment can exist

independently (however, this assertion was refuted by the U.S. data). Second, combining individual goal commitment and group goal commitment into one relative scale results in some loss of information – a case similar to the use of difference scores. For example, in examining the correlations for the individual goal commitment and group goal commitment constructs with other individual differences in the Singapore sample (I omitted the U.S. sample since the two goal commitment constructs lacked validity), I observe that conscientiousness had a positive impact on individual goal commitment, but a negative impact on group goal commitment. These individual relationships, however, were masked by the group priority scale since the latter showed no significant relationship with conscientiousness.

The post-hoc analysis on group goal priority and individual performance in the group task yielded a similar positive relationship as that of group goal commitment (7% of variance explained), thus suggesting group goal priority as a potential mechanism that mediates the relationships between the distal factors and individual performance in the group task.

Individual Differences (H1 – H3). This set of hypotheses proposed effects of individual differences on group and individual goal commitment. Overall, three individual differences consistently predicted group goal commitment regardless of how they were created (i.e., using factor analyses outcomes vs. using original scales): as predicted in H1a and H3, H-C and agreeableness were positively related to group goal commitment. Unexpectedly, however, V-C was negatively related to group goal commitment. With respect to individual goal commitment, two hypotheses were supported consistently across the two approaches of creating variables: V-C (H1b) was negatively, while conscientiousness was positively (H2b) related to individual goal

commitment.

However, in the post-hoc analyses where I regressed these individual differences on group goal priority, only agreeableness and conscientiousness demonstrated significant relationships. Specifically, agreeableness was positively, while conscientiousness was negatively related to group goal priority. The failure to replicate the effects of H-C and V-C using group goal priority should raise caution with the findings involving their relationships with group goal commitment (given the ambiguity in the nature of the goal commitment construct). Nonetheless, I offer a tentative speculation to the unexpected negative relationship between V-C and group goal commitment here. It could be due to the nature of the group involved in this study. Recall that V-C tapped at obligations to family members – a very strong "ingroup." On the other hand, the groups simulated in this study were temporary groups with no past history, nor anticipation for future interaction. This stark contrast in the nature of the group may explain why individuals who view the family ingroup as very important may view the outgroup as peripheral and hence, reacted negatively to the goal pursued by the outgroup. Earley (1993) for instance, found that collectivists working in outgroups performed worse than individualists working in outgroups. This is consistent with past research that demonstrates that the ingroup-outgroup distinction is more critical to collectivists than individualists. However, it should be noted that Earley's study employed a generic I-C scale that did not make distinctions between the horizontal and vertical dimensions. Following my interpretation of the current finding, future research interested in the influence of ingroups versus outgroups may consider using a scale such as V-C that targets a strong ingroup so that any effects would be more pronounced.

Besides the main effects found for these individual differences on group goal

commitment, post-hoc analyses demonstrated that group goal commitment mediated some of the relationships between individual differences and individual performance in the group task. Perhaps the most robust finding is that the effects of agreeableness on group task performance were mediated by group goal commitment and the related group goal priority construct, since these mediating relationships were demonstrated under both methods of creating variables (using factor analyses outcomes vs. using original scales). Hence, these findings are consistent with the distal-proximal motivational framework underlying this dissertation. In addition, they represent a contribution to current research because existing work on agreeableness has been limited primarily to traditional work teams. Besides, the impact of agreeableness on task performance has typically been equivocal. For instance, the meta-analysis by Barrick and Mount (1991) concluded that agreeableness has no impact on performance. One reason offered is that since agreeableness is associated more with social interaction rather than achievement-striving, it should theoretically have more impact on social outcomes (e.g., team viability; Barrick et al., 1998) rather than performance outcomes. However, this study suggests that agreeableness may be a more meaningful and predictive personality trait when group tasks are involved (see also Neuman & Wright, 1999). Perhaps agreeableness is an even more predictive personality trait in parallel teams when competing group and individual tasks are involved, given that the helpful and altruistic nature of agreeableness is particularly relevant to the resource dilemma posed by the competing individual and group interests.

A less consistent result was found for H-C. When variables were created based on factor analyses outcomes, H-C was fully mediated by group goal commitment in influencing individual performance in the group task. However, this mediating

relationship was not supported when variables were created using the original scales. Despite these inconsistent results, the findings provide some preliminary insight to the current state of parallel team research. First, they suggest that group goal commitment is a potential mediator for H-C with regards to performance in the group task. Second, they suggest the presence of other mechanisms not examined here that may have stronger and more consistent explanatory power concerning the H-C – group task performance link. Future attempts to replicate the existing relationships and to explore other potential mediators will help advance our current understanding of performance in parallel teams.

An interesting finding that was consistent across the two approaches to creating variables is the lack of mediation for conscientiousness and individual performance in the group task. Instead, results showed a direct positive relationship, suggesting the possibility of a different mechanism for conscientiousness other than group goal commitment or priority. One reason why the effect of conscientiousness on performance in the group task is not mediated by the same mechanism as agreeableness (and plausibly H-C) could be due to the fact that unlike H-C and agreeableness, conscientiousness does not explicitly involve concern for others. In fact, results showed that prior to the commencement of the tasks, conscientious individuals were more likely to report greater individual goal commitment, and lower group goal priority than those with low conscientiousness. However, it appears that despite the greater concern to get their own job done, conscientious parallel team members still performed better in the group tasks than their less conscientious counterparts. It could be that the dependable nature of conscientious individuals induces a sense of responsibility toward the group, which subsequently over-rides the initial commitment to achieving the personal goal.

