ANTECEDENTS AND CONSEQUENCES OF COLLECTIVISTIC GROUP

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By

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ABSTRACT

Collectivism refers to a tendency to value group membership and collective responsibility. Much of what we know about how collectivism influences team effectiveness is drawn from research that has assumed collectivism to be determined by either cultural contexts (e.g., Hofstede, 1980), or individual differences (e.g., Triandis, Leung, Villareal, & Clack, 1985). Based largely in social psychology, another perspective is emerging in which collectivism is viewed as a group norm within a team. The issue of collectivistic group norms within teams has yet to be examined in relation to team effectiveness outcomes, and may help to explain phenomena that have yet to be fully explained by cultural contexts or individual differences. In a longitudinal study of 60 self-managing teams performing a human resources management simulation, collectivistic group norms was positively associated with collective efficacy and team performance after controlling for the individual difference measure of psychological collectivism. Although psychological collectivism was positively associated with collectivistic group norms, only the two psychological collectivism sub-dimensions of concern and norm acceptance were positively associated with collectivistic group norms while no associations were found between collectivistic group norms and the remaining three sub-dimensions of preference, reliance, and goal priority. Collective efficacy fully mediated the association between collectivistic group norms and team performance. Collectivistic group norm sharedness moderated the associations between collectivistic group norms and

collective efficacy, and collectivistic group norms and team performance. This study is among the first to introduce collectivistic group norms to the organizational behaviour literature and to use collectivistic group norm sharedness to account for unique variance in collective efficacy and team performance.

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CHAPTER 1: INTRODUCTION

Over the past several decades, organizations have experienced dramatic environmental changes due to factors such as globalization, technological innovation, and increasing demographic and cultural diversity in the workplace (Kozlowski & Bell, 2003). These ongoing competitive pressures have forced organizations to create jobs that utilize a greater depth and breadth of employee knowledge, skills, abilities, and experience. These pressures have also had an impact on the way work is structured such that many organizations have moved away from individually-oriented jobs in favour of team-based jobs (Devine, Clayton, Phillips, Dunford, & Melner, 1999; Lawler, Mohrman, & Ledford, 1992; Mathieu, Marks, & Zaccaro, 2001). Thus, modern organizations now frequently use work teams to address organizational concerns (Kozlowski, Gully, Nason, & Smith, 1999). Examples include the use of permanent teams to schedule the production of tangible products and the use of short-term project teams to perform specialized work over a predetermined period of time.

Academic interest in team effectiveness research has been strong for decades, and appears likely to continue in the face of these dramatic changes in work structure and decentralization (Kozlowski & Bell, 2003; Kozlowski & Ilgen, 2006). One sign of the importance and magnitude of this body of research is that Cohen and Bailey's (1997) review of the work teams literature has been cited well over 500 times. Similarly, a recent review of the team effectiveness literature

spanning the decade following Cohen and Bailey's paper (Mathieu, Maynard, Rapp & Gilson, 2008) included 312 citations even though the authors described their review as selective. While a great deal of progress has been made toward understanding the factors that influence team effectiveness, Mathieu et al. (2008) noted that many unanswered questions remain. Although they highlighted numerous opportunities for future research, one that is relevant to the current study is the need to understand the antecedents of group confidence perceptions. As I will explain below, another area in need of future research is the relationship between collectivism and team processes and outcomes. Mixed findings from prior research have created confusion regarding the manner in which collectivism influences team functioning. In the rest of this chapter I will briefly introduce the main concepts that form the foundation of the dissertation.

1.1 Significance of this Research

A central construct of this research is group norms, which refer to shared team member expectations (Feldman, 1984). Prior research has found that group norms are important factors influencing team outcomes (Levine & Moreland, 1990) and that these shared expectations can be adopted as informal rules and behaviours that regulate team member interaction and team functioning (Bettenhausen & Murnighan, 1985).

In addition to the concept of group norms, another factor contributing to our understanding of team member interaction and team functioning is the concept of collectivism (e.g., Chen, Chen, Mendl, 1998; Earley & Gibson, 1998;

Oyserman, Coon, & Kemmelmeier, 2002). Collectivism typically describes people or cultures that place importance upon group membership and collective responsibility, feel concern for team members, prioritize group goals over individual goals, and strongly conform to group norms (Triandis, 1989, 1995; Triandis & Bhawuk, 1997).

Much of what we know about how collectivism influences team effectiveness is based on aggregated individual team member preferences that are assumed to be determined by either cultural contexts (e.g., Hofstede, 1980), or individual differences (e.g., Triandis, Leung, Villareal, & Clack, 1985). For example, Chen, Chen, and Mendl (1998) proposed that collectivism is a cultural factor that influences an individual's motivation to engage in cooperative behaviour through mediating mechanisms that include goal setting, group identity formation, trust, accountability, communication, and appropriate reward allocation amongst individuals. Specifically, collectivists are motivated by team goals, forming group identities that downplay their personal identities, the formation of trust that is not just based on business-related activities but also based on non-business related activities, activities involving group-based accountability, engaging in face-to-face communication rather than mediated communication, and equality-based reward allocation. It is important to emphasize that these propositions are based on assumptions that collectivism is determined by an individual's cultural background and context. Thus, research in

this tradition tends to use national or cultural groupings to create subgroups for comparison.

Another view of collectivism assumes that it is rooted in individual differences. For example, Triandis and colleagues argued that collectivism and individualism can be conceptualized as psychological dimensions that correspond to similar constructs at the cultural level (Triandis, Leung, Villareal, & Clack, 1985). Under this framework, the degree of collectivism in a team is not assumed to be a product of national or cultural background. Instead, collectivism arises from the values and preferences of each individual.

Research on collectivism from an individual difference perspective has been criticized for the use of measures of questionable reliability and validity (Earley & Gibson, 1998). Jackson, Colquitt, Wesson, and Zapata-Phelan (2006) addressed this construct confusion through the introduction of a 5-dimensional measure of psychological collectivism, capturing the broad dimensions of individually-based collectivism, which has yet to be fully examined in team contexts. Dimensions include preference for in-group relationships, comfort in relying on team members to achieve team goals, concern for team well-being, acceptance of team rules, and consideration of team goals over individual goals.

In addition to the cultural influences and individual differences perspectives on collectivism, recent research in social psychology (e.g., McAuliffe, Jetten, Hornsey, & Hogg, 2003) points to another perspective. Specifically, that team effectiveness outcomes may also be explained by

collectivistic characteristics that emerge as group norms amongst team members. From this view, it is not the cultural backgrounds or aggregate individual differences of team members that drives team processes. Instead, the perspective suggests that an important determinant of team processes and functioning will be the degree to which the norms that emerge within the group have collectivistic properties. Keeping in mind that collectivistic group norms, like other types of norms, are informal rules and expectations, we can expect teams with high levels of collectivistic groups norms to share several characteristics, including: placing greater priority on the achievement of team goals; working closely with team members on team tasks; placing team member needs above individual needs during task performance; relying on teammates to perform their parts of the team task; performing one's own duties in fulfillment of the team's overall goals; demonstrating concern for the team's performance; and accepting responsibility for the team's outcomes.

The distinction between collectivistic group norms and traditional notions of collectivism is important because collectivistic group norms may help to explain phenomena that have yet to be fully explained by cultural contexts or individual differences. For instance, it is difficult to explain how high performing teams, such as sports teams, can exhibit collectivistic characteristics within what are traditionally considered individualistic cultures or by relying on aggregated individual differences? Furthermore, given the powerful influence that group norms are believed to exert on team member behaviour (Hackman, 1976),

collectivistic group norms are expected to have a strong influence on team effectiveness outcomes. Specifically, I expect that collectivistic group norms will positively influence team performance and emergent states such as collective efficacy.

In summary, team researchers in organizational behaviour have focused on the influence of collectivism, drawn from either a culturally-driven or individual differences perspective, to try and explain team processes and outcomes. This is in contrast to emerging research in social psychology which has begun to examine collectivistic group norms in small group contexts but has yet to examine collectivistic group norms amongst team members performing task-relevant interactions. Thus, there is an opportunity to draw connections between these distinct, yet related, literatures. This dissertation begins to explore the mechanisms by which collectivistic group norms relate to team performance. The dissertation also begins to examine the extent to which collectivistic group norms are rooted in individual perceptions of psychological collectivism.

A primary focus of this research is the distinction between the concepts of collectivism and collectivistic group norms in team contexts. Additionally, I add to the literature on the antecedents of collective efficacy, which refers to "the process through which information and experiences are combined within groups to develop group efficacy beliefs" (Gibson & Earley, 2007, p.447). An improved understanding of how collectivistic group norms influence team confidence perceptions and performance at the group-level is also of practical importance in

that group norm interventions may be employed that can help group members engage in desired behaviour to improve team effectiveness.

1.2   Organization of the Thesis

The rest of this dissertation is organized as follows. Chapter 2 provides a review of literature in the areas of group norms, collectivism from several theoretical perspectives, and collective efficacy. From this review of the literature, theoretically grounded and testable hypotheses have been developed. Chapter 3 presents the research methodology of the study, including discussions of research design, study procedures, participant sample, measures used, and the statistical tests conducted. Chapter 4 presents the results of the study while chapter 5 discusses the practical and theoretical implications of these results.

CHAPTER 2: LITERATURE REVIEW AND HYPOTHESIS

DEVELOPMENT

This study examines associations between psychological collectivism, collectivistic group norms, collective efficacy, and team performance outcomes. In this chapter, I begin with a overview of the literature on teams and team effectiveness. Following this, I define the concepts of group norms, collectivism, and collectivistic group norms, and provide a overview of related research findings from the organizational behaviour literature. Additionally, I describe collective efficacy and present arguments relating this construct, and team performance outcomes, to collectivistic group norms. Finally, I discuss psychological collectivism and propose its relation to collectivistic group norms.

2.1   Teams and Team Effectiveness

Many scholars agree that a team is an entity consisting of two or more socially interactive members with roles and responsibilities of varying interdependence requiring them to engage in task-relevant behaviours in pursuit of common goals within a multilevel organizational context (Aldefer, 1977; Argote & McGrath, 1993; Hackman, 1992; Hollenbeck, Ilgen, Sego, Hedlun, Major, Phillips, 1995; Kozlowski & Bell, 2003; Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996; Kozlowski, et.al., 1999; Salas, Dickinson, Converse, & Tannenbaum, 1992). Common types of teams include: production, service, management, project, and action teams (Cohen & Bailey, 1997; Sundstrom, DeMeuse, & Futrell, 1990).

Features distinguishing these teams include the extent to which group tasks are influenced by its external environment, the degree to which team goals, roles, processes, and outcomes are interdependent, and the temporal nature of the team's performance episodes (Kozlowski & Bell, 2003). For example, production teams consist of individuals involved in the scheduled production of tangible products, service teams involve repeated customer interaction that can vary in nature, management teams consist of individuals responsible for the direction and operation of lower levels of organizations, project teams are temporarily formed to perform specialized work over a predetermined period of time and action teams consist of highly interdependent members with specific skills to perform specialized tasks (Sundstrom, et.al., 2000).

Early research efforts in analyzing team effectiveness adhered to the logic of the input-process-output (IPO) framework (McGrath, 1964). This framework suggests that team effectiveness, conceptualized as performance outcomes, team member satisfaction, and the willingness of a team to remain intact (e.g., team viability) (Hackman, 1987), is the result of a conversion of team inputs via team processes (e.g., team member interactions). Both inputs and outputs can be categorized into individual, group, and environmental variables. Inputs include individual resources such as member knowledge, skills, and abilities while processes include cognitive, verbal, and behavioural team member activities in fulfillment of team goals (Marks, Mathieu, & Zaccaro, 2001). Team effectiveness

research has evolved from this organizing framework to consider the dynamic nature of team processes (Kozlowski & Ilgen, 2006).

Since 1990 there have been at least a dozen major reviews of the team literature in organizational psychology / organizational behaviour (e.g., Bettenhausen, 1991; Cohen & Bailey, 1997; Gully, 2000; Guzzo & Dickson, 1996; Guzzo & Shea, 1992; Hackman, 1992; Ilgen, Hollenbeck, Johnson & Jundt, 2005; Kerr & Tindale, 2004; Kozlowski & Bell, 2003; Kozlowski & Ilgen, 2006; Mannix & Neale, 2005; Sundstrom, McIntyre, Halfhill, & Richards, 2000). These reviews reflect a more recent view of teams as "dynamic, emergent, and adaptive entities embedded in a multilevel (individual, team, organizational) system" (Kozlowski & Ilgen, 2006). Recent conceptual frameworks used to analyze team effectiveness place greater emphasis on how multilevel systems contexts, time, task-relevant processes, and emergent states influence team effectiveness.

A multilevel systems perspective proposes that understanding team effectiveness involves understanding the multiple levels of analysis within which teams are embedded (Kozlowski & Klein, 2000). For example, a team is a collective unit that not only influences individual member behaviour but is also influenced by individual member behaviour (Hackman, 1992). Furthermore, a team exists within a larger organizational environment that not only influences team task demands but is also influenced by team output (Kozlowski & Ilgen, 2006).

The IPO framework has also evolved, through the work of Marks and colleagues, to provide distinctions between, and incorporate the temporal nature of, team processes and emergent states (Marks, et.al., 2001). Team processes describe how individual team member knowledge, skills, and abilities, are combined and coordinated to fulfill task requirements (Marks, et.al., 2001). Alternatively, emergent states are "constructs that characterize properties of the team that are typically dynamic in nature and vary as a function of team context, inputs, processes, and outcomes" (Marks, et.al., 2001, p.357). Emergent states are more descriptive of cognitive, motivational, and affective team states while team processes place greater focus on describing the nature of team member interaction. Although different, emergent states are believed to be the product of repeated team processes. "It is important to appreciate that while processes are dynamic...they yield cognitive structures, emergent states, and regular behavior patterns that have been enacted by, but also guide, team processes"(Kozlowski & Ilgen, 2006, p.81).

Emergent states, such as group norms, have been extensively studied in the area of small group research with particular focus on the association between group norms and interpersonal team member interaction (Kozlowski & Ilgen, 2006). This is in contrast to the relatively little research attention paid to the study of group norms and task-relevant team member interactions in the organizational behaviour literature. In spite of the relative scarcity of this research in the organizational behaviour literature, sufficient theoretical work and empirical

evidence has amassed in support of the influence that group norms have on team effectiveness. This research will be explored in the next section.

2.2   Group Norms

Group norms are "the informal rules that groups adopt to regulate and regularize group members' behavior" (Feldman, 1984, p.47). Two major types of norms at the group-level include injunctive norms and descriptive norms (Cialdini, Kallgren, & Reno, 1991; Cialdini, Reno, & Kallgren, 1990). Injunctive norms are specific behavioural expectations that apply across many situations. For example, the norm of reciprocity can be considered an injunctive norm because regardless of the type of team within which one works, or the type of task the team is performing, team members generally expect to receive something in return from their fellow teammates in exchange for effort they have put forth on their teammates' behalf.

By contrast, descriptive norms are behavioural expectations that specify how one is to behave given what others are doing. Descriptive norms are expectations that apply only to certain groups because of the specific group contexts from which they have emerged. For example, different project teams can develop different group norms regarding meeting tardiness. On the one hand, certain project teams may expect that all team members will arrive to meetings at least 5 minutes prior to their scheduled start. On the other hand, other project teams may have come to expect that all team members will arrive at least 5 minutes after the scheduled start of all meetings. Research demonstrates that

descriptive group norms can emerge for many types of productive team behaviours, such as individual helping behaviour (Ng & VanDyne, 2005), collaborative problem-solving (Taggar & Ellis, 2007), and counterproductive team behaviours such as employee absenteeism (Bamberger & Biron, 2007; Gellatly, 1995).

Collectivistic group norms are descriptive norms because they are a product of group contexts (e.g., McAuliffe et al., 2003). By contrast, the related yet distinct concept of collectivism is assumed to be a product of either cultural or individual differences (Jackson et al., 2006). In the next section I will elaborate on the differences between collectivistic group norms and the concept of collectivism.

2.3   Collectivism and Group Norms

The concept of collectivism has contributed to our knowledge of teams in cross-cultural contexts (Chen et al., 1998; Cox, Lobel, & McLeod, 1991; Earley & Gibson, 1998; Wagner, 1995; Oyserman et al., 2002). Collectivism was identified by Hofstede (1980) in conjunction with individualism as one of four primary cultural variables that has been used in cross-cultural research. Subsequent research by Triandis and colleagues (1985) conceptualized and operationalized collectivism and individualism as individual difference variables respectively known as allocentrism and idiocentrism. Although collectivism and individualism were originally conceived as a single bi-polar construct, meta-analytic evidence suggests that these concepts represent independent constructs

(Osyerman et al., 2002). Scholars suggest that collectivism can improve team effectiveness by enhancing cooperation amongst team members (Cox et al., 1991; Earley & Gibson, 1998; Wagner, 1995). Given that one of the primary purposes of this research is to understand factors that can improve team performance, subsequent discussions will focus on the concept of collectivism rather than the concept of individualism.

Collectivistic individuals tend to place importance upon group membership and collective responsibility, feel concern for team members, prioritize group goals over individual goals, and strongly identify with group norms (Triandis, 1989, 1995; Triandis & Bhawuk, 1997). Much team effectiveness research has also examined and operationalized collectivism as a function of either cultural contexts, or individual differences (Jackson, et al., 2006; Oyserman, et al., 2002). For instance, research by Eby and Dobbins (1997) found that the association between team collectivistic orientation, an aggregation of team member orientations toward collectivistic behavior, and team performance was mediated by team cooperation.

Research by Man and Lam (2003) demonstrated that low collectivistic work groups, operationalized as an aggregation of individual team member preferences toward working in groups, produced a stronger positive association between job complexity and group cohesiveness than highly collectivistic work groups. The authors argue that, in comparison to work groups with higher collectivistic orientations, work groups with lower collectivistic orientations are

less predisposed to work together and will likely need to put forth greater effort to work together on a complex task than work groups with higher collectivistic orientations.

In a series of studies Earley (1989, 1993, 1994) measured collectivism and individualism, characterized by individuals who place emphasis on independence, personal autonomy, self-fulfillment, one's own well-being, and the pursuit of personal goals (Hofstede, 1980), as a function of both a participant's country of origin and as an individual preference. He found that social loafing was more likely to occur amongst individuals with individualistic beliefs than amongst individuals with collectivistic beliefs (Earley, 1989). Collectivists performed better in an in-group situation than in situations involving an out-group or working alone (Earley, 1993). Additionally, collectivists' self-efficacy and performance was found to be more strongly influenced by group-focused training than self-focused training (Earley, 1994) while individualists' self-efficacy and performance was found to be more strongly influenced by self-focused training.

