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Creativity or Chaos: Channeling the Creative Capacity of Multicultural Teams

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## ABSTRACT

### Creativity or Chaos: Channeling the Creative Capacity of Multicultural Teams

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The present thesis presents a new application of dynamic constructivism (Hong, Morris, Chui, & Benet-Martinez, 2000; Morris & Fu, 2001) to teamwork process in creativity in multicultural teams. With its roots in cognitive psychology, dynamic constructivist theory posits that varying values, social structures, and norms within cultures create different knowledge structures which cause culture to interact with social settings such that the same situation cues different behaviors from people in different cultures. In two empirical studies and two theoretical chapters, I present and test a model predicting how a match between regions' cultural values and teamwork process lead to optimal creativity in multicultural teams dominated by members from different regions. Specifically, I discuss and demonstrate how Western and Asian regional cultures, on opposite ends of Hofstede's (1980) cultural values of Power Distance and Individualism, reach creative outcomes by different teamwork processes, with each process matching the underlying values, knowledge structures, and culturally normative behaviors for each cultural region. Finally, I outline how this thesis contributes to work on creativity, culture, teamwork process, and multicultural teams, and how my empirical findings and theoretical extensions suggest a re-conceptualization of Janssens & Brett (2006)'s fusion teamwork process may represent a way to manage the different teamwork processes leading to creativity in different cultures when people from these cultures must interact effectively in multicultural teams.

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## **TABLE OF CONTENTS**

Chapter 1: Thesis Overview and Note to Readers .....	<b>7</b>
Chapter 2: Dynamic Constructivism in Multicultural Teams .....	<b>12</b>
Chapter 3: Fusing Creativity: Cultural Metacognition and Fusion Team Process in Multicultural Teams .....	<b>40</b>
Chapter 4: Cultural Fit, Teamwork Process, and Creativity: Extending Dyanmic Constructivsm to Multicultural Teams .....	<b>79</b>
Chapter 5: Thesis Conclusions and Contributions .....	<b>107</b>
Tables and Figures .....	<b>125</b>
References .....	<b>134</b>
Appendices .....	<b>148</b>

## Thesis Overview and Note to Readers

This thesis consists of five chapters. This overview of the dissertation, a second chapter reviewing relevant theory and developing the propositions that are tested in two empirical studies: Chapters 3 and 4. The concluding chapter compares the knowledge derived from the two empirical studies to the theory and suggests both new theoretical insights and areas for future research.

*Note to readers:* To facilitate future publication, Dr. Jeanne Brett, my thesis adviser, recommended that each chapter represent a stand-alone work, particularly the empirical chapters. As such, there is some inevitable repetition of theory and concepts, and future readers will not have access to the entire thesis but will review each chapter on its own.

### *Chapter 2: Dynamic Constructivism in Multicultural Teams*

This chapter reviews the literature regarding cultural psychology, especially dynamic constructivism, multicultural teamwork process, and team creativity. In this chapter I develop propositions predicting the conditions of culture and team context (here teamwork process) that will generate creativity in multicultural teams. Specifically, I argue that the teamwork process that most closely fits the normative teamwork behavior of the majority of team members will lead to optimal creativity in that team.

### *Chapter 2 Fusion and Creativity in Multicultural Teams: A Field Study*

Chapter 2 is a field study in which I test the proposition that a particular teamwork process, fusion, is associated with creativity in multicultural teams. Fusion teamwork is based on two principles: co-existence of cultural differences in approach to teamwork process and

meaningful participation of team members in teamwork. In addition, I test whether team members' cultural metacognition, an aspect of cultural intelligence, enhances the development of fusion teamwork process. Finally, I examine how the majority culture of the team interacts with teamwork process to predict the creativity of the team.

The hypotheses in chapter 2 are tested with survey data from 246 members of 37 multicultural teams in 11 large corporations. Teams averaged 10.7 members; most teams in the study had 9 to 15 members. Teams represented various divisions within the companies. These were permanent teams and none were 100% virtual; to participate in the study teams were required to meet face to face at least three times annually in addition to normal electronically mediated interaction. The majority of team members reported that English was their primary language, but 32% of team members did have a primary language other than English. Team members came from 29 countries. The largest representations by nation of origin were U.S., 48%; India, 10%; England, 7%; and Germany, 6%. There were slightly more male than female team members (56% versus 44%). Data was collected via a 30 minute confidential online survey, and the response rate was 51%.

I proposed and tested a cross-level model relating perceptions of fusion teamwork and creativity and team members' cultural metacognition. I also proposed a contextual or dynamic constructivist cross-level effect of the cultural group of the teams' majority members on the relationship between fusion and creativity.

This chapter has several important findings. First of all, I show that some team members describe their teamwork process in terms consistent with the conceptualization of fusion. Second, I show that team members who are more culturally metacognitive are also more likely to



describe their teamwork as fusion. Also, I show that team members who described their teams as using fusion teamwork also were more likely to describe their teams as more creative. Finally, I show how Western culture representation within the team, but not the level of cultural meta-cognition within the team, moderates the fusion-creativity relationship.

The effect of Western culture on teamwork process is in line with existing theory demonstrating how cultural values affect individuals' ideas about teamwork (Gibson & Zellmer-Bruhn, 2001). One of the reasons why teamwork process within multicultural teams is so important and theoretically fascinating is that unlike other forms of diversity, culture informs knowledge structures and accompanying behavior that is normative in different cultures. It is not obvious that race, gender, age, or functional area (commonly studied diversity factors within teams) dictate a certain type of teamwork process. Culture, however, does inform such preferences. Both the theory in Chapter 2 and the empirical findings in Chapters 3 and 4 discuss and test how culture within the team affects which teamwork process leads to creativity in teams dominated by different cultural groups.

### *Chapter 3: Cultural Fit, Teamwork Process, and Creativity: Extending Dynamic Constructivism to Multicultural Teams*

In Chapter 3 I examine teamwork process in short-term multicultural teams completing a creativity task. This setting offers standardization in terms of task and the opportunity for objective measures of creativity that can be applied to all teams. In this study I explicitly generated dynamic constructivist hypotheses including the predictions: 1) Discussion and debate and full participation (identified by Western creativity literature as improving creativity) will facilitate creativity in teams with high Western culture membership, and 2) Subgroup dominant

teamwork process (which matches Asian cultural values on Power Distance and Individualism) will facilitate creativity in teams with high Asian culture membership.