Task Interdependence and Team Leader Status (H4-H5). Hypotheses 4 and 5

respectively predicted that group task interdependence and group leader status would have a positive impact on group goal commitment. Both hypotheses were not supported. Neither were they supported when group goal priority was used as the dependent outcome in my post-hoc analyses. This lack of results may be due to several reasons.

The first is a generalizability issue. Almost all the existing studies conducted on group task interdependence and leader authority/power involved traditional teams, where participants were full-time group members. As such, little is known whether the effects of such group structural interventions generalize to parallel teams where members have fewer interactions within the teams, and have their own responsibilities outside the teams. It could be that the presence of an individual task might have overwhelmed the motivating potential of such team structural interventions. Or, it could be that because different individuals in parallel teams reacted differently to task interdependence and leader status, the simple main effects of these interventions on individual performance in the group task were masked. I discuss the interaction effects in greater detail in the next subsection.

The second reason why task interdependence and leader status did not influence outcome variables of interest is a methodological explanation. An issue is the strength of the task interdependence and leader status manipulations. I noted earlier that although both manipulation checks were significant in the predicted direction, the variance explained by the actual manipulations were 15% and 33% for task interdependence and leader status. Even though these levels of variance explained are not uncommon in experimental studies, it could be insufficient to invoke the expected reactions from subjects in this particular setting.

Another explanation for the lack of results related to the manipulations is that it is

individuals' perceptions, rather than objective realities, that matter (Weick, 1977). First, I tested the plausibility that demographic, values and personality would affect individuals' perceptions of task interdependence and team leader status. Results, however, provided only very weak support: female subjects tended to report higher leader status, while agreeable subjects tended to report lower leader status. The former finding could be due to the fact that because women generally occupy less dominant and powerful roles compared to men (Eagly, 1987; Eagly and Wood, 1991), they tend to perceive greater hierarchical distance between themselves and their leaders. The negative impact of agreeableness on perceived leader status is less clear. One speculation is that perhaps because less agreeable people are generally more hostile toward others, they put a greater hierarchical distance between themselves and their leaders.

Post-hoc results also show that perceived task interdependence had a positive impact on group goal commitment (and group goal priority), thus providing some support for H4. However, it should also be cautioned that since perceived task interdependence and group goal commitment (goal priority) were self-reported measures, their relationships could be artifacts of a response-response bias. Perceived leader status did not have a significant relationship with either group goal commitment or group goal priority.

Notwithstanding the lack of support for H4 and H5, it is interesting and important to note that task interdependence and team leader status (as objective realities) are negatively correlated with individual task performance (for task interdependence: $r = -.27$, $p < .01$; for leader status: $r = -.11$, $p < .10$). These relationships imply that while having a highly interdependent team task and a high status team leader generally failed to motivate parallel team members to contribute more to the group, they actually detracted

from their individual task performance. Hence, it seems that the dilemmas created by the dual- task nature of parallel teams are not restricted to parallel team members alone; organizations, in structuring parallel teams to foster member contribution, may risk detracting parallel team members from their personal job duties. This may in turn incur huge costs to the organizations.

Interactions between structural and individual factors (H6-H7). H6 predicted that high task interdependence would dampen the effects of collectivism (H6a), conscientiousness (H6b) and agreeableness (H6c) on group goal commitment. Under the first method of creating variables (i.e., based on factor analyses outcome), results show that only the interactions involving H-C and conscientiousness were significant. Further, only the H-C X task interdependence interaction conforms to the situational strength argument in that the slope between H-C and group goal commitment is weaker under high task interdependence than under low task interdependence (see Figure 5). For the interaction involving conscientiousness, a completely cross-over graph is obtained (see Figure 6), demonstrating that high task interdependence has a positive impact on the group goal commitment of individuals with low conscientiousness, but a negative impact for those with high conscientiousness.

When variables were created based on their original scales, the interaction between task interdependence and conscientiousness was not significant. However, the post-hoc analysis that replaced group goal commitment with group goal priority yielded a significant interaction for task interdependence and conscientiousness regardless of the method of creating variables, thus suggesting a rather robust finding. The form of the interaction (see Figure 7) – a completely cross-over graph, was similar to the earlier interaction involving group goal commitment. (It should be noted again that since the

interaction between H-C and task interdependence was not significant when group goal priority was replaced as the outcome variable, the interaction should be interpreted with caution).

According to these interactions, the unintended consequence of high task interdependence for high conscientious individuals is potentially insightful. In a recent study of college students by Shaw, Duffy and Stark (2000), the authors found a similar negative impact of task interdependence for group members who had low preference for group work. Interestingly, the authors also found that ability was negatively related to preference for group work. Taken together, Shaw et al.'s findings may help interpret the unintended consequence of task interdependence on high conscientiousness individuals reported here. Perhaps because individuals with high conscientiousness had higher levels of ability, they had lower preference for group work, and thus, when placed in an incongruous situation of high task interdependence, reported lower levels of group goal priority (or commitment).

The next set of hypotheses predicted that team leader status would moderate the effects of H-C, V-C, conscientiousness and agreeableness on group goal commitment. Results were consistent across the two approaches to creating variables, and showed that none of the interactions was significant. However, when leader status was replaced with perceived leader status, three significant interactions emerged under both methods of creating variables. As highlighted in the earlier section, this discrepancy could be attributed to a weak manipulation of leader status, a social constructionist explanation, common method bias, or a combination of the three. Nonetheless, a discussion of these post-hoc interactions can potentially provide some important insight to parallel teams.