In their examination of individualism, collectivism and group creativity, Goncalo and Staw (2006) primed individualistic and collectivistic orientations in groups by asking team members to individually answer three questions, that were averaged and aggregated to the group-level, prior to completing a decision-making task. In addition to the manipulations, student teams were given instructions indicating that the decision task was either creative, or practical in nature. The authors found no differences in the level of creativity between

collectivistic and individualistic groups. However, results also revealed that, when given creative task instructions, individualistic groups had higher levels of creativity, measured as the number of ideas, the number of divergent ideas, and subjective ratings of idea creativity, than did collectivistic groups. In their interpretation of the study's results the authors explain that when given creative instructions, individualistic values are more likely to encourage uniqueness and the development of creativity within groups than collectivistic values.

These studies have demonstrated the influence of collectivistic and individualistic orientations on individual-level phenomena, such as self-efficacy, receptivity to training, and work performance, and group-level phenomena, including creativity, cohesiveness, and social loafing. Caution is necessary in interpreting these findings, however, because individual difference measures of collectivism have been criticized for their psychometric shortcomings. In response to these shortcomings, Jackson et al. (2006) introduced a construct validated individual difference measure of collectivism, known as psychological collectivism.

In a sample of 186 full-time software employees, Jackson et al. (2006) found associations between psychological collectivism and individual-level team member performance outcomes. Specifically, the authors found that psychological collectivism was positively associated with task performance and citizenship behaviour, and negatively associated with counterproductive behaviour and withdrawal behaviour.

Longitudinal research by Bell and Belohlav (2009) has examined the influence of psychological collectivism at the team-level on initial, and end-state, team performance. In a sample of 66 student teams participating in a 5-week business simulation, the authors found positive associations between the dimensions of preference and reliance and initial team performance and a negative association between reliance and team performance. A positive association was found between the dimension of goal priority and end-state performance.

Other than the aforementioned studies, little research currently exists that has examined psychological collectivism in team contexts. Furthermore, no research in the organizational behaviour literature, to my knowledge has either examined or operationalized collectivistic norms at the group-level. However, there is some indirect evidence for the existence and importance of collectivistic group norms in the organizational behaviour literature.

For example, in an experimental manipulation of individualistic and collectivistic cultural values within organizations, Chatman and Barsade (1995) found that individuals with a high disposition to cooperate showed a greater preference to evaluate work performance on the basis of team contributions, instead of individual achievement, within collectivistic organizational cultures than within individualistic organizational cultures. In explaining their findings, the authors note "that cooperative people were more responsive to the individualistic and collectivistic norms characterizing their organization's culture"

(p.423). Thus, collectivistic group norms have been regarded as a distinct concept that may not only differ from the construct of collectivistic cultural values, but that may also differ from the construct of collectivism.

Jetten and colleagues experimentally manipulated collectivistic group norms in a series of laboratory studies and found that team members who highly identified with teams endorsing collectivistic group norms were more likely behave collectivistically (Jetten, Postmes, & McAuliffe, 2002), that team members displaying collectivistic behaviour were more positively evaluated within teams endorsing collectivistic group norms (McAuliffe et al., 2003), that non-dissenting group members were evaluated more positively than dissenting group members within teams endorsing collectivistic group norms (Hornsey, Jetten, McAuliffe, & Hogg, 2006), and that inter-group differentiation was greater amongst teams endorsing collectivistic group norms (Jetten, McAuliffe, Hornsey, & Hogg, 2006).

The authors argue that these results provide evidence in support of social identity theory (Tajfel & Turner, 1979) and self categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) theories that posit that collectivistic characteristics are transmitted within groups through social identification processes. Specifically, "that group norms express important aspects of the group's identity and that group members are motivated to act in accordance with them in order to achieve a positive identity" (Jetten et al., 2003, p.190).

Given that previous research has suggested the existence of collectivistic group norms, I have drawn upon the group norm and collectivism-individualism literatures to formally define this construct. *Collectivistic group norms* are informal rules and expectations adopted by group members that encourage and regulate the performance of behaviours that include placing greater priority on the achievement of team goals, working closely with team members on team tasks, placing team member needs above individual needs during task performance, relying on teammates to perform their parts of the team task, performing one's own duties in fulfillment of the team's overall goals, demonstrating concern for the team's performance, and accepting responsibility for the team's outcomes.

It is important to note the distinction drawn between collectivistic group norms and collectivism. Collectivism is assumed to be a product of either cultural contexts or individual differences, regardless of group interaction, whereas collectivistic group norms manifest as specific behaviours that are a product of team member interaction within group contexts. Thus, collectivistic group norms are not necessarily a product of either cultural contexts or individual differences.

A previous conceptualization of group functioning by Cohen and Bailey (1997) categorized group norms as psychosocial traits that are influenced by team inputs, and influence team processes. More recent conceptualizations of team functioning suggest that the categorization of certain constructs, such as group norms, as psychosocial traits may be inappropriate because these constructs

represent characteristics that are more dynamic in nature than characteristics that are typically classified as traits (Marks et al., 2001).

Specifically, Marks and colleagues refer to constructs that describe dynamic team characteristics as emergent states (Marks et al., 2001). Collectivistic group norms, as defined in this study, reflect Marks et al.'s (2001) description of an emergent state because the extent to which collectivistic group norms are present within teams is a function of contextual factors, such as the nature of the team task.

Thus, collectivistic group norms differ from individual difference and cultural context measures of collectivism partly because of the extent to which they are influenced by team contextual factors. For example, teams working on a highly interdependent task, requiring higher levels of coordination amongst teammates, will likely have higher levels of collectivistic group norms than teams working on a task that is less interdependent in nature, requiring lower levels of coordination.

However, the extent to which these same teams possess aggregated levels of psychological collectivism is not necessarily influenced by the interdependent nature of the team task because this individual difference measure represents a trait that endures across various team situations. Similarly, a cultural difference measure of collectivism amongst team members, reflecting the extent to which team members possess collectivistic tendencies that are present within a culture, will likely be less affected by team contextual factors such as task

interdependence. Instead, as I posit in subsequent sections of this study, cultural differences in collectivism become less salient in the presence of collectivistic group norms.

Given these theoretical distinctions, further empirical evidence is required to validate comparisons drawn between these constructs. Furthermore, the operationalization and examination of collectivistic group norms is required in order to gain a greater understanding of its associations with psychological collectivism, collective efficacy, and team performance outcomes. Specifically, are collectivistic group norms a key variable through which collectivism influences group-level confidence perceptions, and performance outcomes? Does psychological collectivism influence the emergence of collectivistic group norms? These and other related research questions are further explored in the next section.

2.4   Collectivistic Group Norms and Collective Efficacy

Before explaining the expected relationships between collectivistic group norms and collective efficacy, it is first necessary to describe collective efficacy. Collective efficacy is a shared belief amongst team members about the team's ability to successfully perform a specific task (Bandura, 1997). According to Bandura (1997), collective efficacy can "influence the type of future [people] seek to achieve, how they manage their resources, the plans, and strategies they construct, how much effort they put into their group endeavor, their staying power

when collective efforts fail to produce quick results or encounter forcible opposition, and their vulnerability to discouragement"(p. 418).

The motivational underpinnings of collective efficacy are well documented (Bandura, 1997). Groups characterized by high collective efficacy are likely to have high performance expectations, work hard, and persist in the face of obstacles. High efficacy teams are generally positive environments that are characterized by engagement, camaraderie, and cohesion (Gibson & Earley, 2007; Lent, Schmidt, & Schmidt, 2006). Conversely, groups characterized by low collective efficacy are more likely to experience apathy, uncertainty, and a lack of direction (Bandura, 1997; Gibson & Earley, 2007). Research has shown that the dysfunctional characteristics associated with low efficacy include heightened anxiety (Bandura, 1997), greater social loafing (Mulvey & Klein, 1998), and less vigilance in decision making processes (Tasa & Whyte, 2005). Because collective efficacy has strong motivational properties, it affects the direction, effort, and choices made by groups.

Two meta-analyses support Bandura's claims that collective efficacy relates positively to team performance (Gully, Incalcaterra, Joshi, & Beaubien, 2002; Stajkovic, Lee & Nyberg, 2009). Gully et al. (2002) reported larger effect sizes between collective efficacy and performance when teams were coded to be highly interdependent rather than less interdependent. Since most teams in organizations have at least a moderate degree of interdependence (see Cohen &

Bailey, 1997), collective efficacy should be a robust antecedent of team performance.

Though the influence of collective efficacy on team effectiveness outcomes is becoming clear, surprisingly little is known about the factors responsible for the development of collective efficacy. The most comprehensive conceptual model explaining this process has recently been proposed by Gibson and Earley (2007). They suggested that collective efficacy (which they called group efficacy) is shaped by factors from four broad categories: 1) characteristics of team members (e.g., task knowledge); 2) characteristics of the group as a whole (e.g., cohesion); 3) characteristics of work processes (e.g., cooperation); and 4) characteristics of the task context (e.g., leader motivation). The many propositions in the model provide a basis for empirical testing. Nevertheless, the model is unspecific about boundary conditions and the nature of the processes driving proposed relationships. For example, Gibson and Earley observe that awareness of the task-related abilities of team members is related to collective efficacy. This is highly plausible; however, the manner in which team members determine whether or not fellow team members possess task-related ability, and make attributions about whether abilities are task-related, is not yet clear. Answers to these questions can help managers, team leaders, and team members more accurately shape this important shared perception. Therefore, the research proposed here is positioned to answer questions about collective efficacy emergence.

A prominent conceptualization of the emergence of collective confidence perceptions by Gibson (2001a) suggests that collective efficacy is a cognitive product of collective cognitive processes. These collective cognitive processes include accumulation (team member assembly of information), interaction (team member exchange of information), and examination (team member assessment of information). The types of information used by team members in the formation of these beliefs include the team's personal resources, such as individual team member knowledge, skills, and abilities, and situational resources that include the team's task requirements (Gist & Mitchell, 1992; Taggar & Seijts, 2003).

Only a few studies have examined factors influencing collective efficacy emergence. In a longitudinal study of 50 self-managing student teams, Tasa, Taggar, and Seijts (2007) found that collective efficacy was positively influenced by aggregated measures of teamwork behaviours where individuals within each team rated the frequency with which their team members engaged in interpersonal and performance management behaviours. The researchers noted that "seeing one's teammates perform behaviours that are generally accepted as helpful with respect to team performance should instil a sense of confidence about a team's capability" (Tasa et al., 2007, p.18).

In an examination of factors influencing individual and group-level efficacy beliefs of United States Army soldiers, Chen and Bliese (2002) found leadership climate, the degree to which team members perceive that their leaders provide task-related direction and socio-emotional support, to positively predict

collective efficacy beliefs. The authors also found that collective efficacy was more strongly influenced by leadership climate at higher organizational levels than by leadership climate at lower organizational levels. According to the authors, these results suggest that leaders focus efforts toward building team task capabilities in order to build collective efficacy (Chen & Bliese, 2002).

Using a multicultural sample of managers from England, France, Thailand, and the United States, Earley (1999) investigated the influence of power distance, defined as the expectation of obedience to superiors, on collective efficacy judgments in a group decision-making context. The author found that in high power distance cultures collective efficacy judgments are more strongly associated with collective efficacy judgments of high status team members. In low power distance cultures collective efficacy judgments are more reflective of the collective efficacy judgments of the entire team.

Even fewer studies have examined the variables of collectivism, group norms, collective efficacy, and the similar, yet distinct, group confidence construct of group potency. Lee, Tinsley, and Bobko (2002) examined the association between group norms measuring general team behaviours, in a sample of 175 undergraduate students from a Hong Kong university assumed to be high in 'cultural collectivism', and collective efficacy and group potency. Data were collected over the course of a 15-week semester where student teams were required to work on 2 projects. The first project consisted of a written assignment requiring teams to assess the leadership effectiveness of 2 public figures. In the

second project, groups were asked to investigate the issues of workplace fairness and work motivation by collecting, analyzing, and synthesizing interview data that were later presented in class. Students were asked to complete measures of group norms, collective efficacy, and group potency following the completion of both assignments.

The authors argued that group norms exert a strong uniform influence across group members, by increasing a group's 'tightness', which allows team member efficacy and potency beliefs to be more readily transmitted across the team, making the team more likely to believe in its capabilities. The results of their study show that while a positive association was found between group norms and group potency at time 1 and at time 2, contrary to their prediction, no association was found between group norms and collective efficacy. The authors speculate that the lack of association found between group norms and collective efficacy is partially attributable to the differing levels of specificity between the group norm measure of general expectations and the task specific measure collective efficacy beliefs.

Gibson (2003) investigated the influence of collectivism, measured as an aggregation of individual team member preferences toward collectivism, on collective efficacy. Data were collected from both laboratory and field samples. The laboratory studies involved samples of 30 student teams from the United States and 30 student teams from Hong Kong participating in a business simulation. Participants completed a collectivism measure prior to interacting

with their team members in the simulation. Following 15 minutes of interaction, participants then completed individual and collective measures of collective efficacy. Field studies were conducted in the United States and Indonesia where teams of nurses were asked to reflect upon their work experiences while completing questionnaires assessing collectivism and collective efficacy.

Gibson (2003) predicted that collectivism would be positively associated with collective efficacy. She argued that in collectivistic societies, team members will more likely be motivated to perceive their team in a positive manner and thus will be biased toward retaining and acting upon positive, rather than negative, information about the group. However, contrary to her prediction, Gibson (2003) found that collectivism was negatively associated with collective efficacy in both laboratory and field studies. In explanation of these findings, Gibson (2003) argued that the unexpected negative association found between collectivism and group efficacy may be attributable to cultural tendencies amongst collectivists to exhibit humility and maintain face, or positive impressions with others. "To have high efficacy and then perform less than expected would be a threat to face and humility…for those low in collectivism, expecting the highest levels of performance (expressed as high group efficacy beliefs) helps to maintain face."(p.2176).

Research has also examined the moderating effects of collectivism on team phenomena. In a sample consisting of university students from Hong Kong and the United States, Gibson (1999) investigated the moderating effects of task

uncertainty, (i.e., the extent to which team members know that performing a specific task will result in a certain outcome (Gist & Mitchell, 1992)), and collectivism on the relationship between collective efficacy and task effectiveness. Gibson (1999) found that collective efficacy was unrelated to team effectiveness for teams high in task uncertainty and low in collectivism. However, collective efficacy was positively associated with team effectiveness for teams low in task uncertainty and high in collectivism.

Tyran and Gibson (2008) examined the effects of collectivism heterogeneity, measured by calculating the standard deviation of team member scores on an individual difference measure of collectivism, on group efficacy in a sample of 57 bank branch teams. The authors hypothesized that collectivism heterogeneity should be negatively associated with group potency because a team that is less heterogeneous on collectivism will likely have more consistent views on collectivistic characteristics, such as the importance of team goals, which will contribute to higher levels of shared confidence perceptions amongst team members.

Contrary to their prediction, results showed that collectivism heterogeneity was positively associated with group efficacy. To account for these findings, Tyran and Gibson (2008) speculate that since collectivism places an emphasis on team members to understand their teammates capabilities, individual members of teams high in collectivism heterogeneity may be more sensitive to the capabilities

of their team mates and thus more inclined to view those capabilities in a positive light when assessing the team's ability to successfully perform a given task.

This overview of studies demonstrates more consistent support for the moderating effects of collectivism, than for the direct effects of collectivism, on collective efficacy perceptions. For example, research by Gibson (2003) suggests that collectivism may negatively impact the formation of group confidence perceptions despite theoretical rationale that suggests otherwise. Further research is required to reconcile the theoretical rationale and empirical findings associated with collectivism and group confidence perceptions.

The conceptualization and operationalization of collectivistic group norms may help to remove confounding factors that may have contributed to the equivocal findings of the aforementioned studies. Unlike cultural and individual difference operationalizations of collectivism, collectivistic group norms describe group characteristics that are not only influenced by group context but that also influence group-level outcomes such as collective efficacy.

Gibson's (2001a) organizing framework of collective cognition proposes that collectivistic group norms can positively influence collective efficacy. According to Gibson (2001a), team member interaction is a means by which information about a team's personal and situational resources are transmitted amongst team members. From team interaction, team members accumulate and evaluate information that is incorporated into their individual assessments of the team's ability to perform the task at hand. Gibson and Earley (2007) also cite

group structure factors, such as group roles and routines established through group norms, influencing the formation of collective efficacy judgments by providing team members direction as to the type of information that team members should accumulate and evaluate.

Thus, upon group formation, team members will begin forming collective efficacy perceptions through an exchange and evaluation of information that occurs during team member interaction. During team member interaction, team members will collect information about personal resources, such as task relevant knowledge, skills, and abilities that team members possess, and situational resources, such as the task requirements (Taggar & Seijts, 2003). Furthermore, group structure factors, such as the roles and routines that arise from the emergence of collectivistic group norms during team interaction, help determine the type of information that team members accumulate and evaluate in order to assess whether the team can successfully perform the task-at-hand.

In comparison to teams with lower levels of collectivistic group norms, teams with higher levels of collectivistic group norms will likely present team members with more informational cues that will serve as positive indicators about the team's ability to work on a task requiring a high degree of coordination amongst team members. Team members performing a highly interdependent task will likely be seeking information that will be used to form perceptions about the extent to which they believe the team can work together to successfully perform the task at hand (i.e., collective efficacy).

Thus, in comparison to team members belonging to teams with lower levels of collectivistic group norms, team members belonging to teams with higher levels of collectivistic group norms will likely have more positive information about the team's ability to work together which will give them greater confidence about the team's capabilities on an interdependent task. Based on the above, the following is hypothesized.

Hypothesis 1: Collectivistic group norms is positively associated with collective efficacy perceptions.

2.5   Collectivistic Group Norms and Team Performance

In addition to their hypothesized influence on collective efficacy perceptions, it is also expected that teams with higher levels of collectivistic norms will perform better than teams with lower levels of collectivistic norms. Social identity theory (Tajfel & Turner, 1979) and self-categorization theory (Turner et al., 1987), also known as the social identity approach, posit that team members who highly identify with their respective teams are more likely to share common perspectives on team tasks and develop the motivation to successfully accomplish team tasks. Ellemers, De Gilder, and Haslam (2004) note that in competitive contexts amongst teams that are perceived to be similar, teams whose members highly identify with each other will likely be motivated to outperform similar teams in an effort to maintain a positive and distinct identity.

Teams with higher levels of collectivistic group norms, in comparison to teams with lower levels of collectivistic group norms, will place a greater emphasis upon understanding team member needs and capabilities for the

purposes of task performance. Teams that achieve a greater understanding of team member needs and capabilities will likely discover more similarities amongst teammates. Increased similarity within teams provides greater opportunities for teammates to strongly identify with each other. "Groups infer social identity from observing or constructing a certain underlying similarity within the group on a dimension that helps the group differentiate itself from other groups, or which is relevant to its achievement of particular goals" (Postmes, Haslam, & Swaab, 2005, p.19). Thus, teams with higher levels of collectivistic group norms will likely be more motivated to perform better than teams with lower levels of collectivistic group norms. Based on the above, the following is hypothesized.