Study participants were of 315 MBA students forming 35 multicultural teams participating in an exercise as part of an orientation session. Teams ranged in size from 7 to 14 participants. The mean group size was 9 members and the mode was 8. The average age of participants was 29.32, with a range of age 23 to age 50. The median age was 29. The majority, 70.9 % (232 participants, with 5 missing), were male. Of the students who provided information on race, 215, or 65.7%, were white. The largest racial minority was Asian, with 84 participants, representing 25.7%. There were 11 African-Americans (3.4%), 6 Hispanic or Latinos, (1.8%), 2 Native Hawaiians or Pacific Islanders (.6%), and 4 who designated their race as “other” (1.2%).

Using a task frequently used in Western-culture creativity research, teams were instructed to come up with as many creative (novel and useful) ideas for a cardboard box. They had 10 minutes to generate ideas and 10 minutes to select the two best ideas. Following the exercise, they completed surveys which measured teamwork process norms. The two ideas were rated by independent raters following Beersma and De Dreu’s (2005) rating system, which rates the novelty and usefulness of ideas. The scores for each team’s ideas were then averaged, giving each team an overall creativity score. After establishing within-group agreement, teamwork process measures were aggregated to the team level.

I tested my hypotheses in moderated linear regression. Controlling for age, teams high in Asian culture membership had higher levels of creativity when their teams used subgroup dominant teamwork process. Although the overall model for proposition two was significant and discussion/debate and full participation prediction trended in the right direction, the second

hypothesis was not confirmed. Thus this teamwork process did not lead to a higher level of creativity in Western-culture dominated teams.

This study offered several important contributions. First of all, I extended dynamic constructivism, a theory thus far examined at the individual and dyadic level, to a multicultural teams setting. Second, my findings suggest that Western-culture creativity research may not apply universally, as the teamwork process that leads to creativity in Asian-dominated teams, while fitting with Asian cultural values and attendant norms for teamwork process, does not match predictions of Western creativity literature concerning teamwork process and creativity. In addition, I answer several recent review articles calling for multicultural and cross-cultural research on creativity. Finally, I offer practical insight into the importance of the fit between culture and teamwork process in achieving optimal team outcomes.

#### *Chapter 4 Discussion of Contributions to Theory and Practice Ideas for Future Research*

This chapter summarizes the findings of the two studies and develops the contributions of this research to theory and to practice. In short, I integrate the two empirical studies, describe the theoretical contributions of the thesis, and suggest limitations and directions for future research. Specifically, I highlight my extension of dynamic constructivism to multicultural teams and findings that Western culture creativity research may not apply universally. In addition, I suggest a reconceptualization of fusion teamwork that stresses co-existence rather than full participation. I argue that my findings suggest the necessity of co-existence for multicultural teams, yet my underlying argument for this co-existence differs from Janssens and Brett's (2006) initial theory. Finally, I outline limitations and unanswered questions and suggest how future research may address these.

Dynamic Constructivism in Multicultural Teams

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## Introduction

As our world becomes increasingly global, multicultural issues gain importance daily. For businesses operating internationally, understanding how to best harness the capacity of multicultural teams is a critical issue, one that can have real financial consequences. In the intellectual property arena, for instance, companies that own and promptly commercialize on widely cited patents outperform stock market averages by 1000% over 10 years (Breitzman, 2001). This dissertation addresses these issues in multicultural teams by applying dynamic constructivism (Hong, Morris, Chiu, & Benet-Martinez, 2000), a theory developed in cross-cultural psychology, to multicultural teams, and linking this theory to existing research on teamwork process. In this chapter, I present a model and accompanying propositions suggesting how culturally-based norms for teamwork process, interacting with the teamwork context, can cue different teamwork process norms to promote creative outcomes in teams dominated by members of different cultural groups. The theoretical developments in this chapter make contributions in at least three theoretical areas: dynamic constructivism in cross cultural theory, teamwork processes in multicultural teams, and organizational theory and research on creativity in teams.

Most importantly, I extend dynamic constructivism theory (Hong, Morris, Chiu, & Benet-Martinez; Morris & Fu, 2001), thus far applied in cross-cultural psychology, negotiations, and dispute resolution, to teamwork processes in multicultural teams. One proposition of dynamic constructivism theory is that cultural and social environments interact to produce outcomes that may differ both across cultures and across situations within one culture. I propose

that teamwork settings interact with culturally based norms for behavior such that different sets of teamwork process norms optimize creativity in teams dominated by team members from different cultures. In other words, multicultural teams perform best creatively when using the teamwork process norms most culturally familiar to the majority of team members. I offer three propositions based on dynamic constructivism and one proposition relating more generally to multicultural teams.

In the area of research and theory on multicultural teams, my focus offers a departure from existing literature. Current research in multicultural teams generally falls into two categories: 1) research examining how varying levels of cultural diversity within a team impact performance or other team outcomes (See, e.g., Earley & Mosakowski, 2000; Gibson & Vermuelen, 2003; and Gibson & Gibbs, 2006) and 2) research comparing performance in culturally homogenous and culturally heterogeneous teams (See, e.g., Elron, 1997; Watson, Kumar, & Michaelsen, 1993). In contrast, my research takes cultural diversity as “given,” a characterization that may more closely reflect business realities in an increasingly globalized business environment. Rather than attempting to determine an optimal level of diversity or examining how levels of diversity affect performance, I propose a theoretical model that a) proposes a contingency: what teamwork process leads to creativity in multicultural teams that are Western versus Asian- dominated and b) how cultural differences in teamwork process norms indicate that co-existence, an idea presented in Janssens & Brett’s (2006) fusion teamwork process model, may allow long-term multicultural teams to perform optimally within compromising cultural differences in teamwork process.

As the business environment demands more global collaboration, managers are unlikely

to have the choice to vary the cultural membership of teams; more likely, they will be confronted by teams with a given level of cultural diversity and they must work with the team with its diverse members to optimize performance. My research addresses the management of multicultural teams in two ways. First, I develop and test propositions, derived from dynamic constructivist theory, that propose that team members from different cultures achieve creative outcomes by different teamwork processes. Second, I propose a modified version of Janssens & Brett's (2006) fusion model for long-term multicultural teams to account for the processes which allow long-term multicultural teams to use their cultural differences and generate creative outcomes.