Two interactions involving H-C and agreeableness are similar in form, as

demonstrated in Figures 8 and 9 respectively. The third interaction involving conscientiousness (Figure 10) yields a slightly different picture. Across all the three interactions, perceived leader status has a positive impact on the group goal priority of individuals with high H-C, high agreeableness, and high conscientiousness. The difference between conscientiousness and the other two interactions (i.e., H-C and agreeableness) lies with the effect of perceived low leader status on group goal priority: while low perceived leader status has a weak positive impact on individuals with high H-C and agreeableness, it has a negative impact on those with high conscientiousness. All these interactions also demonstrate that Mischel's (1977) situational argument did not apply to the current context, thus refuting the general logic underlying Hypothesis 7.

Interestingly, the form of the interaction demonstrated by H-C and agreeableness is similar to the form of interaction predicted for V-C and team leader status in H7b (see Figure 3). I argued in H7b that because vertical collectivists are deferent to authority, they are likely to perceive group goal as considerably more important when they are led by a leader who has high status, than when led by a leader who has little status. Hence, it appears that even though individuals high in H-C, conscientiousness and agreeable people are not, theoretically, more sensitive to status differences than those low in these dimensions, they responded more to authority in terms of prioritizing their goals in this study.

The interaction involving conscientiousness is especially intriguing when juxtaposed with the interaction between conscientiousness and task interdependence: (perceived) leader status and task interdependence had opposite effects on individuals with high conscientiousness – they respond positively to leader status, but negatively to task interdependence. Perhaps the achievement-oriented nature of conscientious

individuals predisposes them to view the group task assigned by a high status leader to be more critical in demonstrating their competence, compared to a group task assigned by a low status leader (since high status leaders are often construed as having greater reward power). On the contrary, as discussed earlier, high task interdependence may have lowered their motivation because of their preference for independent work, thus reducing their group goal priority.

In the next section, I discuss the implications of these findings on research and practice.

Implications

On theory. This study uses parallel teams as a context to investigate a multiple-goal environment in which two goals (an individual goal and a group goal) compete for individuals' limited resources. Given the scarcity of research on multiple goals (e.g., Austin & Vancouver, 1996; Kernan & Lord, 1990), there is a need for a greater understanding of what factors and mechanisms drive individuals' reactions to multiple-goal striving. Besides highlighting the importance of studying multiple-goals, this research extends previous research in several ways. First, I extend the goal commitment construct to a multiple-goal setting. Specifically, I argued that parallel team members will develop two distinct sets of goal commitment: one for their individual goal, and one for their group. Second, I proposed, and demonstrated to some extent, that goal commitment and its related group goal priority construct can be construed as proximal constructs that mediate the effects of individual differences on task performance. Third, I expanded the range of the antecedents of goal commitment to include individual differences such as collectivism, conscientiousness, agreeableness, and team design factors such as task interdependence and team leader status.

As discussed in the earlier section, results provided support to some of my predictions, but raised many important questions as well. Perhaps the most critical question is whether my construal of two distinct sets of goal commitment is viable. Results based on the U.S. subjects seemed to refute that, although methodological flaws may have influenced these. As mentioned before, it could be the timing of the questions, or the strong social desirability cues invoked by an experimental context, that prevented discrimination between commitment to the individual goal and to the group goal. To address the first issue, future research can measure goal commitment halfway in an experiment, when subjects actually feel the tension between achieving the individual and group goals. To address the second issue, field studies involving real parallel teams may alleviate the strong social desirability cues evoked by experimental settings, and thus, allow another look at the viability of having distinguishable sets of goal commitment.

Nonetheless, results of this study provided encouraging support for the group goal priority construct – a relative measure that taps at individuals' group goal commitment vis-à-vis their individual goal commitment. Even though the current measure is tailored to the context of parallel teams (individual and group goal), future research interested in multiple goals can modify the items to suit their specific context of interest.

In addition, the findings that group goal commitment mediated the effects of agreeableness on individual performance in the group task also inform existing research in several ways. First, existing studies on multiple goals (Kernan & Lord, 1990; Schmidt et al., 1984) have typically focused on the effects of structural factors (e.g., reward, specificity of goal, feedback), rather than individual differences. Thus, the current dissertation extends previous multiple goal studies by demonstrating that personality (and potentially cultural variables) can be important factors to consider in multiple-goal

striving situations.

Second, these findings also inform personality research in two ways. First, the absence of a measured mediating variable in most personality research may explain why very few studies have found a direct relationship between agreeableness and task performance (e.g., Barrick & Mount, 1991). Second, it also suggests that while conscientiousness may seem to have a similar positive effect on performance in the group task as agreeableness, it does so through a different mechanism. Thus, future research should explore what are the different mechanisms driving the effects of agreeableness and conscientiousness on group members' performance. This is potentially important because the different motivational bases of agreeable and conscientious group members suggest that they are likely to react differently to different situations and/or interventions.