> *Hypothesis 2: Collectivistic group norms is positively associated with team performance outcomes.*

2.6 Collectivistic Group Norms, Collectivistic Group Norm Sharedness, and Collective Efficacy

The first two hypotheses are based on the assumption that within group agreement is sufficiently high to justify aggregation of individual-level group norm perceptions to the group-level. However, to my knowledge, researchers have yet to fully examine the extent of within group agreement of individual-level group norm perceptions, or collectivistic group norm sharedness, in team contexts. By way of example, imagine 2 teams of 5 members each with average collectivistic group norm scores of 4 out of 7. One team's average collectivistic group norm score consists of 5 team member ratings of 4, and the other team's

average collectivistic group norm score consists of 2 team member ratings of 1, 1 team member rating of 4, and 2 team member ratings of 7. Although these teams have similar aggregate perceptions of this phenomenon, they may differ in their effectiveness because of the extent to which team members within each team differ in their perceptions of the same phenomenon. While scholars recognize the importance of understanding how within group agreement of team perceptions influences team effectiveness, much research-to-date has produced inconsistent findings (Harrison & Klein, 2007).

However, research indirectly points to the potential moderating influence of collectivistic group norm sharedness on the association between collectivistic group norms and collective efficacy perceptions. For example, Gibson (2001b) shows that team goal-setting training influences group efficacy via mechanisms such as group norms that enable teams to develop shared perceptions of team capabilities.

According to Gibson's (2001a) organizing framework of collective cognition, team members will form collective efficacy perceptions by observing informational cues including team member behaviour. For example, team members will be assessing their team's capabilities by observing the extent to which their teammates engage in the coordinated behaviours required for task performance. Team members who share more expectations of the collectivistic behaviour that they are to perform, or greater collectivistic group norm sharedness, will likely observe their teammates performing collectivistic

behaviour on a more consistent basis in comparison to team members who share

fewer expectations of the collectivistic behaviour that they are to perform. This

greater consistency of behaviour will likely create greater confidence perceptions

amongst team members regarding the team's capabilities. Based on the above, the

following is hypothesized.

> *Hypothesis 3a: Collectivistic group norm sharedness will*
> *moderate the positive association between collectivistic group*
> *norms and collective efficacy such that higher levels of*
> *collectivistic group norm sharedness will increase the positive*
> *association between collectivistic group norms and collective*
> *efficacy.*

Collectivistic group norm sharedness is also expected to show a

moderating influence on the association between collectivistic group norms and

team performance. As discussed previously, social identity theory (Tajfel &

Turner, 1979) and self-categorization theory (Turner et al., 1987) propose that

motivation to work within groups is, in part, dependent upon two factors. The first

is the degree to which individuals believe that being part of a group is relevant to

their identity, and the second is the extent to which individuals identify with, or

see themselves belonging to, a group. One manifestation of increased

identification within groups is increased similarity of perspectives amongst group

members which will likely motivate them to outperform teams with which they

are in competition (Ellemers et al., 2005).

Team members sharing a greater number of similar expectations about

how they are to work together (i.e., greater collectivistic group norm sharedness),

in comparison to teams with lesser collectivistic group norm sharedness, will be

more motivated to outperform competing teams. This increased motivation will likely result in better team task performance. Thus, the following is hypothesized.

> *Hypothesis 3b: Collectivistic group norm sharedness will moderate the positive association between collectivistic group norms and team performance such that higher levels of collectivistic group norm sharedness will increase the positive association between collectivistic group norms and team performance.*

2.7 Mediational Hypothesis

It is also expected that collectivistic group norms will influence team performance through the mediating effects of collective efficacy. In addition to the rationale given in support of the associations between collectivistic group norms, collective efficacy, and team performance, research has demonstrated support for the positive association between collective efficacy and team performance.

Social cognitive theory (Bandura, 1986, 1997) suggests that collective efficacy motivates team members to exert the effort needed to successfully perform team tasks. Furthermore, meta-analytic data show that collective efficacy is positively associated with team performance ($\rho=.41$) (Gully et al., 2002). Stojakovic et al. (2009) also provide meta-analytic evidence in support of the positive association between collective efficacy and team performance ($\rho=.41$). Thus, collective efficacy is a means by which team member behaviour, manifesting from adherence to collectivistic group norms, informs team member judgments which, in turn, motivate team members to put forth increased effort

and persistence to improve team performance. Based on the above, the following is hypothesized.

> *Hypothesis 4: Collective efficacy will partially mediate the association between collectivistic group norms and team performance.*

2.8   Psychological Collectivism and Collectivistic Group Norms

In addition to examining factors that are influenced by collectivistic group norms, this research also examines factors influencing collectivistic group norm emergence. Theory and empirical evidence-to-date suggest that psychological collectivism likely influences cooperative behaviour in team contexts (Jackson et al., 2006), making it a logical construct to examine in association with collectivistic group norms. To improve understanding of these phenomena, it is important to consider how collectivistic group norms are influenced by both the higher-order construct of psychological collectivism and its five sub-dimensions of preference, reliance, concern, norm acceptance, and goal priority.

Social identity theory (Tajfel & Turner, 1979) can provide theoretical linkages between the 5 facets of psychological collectivism and collectivistic group norms. Each of the five dimensions of psychological collectivism represent individual differences around which team members can form a team identity that they subsequently become motivated to maintain through observance of and adherence to collectivistic group norms. The greater the extent to which team members perceive themselves to be similar with respect to these individual

differences, the greater the likelihood that they will observe and adhere to collectivistic group norms.

In addition to this theoretical rationale, each of these individual differences is expected to positively influence collectivistic group norms by different means. For example, Bell and Belohlav (2009) contend that preference and concern relate to an individual's propensity to become attracted to a group while goal priority and reliance reflect an individual's inclination to create a sense of interdependence amongst team members, and that norm acceptance is indicative of an individual's orientation toward developing and adhering to team rules and norms.

Team members with higher preference and concern orientations respectively place greater emphasis on establishing relationships with their fellow team members and take a greater interest in their team's well-being (Jackson et al., 2009) and will more likely foster, and adhere to, collectivistic group norms that emphasize the importance of maintaining team member relationships and the team's well-being. Thus, the following is hypothesized.

Hypothesis 5a: The psychological collectivism dimension preference is positively associated with collectivistic group norms.

Hypothesis 5b: The psychological collectivism dimension concern is positively associated with collectivistic group norms.

Teams consisting of members higher in reliance and goal priority orientations respectively have a greater sense of shared responsibility for the team and give greater consideration toward the achievement of team goals over the

achievement of their own goals (Jackson et al., 2006). Teams with higher levels of these orientations will more likely view the development and adherence to collectivistic group norms as a means by which they will realize their sense of shared responsibility and most effectively achieve team goals. Based on the above, the following is hypothesized.

> *Hypothesis 5c: The psychological collectivism dimension reliance is positively associated with collectivistic group norms.*

> *Hypothesis 5d: The psychological collectivism dimension goal priority is positively associated with collectivistic group norms.*

Finally, team members with a higher norm acceptance orientation have a greater inclination toward being part of a properly functioning team through their compliance with team rules and norms (Jackson et al., 2006). Team members with greater norm acceptance orientations will more likely observe and adhere to collectivistic group norms in order to satisfy their need to be affiliated with a properly functioning team. Thus, the following is hypothesized.

> *Hypothesis 5e: The psychological collectivism dimension norm acceptance is positively associated with collectivistic group norms.*

Given that all 5 sub-dimensions of psychological collectivism are expected to be positively associated with collectivistic group norms, it is expected that the higher order construct of psychological collectivism will be positively associated with collectivistic group norms. Social identity theory (Tajfel & Turner, 1979) proposes that individuals who experience greater identification with their respective groups are more likely to recognize and adhere to the norms of those groups. Given that individuals higher in collectivistic orientation are more

likely to identify with the groups to which they belong (Hofstede, 1980), it is expected that teams composed of individuals with a greater inclination to identify with those teams will also be more likely to recognize and adhere to team expectations. Thus, teams higher in mean aggregated psychological collectivism will have greater recognition of, and greater adherence to, collectivistic group norms. Based on the above, the following is hypothesized.

> *Hypothesis 5f: Psychological collectivism is positively associated with collectivistic group norms.*

2.9 Psychological Collectivism, Collectivistic Group Norms, Collective Efficacy, and Team Performance

In addition to the hypothesized influence of collectivistic group norms on collective efficacy perceptions and team performance, I expect positive associations between psychological collectivism (the aggregate construct and its 5 sub-dimensions), collective efficacy, and team performance that are unique from those predicted for collectivistic group norms. To substantiate these hypotheses I will first explain why psychological collectivism and its dimensions should be positively associated with collective efficacy and team performance. Then I will discuss why it is expected that collectivistic group norms will add unique variance beyond psychological collectivism, and its dimensions, in its associations with collective efficacy and team performance.

Psychological collectivism is expected to be positively associated with collective efficacy perceptions. Gibson's (2001a) organizing framework of

collective cognition describes collective efficacy as a product of team member assessments of information cues observed during team interaction. Team members higher in psychological collectivism, and its related dimensions, will more likely engage in behaviours that are increasingly reflective of those individual differences.

For example, team members who have higher levels of preference may manifest their propensity toward establishing in-group relationships by engaging in frequent communications with team members. Team members with higher levels of reliance may realize their inclinations toward relying upon team members to perform their assigned tasks by providing positive reinforcement of the work performed by fellow teammates. Similarly, higher levels of concern for the well-being of the team amongst team members may be demonstrated by team members offering emotional support to one another. Finally, teams consisting of members with higher levels of norm acceptance and goal priority may engage in behaviours that reflect these orientations such as following team rules and making individual sacrifices to ensure the achievement of team goals. Such behaviours provide positive informational cues upon which team members form positive overall assessments of the team's capability to perform the team task which will give them greater confidence about the team's capabilities.

Team task performance is also expected to be positively influenced by psychological collectivism and each of its dimensions. Social identity theory (Tajfel & Turner, 1979) describes team member identification with the team as a

motivational factor that influences team performance because good team performance is a means by which team members can fulfill their need to maintain a positive image of their respective teams. As discussed previously, team members can identify with each other based on the extent to which they possess characteristics of psychological collectivism. The higher the levels of psychological collectivism and its dimensions that team members possess, the greater the extent to which team members will identify with each other which, in turn, will increase the team's motivation to perform the task.

Although similar theoretical explanations are provided to account for the influence of both psychological collectivism and collectivistic group norms on collective efficacy and team performance the manner in which collective efficacy and team performance are influenced differ due to the nature of the constructs of psychological collectivism and collectivistic group norms.

For example, teams may achieve greater effectiveness with members who are more inclined to perform collectivistic behaviour but the presence of collectivistic group norms will likely improve team effectiveness by compelling team members who are less inclined to perform collectivistic behaviours to do the same.

Collectivistic group norms create expectations amongst team members to perform collectivistic behaviour regardless of individual team member inclinations toward the performance of those behaviours. In such instances, team members with lesser inclinations toward performing collectivistic behaviour will likely perform collectivistic behaviours at a minimally acceptable threshold in

order to avoid reprisal from teammates. Thus, team effectiveness is not only a function of the behaviour of team members with greater inclinations toward performing collectivistic behaviour but is also a function of the behaviour of team members with lesser inclinations toward performing collectivistic behaviour. Based on the above, the following is hypothesized.

> *Hypothesis 6a: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of preference.*

> *Hypothesis 6b: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of reliance.*

> *Hypothesis 6c: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of concern.*

> *Hypothesis 6d: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of norm acceptance.*

> *Hypothesis 6e: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of goal priority.*

> *Hypothesis 6f: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for psychological collectivism.*

CHAPTER 3: METHODOLOGY

3.1   Participants

Participants were 237 undergraduate students enrolled in two sections of

an upper-level Human Resources Management (HRM) course which is a

requirement in fulfillment of a 4-year undergraduate business degree. Each of the

participants enrolled in the course was randomly assigned to teams consisting of 3

to 4 individuals (N = 64) with team members from different academic disciplines

(e.g., commerce and engineering). In total, 63% of participants were enrolled in

the Commerce program, 28% of participants were enrolled in an engineering and

management program, and 9% of participants were enrolled in other programs.

The average age of participants was 21 years (SD = 1.2) with 67% of participants

being male.

Participants were required to participate in a 10-week business simulation

for course credit. Participation in the study was optional and was awarded with a

2% bonus credit in the course. The response rate to the first online questionnaire,

made available during week 4 of the course, was 94%, and the response rate to the

second, and final, online questionnaire, made available during week 10 of the

course, was 89%. Of the 64 teams, 2 two-member teams were removed and 2

other teams were removed due to insufficient responses.

3.2   Simulation and Procedures

An online HRM simulation, materials for which are shown in Appendix

A, by Smith and Golden (2001), placed student teams in the role of a human

resources department with the task of incorporating human resources knowledge from the course to provide solutions that improve organizational performance. Student teams were required to participate in six decisions, occurring between weeks 4 and 11 of the semester, covering topics such as job analysis, selection, and compensation. Following each decision, participant teams received quantitative feedback on various performance indicators, explained in greater detail in the measures section, in preparation for future decision-making exercises. Self-report data were collected from students, using online questionnaires, during weeks 4 and 10 of the semester. Participant teams were instructed that their performance was largely dependent upon the extent to which they could apply the HRM concepts, taught in the course, to the decision-making scenarios presented in the simulation.

Each decision-making exercise represented one quarter of an organization's fiscal year where participant teams made operational decisions for a manufacturing organization of approximately 660 employees, involving wage and benefit allocations, employee hiring, performance appraisal, and training, given budgetary constraints. Participant teams were given class time to work on each decision-making exercise (i.e., 50 minutes per week), for which the decisions were due within the week they were introduced. Team simulation performance accounted for 25% of each team member's final course grade. Team member participation was governed by each team through the use of anonymous peer evaluations, completed at the end of the simulation, to determine the extent

to which grades for team performance should be allocated equally amongst team members.

The simulation was appropriate for this research for at least two reasons. First, the longitudinal nature of the simulation would likely allow teams time to develop collectivistic group norms. Theoretical perspectives on group norm development, including the frequently cited seminal works of Feldman (1984) and Bettenhausen and Murnighan (1985), argue that over time team member behaviours influence team member interaction and the creation of shared experiences that, in part, influence the extent to which team members possess shared expectations about future team interactions. These shared experiences and expectations create group norms that manifest "as regular behavior patterns that are relatively stable within a particular group" (Bettenhausen & Murnighan, 1985, p.350). Second, the simulation presents realistic decision-making scenarios requiring extensive team member interaction. The increased realism of the task will likely extend the generalizability of the study's results beyond the more traditional classroom and laboratory settings in which such research is conducted.

3.3   Measures

3.3.1   Collectivistic Group Norms

Collectivistic group norms were measured during week 10 by a 7-point, seven-item Likert-type scale, shown in Appendix B. These items were deductively generated (Hinkin, 1998), taking into account the theoretical domain of collectivism, the notion that collectivistic behaviour is a function of team

member expectations, and the team task. Following item development, the items were pilot tested by the author. Participants for the pilot study were 307 undergraduate Commerce students enrolled in a communication skills course which is a requirement in fulfillment of a 4-year undergraduate business degree. Each of the participants enrolled in the course was randomly assigned to teams consisting of 4 to 5 individuals (N = 65). The average age of participants was 19 years (SD = .86) with 51% of participants being female.

Participant teams performed a bridge building task (Kichuk & Wiesner, 1997) which has been used in team effectiveness research (e.g., Taggar & Seijts, 2003). Student teams were given 45 minutes to design and build a bridge. This task was chosen because successful performance of the task requires coordinated team member performance. Furthermore, the novelty of the task makes it unlikely that students can rely on task-specific experience to compensate for a lack of coordinated behaviour amongst team members.

The task was completed in two phases. During the first phase, teams were given 10 minutes to design a prototype of their bridge. Following this phase, participant teams completed a 7-item measure of collectivistic group norms. After completing the 7-item measure, participant teams began the second phase of the exercise, requiring them to build their prototype in 35 minutes.

The data from the pilot study showed that the Cronbach's alpha for this scale was .80. Team members were asked the extent to which they agree or disagree (i.e., (1) "Strongly Disagree" to (7) "Strongly Agree") with the following

statements, "My team expects me to place greater priority on the achievement of team goals than on the achievement of my own individual goals", "I am expected to work closely with my teammates in order to successfully complete this task", "I am expected to place my team members' needs above my own needs in order to successfully complete this task", "I am expected to rely on my teammates to do their part in this task", "My teammates rely on me to do my part to complete the team task", "My team expects me to be concerned about the team's performance on this task", and "Every team member is responsible for the outcome of this task". Responses to the items were coded so that higher scores were reflective of higher levels collectivistic group norms and lower scores were reflective of lower levels of collectivistic group norms. Cronbach's alpha for this measure in the current study was .77.

In order to determine an initial factor structure of the *Collectivistic Group Norms* (CGN) measure through exploratory factor analysis (EFA), principle-components extraction was used. The extracted factors were then rotated to a varimax criterion. Principle-components extraction is generally considered appropriate when a goal of the research is to obtain an empirical summary of the relationships amongst the items under analysis. The use of a varimax rotation criterion is also considered appropriate for use when a goal of the research is to maximize the variance of the loadings on each factor (Tabachnick & Fidell, 2001). An orthogonal rotation was used because research has shown that

parameter estimates have been accurately represented through the use of a

varimax rotation (Gerbing & Hamilton, 1996).

Before performing the EFA on the sample, an examination of the data for

missing values found missing data for the CGN items was between 10.3% and

12.1%. Separate independent samples t-tests, in which missing versus non-

missing data were compared for each item, found no statistically significant

differences within the psychological collectivism, collective efficacy, and team

performance variables. The sample size (N = 237) was deemed to be sufficient for

EFA as per guidelines regarding case to variable ratios suggested by Gorsuch

(1983) (i.e., 5:1), and Everitt (1975) (i.e., 10:1).

Table 1 provides means, standard deviations, and Pearson correlation

coefficients for all of the variables studied. All of the CGN items are positively

correlated with one another within the range of .15 to .57 with most of the

correlations at the .01 level of statistical significance except for the correlations

between item 1 and item 5 (r = .16, p < .05), item 1 and item 7 (r = .18, p < .05),

and item 3 and item 7 (r = .19, p < .01) which are at the .05 level of statistical

significance.

Univariate outlier analyses of the CGN items were conducted through the

inspection of frequency distributions, the computation of a z-test for extreme

values, and an inspection of the raw data. Extreme values were found in the data

which were considered to be a legitimate part of the sample and do not suggest

the presence of gaming effects. Multivariate outlier analyses were conducted

through the visual inspection of scatterplots randomly chosen amongst the variables understudy, and an examination of a Cook's distance measure as obtained through the regression of a random variable (i.e., case number) on all of the CGN items. These analyses did not suggest the presence of multivariate outliers (maximum Cook's distance = .10).

The individual distributions of the CGN items were also examined for normality. Upon inspection of the items, all did show slight skewness and kurtosis, however, there did not appear to be serious violations of skewness or kurtosis. Further examination of skewness and kurtosis coefficients revealed that one item (i.e., item 7) was positively kurtotic beyond statistical convention (i.e., 2.17). However, in larger samples, due to the sensitivity of the significance tests for skewness and kurtosis, it is preferable to judge normality by looking at the item distributions. Upon inspection, all items were deemed to fit the assumption of normality for EFA.