The third contribution of this theory is in the area of creativity and teamwork process generally. Recent review articles (see, e.g., Shalley, Zhou, & Oldman, 2004; Westwood & Low, 2003) have noted the lack of attention to cultural differences in creativity, and how creativity operates in an international context, such as multicultural teams. The present theory both addresses cross-cultural differences in teamwork processes that optimize creativity and proposes a teamwork process model that may allow long-term multicultural teams to function effectively given these differences.

### Overview

I begin by giving basic conceptual definitions for relevant terms. I then provide an overview of dynamic constructivism and its application thus far in cross-cultural psychology, negotiations, and dispute resolution. Next, I outline literature on teamwork process and creativity, first in multicultural teams, making a more general proposition concerning creativity and teamwork process in these teams. I then examine Western culture research on creativity in

teams, discuss the relationship between this teamwork process and Western cultural values and norms for behavior, and propose dynamic constructivist hypotheses for both Western- and Asian-dominated multicultural teams.

### Definitions

A team is a group of three or more people who are interdependent with respect to information, resources, and skills and who seek to combine these efforts to achieve a common goal (Thompson, 2008). Interdependence is important because it describes the fact that the team members rely on each other to achieve their goal (Thompson, 2008). A shared goal describes why a team exists in the first place; in other words, there is some task or goal that the team must accomplish (Thompson, 2008).

A multicultural team is team of people representing two or more national cultures (Earley & Mosakowski, 2000). Although there are many ways to delineate cultural group membership, nation state boundaries are commonly used since nations have distinguishable economic, social, and political institutions whose ideologies reflect and are a reflection of the cultural norms, beliefs, and values of the nation's citizens (Brett, 2007). Hofstede's (1980) extensive research on cultural values also used nation states and documents the relationships between social institutions and cultural values aggregated to the state level. In the present thesis, I refer to regional areas, specifically Western culture and Asian cultural regions. Although countries within these regions are very different from each other, within each region there is strong similarity on the cultural values of Hofstede's dimensions of Individualism and Power Distance, dimensions of particular relevance to teamwork process, as outlined subsequently.

A norm is a standard of appropriate behavior in a context (Katz & Kahn, 1966). A



teamwork process norm is a standard way of going about the team's task that a team member considers legitimate and appropriate. The norm is likely to be shared with others, norms are social, but the norm may not be shared with other members of the team. All teams develop teamwork process norms (Bettinghausen & Murnighan, 1985). Team members arrive in a team setting with "scripts" for how to behave in teams, which are based on their past experiences (Bettinghausen & Murnighan, 1985). As team members interact, they must arrive at a set of norms, as team members may arrive with different scripts for behavior (Bettinghausen & Murnighan, 1985). Since cultures differ on their norms and expectations for behavior within teams, it is quite likely that members of multicultural teams will come to the team with different ideas about the process norms that are appropriate (Gibson & Zellmer-Bruhn, 2001). Thus in multicultural teams, team members may need to negotiate teamwork process norms.

Creativity refers to the production of novel and useful ideas in any domain (Amabile, Conti, Coon, Lazenby, & Herron, 1996). Amabile et al.'s (1996) widely used definition incorporates the need for creative ideas and concepts to be both useful and practical, a concept Finke (1995) referred to as "creative realism." Novelty describes ideas that differ from convention, while a useful idea is one that can be implemented. It is important for an idea to be both novel and useful, because a novel idea will give teams or companies a way to distinguish themselves from the competition, but such an idea is not useful if it is so original as to be impractical to implement (Finke, 1995). Thus, for an idea to be creative, it must be high in both novelty and usefulness.

## Dynamic Constructivism

### *Theory Overview*

Hong et al. (2000) introduced dynamic constructivism as an approach to understanding how bicultural individuals behave. Subsequently, cross cultural researchers such as Morris and Fu (2001) and Morris & Gelfand (2004) have expanded on this idea theoretically and proposed how it might operate in a conflict resolution setting. The constructivist approach, which draws its inspiration, concepts, and methods from cognitive psychology, sees cultural differences as arising from culturally instantiated knowledge structures that guide individuals as they make sense of situations (Morris & Fu, 2001). In addition, this approach answers concerns raised by those such as Kitayama (2002) that much of existing cross cultural psychological approaches viewed culture as static, rather than dynamic. Thus far, researchers in cross-cultural psychology have applied dynamic constructivism extensively at the individual level (as of May 2008 Google Scholar reports 243 citations to the seminal Hong et al. 2000 paper). Researchers in negotiations have also applied this approach in the dyadic setting (see Brett & Crotty, 2008, for a review), yet thus far, the findings have not been extended to the multicultural team setting, though Brett et al. (2007) have applied the theory in the dispute resolution context.

Morris & Fu (2001) describe how the *dynamic* constructivist approach to culture incorporates findings from social cognition research to examine how the influence of culture is moderated by the stimulus or task, or the social context, or an individual's epistemic state. Morris & Fu (2001)'s extension of the Hong et al. paper used social cognition research to understand why cultural effects are not constant across situations, individuals, or even within cultures. Knowledge structures guiding behavior are present, they may or may not be activated

based on properties of the situation, the stimulus, or the individual (Morris & Fu, 2001; Morris & Gelfand, 2004).

Since my focus is team behavior, I concentrate on the dynamic constructivist perspective that concerns properties of the social context/situation, nevertheless recognizing that individual differences and task stimuli are important aspects of their overall theory. Morris and Fu (2001) noted that context variables “may turn on or turn off particular expectations” (337), and these expectations arise from values emphasized in particular cultures. For instance, they cited how cultures identified by Hofstede (1980) as high in power distance would socialize their members to display deference and expect it in the context of hierarchical roles, thus triggering differences in behavior depending on whether hierarchical roles are defined in a particular negotiation situation. Subsequent research, such as Brett et al. (2007) (described below) demonstrated this effect empirically.

Morris and Gelfand (2004) note that dynamic constructivism represents an important addition to cross cultural research in at least three important areas: First, it emphasizes the dynamics of cultural knowledge rather than viewing culture as static and residing in individual actors. Second, it links previously independent streams of research – the *emic* and *etic* perspectives in cross-cultural research. Finally, dynamic constructivism accounts for both public and private aspects of cultures, areas not incorporated in prior theories.