Results of this dissertation also suggest a less positive, more qualified evaluation of task interdependence as a team structural intervention to elicit cooperation from team members. First, task interdependence as an objective reality, did not have a direct impact on group goal commitment or individual performance in the group task. Although perceived task interdependence was found to influence group goal commitment (and group goal priority) positively, the potential inflation of results due to common method bias suggests that future research should attempt to replicate the finding. Nonetheless, Magjuka and Baldwin's (1991) study may provide some supporting evidence that perceived task interdependence can be beneficial to parallel teams. In a study of employee involvement programs (a form of parallel team), the authors found that heterogeneous teams (i.e., teams where members come from diverse jobs) evaluated their team performance more positively than homogeneous teams, presumably because they were more likely to perceive that they had greater informational variety and richness as a

result of the diverse backgrounds of their members. Indirectly, such diversity could be construed as a form of "resource interdependence" (Johnson, Johnson, & Stanne, 1989) whereby members perceive that individuals in the group possess unique resources that are required for successful execution of the group task.

Second, given that task interdependence is shown to affect the group goal commitment of individuals with high H-C (and possibly high conscientiousness) negatively, this study extends the existing literature by suggesting some boundary conditions to the motivating potential of task interdependence (e.g., Kerr & Bruun, 1983; Kiggundu, 1983; Pearce & Gregersen, 1991; Saavedra et al., 1993; Wageman, 1995). One boundary condition is the type of teams examined. Most existing studies on task interdependence were conducted with traditional teams engaged full-time in the group task, rather than a parallel team where members had their own tasks to manage as well. Another boundary condition is individual differences, since the majority of the existing studies did not examine how different individuals may react differently to task interdependence. Thus, future research should continue to examine the generalizability of the motivating potential of task interdependence to other types of teams, and to different types of individuals.

Even though the results involving team leader status are generally disappointing, some preliminary insights gained from this study should receive further attention in future research, given the prevalence of hierarchical relationships in organizations. For instance, the findings that individuals with high H-C, high conscientiousness, and high agreeableness reported greater group goal priority when they perceived having a high status leader, compared to individuals with low scores on this dimensions, suggest that the personality of subordinates may be an important consideration for future leadership

research (Phillips & Bedeian, 1994). This is consistent with Hollander's (1992) recommendation that leadership research should develop a more active conception of the follower role in reacting to leader qualities.

Finally, this study also raises questions concerning Hofstede's (1984) dated findings on I-C, and suggests that the conventional wisdom that U.S. is relatively more individualistic than countries in Asia should be reexamined for three reasons. First, as demonstrated in this study, there are at least two types of collectivism (horizontal and vertical) that can distinguish two countries in opposite directions. Given that Hofstede's study used a broad-based measure of I-C, the finer distinctions in collectivism among these countries are lost. Second, Hofstede's study also did not differentiate between the different states from which the U.S. responses were collected (understandably so, since their his focus was to compare across countries). Yet, there can be substantial variation in I-C even within the U.S. alone (Vandello and Cohen, 1999), with the Deep South reported as being the most collectivistic. Michigan, according to the study, was ranked in the middle. Hence, to maximize the range on I-C, future research involving cross-cultural samples between U.S. and other countries could consider the U.S. state in which the study will be conducted, or could collect data from multiple geographic areas in the U.S.

The third reason why Hofstede's findings could be dated is due to the rapid economic development of Asia in the past decade. As a result of the economic affluence and the influx of modernity, the societal and personal values of Asians may have changed gradually over the years to be more individualistic in nature.

In light of these reasons, and consistent with the advice of many scholars (e.g., Lytle et al., 1995), cross-cultural research should be theoretically grounded on specific dimensions of cultural values, rather than based on the broad and fuzzy distinction

provided by national boundaries.

On Practice. What are some of the lessons learned from this research and how can they inform practice?

First, organizations adopting parallel teams need to be aware of the inevitable trade-off in the performance outcomes of team members in their individual and group tasks. This is an obvious, but critical point, since the trade-off can incur serious consequences for the organization. Often times, employees may lack the bigger perspective to realize which of the two tasks is more critical to the organization. When left on their own, they may inappropriately invest more time and energy in one preferred task at the expense of the other. This also suggests that communication between supervisors of parallel teams and supervisors of the functional areas from which parallel team members are drawn is critical. Such communication can potentially enhance supervisors' understanding of their employees' workload and reduce the level of role conflict experienced by parallel team members (Colquitt, 1999), which can otherwise be detrimental to members' affect and even physical health (Kahn, 1981). This communication can also take the form of setting appropriate priorities for parallel team members, so that the larger organizational interests can be made known to them. In this way, organizations are more likely to reap the benefits intended from parallel teams.

This study also sheds light on two forms of interventions that managers may consider in implementing parallel teams. The first relates to the selection of parallel team members – which type of employees is more suitable for parallel teams? According to this study, the most unequivocal personality found to predict group goal commitment, and consequently, individual performance in the group task, is agreeableness. Hence, agreeable employees are potentially good candidates, to the extent that they have the

requisite ability for the job, and that the group task is of considerable significance to the organization. Choosing agreeable employees to be part of a team that serves only a minor function, however, runs the risk of detracting them from their own regular jobs, which may be costly to the organizations.

Conscientious employees may be the most ideal in terms of managing a balance between both individual and group tasks. On the one hand, they are unlikely to neglect their individual tasks since they generally tend to view their personal goal achievement to be more important than their group goal achievement. On the other hand, their dependable nature is likely to induce them to contribute more to the group compared to the less conscientious individuals.