Analysis was also conducted to detect outliers among the variables being studied. As suggested by Tabachnick and Fidell (2001), "a variable with a low squared multiple correlation with all other variables and low correlations with all important factors is an outlier among variables." (p. 590). Squared multiple correlations were calculated by regressing each individual CGN item on the remaining items. The variable with the lowest squared multiple correlation is represented by item 7 (R^2 = .28, p < .01). Table 2 shows the squared multiple

correlation coefficients for each CGN item when individually regressed on the remaining items.

Principle-components extraction with varimax rotation was performed on the 7 CGN items. The Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) measure were examined to determine the factorability of the items. Both indicators suggest that the correlations of the CGN items are worth factor analyzing with a significant Bartlett's Test of Sphericity ($\chi^2 = 368.61$, $p < .01$), and a KMO measure of .75. To further assess the stability of the factor solution, the determinant of R was also examined for mulitcollinearity of the variables representing the CGN items. The determinant value of .15 suggests that multicollinearity and/or singularity amongst the variables is not present. The absence of extremely high (i.e., .90 or greater) squared multiple correlations of the items also suggests that multicollinearity and/or singularity is not present among the variables.

EFA using principle-components analysis, only extracting factors with eigenvalues greater than 1, resulted in the extraction of two factors that cumulatively explained 60.29% of the item variance. The two factors appear to represent two dimensions of collectivistic group norms describing the extent to which team members can rely on each other and accept responsibility for the team's outcome (e.g., Reliance and Responsibility), and the ability of team members to focus on fellow team member needs and priorities (e.g., Needs and Priorities). Following varimax rotation, each factor respectively accounted for

32.31% and 27.97% of the item variance. Three of the CGN items (i.e., items 4, 5, 7) correlated relatively highly on the Reliance and Responsibility factor in the range of .72 to .81, while two of the CGN items (items 1, and 3) correlated relatively highly on Need and Priorities factor in the range of .81 to .89. Items 2 and 6 showed moderate loadings on both factors (i.e., item 2 - .41 and .51 respectively; item 6 - .60 and .46 respectively).

Table 3 shows, following varimax rotation, the item factor loadings, communalities, and explained variance for each factor, as well as the means and standard deviations for each item of the CGN items. The internal consistency of the identified factors was examined using Cronbach's (1951) coefficient alpha. Given the cross-loadings of items 2 and 6, on both factors, Cronbach alphas for both factors were calculated with and without those items. The Cronbach alphas of the two factors of Reliance and Responsibility and Needs and Priorities were .69 and .72 respectively, while the Cronbach alphas for both factors including items 2 and 6 were .75 and .72 respectively.

3.3.2 Collective Efficacy

Collective efficacy was assessed at week 10 with a 7-item measure reported by Hirschfeld and Bernerth (2008). A sample item is: "My team feels it could solve any decision problem it encounters". This measure was deemed suitable for this study because it focused on the team's confidence with respect to decision making and solving problems. Responses to the items were coded so that higher scores will be reflective of higher levels collective efficacy and lower

scores were reflective of lower levels of collective efficacy. The Cronbach's alpha for this measure was .93.

3.3.3 Team Performance

An overall team performance score was created by adding each team's overall simulation score to their group report score because both the simulation and the group project are representative of the team's overall performance. The group report, submitted to the instructor following the conclusion of the simulation and graded by one teaching assistant who was blind to the study's hypotheses, was a management audit of the team's simulation goals, strategies, decisions, and outcomes for which teams received a grade out of 100.

Each team's overall simulation score was an average of scores achieved in the 6 decision-making exercises in the simulation. Each of these scores, known as a 'balanced scorecard', is a proprietary measure of 10 performance indicators such as unit labour cost, turnover, morale, accident rate, grievances, productivity, absenteeism, quality index, percentage of females in the workforce, and percentage of visible minority employees in the workforce. Scores for each indicator were measured on an index that took into account each team's actual performance as well as its performance relative to other teams. Once teams completed their decision-making exercises, the online simulation would create a balanced scorecard for each team, ranging from 0 to 100, equally weighting each of the 10 indicators. Balanced scorecard results for each team were reported following each decision-making exercise. Overall team performance scores were

calculated out of 200 with equal weight given to both the overall simulation performance score and the grade report score. The overall simulation performance score did not correlate with the final grade report score (r = .07, n.s.).

3.3.4 Psychological Collectivism

Individual-level data were collected in week 4, assessing psychological collectivism. Psychological collectivism (PC) was assessed using a 15-item measure developed by Jackson et al., (2006). Responses to the items were coded so that higher scores were reflective of higher levels of PC and lower scores were reflective of lower levels of PC. The Cronbach's alpha for this measure was .89.

Before performing a confirmatory factor analysis (CFA) on the sample, an examination of the data for missing values found missing data for the PC items was between 5.2% and 7.8%. Separate independent samples t-tests, in which missing versus non-missing data were compared for each item, found no statistically significant differences within the collectivistic group norm, collective efficacy, and team performance variables. The sample size (N = 232) was deemed to be sufficient for CFA as per guidelines concerning case to variable ratios (i.e., between 5:1 and 10:1; Bentler & Chou, 1987).

Table 4 provides means, standard deviations, and Pearson correlation coefficients for all of the variables studied. Most of the PC items are positively correlated with one another within the range of .14 to .83 with most of the correlations at the .01 level of statistical significance except for the correlations between item 8 and item 5 (r = .14, p < .05), item 10 and item 3 (r = .18, p < .05),

item 11 and item 2 ($r = .14$, $p < .05$), item 11 and item 4 ($r = .16$, $p < .05$), item 11 and item 6 ($r = .18$, $p < .05$), item 12 and item 2 ($r = .16$, $p < .05$), and item 12 and item 4 ($r = .18$, $p < .05$) which are at the .05 level of statistical significance. No statistically significant correlations were found between items 10 and 1, 10 and 4, 10 and 5, 10 and 6, 11 and 1, 11 and 3, 12 and 1, and items 12 and 3.

Univariate outlier analyses of the PC items were conducted through the inspection of frequency distributions, the computation of a z-test for extreme values, and an inspection of the raw data. Extreme values were found in the data which were considered to be a legitimate part of the sample. Multivariate outlier analyses were conducted through a visual inspection of scatterplots randomly chosen amongst the variables under study, and an examination of a Cook's distance measure as obtained through the regression of a random variable (i.e., case number) on all PC items. These analyses did not suggest the presence of multivariate outliers (i.e., maximum Cook's distance = .11).

The individual distributions of the PC items were also examined for normality. Upon inspection of the items, all did show slight skewness and kurtosis, however, there did not appear to be serious violations of skewness or kurtosis. However, in larger samples, due to the sensitivity of the significance tests for skewness and kurtosis, it is preferable to judge normality by looking at the item distributions. Upon inspection, all items were deemed to fit the assumption of normality for CFA. The PC items also met the assumptions of multivariate normality and linearity.

Analysis was also conducted to detect outliers among the variables being studied. Squared multiple correlations were calculated by regressing each individual item on the remaining items in the questionnaire. The variable with the lowest squared multiple correlation is represented by item 10 (R^2 = .48, p < .01). This suggests that outliers do not exist among the variables. Table 5 shows the squared multiple correlation coefficients for each PC item when individually regressed on the remaining items.

A CFA was conducted on the covariance matrix of the PC items using maximum likelihood estimation. Fit indices for the five-factor model are shown in Table 6. The fit indices show that this model provides relatively good fit in accordance with what is commonly associated with a good fitting model (e.g., χ^2 (df = 85, N = 220) = 159.56, p < .001; RMSEA = .06, p < .10). Standardized parameter estimates and corresponding R^2 values for the five-factor model are provided in Table 7. As shown in Table 7, all of the model parameters were significant (p < .001), ranging from .67 to .94. Furthermore, all model parameters accounted for substantial item variance, ranging from .45 to .88. A graphical representation of the five-factor orthogonal model of the PC items along with the standardized parameter estimates representing the relationships among the variables is shown in figure 1.

Internal consistency of the five identified factors was examined using Cronbach's (1951) alpha. The Cronbach's alpha for the overall PC scale was .87.

Cronbach's alpha for each of the five factors is as follows: .88 for Preference, .85 for Reliance, .91 for Concern, .82 for Norm Acceptance, and .91 for Goal Priority.

3.4   Collectivistic Group Norms and Psychological Collectivism

A CFA was conducted to test whether collectivistic group norms and psychological collectivism are unique constructs. A Chi-square difference test was conducted to find evidence of differences between collectivistic group norms and psychological collectivism. Comparisons were drawn between a 1-factor model, and a 2-factor model, containing all items from both psychological collectivism and collectivistic group norms measures. The Chi-square difference test was conducted by subtracting the Chi-square statistic value and degrees of freedom of 2-factor model, the model with more parameters, from those of the 1-factor model, the model with fewer parameters. As shown in table 8, results reveal that, although both models have relatively poor fit by conventional standards, the 2-factor model fits the data better than the 1-factor model ($\chi^2 = 157.21$, p < .001), providing evidence of a distinction between collectivistic group norms and psychological collectivism.

3.5   Data Aggregation

Chan's (1998) typology of composition models was not only used to validate the group-level constructs of collective efficacy and psychological collectivism, it was also used to develop and validate the proposed constructs of collectivistic group norms and collectivistic group norm sharedness. Composition models "specify the functional relationships among phenomena or constructs at

different levels of analysis that reference essentially the same content but that are qualitatively different at different levels" (Chan, 1998, p.234). The composition models that are within Chan's (1998) typology include the referent-shift, additive, and dispersion models.

In referent-shift consensus models, the content and operationalization of an individual-level construct is maintained with the exception of the substitution of team referents for individual referents. The new version of the individual-level construct is then aggregated to a group-level construct using within-group agreement indices. For example, the individual-level construct of self-efficacy is measured with items using an individual-level referent (e.g., "I am confident that *I* can perform task X"). Prior to aggregation, the individual-level construct is slightly altered by substituting a group-level referent for the existing individual-level referent (e.g., "I am confident that *my team* can perform task X") (Guzzo, Yost, Campbell, & Shea, 1993). Using within group consensus, individual collective efficacy perceptions are aggregated to form the group-level construct of collective efficacy (Chan, 1998). Examples of constructs in the present research that use referent-shift consensus models are collectivistic group norms and collective efficacy.

3.5.1 Collectivistic Group Norms

According to Chan (1998), a referent-shift consensus model describes an aggregated construct comprising of individual-level perceptions about a higher level phenomenon. Within group agreement indices, such as intra-class

correlations, are calculated to empirically justify, and theoretically validate, the use of a referent-shift consensus model. Intra-class correlations (ICC) were calculated to determine the reliability of the collectivistic group norm measure at the team-level (e.g., Bliese, 2000).

The ICC(1) coefficient, describing the extent to which response variability at the individual-level can be attributed to team membership, was .28. The ICC(2) coefficient, describing the reliability of the team-level means, was .74. These results show that collectivistic group norms displayed sufficient within-group agreement relative to between-group variance, supporting aggregation of these individual-level data to the team-level (Klein & Kozlowski, 2000).

3.5.2 Collective Efficacy

Bandura (1997; 2000) suggested that the use of referent-shift measures is the preferred way to assess collective efficacy. Arthur Jr., Bell, and Edwards (2007) compared the criterion-related validity of additive and referent-shift composition models of collective efficacy. The authors predicted that, for a highly interdependent task, referent-shift operationalizations of collective efficacy, that use the team as the referent, are more reflective of team-level confidence perceptions and would exhibit stronger associations with team performance outcomes than aggregated measures of self-efficacy scores that use the individual as the referent. Using a longitudinal design involving 85 dyads performing an interdependent perceptual-motor skill task over 2-weeks, where collective efficacy and team performance were measured at three different time periods, the

authors found that the referent-shift operationalization of the collective efficacy measure was a stronger predictor of team performance, at all 3 time periods, than collective efficacy operationalized as the aggregation of individual team member self-efficacy.

Meta-analytic evidence provided by Stajkovic et al., (2009) show that collective efficacy, operationalized using the group discussion method, where team members discuss, agree upon, and complete a single assessment of collective efficacy, produced stronger positive associations with group performance than referent-shift operationalizations of collective efficacy, where team members individually complete collective efficacy assessments of the team. However, for highly interdependent tasks, both the discussion and referent-shift operationalizations of collective efficacy produced equivalent average correlations with team performance outcomes.

A referent-shift consensus model (Chan, 1998) was also applied to the aggregation of collective efficacy data at the individual-level to the team-level. ICC(1) and ICC(2) were calculated to empirically justify, and theoretically validate, collective efficacy as a group-level construct. The ICC(1) and ICC(2) coefficients were .63 and .92 respectively, showing support for the aggregation of these individual-level data to the team-level (Klein & Kozlowski, 2000).

3.5.3 Collectivistic Group Norm Sharedness

A dispersion composition model (Chan's, 1998) was used to aggregate the collectivistic group norm sharedness construct. In dispersion composition models,

the operationalization of a group-level construct is a reflection of the extent to which individual-level assessments of attributes vary within a group. Dispersion indices that reflect within group agreement are used to operationalize the group-level construct. These dispersion indices not only reflect empirical requirements but also reflect a theoretical rationale for aggregation to the group-level.

Collectivistic group norm sharedness was operationalized using a standard deviation aggregation of the individual-level collectivistic group norm data. The use of standard deviation aggregation as an index of within unit agreement is recommended when attempting to define and examine the extent to which perceptions differ amongst team members (Harrison & Klein, 2007).

3.5.4 Psychological Collectivism

An additive composition model (Chan, 1998) was used to aggregate psychological collectivism to the group-level. In additive composition models, the operationalization of a group-level construct is an aggregation of individual-level assessments regardless of the extent to which those assessments vary amongst group members. Indices reflecting the summation, or averaging, of individual-level assessments are used to justify aggregation to the group-level without consideration of an empirical justification to aggregate to the group-level.

Individual-level psychological collectivism data was aggregated to the team-level to assess the extent to which this personality trait, in aggregate, influenced collectivistic group norms, collective efficacy, and team performance.

This aggregation of data represents a construct where individual-level data are

neither assumed, nor required, to achieve agreement (Klein & Kozlowski, 2000).

CHAPTER 4: RESULTS

4.1   Data Screening

The group-level variables of collectivistic group norms, collective

efficacy, and psychological collectivism were examined for normality. Upon

inspection of the data there did not appear to be serious violations of skewness or

kurtosis with values ranging from -0.82 to 1.16. Outlier analysis of the variables

was conducted through the inspection of histograms and bivariate scatterplots, the

computation of a z-test for extreme values, and an inspection of the raw data.

These analyses did not suggest the existence of outliers or extreme values.

4.2   Hypothesis Tests

Table 9 provides descriptive statistics and Pearson correlation coefficients

for all of the variables studied. Hypothesis 1 predicts that collectivistic group

norms will be positively associated with collective efficacy perceptions. The

results in table 9 reveal that collectivistic group norms ($\beta = .31$, $p < .05$)

demonstrated a statistically significant positive association with collective

efficacy. Hence, hypothesis 1 was supported.

Hypothesis 2 predicts that collectivistic group norms will be positively

associated with team performance. The results in table 9 reveal that collectivistic

group norms ($\beta = .29$, $p < .05$) demonstrated a statistically significant positive

association with team performance. Hence, hypothesis 2 was supported.

Hypothesis 3a states that collectivistic group norm sharedness will

moderate the association between collectivistic group norms and collective

efficacy. LeBreton and colleagues suggest the use of relative importance analysis to decompose total predicted variance (Johnson & LeBreton, 2004; LeBreton & Tonidandel, 2009). Two specific analytic strategies associated with relative importance analysis are dominance analysis (Azen & Budescu, 2003; Budescu, 1993) and relative weight analysis (Johnson, 2000).

In dominance analysis, dominance weights are obtained for all relevant predictors by calculating the average change in the multiple squared correlation coefficient when each predictor is added to all possible subsets of the predictor variables that remain. Alternatively, relative weight analysis creates maximally related, orthogonal, predictor variables that are used, with the original predictor variables, to estimate the variance accounted for by each original predictor variable (LeBreton & Tonidandel, 2009).

These analyses are believed to be more accurate measures of predicted variance because, unlike other methods, they account for correlation amongst predictor variables (Johnson & LeBreton, 2004). Research has demonstrated that the use of dominance and relative weight analyses in estimating total predicted variance of main effects in additive regression models has yielded very similar results (Johnson, 2000; LeBreton, Ployhart, & Ladd, 2004; LeBreton & Tonidandel, 2008).

Dominance and relative weight analyses can also be used to estimate variance predicted by higher order effects such as interaction effects (LeBreton & Tonidandel, 2009). Thus, dominance analysis and relative weight analysis were

used to test hypotheses 3a and 3b. According to table 10, dominance analysis and relative weight analysis respectively show that, in the prediction of collective efficacy, collectivistic group norm sharedness accounted for R^2 of .06, or 29% of total variance predicted. These analyses also respectively show that, in the prediction of team performance, collectivistic group norm sharedness accounted for R^2 of .12, or 50% of total variance predicted. Thus, hypotheses 3a and 3b were supported.

Hypothesis 4 predicts that collective efficacy will partially mediate the association between collectivistic group norms and team performance. As recommended by Kenny, Kashy, and Bolger (1998), this hypothesis was tested using structural equation modeling (SEM). The use of SEM to test meditational hypotheses is recommended because, unlike hierarchical regression models, structural equation models allow researchers to model measurement error, which produces more accurate estimates of the mediation effect (Kenny et al., 1998).

Instead of using the Sobel test to estimate the mediation effect, Cheung and Lau (2008) recommend the use of the bootstrapping method to create confidence intervals to determine the significance of the mediation effect. The use of a bootstrapping method to determine the significance of the indirect effect tends to be more accurate than the Sobel test because it does not rely on the assumption that the indirect effect is normally distributed. This is especially relevant given that distributions of indirect effects tend to be skewed for smaller sample sizes (Cheung & Lau, 2008).

A structural equation model was created to examine the hypothesized association between collectivistic group norms, collective efficacy, and team performance to obtain the direct effects, indirect effects, and confidence intervals for each bootstrap sample. Due to the smaller sample size of the study and concerns of inflated Type I error, the authors recommend cross-validating results produced by both percentile method and bias-corrected bootstrap confidence intervals.

To demonstrate partial mediation, statistically significant direct effects must be shown between the independent variable and the mediator, the mediator and the dependent variable, and between the independent and dependent variables. Results from the structural equation model show statistically significant associations between collectivistic group norms and collective efficacy ($\beta = .31$, p $< .05$) and team performance ($\beta = .31$, p $< .05$), and a statistically non-significant association between collectivistic group norms and team performance ($\beta = .19$, n.s.).