The first area of contribution, that of emphasizing the dynamic nature of cultural knowledge, represents a departure from prior constructivist approaches (Morris & Gelfand, 2004). Prior constructivist theories have proposed that cultural differences arise because knowledge structures that are available in some cultures are unavailable in certain cultures. In

contrast, dynamic constructivism posits that because a knowledge structure cannot be used to make a judgment without both its presence and its activation, cultural differences may arise because of differences in accessibility or activation of knowledge structures rather than underlying differences in the knowledge structures available in different cultures (Morris & Gelfand, 2004). Morris & Fu (2001) described how social structure, patterns of relationships and roles, and cultural socialization affect knowledge structures. Given cross-cultural differences in socialization, social structures, and normative behavior surrounding relationships and social roles, there are likely to be differences between cultures in the knowledge structures individuals have concerning a variety of social situations. Thus, different social situations cue different knowledge structures, and therefore different behaviors, depending on one's culture.

Dynamic constructivism also makes key contributions in linking previously separate lines of cultural inquiry that have often remained separate, such as findings from *emic* and *etic* analyses. The *emic* approach concentrates on the values within a particular society. In contrast, the *etic* approach focuses on creating theoretical models that apply across societies. The theory accomplishes this by incorporating differences that arise from both culture-specific constructs (availability differences) and cultural-general knowledge structures (accessibility differences) (Morris & Gelfand, 2004).

Finally, dynamic constructivism improves current theory in cross-cultural research by examining both public and private aspects of culture. Morris & Gelfand (2004) noted that though much of cultural theory has focused on culture as subjective and arising through shared values, dynamic constructivism acknowledges the role of cultural institutions, public discourses, and social structure in determining cultural effects. Specifically, these elements of public culture

affect the availability, accessibility, and activation of the knowledge structures in the minds of the individuals who participate in the culture in question (Morris & Gelfand, 2004).

### *Existing Research*

*Cross cultural psychology.* Researchers have applied the perspective extensively in cross-cultural psychology in innumerable areas from information processing in marketing (see, e.g., Briley & Aaker, 2006, Lee & Shavitt, 2006) to self construal (see, e.g., White, Lehman, & Cohen, 2006) to emotional experience (see, e.g., Kitayama, Mesquita, & Karasawa, 2006). Since my focus is on group rather than individual behavior, I review two such studies to demonstrate the overall trend examining how context elicits different behaviors in actors from different cultures, even if the underlying psychological process itself is universal. In other words, as the dynamic constructivist perspective predicts, social situations cue different meanings and culturally normative behaviors across different cultures.

For instance, in three studies, Morris and Peng (1994) showed how individualists and collectivists differed in their attributions of behavior; specifically, whether they attributed behavior to dispositional or situational causes. In Study 1, they demonstrated that Americans (individualists) were more likely to cite dispositional factors as causing behavior, but Chinese (collectivists) were more likely to cite situational factors. Study 2 compared dispositional versus situational attributions for behavior in attributions of mass murders in newspapers serving Chinese and American communities. As predicted, Chinese reporters were more likely to make situational attributions for the murderer's actions, while American reporters were more likely to make dispositional attributions. Finally, in Study 3, Morris and Peng (1994) found that Chinese participants were more likely to make situational attributions for a hypothetical murder and

Americans were more likely to make dispositional attributions. In short, Morris and Peng (1994) showed that the “fundamental attribution error,” or the tendency to make dispositional rather than situational attributions for other’s behavior, is not culturally universal.

Similarly, Knowles, Morris, Chiu, and Hong (2001) found that cognitive busyness increased dispositional attributions among U.S. participants but not Hong Kong Chinese participants, and that this difference was not due to a difference in the impact of the busyness manipulation. Knowles et al. (2001) argued these results support the situation-based lay theory of behavior, that Chinese people have automatized the ability to perform situational corrections, but the Americans have not. In other words, all participants initially made dispositional attributions, but only the Chinese participants were able to make situational corrections when they were cognitively busy. According to the authors, these findings add to evidence suggesting that underlying processes – i.e. dispositional attributions – exist across cultures, but cultural norms make East Asians more likely to have developed an ability to automatically correct for this tendency.

*Negotiations, conflict, and dispute resolution.* I review negotiations applications of dynamic constructivism more extensively, since this research moves beyond individual-level effects.

Research thus far applying dynamic constructivism to negotiations and conflict resolution finds three effects (Brett & Crotty, 2008). First, cultural groups differ in the knowledge structures that cultural members rely on to interpret and act in negotiations (e.g., Fu et al., 2007 in relation to need for closure (NFC), and Liu et al. 2005 in relation to personality variables). Second, some contextual factors can amplify cultural effects by producing the culturally

normative behavior (e.g., Gelfand & Realo, 1999). In Gelfand & Realo (1999), for instance, the authors showed that in conditions of high accountability, collectivists were more cooperative, while individualists were more competitive. Third, contextual factors can cue dynamism in cultural effects (Brett et al., 2007). I now review studies in negotiations and conflict in more detail.

Gelfand & Realo (1999) examined how cultural values moderated the effect of accountability on negotiators' psychological states, behaviors, and outcomes. Researchers have typically found that accountability pressure, or having to answer to constituents for their behavior, makes negotiators behave more competitively, and that this contentious behavior makes it harder to reach agreement in inter-group negotiations (Pruitt & Carnevale, 1993). Gelfand & Realo (1999) conducted two laboratory studies. In the first study, they used a sample of 102 U.S. students, with 36 of these students being of Asian background. The second study utilized Estonian students and U.S. students. In both studies, researchers manipulated accountability (high or low) and measured both negotiation behavior and participants' cultural values. Consistent with previous findings, U.S. participants with Western backgrounds scored higher on individualism and lower on collectivism (as measured by the Triandis (1994) individualism-collectivism scale) than both U.S. participants from Asian background and Estonian participants. In contrast to prior research, accountability did not necessarily produce competitive behavior. Instead, Gelfand and Realo found that accountability produced the behavior most culturally normative for the individuals in question. Specifically, high accountability pressure led to competitive behavior for those negotiators who scored high in individualism, but to *cooperative* behavior in those negotiators who scored high in collectivism.

Thus, the same context cued different behaviors in people from different cultures, demonstrating how culturally normative behavior for certain situations differs across cultures.