Choosing employees based on their collectivism values may be a trickier issue. Results of this study demonstrate that it is important for managers to distinguish between two types of collectivism – horizontal (a concern for harmony and cooperation) and vertical (a concern for group solidarity and authority). Such a distinction is important because given the "part-time" nature of parallel teams, vertical collectivists may view such teams as peripheral and an interference to their personal jobs. Horizontal collectivists, on the other hand, seem to embrace parallel teams better as they are more likely to demonstrate greater commitment to the group goal compared to those with low H-C.

The second form of intervention is the structural design of parallel teams. Results of this study imply that a blanket adoption of highly interdependent tasks in the team, or appointing a senior company official to head the team, may not be wise. For instance, these team interventions may actually detract parallel team members from their personal duties. Besides, not everyone responds favorably to them. For instance, task

interdependence may backfire for parallel team members are who are high in conscientiousness. Similarly, the motivating potential of a high status team leader may differ across countries, thus requiring the manager to consider carefully the local cultural norms and values toward authority and power. One finding that emerged from this study is that high team leader status elicited opposite reactions from subjects in the U.S. and Singapore, thus highlighting the importance of tailoring the leadership intervention to the local context.

Limitations

There are several issues and limitations in this study that deserve some discussion. First, the effect sizes reported in this study are generally small, thereby raising the question of how important and relevant these findings are. However, using Abelson's (1985) batting example, minuscule values of variance explained in one single episode can cumulate over time to provide a substantial amount of explanation for a phenomenon in the long run. I contend that this cumulation of small effect sizes can indeed occur in parallel teams where members work on a series of short-term projects. Besides, the practical significance of these findings can be substantial if the parallel team is formed for a critical purpose where poor performance can result in huge costs to the organization.

The second issue deals with the experimental nature of the study. While the laboratory setting provided a tighter control over potential confounds or contaminants, it also resulted in a contrived parallel team setting. Specifically, I had used two similar tasks for the individual and group work. In real life, however, many parallel teams are formed for projects that may differ substantially from the regular work duties that the group members have. Nonetheless, having two similar tasks was imperative, given that my primary interest lies with team members' values/ personality and the team's structural

features, not the nature of the tasks. Also, the temporary nature of the teams (as with other research studies conducted with teams in a laboratory setting) meant that the study could not model the complex dynamics of real-life teams. However, this criticism may be mitigated by the fact that parallel teams in organizations, unlike full-time teams, typically have shorter life span characterized by relatively limited interactions among group members.

Third, it should be noted that Singapore and the U.S. differed on a variety of cultural and contextual dimensions other than the cultural values examined in this model. Even though the predictions of this study were focused on the variation in specific cultural dimensions, some country influences were evident, and for which I had no clear explanation.

Future directions

Given the paucity of research conducted with parallel teams, there are still many questions that future research can and should address. Obviously, one important need is to replicate the findings reported here in order to test the robustness of the experimental results. For instance, a field survey conducted with employees who are involved in parallel team initiatives can provide critical evidence concerning the discriminability of individual goal commitment and group goal commitment. The effects of task interdependence and team leader status should also receive further investigation, perhaps with more levels of manipulation, and/or with more fine-grained dimensions. For instance, future research can manipulate more contrasting levels of task interdependence (e.g., pooled versus team interdependence -- Saavedra et al., 1993) and team leader status (e.g., supervisor versus peer vs subordinate) in order to increase the variance of the independent variables. Research can also investigate other forms of interdependence

(e.g., task versus goal interdependence; Wageman, 1995) and various operationalizations of status that may be relevant to the culture that is being sampled (e.g., gender, education, age; Earley, 1999). For instance, according to Earley's (1999) study, gender, race/ethnicity and age are three demographic characteristics that managers in the U.S. cited as important markers that are used to judge the amount of status (or relative power) a stranger has. Given that the team leader in the current dissertation is unknown to participants, perhaps future study can either replace or combine the current status manipulation with these demographic variables to strengthen the manipulation of leader status.

Based on this dissertation, several extensions can also be made to enrich our understanding of parallel teams. To begin with, future research should establish empirically one assertion that I have made in this dissertation: that parallel team members may have viewed their teams more as an "outgroup" than an "ingroup" due to the temporary and part-time nature of the team (compared to members in traditional full-time teams). Although this may seem superfluous given the obvious differences in the nature of parallel teams versus full-time traditional teams, this assertion remains a theoretical speculation until research has empirically proven it to be true. Besides, the degree to which parallel team members perceive their team to be an ingroup/outgroup may itself be a substantive variable of interest. In particular, parallel team members who score high in vertical collectivism may be especially affected by their perception of ingroup-outgroup membership (assuming there will be sufficient variance in the ingroup-outgroup variable even within parallel teams). Thus, future research should consider incorporating perceptions of ingroup-outgroup membership not only to establish the difference between parallel teams and full-time teams, but also to test for its moderating potential with

regards to the values and personality of parallel team members.

One boundary condition imposed in the current dissertation is the fixed amount of time given to participants to work on the individual and group tasks. In real life, however, employees often have a greater flexibility in expanding the amount of time for their work. Thus, future research may relax this boundary condition and design studies that allow participants to work longer on their tasks if they choose to. Such studies can be potentially insightful for ascertaining what personality or value characteristics may predict parallel team members' willingness to work longer hours in order to complete both their individual and group assignments.