Further analysis revealed a standardized indirect effect between collectivistic group norms and team performance using percentile method bootstrap confidence intervals ($\beta = .31$, CI $= .01$ to $.21$, p $< .05$) and bias-corrected bootstrap confidence intervals ($\beta = .31$, CI $= .02$ to $.23$, p $< .05$). Thus, rather than demonstrating partial mediation, these results demonstrate that collective efficacy fully mediates the association between collectivistic group norms and team performance. Thus, hypothesis 4 was partially supported.

Hypothesis 5a predicts that the psychological collectivism dimension preference will be positively related with collectivistic group norms. The results in table 9 show that preference ($\beta = .19$, n.s.) is not positively associated with collectivistic group norms. Hence, hypothesis 5a was not supported.

Hypothesis 5b predicts that the psychological collectivism dimension concern will be positively related with collectivistic group norms. The results in table 9 show that concern ($\beta = .42$, $p < .01$) is positively associated with collectivistic group norms. Hence, hypothesis 5b was supported.

Hypothesis 5c states that the psychological collectivism dimension reliance will be positively related with collectivistic group norms. The results in table 9 show that reliance ($\beta = .20$, n.s.) is not positively associated with collectivistic group norms. Hence, hypothesis 5c was not supported.

Hypothesis 5d predicts that the psychological collectivism dimension goal priority will be positively related with collectivistic group norms. The results in table 9 show that goal priority ($\beta = .03$, n.s.) is not positively associated with collectivistic group norms. Hence, hypothesis 5d was not supported.

Hypothesis 5e predicts that psychological collectivism dimension norm acceptance will be positively related with collectivistic group norms. The results in table 9 show that norm acceptance ($\beta = .42$, $p < .01$) is positively associated with collectivistic group norms. Hence, hypothesis 5e was supported.

Hypothesis 5f predicts that the psychological collectivism will be positively related with collectivistic group norms. The results in table 9 show that

psychological collectivism (β = .34, p < .01) is positively associated with collectivistic group norms. Hence, hypothesis 5f was supported.

Hypothesis 6a predicts that collectivistic group norms will account for unique variance in its associations with collective efficacy and team performance after controlling for the psychological collectivism dimension of preference. Table 11 shows the results obtained using dominance and relative weight analyses for hypotheses 6a through 6f. Dominance and relative weight analyses respectively show that, in the prediction of collective efficacy, the psychological collectivism dimension of preference accounted for R^2 of .08, or 48% and 45% of total variance predicted, and collectivistic group norms accounted for R^2 of .08, or 52% and 54% of total variance predicted. Dominance and relative weight analyses also respectively show that, in the prediction of team performance, preference accounted for R^2 of .06, or 45% of total variance predicted, and collectivistic group norms accounted for R^2 of .07, or 55% of total variance predicted. Thus, hypothesis 6a was supported.

Hypothesis 6b predicts that collectivistic group norms will account for unique variance in its associations with collective efficacy and team performance after controlling for the psychological collectivism dimension of reliance. Dominance analysis and relative weight analysis respectively show that, in the prediction of collective efficacy, the psychological collectivism dimension of reliance accounted for R^2 of .09, or 52% of total variance predicted, and collectivistic group norms accounted for R^2 of .08, or 49% of total variance

predicted. Dominance and relative weight analyses also respectively show that, in the prediction of team performance, reliance accounted for R^2 of .02, or 19% of total variance predicted, and collectivistic group norms accounted for R^2 of .08 and .07, or 81% of total variance predicted. Thus, hypothesis 6b was supported.

Hypothesis 6c predicts that collectivistic group norms will account for unique variance in its associations with collective efficacy and team performance after controlling for the psychological collectivism dimension of concern. Dominance analysis and relative weight analysis respectively show, that in the prediction of collective efficacy, the psychological collectivism dimension of concern accounted for R^2 of .03, or 29% and 28% of total variance predicted, and collectivistic group norms accounted for R^2 of .08, or 71% and 72% of total variance predicted. Dominance and relative weight analyses also respectively show that, in the prediction of team performance, concern accounted for R^2 of .01, or 16% and 17% of total variance predicted, and collectivistic group norms accounted for R^2 of .07, or 84% and 83% of total variance predicted. Thus, hypothesis 6c was supported.

Hypothesis 6d predicts that collectivistic group norms will account for unique variance in its associations with collective efficacy and team performance after controlling for the psychological collectivism dimension of norm acceptance. Dominance analysis and relative weight analysis respectively show that, in the prediction of collective efficacy, the psychological collectivism dimension of norm acceptance accounted for R^2 of .02, or 16% of total variance

predicted, and collectivistic group norms accounted for R^2 of .08, or 84% and 85% of total variance predicted. Dominance and relative weight analyses also respectively show that, in the prediction of team performance, norm acceptance accounted for R^2 of .05, or 48% of total variance predicted, and collectivistic group norms accounted for R^2 of .06, or 52% of total variance predicted. Thus, hypothesis 6d was supported.

Hypothesis 6e predicts that collectivistic group norms will account for unique variance in its associations with collective efficacy and team performance after controlling for the psychological collectivism dimension of goal priority. Dominance analysis and relative weight analysis respectively show that, in the prediction of collective efficacy, the psychological collectivism dimension of goal priority accounted for R^2 of .00, or 1% of total variance predicted, and collectivistic group norms accounted for R^2 of .10, or 99% of total variance predicted. Dominance and relative analyses also respectively show that, in the prediction of team performance, goal priority accounted for R^2 of .01, or 11% of total variance predicted, and collectivistic group norms accounted for R^2 of .08, or 89% of total variance predicted. Thus, hypothesis 6e was supported.

Hypothesis 6f predicts that collectivistic group norms will account for unique variance in its associations with collective efficacy and team performance after controlling for psychological collectivism. Dominance analysis and relative weight analysis respectively show that, in the prediction of collective efficacy, psychological collectivism accounted for R^2 of .07, or 48% of total variance

predicted, and collectivistic group norms accounted for R^2 of .07, or 52% of total variance predicted. Dominance and relative weight analyses also respectively show that, in the prediction of team performance, psychological collectivism accounted for R^2 of .06, or 47% of total variance predicted, and collectivistic group norms accounted for R^2 of .06, or 53% of total variance predicted. Thus, hypothesis 6f was supported.

4.3   Exploratory Analysis

In addition to the analysis of the theoretically driven hypotheses provided above, I provide results from an exploratory analysis of the study data. In the primary analysis of the data, collectivistic group norms were treated as a single-factor construct. For this exploratory analysis, I test the hypotheses proposed in Chapter 2 using the sub-dimensions of collectivistic group norms identified in the exploratory factor analysis in Chapter 3. These sub-dimensions are Needs / Priorities (the extent to which team members can focus on fellow team member needs and priorities during task performance) and Reliance / Responsibility (the extent to which team member rely on each other and accept responsibility for the team's outcome). The reason for this exploratory analysis is to determine the extent to which each of these dimensions relate to psychological collectivism and its five sub-dimensions, collective efficacy, and team performance. The results that follow provide a brief overview of the pattern of associations found when examining the proposed sub-dimensions of Needs/Priorities and Reliance/Responsibility.

Table 12 provides descriptive statistics and Pearson correlation coefficients for all of the variables included in the exploratory analysis. As shown in table 12, the needs/priorities dimension of collectivistic group norms was not associated with collective efficacy while the reliance/responsibility dimension of collectivistic group norms was positively associated with collective efficacy. As shown in table 13, the needs/priorities and reliance/responsibility dimensions of collectivistic group norms uniquely account for variance in collective efficacy and team performance after controlling for psychological collectivism and its five sub-dimensions. The needs/priorities dimension uniquely accounted for a range of 4.6% and 10.9% of the total explained variance in collective efficacy and uniquely accounted for a range of 24% and 44.7% of the total explained variance in team performance. The reliance/responsibility dimension uniquely accounted for a range of 54.5% and 87.4% of the total explained variance in collective efficacy and uniquely accounted for a range of 26.4% and 43.5% of the total explained variance in team performance.

Also shown in table 12 the needs/priorities dimension of collectivistic group norms was positively associated with psychological collectivism and the four sub-dimensions of preference, reliance, concern, and norm acceptance. The reliance/responsibility dimension of collectivistic group norms was also positively associated with the sub-dimension of norm acceptance but was not associated with psychological collectivism and the three sub-dimensions of preference,

reliance, concern. Neither sub-dimension of collectivistic group norms was associated with goal priority.

Moderational analysis was conducted by operationalizing each sub-dimension as a sharedness construct using its standard deviation (i.e., needs/priorities sharedness and reliance/responsibility sharedness), to examine each moderational hypothesis. As shown in table 14, needs/priorities sharedness uniquely accounted for approximately 51% of the total variance predicted in collective efficacy and approximately 49% of the total variance predicted in team performance. Reliance/responsibility sharedness uniquely accounted for 3.8% of the total variance predicted in collective efficacy and approximately 19.4% of the total variance predicted in team performance. These interactions are shown in figures 4 through 7.

Mediational analysis shows that collective efficacy did not mediate the association between the needs/priorities dimension of collectivistic group norms and team performance. However, collective efficacy fully mediated the association between the reliance/responsibility dimension of collectivistic group norms and team performance.

4.4   Summary of Results

Results from the primary analysis of the data show support for the majority of the study's hypotheses. Specifically, support, or partial support, was shown for the following hypotheses:

Hypothesis 1: Collectivistic group norms are positively associated with collective efficacy perceptions.

Hypothesis 2: Collectivistic group norms are positively associated with team performance outcomes.

Hypothesis 3a: Collectivistic group norm sharedness will moderate the positive association between collectivistic group norms and collective efficacy such that higher levels of collectivistic group norm sharedness will increase the positive association between collectivistic group norms and collective efficacy.

Hypothesis 3b: Collectivistic group norm sharedness will moderate the positive association between collectivistic group norms and team performance such that higher levels of collectivistic group norm sharedness will increase the positive association between collectivistic group norms and team performance.

Hypothesis 4: Collective efficacy will partially mediate the association between collectivistic group norms and team performance.

Hypothesis 5b: The psychological collectivism dimension concern is positively associated with collectivistic group norms.

Hypothesis 5e: The psychological collectivism dimension norm acceptance is positively associated with collectivistic group norms.

Hypothesis 5f: Psychological collectivism is positively associated with collectivistic group norms.

Hypothesis 6a: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of preference.

Hypothesis 6b: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of reliance.

Hypothesis 6c: Collectivistic group norms account for unique variance in the association between collective efficacy and team

performance after controlling for the psychological collectivism dimension of concern.

Hypothesis 6d: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of norm acceptance.

Hypothesis 6e: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of goal priority.

Hypothesis 6f: Collectivistic group norms account for unique variance in the association between collective efficacy and team performance after controlling for psychological collectivism.

Results from the primary analysis of the study data did not show support for the following hypotheses:

Hypothesis 5a: The psychological collectivism dimension preference is positively associated with collectivistic group norms.

Hypothesis 5c: The psychological collectivism dimension reliance is positively associated with collectivistic group norms.

Hypothesis 5d: The psychological collectivism dimension goal priority is positively associated with collectivistic group norms.

The exploratory analysis of the data involved a re-examination of the study's hypotheses by substituting the single factor collectivistic group norms construct with the proposed sub-dimensions of needs / priorities and reliance / responsibility. Results from the exploratory analysis involving the needs / priorities sub-dimension of collectivistic group norms show support for the following hypotheses:

Hypothesis 3a: Needs / priorities sharedness will moderate the positive association between the needs / priorities dimension of collectivistic group norms and collective efficacy such that higher

levels of needs / priorities sharedness will increase the positive association between the needs / priorities dimension of collectivistic group norms and collective efficacy.

Hypothesis 3b: Needs / priorities sharedness will moderate the positive association between the needs / priorities dimension of collectivistic group norms and team performance such that higher levels of needs / priorities sharedness will increase the positive association between the needs / priorities dimension of collectivistic group norms and team performance.

Hypothesis 5a: The psychological collectivism dimension preference is positively associated with the needs / priorities dimension of collectivistic group norms.

Hypothesis 5b: The psychological collectivism dimension concern is positively associated with the needs / priorities dimension of collectivistic group norms.

Hypothesis 5c: The psychological collectivism dimension reliance is positively associated with the needs / priorities dimension of collectivistic group norms.

Hypothesis 5e: The psychological collectivism dimension norm acceptance is positively associated with the needs / priorities dimension of collectivistic group norms.

Hypothesis 6a: The needs / priorities dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of preference.

Hypothesis 6b: The needs / priorities dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of reliance.

Hypothesis 6c: The needs / priorities dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of concern.

Hypothesis 6d: The needs / priorities dimension of collectivistic group norms accounts for unique variance in the association

between collective efficacy and team performance after controlling for the psychological collectivism dimension of norm acceptance.

Hypothesis 6e: The needs / priorities dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of goal priority.

Hypothesis 6f: The needs / priorities dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for psychological collectivism.

Results from the exploratory analysis involving the needs / priorities sub-

dimension of collectivistic group norms do no show support for the following

hypotheses:

Hypothesis 1: The needs / priorities dimension of collectivistic group norms is positively associated with collective efficacy perceptions.

Hypothesis 2: The needs / priorities dimension of collectivistic group norms is positively associated with team performance outcomes.

Hypothesis 4: Collective efficacy will partially mediate the association between the needs / priorities dimension of collectivistic group norms and team performance.

Hypothesis 5d: The psychological collectivism dimension goal priority is positively associated with the needs / priorities dimension of collectivistic group norms.

Results from the exploratory analysis of the reliance / responsibility sub-

dimension of collectivistic group norms show support for the following

hypotheses:

Hypothesis 1: The reliance / responsibility dimension of collectivistic group norms is positively associated with collective efficacy perceptions.

Hypothesis 3a: Reliance / responsibility sharedness will moderate the positive association between the reliance / responsibility dimension of collectivistic group norms and collective efficacy such that higher levels of reliance / responsibility sharedness will increase the positive association between the reliance / responsibility dimension of collectivistic group norms and collective efficacy.

Hypothesis 3b: Reliance / responsibility sharedness will moderate the positive association between the reliance / responsibility dimension of collectivistic group norms and team performance such that higher levels of reliance / responsibility sharedness will increase the positive association between the reliance / responsibility dimension of collectivistic group norms and team performance.

Hypothesis 4: Collective efficacy will partially mediate the association between the reliance / responsibility dimension of collectivistic group norms and team performance.

Hypothesis 5e: The psychological collectivism dimension norm acceptance is positively associated with the reliance / responsibility dimension of collectivistic group norms.

Hypothesis 6a: The reliance / responsibility dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of preference.

Hypothesis 6b: The reliance / responsibility dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of reliance.

Hypothesis 6c: The reliance / responsibility dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of concern.

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Hypothesis 6d: The reliance / responsibility dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of norm acceptance.

Hypothesis 6e: The reliance / responsibility dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for the psychological collectivism dimension of goal priority.

Hypothesis 6f: The reliance / responsibility dimension of collectivistic group norms accounts for unique variance in the association between collective efficacy and team performance after controlling for psychological collectivism.

Finally, results from the exploratory analysis of the reliance / responsibility sub-dimension of collectivistic group norms do not show support for the following hypotheses:

Hypothesis 2: The reliance / responsibility dimension of collectivistic group norms is positively associated with team performance outcomes.

Hypothesis 5a: The psychological collectivism dimension preference is positively associated with the reliance / responsibility dimension of collectivistic group norms.

Hypothesis 5b: The psychological collectivism dimension concern is positively associated with the reliance / responsibility dimension of collectivistic group norms.

Hypothesis 5c: The psychological collectivism dimension reliance is positively associated with the reliance / responsibility dimension of collectivistic group norms.

Hypothesis 5d: The psychological collectivism dimension goal priority is positively associated with the reliance / responsibility dimension of collectivistic group norms.

CHAPTER 5: DISCUSSION

Research on collectivism has improved our understanding of team member interaction and team functioning via two prominent conceptualizations. The first of these conceptualizations has origins in Hofstede's (1980) organizing framework of cultural differences where collectivism represents a set of values that defines cultures according to the ways in which its people interact with one another. For example, collectivistic cultures typically place importance upon its people being members of, and identifying with, their respective cultural groups, maintaining harmonious relationships with similar others, and making sacrifices for the common good. A second similar, yet distinct, conceptualization of collectivism is based upon the notion that the aforementioned collectivistic characteristics can also define differences amongst individuals (Triandis et al., 1985).

Research using these conceptualizations of collectivism has contributed to our understanding of team effectiveness by showing, for example, that, within group contexts, individuals with greater collectivistic orientations are more cooperative and perform better when given group goals and shared responsibilities (Cox et al., 1991; Elleson, 1983; Mann, 1980; Matsui, Katkuyama, & Onglatco, 1987). Similarly, individuals with stronger cultural orientations toward collectivism show greater preferences for group work and perform better in group tasks (Earley, 1994).

Although these conceptualizations have contributed to our understanding of team member behaviour, researchers have noted their limitations. For example, conceptualizations of collectivism at the cultural-level are argued to be too distal in the prediction of behaviour at both individual and group levels (Hofstede, 1980). Furthermore, individual difference conceptualizations of collectivism have produced measures of questionable reliability and validity that have limited our understanding of how collectivism relates to team effectiveness outcomes (e.g., Earley & Gibson, 1998; Oyserman et al., 2002).

To address these limitations, I have drawn upon these traditions, and have built upon an emerging body of research in the social psychology literature in which collectivism is conceptualized as group norms that emerge amongst team members (e.g., McAuliffe et al., 2003). This study makes a number of contributions to the literatures on collectivism, collective efficacy, and team effectiveness. In particular, this study improves our understanding of 1) collectivistic group norms; 2) collectivistic group norm sharedness; 3) new antecedents of collective efficacy beliefs; and 4) associations between psychological collectivism, collectivistic group norms, collective efficacy, and team performance. In the following section I will elaborate on the theoretical implications of this study's findings, and later I will discuss this study's practical implications and limitations, as well as opportunities for future research.

5.1 Theoretical Implications

The first theoretical implication of this study involves the establishment of the collectivistic group norms construct in the organizational behaviour literature. The results of this study show that collectivistic group norms are positively associated with collective efficacy perceptions and team performance. Results also show that collectivistic group norms account for unique variance in the prediction of collective efficacy and team performance after controlling for psychological collectivism, also shown to be positively associated with collectivistic group norms, suggesting an alternative conceptualization of collectivism as norms that emerge in group contexts. These findings are a departure from previous research that has conceptualized collectivism as either an individual difference (e.g., Triandis et al., 1985) or as a product of cultural context (e.g., Hofstede, 1980). Thus, this research suggests that collectivistic characteristics not only develop at the cultural and individual levels of analysis but they also develop at the group-level of analysis through group interaction.

This alternative conceptualization of collectivism may help to resolve equivocal findings that currently exist in the team effectiveness literature. For example, rather than attributing Gibson's (2003) finding of a negative association between an aggregated individual difference measure of team-level collectivism and collective efficacy to cultural tendencies of students from the US and Hong Kong toward collectivism, this research suggests that this negative association may be explained, in part, by team-member expectations around the performance of collectivistic behaviours amongst teams participating in the team task.