In another demonstration of the dynamic constructivist perspective, Fu, Morris, Lee, Chao, Chiu, & Hong (2007) showed that individual differences in need for closure (NFC) interacted with cultural group variables to determine East Asian versus Western differences in conflict style and procedural preferences, information gathering in disputes, and fairness judgments in reward allocations. They demonstrated that NFC, an individual difference measure, moderated the tendency for individuals to engage in culturally prototypical behavior. In other words, individuals with high NFC were more likely to adhere to cultural convention. According to Fu et al., high NFC individuals are motivated to adhere to cultural norms because they seek the epistemic security of consensual validation.

Fu et al.'s (2007) three studies showed both the moderating effect of NFC and validated findings showing that Asian and Western cultures differ in the normative behaviors cued by conflict situations. Specifically, Fu et al. (2007) found in Study 1 that the greater tendency for U.S. participants to choose relationally unconnected third parties to manage disputes and of Chinese participants to choose relationally connected third parties was moderated by NFC, with high NFC leading to greater culturally-prototypical behavior in each group. In Study 2, the researchers found that NFC moderated the differential tendency for Euro-Americans to seek information relevant to investigative approaches and Asian-Americans to seek information relevant to conciliative approaches. In Study 3, Fu et al. found that NFC moderated the tendency of bicultural participants to favor equality-based allocations more when Chinese culture rather than American culture was primed and vice-versa for equity-based allocations.



Liu, Friedman, and Chi (2005) showed that factors that predicted distributive outcomes in U.S. culture did not do so in Chinese culture. For instance, prior research such as Barry & Friedman (1998) showed that negotiators in the US who were extroverted and agreeable negotiated lower individual gains than negotiators who did not have these personality traits. Liu et al. (2005) hypothesized that these findings would not generalize to collectivist Chinese culture because collectivists are more socially engaged with the other party than individualists, regardless of personality traits. According to Liu et al. (2005), in contrast to their Western individualistic counterparts, extraversion and agreeableness will not make Chinese negotiators any more sensitive to the concerns of the other negotiator. They predicted, and found, an interaction between cultural group (American versus Chinese), personality characteristic, and individual outcomes (as well as precursors to individual outcomes such as opening offers and responses). Then these researchers flipped the model, proposing that personality characteristics that are particularly Chinese, e.g. preference for harmony, face, and *Ren Qing* (belief that long-term relationships are important) would impact Chinese negotiators' individual outcomes, but not those of Americans. Their reasoning was that the social norms associated with these factors in U.S. culture are not sufficiently salient to make them relevant to distributive bargaining. This hypothesis, too, was supported. The data from this study supports the constructivist perspective that factors that affect negotiation behavior and outcomes in one culture do not necessarily affect negotiation behavior and outcomes in another culture.

Brett, Tinsley, Shapiro, and Okumura (2007) applied the dynamic constructivist approach to employee disputes. In a study of how peers versus superior managers intervened in employee disputes in China, Japan, and the United States, they proposed two constructivist hypotheses:

within Chinese culture the position of the third party (peer versus superior) would have a stronger impact on third party dispute intervention behavior (who made the decision and what was the decision to resolve the dispute) than within the U.S. or the Japanese culture. Their reasoning, grounded in references to Chinese historical and political events, was that cultural traditions in China, more so than in the U.S. or Japan, value both authoritarian and egalitarian behaviors. They found that third party behaviors reported by the U.S. and Japanese managers reflected their cultures' prototypical values (i.e. a context-general modal response consistent with an entity/trait perspective), but Chinese managers' behaviors reflected contextual effects. Specifically, Chinese managers who were bosses tended to decide themselves how to resolve the conflict (who) and that decision often supported the status quo (what); Chinese managers who were peers tended to involve the disputants in making the decision to resolve the conflict (who) and that decision often involved change (what). Japanese managers tended to stick with the status quo; U.S. managers tended to make decisions that departed from the status quo. Thus, Brett et al.'s (2007) research again shows a context in which the same social situation elicits different behaviors from people in different cultures.

After examining how dynamic constructivism has been applied thus far, I now turn to the literature on teamwork process, first in multicultural teams, and then in Western culture research.

### Teamwork Process and Creativity

#### *Teamwork Process in Multicultural Teams*

In a conceptual paper, Janssens and Brett (2006) described three models of teamwork process and argued that one process, fusion teamwork, optimizes creative outcomes in multicultural teams. Fusion teamwork process refers to a teamwork process characterized by

“co-existence” and “meaningful participation,” which Janssens and Brett (2006) proposed would lead to greater creativity by preserving cultural diversity within the team. Cultural diversity would be preserved in fusion teamwork, according to these authors, because co-existence allows culturally different approaches to teamwork to flourish simultaneously and meaningful participation allows different perspectives to emerge.

In contrast, Janssens and Brett (2006) argued that two other forms of teamwork, identity and subgroup dominance, would lead to lower creative output by quashing diversity within multicultural teams (Janssens & Brett, 2006). In subgroup dominant teamwork, a process similar to that described by Canney Davison (1996), one subgroup dominates the team, and those not in the dominant subgroup must suppress any differences and succumb to the wishes of the dominant group. In subgroup dominance, therefore, cultural diversity, and thus creativity, is restricted, since only the dominant group’s perspectives are aired. In the integration-identity model of teamwork, although team members from different cultures presumably have different teamwork norms, they negotiate a common integrated approach to teamwork that all follow. In the identity model, cultural differences, and thus diversity, are sublimated to the integrated team process, thus restricting the diversity that Janssens and Brett (2006) suggest is the crux of creativity.

*Proposition 1: In real world multicultural teams, fusion teamwork process will be associated with higher levels of creativity.*

My focus in subsequent theorizing is limited to fusion and subgroup dominance for several reasons. Most importantly, an integration-identity model could exist where either fusion or subgroup dominance is in force. In other words, the newly formed integration-identity

teamwork model could be fusion or it could be subgroup dominance, or it could be some other teamwork process norms unique to that team. In addition, early evidence in my examination of teamwork process in multicultural teams (Crotty & Brett, 2005; Crotty & Brett, 2006) showed that team members did not distinguish the integration-identity model from other forms of teamwork process.

I now turn to research on teamwork process carried out in Western culture settings, integrating these findings with research on multicultural teams and dynamic constructivism to form an overall theory and accompanying propositions.