Another avenue for future research is to adopt a different theoretical angle to studying parallel teams. Role theory (Katz & Kahn, 1978), for instance, may provide a potentially interesting and relevant perspective. Unlike the current view of parallel team members as relatively passive role-takers (who try to manage between their individual and group tasks), future studies may examine parallel team members as active role-makers who may manage their multiple roles by attempting to influence various role-senders (e.g., direct supervisor and team leader) (e.g., Graen, 1976; Graen & Scandura, 1987). The presence of multiple roles also suggests that role constructs such as role conflict or role overload maybe important mediating mechanisms to parallel team members' stress and other negative reactions.

Following from the above, a relevant framework for examining parallel team members' potential dissatisfaction is the exit-voice-loyalty-neglect framework (Hirschman, 1970; Rusbult, Farrell, Rogers & Mainous, 1988), which offers a comprehensive typology of employee reactions to workplace dissatisfaction. Specifically, exit refers to leaving the organization (or in this case, the team). Voice refers to active

efforts undertaken to improve conditions, such as discussing problems with supervisors. Loyalty means passively but optimistically waiting for conditions to improve. Neglect refers to passively allowing conditions to deteriorate through reduced interest or effort. The performance in the group task variable examined in this dissertation is perhaps closest to "neglect" in the framework, since poor performance in the group task is symptomatic of reduced interest and/or effort in the group task. Future research may consider looking into behaviors that are opposite of neglect, such as helping and related extra-role behaviors in parallel teams (Van Dyne et al., 1995). Or, future research can also look into other outcome variables associated with exit, voice, and loyalty. This is important because exit has been found to be a problem plaguing the quality circles examined by Adam (1991); voice may be crucial for parallel team members especially if they are to seek help or solutions when faced with role overload or conflict; and loyalty is essential if it is desirable that members stick with the teams regardless of their individual workload.

Future efforts should also be directed to focus on the process in which parallel team members allocate their time and effort to their individual and group tasks. This is an interesting question that can yield critical insight as to how parallel team members cope with their multiple-goal striving. For instance, the criterion that members use to decide when to stop working on one task and move to the other may differ from one person to another. Some may use the degree of completion on one task as a marker, such as moving on to the group task only when the individual task has been completed. Others may use time as a marker, such as moving on to the group task when half the time has been used up. These different processes of managing the two tasks not only reflect the motivational bases of parallel team members, but can also have potential implications on their task

performance in dynamic real-life situations. For instance, parallel team members described in the first instance may never get down to working on their group task if their individual work is continually being piled on them. Parallel team members described in the second instance may have less than the expected amount of time to work on their group task, if the total amount of time allotted is suddenly shortened.

Future research should also examine more structural interventions, both at the team and organizational level, for their effects on parallel team members' commitment to their group task. At the team level, one potential factor to consider is accountability to team members or to the team leader for one's portion of the work. Since accountability has been found to reduce social loafing in traditional teams (e.g., Earley, 1989), future research may examine whether such benefits extend to parallel teams. Also, having parallel team members be accountable to the group leader can also have the benefit of enhancing the relevance of the status of the leader.

In addition, future research should also consider the broader organizational context, which can have a substantial impact on the amount of legitimacy and resources accorded to parallel teams. Potentially relevant factors include organizational culture (group-oriented versus individual-oriented), reward system (independent versus interdependent versus mixed), the extent to which parallel teams are used in the organizations, and training programs in time and stress management.

Finally, in order to arrive at a robust set of findings and recommendations for parallel teams, future research need to engage in various methodologies (e.g., survey, laboratory experiment, experimental simulation, field study with primary and secondary data, field experiment, judgment task, etc.). Such triangulation of results can enhance the internal and external validity of our findings (Campbell & Fiske, 1959; Scandura &

Williams, 2000), and thus, increases the confidence and clarity of our recommendations to managers currently involved or interested in parallel teams.

Conclusion

Results of this dissertation demonstrated that individual differences and goal commitment/priority are important factors that can influence parallel team members' performance in their group task. Nonetheless, the unsupported and unexpected findings of task interdependence and leader status (and their interactions with individual differences) also raise many interesting research questions that future research can examine. Given the increasing popularity of parallel teams in organizations, and the paucity of studies conducted on them, there is a real need for academic research to gain a greater understanding of how parallel team members cope with their individual and group tasks.

APPENDICES

APPENDIX A

EXPERIMENTAL MATERIALS

CONSENT FORM

This study simulates a day at work as a manager.

If you choose to participate, you will be asked to take part in a 90-minute study conducted on campus, and to complete a personality questionnaire in class. In exchange for your participation, you will receive the FULL miscellaneous points for your MGT 325 class. You also stand a chance to win a small cash award if you do well. If you choose not to participate in this study, you can approach your instructor for alternative miscellaneous credit exercises. Hence, your participation in this research is STRICTLY voluntary. You are free to decline to answer any questions or terminate your participation at any time. YOUR RESULTS WILL BE KEPT PRIVATE AND CONFIDENTIAL, to the maximum extent allowable by law.

If you have any questions or concerns concerning this study, please contact Linn Van Dyne in the Management Department at 353-5415, or at vandyne@msu.edu.

CONSENT STATEMENT

My signature below indicates that the procedures of the study have been explained to me and that my participation is strictly voluntary.