A second contribution of this study is that it provides support for the notion that group norms behave as emergent states, as suggested by Marks et al. (2001), rather than psychosocial traits, as suggested by Cohen and Bailey (1997). Thus, rather than being thought of as stable group traits, collectivistic group norms represent dynamic team characteristics, that are influenced by contextual factors, which influence team effectiveness outcomes. This research suggests that collectivistic group norms behave as an emergent state in at least three ways. First, collectivistic group norms characterize the extent to which team members value team membership and collective responsibility. Second, the emergence of collectivistic group norms is influenced by team experiences as well as contextual factors, such as the team task. Finally, collectivistic group norms also serve as inputs to subsequent team processes and emergent states as demonstrated by the finding that collective efficacy fully mediated the association between collectivistic group norms and team performance. This finding, consistent with social cognitive theory (Bandura, 1997), supports the theoretical rationale that team performance is influenced by group norms, manifested as observable team member behaviour, that fellow teammates use as motivation to work hard, and perform well, on the team task.

A third theoretical implication of this research relates to the use of collectivistic group norm sharedness to account for unique variance in collective efficacy and team performance. Moderation analysis revealed that collectivistic group norm sharedness moderated the association between collectivistic group

norms and collective efficacy such that higher levels of collectivistic group norm sharedness increased the positive association between collectivistic group norms and collective efficacy. Additional moderation analysis showed that collectivistic group norm sharedness moderated the association between collectivistic group norms and team performance such that higher levels of collectivistic group norm sharedness increased the positive association between collectivistic group norms and team performance.

While previous research has applied diversity conceptualizations to constructs measuring individual differences toward collectivism amongst team members (e.g., Tyran & Gibson, 2008), no research has examined a diversity conceptualization of collectivistic group norms amongst team members. The results of this research lend support to the separation conceptualization of group norm sharedness, according to Harrison and Klein's (2007) taxonomy, as the extent to which perceptions differ amongst team members. Rather than just conceptualizing collectivistic behaviour within groups as the extent to which team members understand what is expected of them, collectivistic behaviour within groups can also be conceptualized as the extent to which team members differ in their understanding of what is expected of them.

Thus, this conceptualization of collectivistic behaviour is in need of further consideration when examining team effectiveness because sharing similar expectations of collectivistic behaviour amongst teammates can improve team effectiveness in the performance of tasks requiring higher levels of coordination.

For example, surgical teams A and B can, on average, have the same levels of shared expectations about the performance of collectivistic behaviours, such as ensuring that both the patient and the necessary surgical equipment are prepared in advance of the surgery. However, surgery team A will likely be more effective than surgery team B if each team member within surgery team A is in greater agreement about the extent of due diligence required in the preparation of both the patient and surgical equipment to be used in surgery.

A fourth theoretical implication of this research pertains to the discovery of new determinants of collective efficacy beliefs. Previous research, by Lee et al., (2002), examining associations between group norms and collective efficacy has reported null findings. Contrary to Lee et al.'s (2002) findings, the results of this study demonstrate that collective efficacy perceptions are influenced by collectivistic group norms, defined as the extent to which team members understand the collectivistic behaviour expected of them and, collectivistic group norm sharedness, the extent to which team members differ in their understanding of the collectivistic behaviour expected of them during task performance.

These findings lend support to Gibson's (2001a) organizing framework of collective cognition such that emergence of collectivistic group norms creates roles and routines within teams that communicate information needed by team members to properly assess, and organize, team resources needed for successful task performance, thus, giving teams confidence about their ability to successfully perform the task-at-hand. Additionally, the emergence of collectivistic group

norms within teams creates structure promoting the performance of collectivistic behaviour on a consistent basis, giving teams greater confidence about their ability to successfully perform the team task.

Finally, this study is among few studies to examine the influence of psychological collectivism on emergent states, such as collectivistic group norms. The results of this study revealed that only the two psychological collectivism sub-dimensions of concern and norm acceptance were positively associated with collectivistic group norms while no associations were found between collectivistic group norms and the remaining three sub-dimensions of preference, reliance, and goal priority.

The finding that preference, reliance, and goal priority are not associated with collectivistic group norms provokes thought about to the extent to which the sub-dimensions of psychological collectivism differentially influence the emergence of collectivistic group norms. Collectivistic group norms promote strong team situations by structuring team member interaction. Thus, individual differences amongst team members, reflecting inclinations toward structuring team member interaction, are less influential during task performance. For example, the psychological collectivism sub-dimensions of preference, reliance, and goal priority respectively reflect individual team member proclivities toward structuring team member interaction through establishing team member relationships, defining team member responsibilities, and encouraging common goal pursuit amongst team members. These means of structuring team member

interaction are already accounted for through the emergence of collectivistic group norms, making these individual differences amongst team members less relevant to task performance. This is in contrast to individual differences that compliment the emergence of collectivistic group norms such as the psychological collectivism sub-dimensions of concern and norm acceptance which respectively reflect individual team member inclinations toward taking a general interest in the team, and its members, and complying with team rules and expectations. Further research is required to investigate these hypotheses.

The results of this study also suggest that the individual difference construct of psychological collectivism is a determinant of collective efficacy perceptions. Analysis of this study's meditational hypotheses revealed that collective efficacy perceptions fully mediated the association between collectivistic group norms and team performance. These results provide support to the argument that team members with greater inclinations toward collectivism will likely display observable collectivistic behaviour that will form the basis for positive confidence perceptions about a team's ability to successfully perform its task which, in turn, will result in improved team performance.

5.2   Practical Implications

The first practical implication of this study relates to team composition. Managers responsible for forming self-managing teams can improve their effectiveness by selecting members who have greater inclinations toward collectivistic behaviour. The results of this study are consistent with meta-analytic

data from Bell (2007) that suggest individual difference measures of collectivism can be used as a basis for selection to improve team performance. Examples of 'real world' situations where organizations would likely benefit from selecting teams based on collectivistic orientations include selecting applicants for team-based jobs, and selecting current employees for assignments on cross-functional teams. As the results of this study demonstrate, doing so will increase the extent to which teams will adhere to collectivistic group norms, improve collective efficacy perceptions, and lead to better team performance.

A second practical implication pertains to choosing appropriate tasks to foster the emergence of collectivistic group norms. Meta-analytic data from Stewart (2006) demonstrates that team task designs promoting intra-team coordination are positively associated with team performance. The results of this study suggest that developing collectivistic group norms would be an effective way to encourage teams, who are working on highly interdependent tasks, to develop higher levels of intra-team coordination and improve team performance. The development of collectivistic group norms would, for example, likely be of great practical use for teams whose output is a function of contributions from all team members, such as production teams and cross-functional project teams.

A third practical implication of this research involves the use of appropriate training that encourages collectivistic group norm emergence within teams. For example, Gibson (2001b) found that team goal-setting training influences group efficacy, through mechanisms such as group norms, which

enable teams to develop shared perceptions of team capabilities. Meta-analytic data from Arthur, Bennett, Edens, and Bell (2003) show that training methods such as the use of lectures is an effective means by which organizations can teach interpersonal skills (e.g., involving interaction in workgroups). Thus, the use of training methods, such as lectures, can be specifically designed to teach and promote the performance of collectivistic behaviour within teams as a means to improve team performance.

The fourth practical implication arising from this study relates to how team leaders can effectively promote the emergence of collectivistic group norms. For example, research by Taggar and Ellis (2007) shows that the emergence of team problem solving norms, through the development of a team charter, facilitated by a team leader, significantly influenced team member problem solving behaviors. Therefore, it is recommended that managers spend time with teams prior to task performance to facilitate the emergence of collectivistic group norms. For example, a manager beginning a team project would be wise to spend time with the entire team prior to the commencement of the project to outline, in contract form, the collectivistic behaviour that team members are to expect from each other. Doing so will not only increase the extent to which the team is expected to perform collectivistic behaviour but will also likely improve the extent to which team members share similar expectations pertaining to the performance of collectivistic behaviour.

Finally, the influence of psychological collectivism and collectivistic group norms on collective efficacy emergence emphasizes the importance of recognizing how team member performance of collectivistic behaviours influences team confidence perceptions. Thus, managers seeking to improve team effectiveness should manage team confidence perceptions by helping team members recognize and acknowledge how collectivistic behaviour contributes to team effectiveness. Ways in which this can be accomplished include the use of verbal persuasion techniques, such as positive feedback and coaching by influential team members, to help reinforce collectivistic behaviour among current team members, and to help socialize new team members on the performance of collectivistic behaviours. For example, a production supervisor can improve the performance of a production team by improving the production team's confidence perceptions through techniques such as providing positive feedback to employees when they do what is expected of them and coaching employees who are not performing according to expectations. Doing so provides signals to fellow team members of the team's ability to engage in appropriate performance behaviour which will positively influence team member perceptions of the team's ability to perform the task.

5.3   Limitations and Future Research

Some potential limitations of this study will now be considered along with opportunities for future research that will not only address this study's limitations but that will also build upon this study's findings. First, although the timing of the

measures permits me to say that early perceptions of collectivistic group norms and collective efficacy are associated with team performance, I cannot rule out reciprocal associations that could occur between these variables. For example, I cannot ignore the possibility that performance feedback subsequent to the assessment of collective efficacy might have influenced team performance as demonstrated by Tasa and colleagues who found performance feedback to positively influence collective efficacy perceptions (e.g., Tasa et al., 2007). Additionally, while scholars suggest that team member experiences, such as those provided by performance feedback, influence group norm emergence (Bettenhausen & Murnighan, 1985), future research is needed to examine the influence of performance feedback on the emergence of collectivistic group norms.

Second, because the data for this study were obtained through the use of a non-experimental design, I cannot make causal inferences that the independent variables caused changes in the dependent variables. For example, the finding that collective efficacy fully mediated the association between collectivistic group norms and team performance is based on a study design where the collection of collectivistic group norm and collective efficacy data occurred at the same point in time, raising questions of causal inference between collectivistic group norms and collective efficacy. In addition to the theoretical rationale in support of this causal model, additional empirical evidence lends support to the mediating role of

collective efficacy in the association between collectivistic group norms and team performance.

An alternative structural equation model was created to examine the mediating effects of collectivistic group norms in comparison to the mediating effects of collective efficacy. Specifically, collectivistic group norms was modeled as a mediator in the association between collective efficacy and team performance. Results from the structural equation model show statistically significant associations between collective efficacy and collectivistic group norms ($\beta = .31$, $p < .05$) and collective efficacy and team performance ($\beta = .31$, $p < .05$), and a statistically non-significant association between collectivistic group norms and team performance ($\beta = .19$, n.s.). Thus in comparison to the finding that collective efficacy fully mediated the association between collectivistic group norms and team performance, these findings demonstrate that collectivistic group norms do not mediate the association between collective efficacy and team performance. This lends greater support to the notion that collective efficacy fully mediates the association between collectivistic group norms and team performance.

In spite of these findings, rather than stating that collective efficacy fully mediated the association between collectivistic group norms and team performance, it can be stated that this finding of full mediation is consistent with the assumed causal model presented (Stone-Romero & Rosopa, 2008). For future research, I suggest the use of research designs that improve the internal validity of

the findings presented in this study. Examples of study designs promoting higher internal validity include the use of either two randomized experiments or two quasi-experiments (Stone-Romero & Rosopa, 2008).

Third, psychological collectivism, collectivistic group norms, and collective efficacy perceptions were assessed by the same team members, suggesting the possibility of same-source bias in the measurement of those constructs. However, the significant associations between these measures and the team performance measure, a composite measure consisting of team simulation scores and team project scores, provide some evidence that the impact of this potential bias has been reduced. Future research is required to employ multiple methods of measuring collectivistic group norms when examining its impacts on team processes and outcomes. For example, the use of experimental designs that enable the measurement of collectivistic group norms using audio and/or video analysis would help to reduce same-source bias.

Fourth, the use of a decision-making task raises concerns about the extent to which team performance was a function of the decisions of the most knowledgeable team member, known as a disjunctive aggregation model, rather than a function of collaborative decision-making amongst team members, known as an additive aggregation model (Steiner, 1972). To reduce the likelihood of this possibility, the team performance variable not only included outcomes from the decision-making task but also included results from a team project that was submitted at the end of the semester. Future research is needed to examine, and

compare, the extent to which collectivistic group norms influence team performance on both disjunctive and additive task types.

In related research, meta-analytic data by Gully and colleagues (2002) show a stronger positive association between collective efficacy and team performance for teams performing highly interdependent (ρ = .45) tasks than for teams performing less interdependent tasks (ρ = .34). The authors argue that tasks requiring more team member interdependence, such as flying a jet, will also require greater team member interaction which, in turn, will provide greater motivation amongst team members to perform well on the team task. Similarly, collectivistic group norms would likely be more predictive of team performance for teams performing highly interdependent tasks than for team performing tasks requiring less team member interdependence because highly interdependent tasks require greater team member interaction which provides more opportunities for teams to reinforce collectivistic behaviour, resulting in greater cooperation amongst team members and better team performance. Alternatively, teams performing tasks of lesser interdependence will require less interaction amongst team members, and will provide fewer opportunities for teams to reinforce collectivistic behaviour, resulting in less cooperation amongst team members and poorer team performance.

Finally, this study involved undergraduate business students participating in a human resources management business simulation which raises concerns about the generalizability of the results to business settings. Although student

teams are likely to operate under different circumstances than similar 'real world' teams consisting of subject matter experts, the measures of collectivistic group norms and collective efficacy ask participants to take group context into consideration when making assessments regarding team member expectations and the team's ability to successfully perform the task. Furthermore, the psychological collectivism measure used in this study is an individual difference that is considered to assess relatively stable characteristics regardless of the context within which it is measured.

Previous research, in both laboratory and field settings, has shown collective efficacy to be a strong predictor of team performance (Gully et al., 2002; Stajkovic et al., 2009). Research has also shown group norms to predict team process and team performance outcomes in laboratory (e.g., Ng & Van Dyne, 2005; Taggar & Ellis, 2007) and field settings (e.g., Bamberger & Biron, 2007; Gellatly, 1995). However, future research is needed to replicate the findings pertaining to collectivistic group norms in laboratory settings, and to examine the influence of collectivistic group norms in field settings.

In addition to engaging in future research to replicate this study's findings, researchers must also consider several other opportunities for future research that will extend this study's findings. These research opportunities include 1) further analysis of the collectivistic group norms construct; 2) understanding the role of team member composition and team diversity in the emergence of collectivistic group norms; 3) understanding how collectivistic group norms influence group-

level cognition; and 4) understanding how collectivistic group norms impact individual team member performance of in-role and extra-role behaviours.

An exploratory factor analysis of the 7-item collectivistic group norm measure demonstrated an initial factor structure consisting of 2 factors. One factor represented team member reliance and responsibility (e.g., Reliance and Responsibility) while the other factor represented the ability to focus on team member needs and priorities (e.g., Needs and Priorities). Further exploratory analysis revealed that each of these factors was differentially associated with collective efficacy, psychological collectivism and the dimensions of preference, reliance, and concern. Thus, additional research is needed to assess the validity and reliability of this factor structure and to further investigate how these factors relate to other team member characteristics, team processes and emergent states, and team effectiveness outcomes.

In this study, a positive association was found between psychological collectivism and collectivistic group norms, suggesting that team member characteristics influence the emergence of collectivistic group norms. Future research is needed not only to investigate how the presence of other team member characteristics, such as the big-5 personality traits (conscientiousness, agreeableness, extraversion, openness to experience, and neuroticism), influence the emergence of collectivistic group norms, future research is also needed investigate how patterns of team member characteristics influence the emergence of collectivistic group norms. For example, to what extent will surface-level

diversity, team member differences based on physical characteristics (Jackson, May, & Whitney, 1995), and deep-level diversity, team member differences based on perceptions, attitudes, and personality (Harrison, Price, Gavin, & Florey, 2002), amongst teammates influence the emergence of collectivistic group norms? Also, to what extent will the existence team faultlines, the division of groups into sub-groups based on one or more characterstics (Lau & Murnighan, 1998), influence the emergence of collectivistic group norms?

Furthermore, results from this study suggest that collectivistic group norms influence the formation of collective efficacy perceptions amongst team members, suggesting that collectivistic group norms help team members determine the overall capabilities of their teammates to successfully perform the team task. However, future research is needed to determine the extent to which collectivistic group norms will enhance team member knowledge of the team task as well as enhance team member knowledge of the roles and responsibilities of fellow teammates performing the team task. For example, to what extent will collectivistic group norms influence the development of team mental models, shared knowledge amongst team members about the team task, team members, team resources, and the context within which the team performs the task (Canon-Bowers, Salas, & Converse, 1993), within teams?

Finally, the results of this study support Gibson's (2001a) organizing framework of collective cognition by suggesting that collectivistic group norms promote team member performance of collectivistic behaviours. Additional

empirical research is required to support the argument that collectivistic group norms, representing group-level characteristics, influence the performance of individual team member behaviour. Examples not only include behaviours required for task performance but also include extra-role behaviours, such as team citizenship behaviours, as well as behaviours requiring team member interactions beyond group boundaries, such as team boundary spanning behaviours.

In conclusion, the results of this study suggest that collectivism can be conceptualized, at the group-level, as norms that regulate collectivistic behaviour amongst teammates, and that the emergence of collectivistic group norms is influenced by the extent to which team members possess inclinations toward collectivistic behaviour. The results of this study also suggest that, in addition to team member inclinations toward collectivistic behaviour, the extent to which teams possess, and similarly share, collectivistic group norms influences the formation of group confidence perceptions as well as team performance.

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APPENDIX A

Human Resources Management Simulation

INTRODUCTION

Welcome to the exciting world of simulation! Unlike most education and training exercises, this simulation provides you and your team an opportunity to practice managing the human resource functions of an organization. You will have the unique opportunity to make decisions, see how the decisions work out, and then try again. Thus, you will get a "hands on" experience with manipulating key human resource variables in a dynamic setting. Simulation techniques have been used for some time in creating business models that can aid in explaining the "real world."

In this simulation, we have attempted to combine human resource elements found in the real world with the typical business environment. This model will take the decisions each team makes and simulate how the labor marketplace and the firm will react. The relative "appropriateness" of each team's decisions will be displayed in the simulation Newsletter and in the many team reports, furnished each decision quarter.

OVERVIEW OF HRManagement

You will be managing a medium sized firm that will be competing with other teams (up to a maximum of 18). This web-based application is programmed to simulate either a profit or non-profit organization, in either the manufacturing or service industry. Your instructor has the option of designating the type of firm and naming industry designations in which you will be operating (i.e.; 1, 2, 3, etc.).

We recommend a team size of 3-4 students. Each team will manage their own firm in the simulation. Typically, each team's organization is left up to the team. Teams are expected to establish objectives, plan their strategy, and then make the required decisions dictated by these plans. These decisions are input directly into simulation decision screens online, which produce a variety of reports for each team concerning their firm's results. This is done for several decision periods. HRManagement has 12 possible decision periods (simulated quarters). Your instructor will inform you of the number of periods in your particular game.

It is strongly recommended that you approach the simulation as if competing against other firms in the labor market of a real world environment and not attempt to "play against" the computer.