#### *Teamwork Process in Western Teams*

Creative tasks require both divergent and convergent thinking, as the team must generate ideas (divergent thinking) and then choose among those ideas (convergent thinking) (Gaertner, Dovidio, & Bachman, 1996; Guilford, 1959, 1967). Divergent thinking refers to thinking that moves outward from the problem, or “thinking without boundaries,” while convergent thinking is thinking that proceeds toward a single answer (Thompson, 2008). It is not enough in practical terms for a team to generate creative ideas if it then fails to select the most creative among them, or vice versa. The theoretical review focuses on the research surrounding what will lead teams to *both* generate and select creative ideas, because my model will encompass both these processes and evaluate the teams’ creativity in terms of the final idea selected. This dependent variable both addresses an overemphasis on idea generation in the creativity literature (Rietzschel et al., 2006) and provides a metric that more closely reflects the reality of teamwork in organizations.

The creativity literature, which has been dominated by studies done by Western culture

scholars using Western culture subjects, points to two primary teamwork processes that facilitate creativity: discussion and debate and full participation. These two factors of teamwork process affect both the generation and selection of ideas. I review each factor separately and outline how each affects this two-step creative process in teams. Importantly, these two factors identified as producing creativity in Western-culture creativity research also conform to Western culture values concerning team behavior. Western culture countries are low on power distance and high on individualism in Hofstede's (1980) cultural values' measures, reflecting underlying values of pluralism, egalitarianism, and the importance of individual participation. As such, full participation and discussion and debate should represent the normative model for generating creativity in teams with Western culture dominated membership. After reviewing research on discussion and debate, I briefly discuss differences in the setting of the research reviewed before presenting an overall theoretical integration, which has separate propositions for short- and long-term teams.

*Discussion and debate.* Discussion and debate affects the idea generation phase of creative tasks. The classic advice for creativity teams is “not to criticize” any ideas in the idea generation phase Osborn (1957). Osborn, an advertising executive in the 1950's, published an influential book, *Applied Imagination*, which introduced four rules of brainstorming (idea generation) which he argued would increase the quality and quantity of ideas teams generated. One of these rules was “non-evaluation,” the idea that team members should not criticize the work of other team members. Osborn argued that if team members were worried about their ideas being judged they would be less likely to share their ideas and thus good ideas would be lost to the group. However, recent research (Nemeth, Personnaz, Personnaz, & Goncalo (2004)

found a discussion and debate condition generated higher levels of creativity than the traditional brainstorming condition and concluded that debating within brainstorming teams was at least as effective, if not more effective, than traditional brainstorming instructions advising against criticism of fellow team members' ideas.

Discussion and debate is also important in the area of idea selection. To select the most creative solution within a set of alternatives, team members must consider all the alternatives available to them. The minority influence literature demonstrates the relationship between discussion and debate and the selection of creative ideas. In a series of studies, the mechanism for selecting among a set of creative ideas was discussion of alternate viewpoints as a result of the influence of minority opinions (Nemeth & Kwon, 1987; Nemeth & Wachtler, 1983; Nemeth & Kwan, 1985). The greater the discussion and debate over creative alternatives, the more likely the team selected a creative solution.

Research in decision making also shows the importance of discussion and debate for the selection of superior solutions. In strategic problem solving tasks, debate within teams improved decision quality (Camacho & Paulus, 1995; Schweiger, Sandberg, & Ragan, 1986; Schweiger, Sandberg, & Rechner, 1989). Researchers attributed these improvements in decision quality were to the teams considering greater numbers of solutions than when they did not receive instructions mandating discussion and debate.

*Full participation.* In addition to discussion and debate, full participation may also be very important for team performance in creative tasks. Just as discussion and debate both increases the chance that creative ideas will be aired and that a highly creative option will be chosen, full participation also increases the number of different perspectives on which the team

may draw to generate creative solutions. If a team has a high level of diverse ideas present by any mechanism described thus far, these ideas will not lead to creative idea generation or selection if these ideas and opinions remain unshared. In the area of innovation, which includes not only the creation but implementation of creative ideas, two studies have found that participation is an important component of innovative success. In a longitudinal study of top management teams in 27 hospitals, participation within the team was the best predictor of both the number of innovations and team self-reports of innovation (West & Anderson, 1996). Likewise, a study of post office employees showed that dissent improved innovation only when there was a high degree of participation in team decision-making (De Dreu & West, 2001).

#### Theoretical Integration and Propositions

Since culture is a functional solution that grows out of the patterned ways that people in a group respond to the fundamental problems of social interaction (Smith et al., 1996) the knowledge structure (how to interpret, how to act) that is most available to team members confronted with a particular problem of social interaction will likely differ depending on the team member's culture. In the area of teamwork process, evidence suggests this is in fact the case. For instance, Gibson & Zellmer-Bruhn (2001) found that team members differed across culture in their patterns of expectations about team roles, scope, membership, and objectives. Applying the dynamic constructivist perspective to team behavior also predicts that the team setting cues different knowledge structures for members with different cultural backgrounds, and therefore likely different culturally normative behaviors. Since dynamic constructivist effects appear in individual, dyadic, and dispute resolution contexts, we should expect similar effects in the context of multicultural teams.

My theoretical integration offers separate propositions for real world and simulated multicultural teams. The reason behind this differentiation is two-fold. First of all, Janssens and Brett's (2006) concept of co-existence involves an element of adaptation which cannot be tested in a 20-minute simulated team. Second, the propositions for simulated teams allow a direct test of the teamwork process literature outlined concerning teamwork process and creativity in done in Western-culture simulation studies.

#### *Short-Term Multicultural Teams*

In short-term teams, like those described in the majority of the creativity and teams literature, team members are likely to fall back on their most comfortable teamwork approach, the teamwork process that converges with their culturally-derived knowledge structures concerning how to behave in teams. A short-term team task requires quick organization and execution and little planning (Thompson, 2008). In such a setting, the "default" position of most team members is to use a teamwork process that teamwork cues in their culture. Deviating from such a process will likely harm performance, since such deviant behavior is counter cultural. It will be difficult for team members to differ from their culturally prototypical response in this short-term setting, and to do so will likely harm performance. The short-term setting does not lend itself to adaptation or accommodation, thus fitting the teamwork process to the dominant cultural group will satisfy the largest number of team members and thus boost creative performance.

Given this culture-fit hypothesis for optimal teamwork process, I now turn to exploring which teamwork process best matches particular cultures. First, I explain which teamwork process models likely fit Western culture-dominated multicultural teams. Then, I discuss which



processes fit Asian-dominated multicultural teams. Although the world obviously cannot be divided into this dichotomy (i.e. Asian versus Western) this comparison is highly present in cross-cultural research (some of which is outlined above) and these cultural groups differ strongly in two cultural values that have important implications for teamwork process norms: Hofstede's dimensions of individualism and power distance (the latter of which is similar to Schwartz's egalitarianism/hierarchy measure).