Participant's Name (please print): _____

Participant's Signature: _____

Date: _____ Group #: _____

Gender (M or F): _____

No. of years of working experience (if any) : _____

SAMPLE BACKGROUND INFORMATION
(High Team Leader Status – Support Department)

Instruction: In the next 90 minutes, please imagine yourself assuming the role of a junior manager in a large manufacturing firm. Please read the following information carefully in order to better understand your job scope in the company. Please also refer to the organizational chart provided here so that you know where you are located in the hierarchies of the firm.

Company background. HomeTech Manufacturing Inc. is a large public listed company that manufactures a wide range of household products. HomeTech has approximately 20,000 employees located in various parts of the U.S. You were hired by the Michigan office four years ago, and **you are now a junior manager in the SUPPORT department.** You like the corporate culture, and have found your job as a manager challenging and fulfilling (please turn over to see the organizational chart).

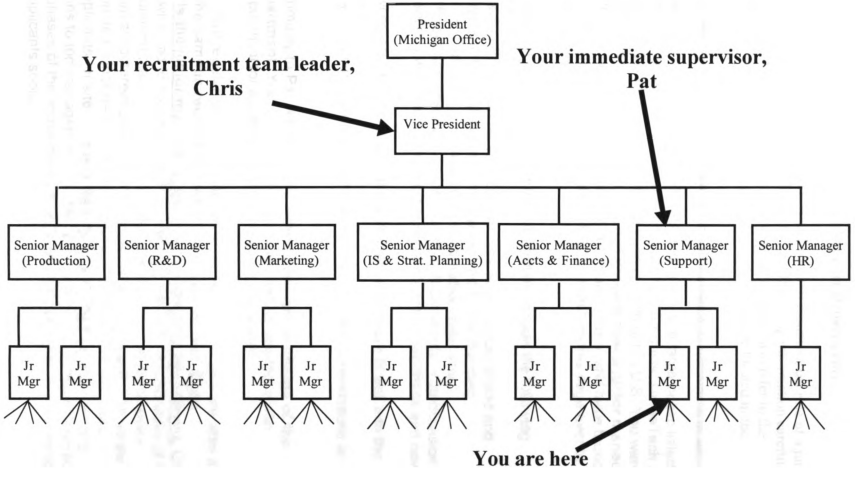
As a junior manager, your primary job responsibilities include the following:

1. Oversee subordinates under your charge. You need to plan ahead and delegate work to the appropriate employees, and to monitor their performance. Currently, you have **20 subordinates** under you.
2. Ensure efficient and effective services to other departments. You occasionally initiate meetings with the heads of other departments for feedback and new ideas.
3. Train newcomers. You need to make sure that newcomers fit well into the department.
4. Evaluate your subordinates and provide merit bonus recommendations at year-end.

You report primarily to **Pat Neuwen, the senior manager in-charge of the support department**. You are known to him as a capable employee with tremendous potential for advancement up the corporate ladder.

In addition to your regular job responsibilities described above, **you are also a member of the campus recruitment team. Your team leader, Chris Sanderson, is the vice-president of the firm.** Chris was the one who championed the idea of a recruitment team that is staffed by managers from different divisions. Currently, the recruitment team consists of junior managers from six different divisions of the firm, including yourself. The scope of the recruitment team includes three major phases: planning campus visits, screening applicants for site visits and interviews, and finally, recommending hiring decisions to top management. By this time of the year, you have finished the first two phases of the recruitment process, and are expected to proceed to evaluating applicants soon.

SAMPLE ORGANIZATIONAL CHART – HIGH LEADER STATUS
HOMETECH MANUFACTURING INC.



SAMPLE BACKGROUND INFORMATION
(Low Team Leader Status – Support Department)

Instruction: In the next 90 minutes, please imagine yourself assuming the role of a junior manager in a large manufacturing firm. Please read the following information carefully in order to better understand your job scope in the company. Please also refer to the organizational chart provided here so that you know where you are located in the hierarchies of the firm.

Company background. HomeTech Manufacturing Inc. is a large public listed company that manufactures a wide range of household products. HomeTech has approximately 20,000 employees located in various parts of the U.S. You were hired by the Michigan office four years ago, and **you are now a junior manager in the SUPPORT department.** You like the corporate culture, and have found your job as a manager challenging and fulfilling (please turn this page over to see the organizational chart).

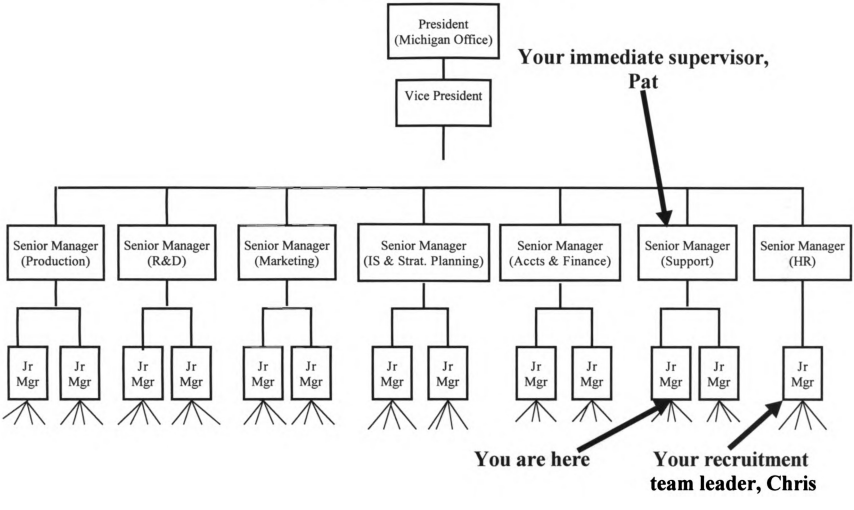
As a junior manager, your primary job responsibilities include the following:

5. Oversee subordinates under your charge. You need to plan ahead and delegate work to the appropriate employees, and to monitor their performance. Currently, you have **20 subordinates** under you.
6. Ensure efficient and effective services to other departments. You occasionally initiate meetings with the heads of other departments for feedback and new ideas.
7. Train newcomers. You need to make sure that newcomers fit well into the department.
8. Evaluate your subordinates and provide merit bonus recommendations at year-end.