Results are a function of the decisions that all teams have entered. In the real world, managers must make decisions without perfect information, under conditions of uncertainty, and within time constraints. This simulation is no

different. Your team will need to get as much information as possible through the survey research reports provided each quarter, keep good records in order to study the interactions between decision variables, and then make decisions for the next quarter. It is recommended that you not use the "stab in the dark" method of making decisions but rather plan to hold certain variables constant while manipulating others. This will allow you to begin to determine which elements are more effective in obtaining desired results. Do not rely on information gathered from others who have competed in the simulation in the past, as your instructor can change the simulation environment for each class. All teams will make a few mistakes throughout the simulation but mistakes happen in the real world, too. Remember to keep your enthusiasm and competitive spirit high and do not allow a few setbacks to affect your play.

KEY SIMULATION OBJECTIVES

Your team's performance might be judged against the goals you have (formally or informally) set, in terms of your ability to manage: a budget, unit labor cost, quality, morale, grievances, absenteeism, accident rate, and turnover. As in the real world, your firm will not have enough funds in the budget to implement every available improvement option. Your team must make choices as to what variables are most important and concentrate your budget expenditures on those factors. You will, in a sense, be competing with all other teams on the items mentioned above. However, in terms of direct competition, your firm will be competing with other firms for new employees only within the local labor market. The other firms (teams) in your class will comprise the local labor area.

To get the most out of the HRManagement experience, we recommend the approach outlined on the following pages. Sections 1 & 2 of this manual present a description of your firm and your industry's current situation. A thorough understanding of your firm, its current situation, and decision variables will help your group decision-making process. Section 3 (Operations Guide) provides information on how to use the simulation, as well as a detailed description of each menu option. In order to quickly learn the functions of the menu commands and become familiar with operating the program, it will be helpful to have access to your simulation as you work through this section.

Survey research studies are available for purchase as needed and contain data from studies conducted in the local industry. Here, your firm will find local and average industry wage rates and compensation packages, along with industry average allocations for training, safety, and quality programs. Also included are industry index rates for morale, absenteeism, grievances, and productivity. From this information, you will devise and implement an appropriate budgeting plan for your human resource department and know how other firms in your industry are positioned. Just as in real life, however, some information and reports will prove

more useful than others. Part of your decision process will include deciding which information is most useful to your firm.

After reviewing information about your firm and the local labor market, your team will decide how to manage your HR department in terms of employee compensation, training, and participation programs, all within the constraints of the department budget. Make sure you allow sufficient time to analyze your resources thoroughly and make informed decisions.

Read Sections 1 and 2 of the Manual
Learn How to Operate the Software
Develop a Goals and Strategies
Implement your Strategy
Enter Decisions
Advance to the Next Period

When you enter your decisions, they are automatically saved to the web. When satisfied with your decisions, if playing in benchmark mode, you (or your team leader) can use the advance option under the simulation menu to move to the next quarter. If you are using the directly competitive version, the simulation will be advanced at a specified time according to your course schedule so that everyone competing in the industry will have a chance to enter their decisions. Information will be updated, and your firm will have access to the updated results.

Once the simulation has been advanced, see how your team is doing compared with other teams in your class by viewing the comparative results screen on your class website. Review the results in the local labor market before making decisions for the next quarter. Compare your results with those of the entire industry and consider how well your strategy is working.

Repeat the decision-making process until all periods have been completed. At the end of the simulation, you will be able to see how your firm performed over the entire game and view comparative results with other teams.

Review Results
Repeat

NOTE: You may find it helpful to print out some reports and step back from the computer from time to time. Analyzing information and determining an integrated management plan is a complex task. It is important to take time and reflect on the information, especially when working in groups.

Competing firms will be following their own strategies and reacting to your decisions. The simulation always starts from the same position, but each game

will proceed on a unique course depending on the strategy that each team chooses. This will allow competitive comparisons and illustrate how businesses can evolve differently.

APPENDIX B

Collectivistic Group Norms Measure

Please complete the following questions based on your experiences with your team members.

1	2	3	4	5	6	7
Strongly Disagree						**Strongly Agree**

1. My team expects me to place greater priority on the achievement of team goals than on the achievement of my own individual goals for this task	1 2 3 4 5 6 7
2. I am expected to work closely with my teammates in order to successfully complete this task	1 2 3 4 5 6 7
3. I am expected to place my team members' needs above my own needs in order to successfully complete this task	1 2 3 4 5 6 7
4. I am expected to rely on my teammates to do their part in this task	1 2 3 4 5 6 7
5. My teammates rely on me to do my part to complete this task	1 2 3 4 5 6 7
6. My teammates expect me to be concerned about the team's performance on this task	1 2 3 4 5 6 7
7. Every team member is responsible for the outcome of this task	1 2 3 4 5 6 7

Psychological Collectivism Measure

Think about the work groups to which you currently belong, and have belonged to in the past. The items below ask about your relationship with, and thoughts about, *those particular groups*. Respond to the following questions, as honestly as possible, using the response scales provided. Please answer the following questions confidentially.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

1. I preferred to work in those groups rather than working alone	1 2 3 4 5 6 7
2. Working in those groups was better than working alone	1 2 3 4 5 6 7
3. I wanted to work with groups as opposed to working alone	1 2 3 4 5 6 7
4. I felt comfortable counting on group members to do their part	1 2 3 4 5 6 7
5. I was not bothered by the need to rely on group members	1 2 3 4 5 6 7
6. I felt comfortable trusting group members to handle their tasks	1 2 3 4 5 6 7
7. The health of those groups was important to me	1 2 3 4 5 6 7
8. I cared about the well-being of those groups	1 2 3 4 5 6 7
9. I was concerned about the needs of those groups	1 2 3 4 5 6 7
10. I followed the norms of those groups	1 2 3 4 5 6 7
11. I followed the procedures used by those groups	1 2 3 4 5 6 7
12. I accepted the rules of those groups	1 2 3 4 5 6 7
13. I cared more about the goals of those groups than my own goals	1 2 3 4 5 6 7
14. I emphasized the goals of those groups more than my individual goals	1 2 3 4 5 6 7
15. Group goals were more important to me than my personal goals	1 2 3 4 5 6 7

Collective Efficacy Measure

Please complete the following questions based on your experiences with your team members.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

1. My team has great confidence in itself to solve problems.	1 2 3 4 5 6 7
2. My team believes it can become unusually good at decision making.	1 2 3 4 5 6 7
3. In solving problems, my team expects to be known as a high performing team.	1 2 3 4 5 6 7
4. My team feels it could solve any decision problem it encounters.	1 2 3 4 5 6 7
5. In decision making, my team believes it can be very productive.	1 2 3 4 5 6 7
6. In problem solving, my team is certain it can get a lot done when it works hard.	1 2 3 4 5 6 7
7. No decision problem is too tough for my team.	1 2 3 4 5 6 7

Table 1: Means, standard deviations, and pearson correlations of collectivistic group norm scale items

Variable	Mean	s.d.	1	2	3	4	5	6
1. Item 1	4.93	1.53						
2. Item 2	5.29	1.40	.20**					
3. Item 3	4.57	1.61	.57**	.43**				
4. Item 4	5.54	1.30	.25**	.31**	.33**			
5. Item 5	5.84	1.14	.16*	.22**	.15*	.53**		
6. Item 6	5.85	1.16	.34**	.44**	.40**	.37**	.43**	
7. Item 7	5.77	1.44	.18*	.33**	.19**	.41**	.37**	.42**

N = 200
* $p < .05$, ** $p < .01$

Table 2: Squared multiple correlations of collectivistic group norm (CGN) items

CGN Item	R^2
1	.35**
2	.31**
3	.45**
4	.39**
5	.36**
6	.40**
7	.28**

** $p < .01$

Table 3: Means, standard deviations, factor loadings, communalities, and proportions of variance for principle-components extraction with varimax rotation for the collectivistic group norm items

Item	M	SD	Factor Loading Reliance/ Responsibility	Factor Loading Needs/ Priorities	Communalities
1. My team expects me to place greater priority on the achievement of team goals than on the achievement of my own individual goals for this task	4.91	1.53	.06	**.81**	.66
2. I am expected to work closely with my teammates in order to successfully complete this task	5.30	1.38	**.41**	**.51**	.42
3. I am expected to place my team members' needs above my own needs in order to successfully complete this task	4.57	1.59	.13	**.89**	.79
4. I am expected to rely on my teammates to do their part in this task	5.55	1.29	**.73**	.22	.59
5. My teammates rely on me to do my part to complete this task	5.83	1.13	**.81**	.00	.65
6. My teammates expect me to be concerned about the team's performance on this task	5.85	1.16	**.60**	**.46**	.58
7. Every team member is responsible for the outcome of this task	5.79	1.42	**.72**	.12	.53
Percentage of variance (following rotation)			32.31	27.97	

* Factor loadings exceeding .40 are presented in boldface.

Table 4: Means, standard deviations, and pearson correlations of psychological collectivism scale items

Variable	Mean	s.d.	1	2	3	4	5	6
1. Item 1	4.35	1.52						
2. Item 2	4.41	1.46	.75**					
3. Item 3	4.08	1.68	.68**	.68**				
4. Item 4	4.21	1.42	.45**	.54**	.41**			
5. Item 5	3.91	1.51	.43**	.41**	.39**	.51**		
6. Item 6	4.24	1.39	.44**	.52**	.45**	.81**	.63**	
7. Item 7	5.34	1.51	.31**	.25**	.21**	.30**	.20**	.26**
8. Item 8	5.27	1.47	.34**	.28**	.24**	.28**	.14*	.26**
9. Item 9	5.11	1.36	.35**	.25**	.25**	.28**	.19**	.27**
10. Item 10	5.19	1.38	.10	.19**	.18*	.14	.09	.10
11. Item 11	5.59	0.97	.10	.14*	.13	.16*	.20**	.18*
12. Item 12	5.79	0.98	.11	.16*	.07	.18*	.19**	.19**
13. Item 13	4.57	1.56	.23**	.26**	.27**	.25**	.35**	.23**
14. Item 14	4.62	1.48	.33**	.33**	.35**	.27**	.30**	.24**
15. Item 15	4.40	1.60	.31**	.36**	.37**	.27**	.32**	.23**

N = 200
* p < .05, ** p < .01

Variable	7	8	9	10	11	12	13	14	15
1. Item 1									
2. Item 2									
3. Item 3									
4. Item 4									
5. Item 5									
6. Item 6									
7. Item 7									
8. Item 8	.82**								
9. Item 9	.74**	.77**							
10. Item 10	.31**	.31**	.34**						
11. Item 11	.31**	.30**	.28**	.64**					
12. Item 12	.37**	.31**	.31**	.54**	.73**				
13. Item 13	.31**	.30**	.28**	.28**	.31**	.29**			
14. Item 14	.42**	.43**	.40**	.30**	.30**	.30**	.80**		
15. Item 15	.32**	.35**	.34**	.25**	.29**	.22**	.75**	.83**	

N = 200
* p < .05, ** p < .01

Table 5: Squared multiple correlations of psychological collectivism (PC) items

PC Item	R^2
1	.67**
2	.67**
3	.57**
4	.68**
5	.49**
6	.73**
7	.72**
8	.74**
9	.66**
10	.48**
11	.64**
12	.59**
13	.70**
14	.79**
15	.73**

** $p < .01$

Table 6: Fit indices for the confirmatory factor analysis models of the psychological collectivism questionnaire

Model	χ^2	df	RMSEA	CFI
5-factor orthogonal	159.56**	85	.06*	.96

Note: RMSEA = root-mean-square error of approximation; CFI = comparative fit index;

$N = 220$
* $p < .10$
** $p < .001$

Table 7: Standardized parameter estimates and R^2 values for confirmatory factor analysis of psychological collectivism questionnaire items

	Item	M	SD	Preference	Reliance	Concern	Norm Acceptance	Goal Prirority	R^2
1.	I preferred to work in those groups rather than working alone. (Preference)	4.33	1.53	.88					.78
2.	Working in those groups was better than working alone. (Preference)	4.41	1.49	.88					.77
3.	I wanted to work with those groups as opposed to working alone. (Preference)	4.08	1.66	.78					.60
4.	I felt comfortable counting on group members to do their part. (Reliance)	4.20	1.43		.86				.73
5.	I was not bothered by the need to rely on group members. (Reliance)	3.91	1.51		.67				.45
6.	I felt comfortable trusting group members to handle their tasks. (Reliance)	4.29	1.38		.92				.85
7.	The health of	5.33	1.49			.88			.77

	those groups was important to me. (Concern)					
8.	I cared about the well-being of those groups. (Concern)	5.31	1.45	.92		.84
9.	I was concerned about the needs of those groups. (Concern)	5.16	1.34	.85		.72
10.	I followed the norms of those groups. (Norm Acceptance)	5.20	1.35		.70	.50
11.	I followed the procedures used by those groups. (Norm Acceptance)	5.58	.98		.90	.80
12.	I accepted the rules of those groups. (Norm Acceptance)	5.78	.98		.81	.65
13.	I cared more about the goals of those groups than my own goals. (Goal Priority)	4.60	1.55		.84	.70
14.	I emphasized the goals of those groups more than my individual goals. (Goal Priority)	4.63	1.46		.94	.88
15.	Group goals were more important to me than my	4.44	1.59		.87	.76

personal goals.
(Goal Priority)

Note: All parameters were significant at $p < .001$

Table 8: Chi-square difference test results

Model	χ^2	Degrees of Freedom	P-value
1-factor model	1463.45	209	.000
2-factor model	1306.23	208	.000
1-factor model minus 2-factor model	157.21	1	<.001

Table 9: Means, standard deviations, and pearson correlations[a]

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10
1.Collectivistic Group Norms	5.39	0.51										
2.Collectivistic Group Norm Sharedness	0.78	0.40	-.12									
3.Collective Efficacy	5.65	0.68	.31*	-.25								
4.Psychological Collectivism	4.73	0.47	.34**	-.05	.30*							
5.Preference	4.27	0.72	.19	-.23	.30*	.68**						
6.Reliance	4.15	0.73	.20	-.18	.32*	.74**	.58**					
7.Concern	5.26	0.69	.42**	-.06	.23	.62**	.23	.33**				
8.Norm Acceptance	5.51	0.45	.42**	-.01	.17	.60**	.19	.28*	.45**			
9.Goal Priority	4.54	0.67	.03	.15	.04	.67**	.33**	.29*	.30*	.48**		
10.Team Performance	156.02	7.65	.29*	-.22	.36**	.27*	.26*	.16	.16	.28*	.10	

[a] N = 60 teams
* p < .05
** p < .01

Table 10: Dominance and relative weight analyses for hypotheses 3a and 3b

Independent Variables	Collective Efficacy				Team Performance			
	General Dominance	% of R^2	Relative Weight	% of R^2	General Dominance	% of R^2	Relative Weight	% of R^2
CGN*	.089	45	.089	45	.075	32.3	.075	32.2
CGN (standard deviation)	.052	26.3	.052	26.4	.041	17.5	.041	17.5
CGN X CGN (standard deviation)	.057	28.8	.057	28.6	.117	50.3	.117	50.4
Total R^2	.20		.20		.23		.23	

*Collectivistic Group Norms

Table 11: Dominance and relative weight analyses for hypotheses 6a - 6f

Hypothesis	Independent Variables	Collective Efficacy				Team Performance			
		General Dominance	% of R^2	Relative Weight	% of R^2	General Dominance	% of R^2	Relative Weight	% of R^2
6a	Preference	.077	48.4	.077	48.3	.057	44.9	.057	45.2
	CGN*	.082	51.6	.082	51.7	.07	55.1	.069	54.8
	Total R^2	.159		.159		.127		.127	
6b	Reliance	.085	51.5	.085	51.5	.018	19	.017	19
	CGN	.08	48.5	.08	48.5	.075	81	.074	81
	Total R^2	.166		.166		.092		.092	
6c	Concern	.031	28.7	.031	28.4	.014	16.3	.014	16.7
	CGN	.077	71.3	.077	71.6	.07	83.7	.069	83.3
	Total R^2	.108		.108		.083		.083	
6d	Norm Acceptance	.016	15.7	.015	15.5	.054	47.8	.054	48.2
	CGN	.084	84.3	.084	84.5	.056	52.2	.058	51.8
	Total R^2	.099		.099		.112		.112	
6e	Goal Priority	.001	1	.001	1.1	.01	10.6	.01	11
	CGN	.097	99	.097	98.9	.08	89.4	.08	89
	Total R^2	.098		.098		.09		.09	
6f	Psychological Collectivism	.068	48.2	.068	48.3	.055	47	.055	47
	CGN	.073	51.8	.073	51.7	.062	53	.062	53
	Total R^2	.141		.141		.116		.116	

*Collectivistic Group Norms

Table 12: Means, standard deviations, and pearson correlations obtained from exploratory analysis[a]

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10
1.CGN[b] (Needs/Priorities)	4.91	.70										
2.CGN (Reliance/Responsibility)	5.77	.51	.40**									
3.Collective Efficacy	5.65	.68	.17	.36**								
4.Psychological Collectivism	4.73	.47	.42**	.14	.30*							
5.Preference	4.27	.72	.28*	.02	.30*	.68**						
6.Reliance	4.15	.73	.27*	.08	.32*	.74**	.58**					
7.Concern	5.26	.69	.45**	.26	.23	.62**	.23	.33*				
8.Norm Acceptance	5.51	.45	.41**	.29*	.17	.60**	.19	.28*	.45**			
9.Goal Priority	4.54	.67	.12	-.09	.04	.67**	.33**	.29*	.30*	.48**		
10.Team Performance	156.02	7.65	.24	.23	.36**	.27*	.26*	.16	.16	.28*	.10	

[a] N = 60 teams
[b] Collectivistic Group Norms
* p < .05
** p < .01

Table 13: Dominance and relative weight analyses for exploratory hypotheses 6a - 6f

Hypothesis	Independent Variables	Collective Efficacy				Team Performance			
		General Dominance	% of R^2	Relative Weight	% of R^2	General Dominance	% of R^2	Relative Weight	% of R^2
6a	Preference	.088	39.9	.089	40.3	.057	44.9	.058	45.3
	CGN-NP*	.012	5.6	.01	4.6	.032	25.2	.031	24
	CGN-RR**	.121	54.5	.121	55.1	.038	29.9	.039	30.7
	Total R^2	.22		.22		.127		.127	
6b	Reliance	.091	42.1	.092	42.5	.017	18.5	.017	18.6
	CGN-NP	.012	5.3	.01	4.7	.037	41.6	.037	41
	CGN-RR	.114	52.5	.114	52.8	.036	39.9	.036	40.5
	Total R^2	.216		.216				.089	
6c	Concern	.032	21.3	.032	21.4	.012	14.4	.012	14.5
	CGN-NP	.011	7.4	.01	6.8	.036	44.7	.036	43.9
	CGN-RR	.106	71.3	.106	71.7	.033	40.9	.034	41.6
	Total R^2	.148		.148				.081	
6d	Norm Acceptance	.014	10.4	.014	10.6	.051	45.9	.051	46
	CGN-NP	.012	8.8	.012	8.8	.031	27.7	.03	27.4
	CGN-RR	.107	80.8	.107	80.6	.029	26.4	.029	26.6
	Total R^2	.132		.132		.110		.110	
6e	Goal Priority	.002	1.8	.003	2	.011	12	.01	11.7
	CGN-NP	.014	10.9	.014	10.7	.040	45.1	.04	44.8
	CGN-RR	.115	87.4	.116	87.3	.038	42.9	.039	43.5
	Total R^2	.132		.132		.089		.089	
6f	Psychological Collectivism	.077	38.3	.078	38.8	.053	45.6	.054	46.1
	CGN-NP	.012	6	.01	5	.029	25.1	.028	23.9
	CGN-RR	.112	55.8	.112	56.2	.034	29.3	.035	30
	Total R^2	.200		.200		.117		.117	