The Western culture creativity and teamwork process literature suggests that discussion and debate and full participation are important for achieving creativity in Western-culture teams. Dynamic constructivism suggests that cultural values and social structures interact with the setting to produce behavior. The differing knowledge structures across cultures, therefore, will produce different behaviors in the teamwork setting for people from different cultures. Thus, it is probable that the values that cause debate and participation to lead to creativity in Western culture teams also elicit creativity in Asian-dominated teams, and any underlying differences in these cultural values should be associated with different teamwork processes to optimize creativity. The "clue" to optimizing creativity in Asian teams, therefore, may lie in uncovering which social values underlie the importance of participation and debate for Western culture teams and identifying a teamwork process norm that interacts with these values in Eastern/Asian cultures.

Western cultures and other cultures low on power distance have ideologies of power equalization and pluralism (Hofstede, 1980). Similarly, individualist cultures, which include Western cultures, value individual contributions and individual autonomy (Hofstede, 1980). The model identified by Western culture research as producing creative outcomes also closely

matches Western ideologies favoring individual rights/individual participation and equality. Given this cultural fit, I predict that short-term Western-culture dominated multicultural teams will reach optimal creativity through teamwork processes emphasizing discussion and debate and full participation.

*Proposition 2: Full participation and discussion and debate will facilitate creativity in short-term simulated teams with high proportions of Western culture members.*

In addition, although Janssens and Brett (2006) describe participation as “meaningful” rather than “full,” the research and theory I have reviewed thus far suggests participation may in fact be more of a Western-culture concept. As such, we may see fusion teamwork process, which is characterized by meaningful participation and co-existence, has a stronger relationship with creativity in long-term multicultural teams dominated by Western-culture team members.

*Proposition 3: The relationship between fusion and creativity will be stronger in teams with higher proportions of Western culture members.*

Since normative behaviors are tied to cultural values, the cultural values that interact with teamwork processes to generate more versus less creativity in teams dominated by Asian culture members should be similar to the values that have been shown to do so for teams of Western-culture team members. Unlike Western cultures, Asian cultures are high on power distance and low on individualism (Hofstede, 1980). Therefore, Asian cultures emphasize hierarchical structures and sublimation of individual identity to the group. These values match more closely to the subgroup dominant teamwork, which involves submission to the dominant will of the team and a lack of emphasis on individual inputs.

Though such a proposition directly counters Western culture research on creativity, what

research exists on teamwork process in Asian teams suggests such a proposition is not so far-fetched. For instance, Rice (2006) found controlling, hierarchical organizational environments did not inhibit creative behavior on the part of Egyptian employees. In fact, Rice (2006) found that self-perceptions of creativity were higher for Egyptians when they were in controlling hierarchical environments than when they were not, a finding she attributed to the high power distance in Egyptian culture (see Hofstede, 1980). In other words, workers were creative when the cultural values of their organization fit those of their national culture.

In another study of majority influence in teams of Chinese and U.S. undergraduates, Chinese students in the minority were more susceptible to majority influence than were U.S. undergraduates in the minority (Zhang, Lowry, Zhou, & Fu, 2007). Though again these scholars did not address dynamic constructivism, they argued the mechanism behind greater deference to majority rule lay in culturally normative behavior.

Thus, both the (limited) empirical evidence on creativity in Asian teams and the suggestions of dynamic constructivism lead us to expect that normative teamwork processes will differ between Asian- and Western-dominated teams, and for Asian-dominated multicultural teams to be creative these processes should fit with the cultural values of the culture. Subgroup dominant teamwork represents a much closer match to Asian values than do other teamwork models, particularly the very egalitarian, individualistic model presented by Western culture creativity research.

*Proposition 4: Subgroup dominant teamwork processes will facilitate creativity in short-term simulated teams with high proportions of Asian culture members.*

Differentiating these Constructs and Propositions from Existing Theory and Research

The most important difference between teamwork process and other team constructs is that it is a *process*, not a team property. Teamwork process describes the norms for how team members go about doing a task, but it does not *describe* the team in the way that many teamwork constructs such as cohesion, satisfaction, psychological safety, and the like describe team properties which are related to team outcomes apparently because team members act differently when the property is present than when it is absent. In general, team properties can be used to describe the team, but they do not necessarily identify the processes that the team uses to accomplish its tasks, rather they are precursors to the effectiveness of a team process. I discuss three particular teamwork ideas – task and procedural conflict, psychological safety, and information elaboration and highlight how teamwork process differs from these ideas.

#### *Task and Procedural Conflict*

Task conflict occurs in a team when team members disagree about what to do; procedural conflict occurs when team members disagree about how to accomplish what the team needs to do (Jehn, 1995). Teams with a dominant subgroup may have task conflict, for example, over whether the team should recommend option A or option B, but such conflict is relatively easily resolved based on the preference of the dominant subgroup. Such teams are unlikely to have much procedural conflict since subgroup dominance is a procedure.

In contrast, teams with a fusion teamwork process (as initially formulated by Janssens & Brett, 2006) may have quite a bit of both procedural and task conflict. Such teams may experience substantial procedural conflict as a result of the fusion principle of co-existence until the team reaches an equilibrium state of co-existence. Furthermore, a fusion teamwork process should foster task conflict because it maintains differences. Thus the difference between

teamwork processes and task and or procedural conflict is that teamwork process is causally prior to conflict, one among several potential causes of high versus low conflict within the team.

In other words, task or procedural conflict may or may not be present in a given multicultural team, but the level or presence of this task or procedural conflict will not describe the overall teamwork process of the team. The teamwork process, here fusion or subgroup dominance, exists prior to the development of task or procedural conflict in the team, and this conflict is independent of the norms for teamwork process though these norms may predict the propensity for these sorts of conflicts to develop and or to resolve.

### *Information Elaboration*

Information elaboration in teams is defined as the exchange of information and perspectives, individual-level processing of the information and perspectives, the process of feeding back the results of this individual-level processing into the group, and discussion and integration of its implications (Van Knippenberg, De Dreu, & Homan, 2004). In a theoretical paper, Van Knippenberg, De Dreu, & Homan (2004) proposed the categorization-elaboration model (CEM), which they argue reconceptualizes and integrates information/decision-making and social categorization perspectives in work group diversity and performance.