You report primarily to **Pat Neuwen, the senior manager in-charge of the support department**. You are known to him as a capable employee with tremendous potential for advancement up the corporate ladder.

In addition to your regular job responsibilities described above, **you are also a member of the campus recruitment team. Your team leader, Chris Sanderson, is the junior manager in the Human Resource department.** Chris was the one who had to coordinate with all team members on the activities of the campus recruitment team. Currently, the recruitment team consists of junior managers from six different divisions of the firm, including yourself. The scope of the recruitment team includes three major phases: planning campus visits, screening applicants for site visits and interviews, and finally, recommending hiring decisions to top management. By this time of the year, you have finished the first two phases of the recruitment process, and are expected to proceed to evaluating applicants soon.

SAMPLE ORGANIZATIONAL CHART – LOW LEADER STATUS
HOMETECH MANUFACTURING INC.



APPENDIX B

MEASURES

Individualism-Collectivism Scales

Singelis et al.'s (1995) H-C items

1. If a co-worker gets a prize, I would feel proud.
2. The well-being of my co-workers is important to me.
3. To me, pleasure is spending time with others.
4. I feel good when I cooperate with others.
5. It is important for me to maintain harmony within my work group.
6. My happiness depends very much on the happiness of those around me.
7. If a group member were in difficulty, I would help within my means.
8. I like sharing little things with my group members.

Singelis et al.'s (1995) V-C Items

9. Parents and children must stay together as much as possible.
10. It is my duty to take care of my family, even when I have to sacrifice what I want.
11. Family members should stick together, no matter what sacrifices are required.
12. I would do what would please my family, even if I detested that activity.
13. I would sacrifice an activity that I enjoy very much if my family did not approve it.
14. Children should be taught to place duty before pleasure.
15. I hate to disagree with others in my group.
16. I usually sacrifice my self interests for the benefit of my group.

Singelis et al.'s (1995) H-I Items

17. I often "do my own thing."
18. I prefer to be direct and forthright when I talk with people.
19. One should live one's life independently of others.
20. What happens to me is my own doing.
21. I enjoy being unique and different from others in many ways.
22. I am a unique individual.
23. I like my privacy.
24. When I succeed, it is usually because of my abilities.

Singelis et al.'s (1995) V-I Items

25. Winning is everything.
26. It annoys me when other people perform better than I do.
27. It is important to me that I do my job better than others.
28. I enjoy working in situations involving competition with others.
29. Competition is the law of nature.
30. When another person does better than I do, I get tense and aroused.
31. Without competition, it is not possible to have a good society.
32. Some people emphasize winning. I am not one of them.

Triandis and Gelfand's (1998) Items

33. It is important to me that I respect the decisions made by my groups (V-C).
34. I'd rather depend on myself rather than others. (H-I)
35. I rely on myself most of the time; I rarely rely on others. (H-I)
36. My personal identity, independent of others, is very important to me. (H-I)

Other I-C Items Reported in Wagner's (1995) Study

37. Only those who depend on themselves get ahead in life.
38. To be superior, a person must stand alone.
39. If you want something done right, you've got to do it yourself.
40. What happens to me is my own doing.
41. In the long run, the only person you can count on is yourself.
42. I prefer to work with others in a group rather than working alone.
43. Given the choice, I would rather do a job where I can work alone rather than doing a job where I have to work with others in a group.
44. Working with a group is better than working alone.
45. People should be made aware that if they are going to be a part of a group then they are sometimes going to have to do things they don't want to do.
46. People who belong to a group should realize that they're not always going to get what they personally want.
47. People in a group should realize that they sometimes are going to have to make sacrifices for the sake of the group as a whole.
48. People in a group should be willing to make sacrifices for the sake of the group's well-being.
49. A group is more productive when its members do what they want to do rather than what the group wants them to do.
50. A group is most efficient when its members do what they think is best rather than doing what the group wants them to do.
51. A group is more productive when its members follow their own interests and concerns.

Individual (Group) Goal Commitment (Adapted from Hollenbeck et al., 1989)

1. It's hard to take the goal for my **individual (group) task** seriously.
2. It's unrealistic for me to expect to reach the goal for my **individual (group) task**.
3. It is quite likely that the goal for my **individual (group) task** may need to be revised, depending on how things go.
4. Quite frankly, I don't care if I achieve the goal for my **individual (group) task** or not.
5. I am strongly committed to pursuing the goal for my **individual (group) task**.
6. It wouldn't take much for me to abandon the goal for my **individual (group) task**.
7. I think the goal for my **individual (group) task** is a good goal to shoot for.
8. I am willing to put forth a great deal of effort beyond what I'd normally do to achieve the goal for my **individual (group) task**.
9. There is not much to be gained by trying to achieve the goal for my **individual (group) task.**

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