*Collectivistic Group Norms (Needs/Priorities)
** Collectivistic Group Norms (Reliance/Responsibility)

**Table 14: Dominance and relative weight analyses for exploratory hypotheses 3a and 3b**

	Collective Efficacy				Team Performance			
Independent Variables	General Dominance	% of R^2	Relative Weight	% of R^2	General Dominance	% of R^2	Relative Weight	% of R^2
CGN-NP*	.026	25.2	.025	25.1	.051	22.1	.051	22.1
CGN-NP (standard deviation)	.024	23.8	.024	24	.07	29	.066	28.9
CGN-NP X CGN-NP (standard deviation)	.052	51	.052	50.9	.112	48.9	.112	48.9
Total R^2	.101		.101		.229		.229	
	Collective Efficacy				Team Performance			
Independent Variables	General Dominance	% of R^2	Relative Weight	% of R^2	General Dominance	% of R^2	Relative Weight	% of R^2
CGN-RR**	.104	73.5	.104	73.5	.043	63.5	.043	63.1
CGN-RR (standard deviation)	.032	22.8	.032	22.7	.012	17.2	.012	17.2
CGN-RR X CGN-RR (standard deviation)	.005	3.8	.005	3.8	.013	19.4	.013	19.7
Total R^2	.142		.142		.068		.068	

*Collectivistic Group Norms (Needs/Priorities)
**Collectivistic Group Norms (Reliance/Responsibility)

Figure 1: Graphical representation of the factor structure of the psychological collectivism questionnaire based on confirmatory factor analysis using maximum likelihood estimation.
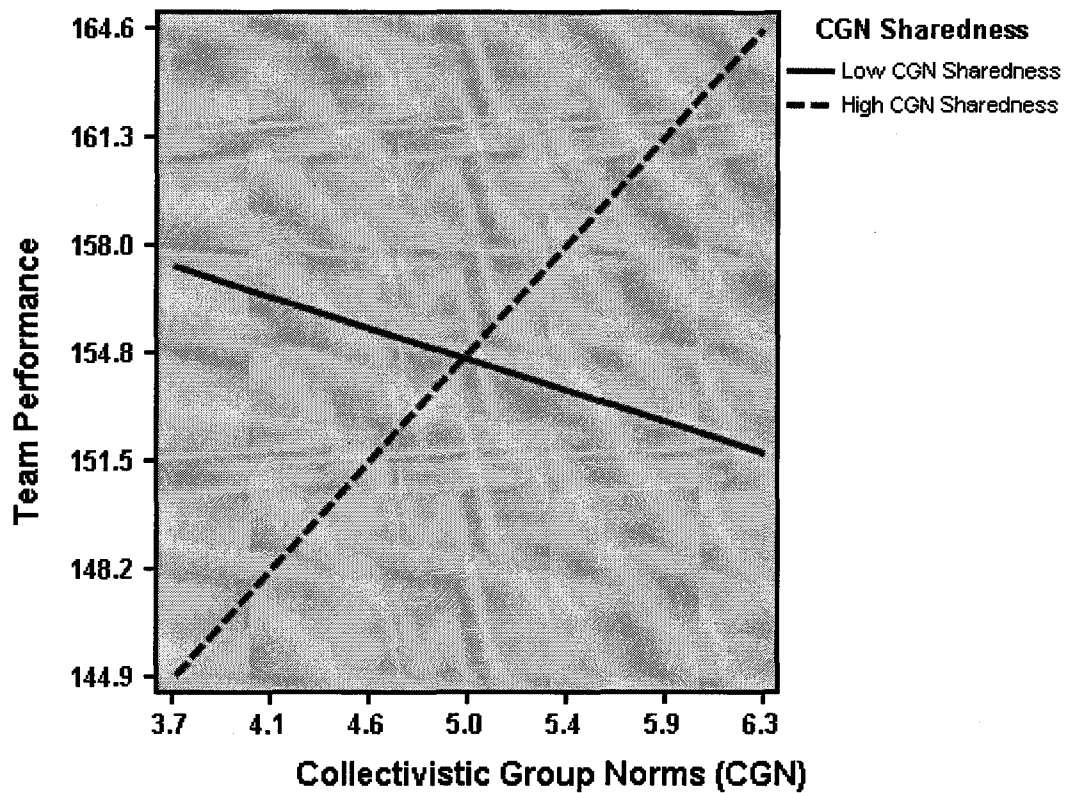
All parameters are significant at p < .001
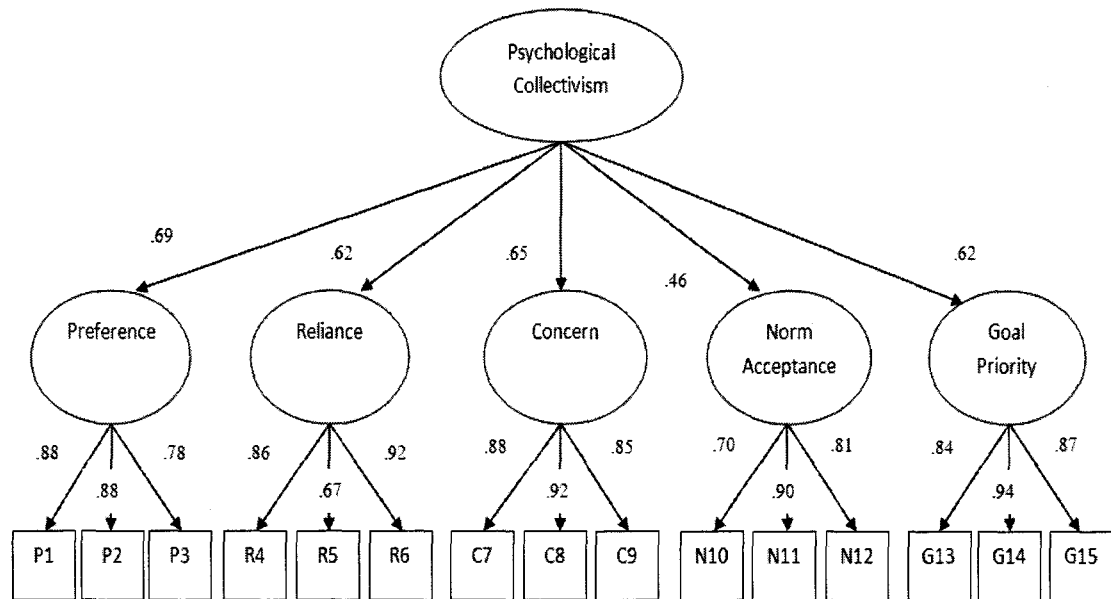
Figure 2: The moderating effects of collectivistic group norm sharedness on the association between collectivistic group norms and collective efficacy
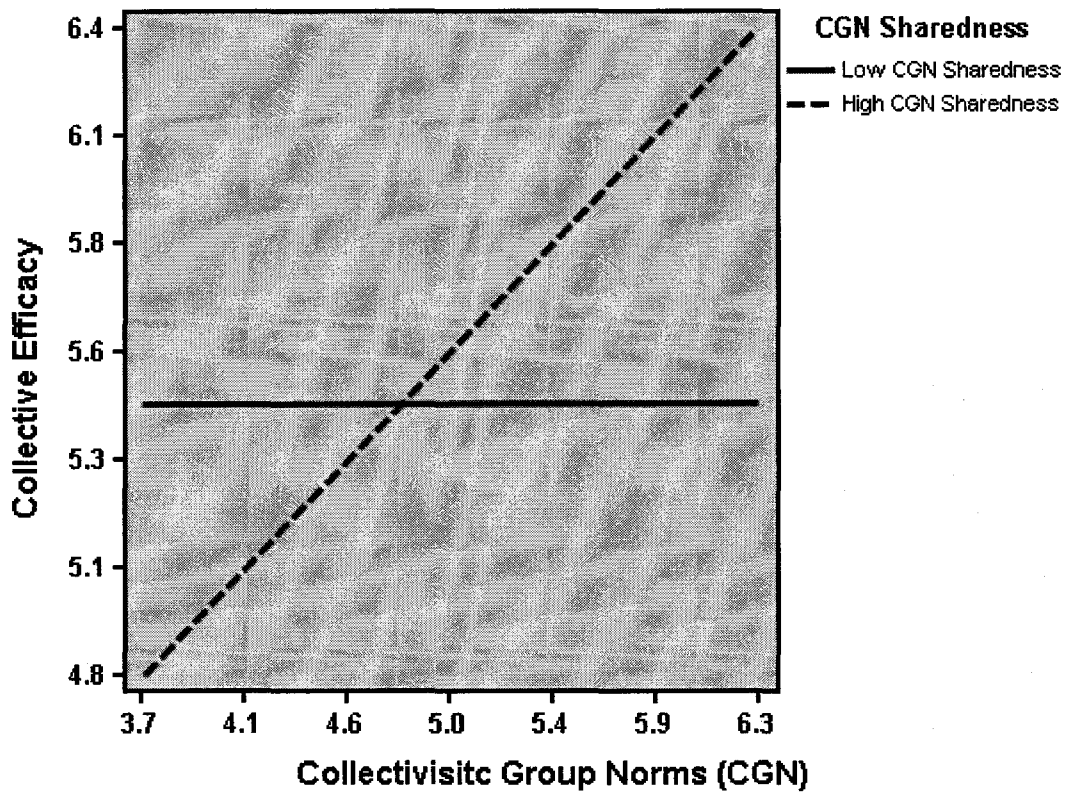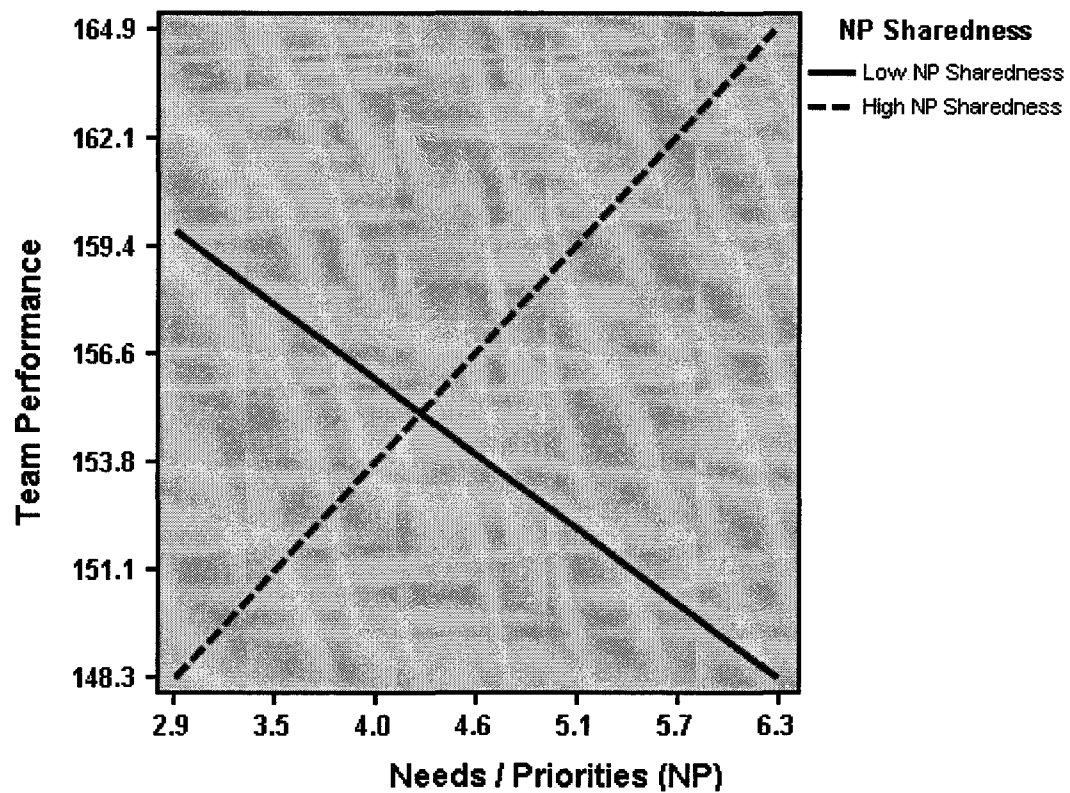
Figure 3: The moderating effects of collectivistic group norm sharedness on the association between collectivistic group norms and team performance

Figure 4: The moderating effects of needs / priorities sharedness on the association between needs / priorities and collective efficacy
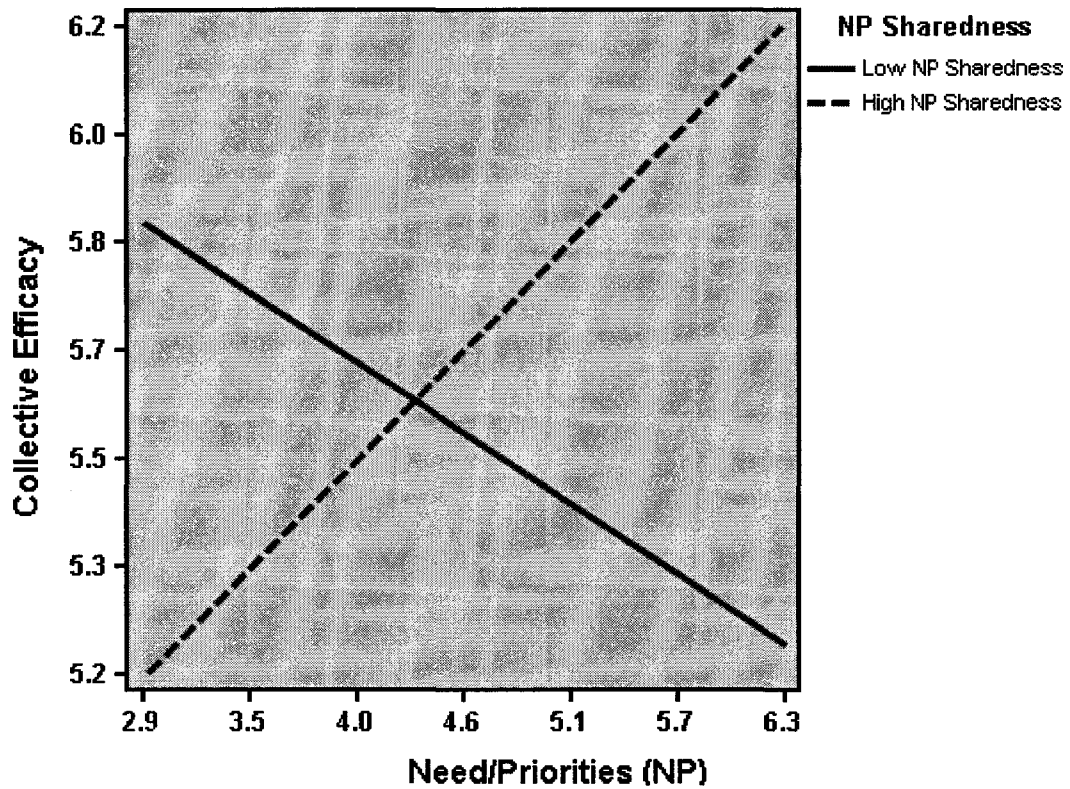
Figure 5: The moderating effects of needs / priorities sharedness on the association between needs / priorities and team performance

Figure 6: The moderating effects of reliance / responsibility sharedness on the association between reliance / responsibility and collective efficacy
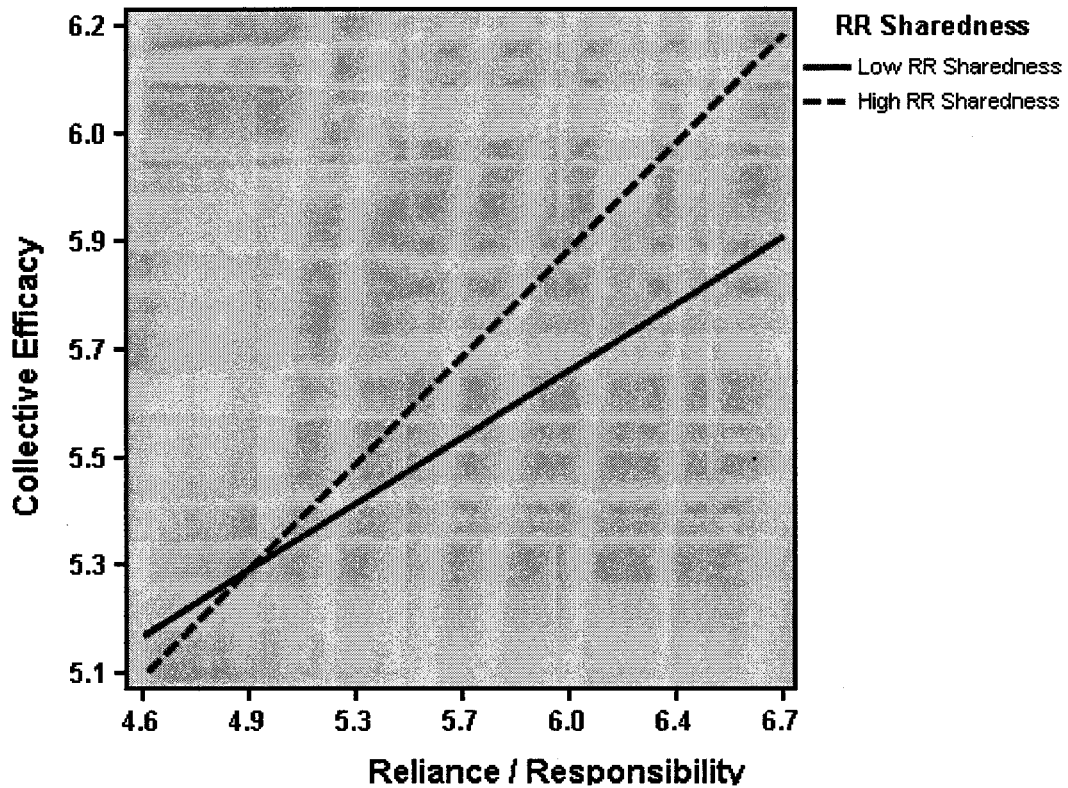
Figure 7: The moderating effects of reliance / responsibility sharedness on the association between reliance / responsibility and team performance