Information elaboration is a teamwork process. Subgroup dominance shares none of the elements of information elaboration, but fusion with its emphasis on co-existence does. The CEM model allows for individual-level processing of the information and perspectives, and then feeding back the results of this individual-level processing into the group. Presumably, multicultural team members could engage in individual processing, taking their own cultural perspective, and then contribute their culturally-based insights to the team as a whole.

Information elaboration places no restrictions on how individuals engage in information elaboration. Fusion teamwork would expect team members to use their cultural approaches to engage in information elaboration. The major difference is that fusion does and information elaboration does not take a cultural perspective.

### Conclusion

The four propositions linking teamwork process and creativity offer important theoretical and practical contributions. First, these propositions apply dynamic constructivism theory to teamwork in multicultural teams. Second, I offer specific propositions for how culture interacts with teamwork processes to increase creativity in multicultural teams through optimizing fit between culturally-based norms for teamwork process and the culture of the multicultural teams' dominant subgroup. Finally, in developing these propositions I also answer the call of recent literature reviews (see, e.g., Westwood & Low, 2003; Shalley et al., 2004) to extend creativity research to cross-cultural and multi-cultural settings.

Dynamic constructivism represents an important contribution to cross-cultural research, as it suggests that context and culture interact to produce different results between cultures. A theory that predicts interactions suggests a more complex and nuanced view of the world. Extending dynamic constructivism beyond individual, dyadic, and dispute resolution to multicultural teams represents an important contribution to the culture and the teams literature. Application of theory that predicts when cultural effects will materialize as teamwork, an area we know cues different socially normative behaviors (Gibson & Zellmer-Bruhn, 2001), presents a particularly critical area for such inquiry. If people from different cultures bring different ideas about how to behave in teams to a multicultural team, then we may expect such differences to

affect what processes will lead to creativity. Heretofore, however, examinations of teamwork process remain Western-centric (Westwood & Low, 2003; Shalley et al., 2004).

Fusing Creativity: Cultural Metacognition and Fusion Team Process in Multicultural Teams

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### Abstract

As the business environment becomes more global and multicultural teams come into widespread use, the relationship between teamwork processes and outcomes in such teams is increasingly relevant. In this study of 246 members of 37 multicultural teams in 11 large corporations, we tested a cross-level model relating a recently proposed theoretical model of teamwork, called fusion, to creativity. Our results indicate that cultural metacognition, an element of cultural intelligence (CQ), is associated with team members' reports of fusion teamwork and creativity and that Western culture representation within the team affects this relationship. Our study provides the first empirical test of the concept of fusion teamwork and contributes to theory by elaborating the precursors to such teamwork and suggesting a limitation on its generality.

## Introduction

In today's global management environment organizations are using multicultural teams to coordinate business across geographically dispersed production and market places (Galbraith, 2000). Multiculturalism adds a level of complexity to teamwork that goes beyond the functional diversity that generates task conflict, because team members from different cultural backgrounds have different norms and metaphors (Gibson & Zellmer-Bruhn, 2001, 2002) for teamwork – processes that affect team outcomes such as team productivity, team member commitment, and team members' satisfaction (Kirkman & Shapiro, 1997, 2001a, 2001b; Kirkman, Gibson, & Shapiro 2001).

The field study reported here tests hypotheses about the relationship between a particular type of teamwork, called fusion (Janssens & Brett, 2006), and creativity in 37 multicultural teams operating in 11 global organizations with data from 246 team members. Multicultural teams are challenging to manage because team members from different cultures have different teamwork norms, or standards for how to go about the team's work, such as making decisions, confronting differences, even what constitutes a work day (Behfar, Kern, & Brett, 2006). The management challenge is that the multicultural team needs a set of norms to by which to operate. The question is which team members' norms should the team adapt, the norms of the team's cultural majority, the norms of a small but dominant subgroup, or should the team generate a unique teamwork culture? In their theory paper Janssens and Brett (2006) suggested a new teamwork norm for multicultural teams which they called fusion, after the term used particularly in cooking to describe a cuisine that creatively borrows and mixes ingredients and methods of preparation from a variety of cuisines all the while preserving the unique flavors of each fused

element. This study elaborates and operationalizes their theory, generates a cross-level model of fusion teamwork and creativity, and tests the model in the field with multicultural teams that have long-term, on-going responsibilities for managing global HR, IT solutions, coordinating global alliances, etc. The study uses creativity as its dependent variable both because fusion teamwork is supposed to generate creative outcomes (Janssens & Brett, 2006) and because global management often requires creative solutions to complex problems (Galbraith, 2000).

We begin our theory section with definitions and derivations of principal constructs. We then use these constructs to build a cross-level model. We address levels of analysis and develop the model's hypotheses using prior theory and empirical research before discussing our methods, sample of real world teams, and analytic techniques. We also address how fusion differs from other norms and concepts in the teamwork literature.

## Theory and Hypotheses

### *Definitions*

A team is a group of people who are interdependent with respect to information, resources, and skills and who seek to combine their efforts to achieve a common goal (Thompson, 2008). For the purpose of this research we define a multicultural team as a one whose members come from two or more different national cultures, based on the definition used by other reserachers in this area (see, e.g., Earley & Mosakowski, 2000). We recognize that there are many different ways to delineate cultural group membership. However we use nation state boundaries because nations have distinguishable economic, social, and political institutions whose ideologies reflect and are a reflection of the cultural norms, beliefs, and values of the nation's citizens (Brett, 2007).

Teamwork refers to the processes a team uses as it goes about its tasks, from how the team makes decisions, to how it implements decisions, to how it manages the everyday responsibilities of the team. Teams rely on norms or behavioral standards for conducting work (Bettenhausen & Murnighan, 1985) and those norms serve as a “team government” structure, directing team members’ behaviors and socializing new members. Teamwork norms may be explicit, but they are more likely to be implicit – the assumptions about teamwork that team members bring with them to the team – unless team members have different norms and those differences surface and become explicit because they interfere with team productivity (Bettenhausen & Murnighan, 1985).

Teamwork norms are particularly important in multicultural teams, simply because team members from different cultures are very likely to have different norms for teamwork (Gibson & Zellmer-Bruhn, 2001; 2002; Behfar et al., 2006). For instance, Gibson & Zellmer-Bruhn (2001) describe how the cultural value of individualism affects norms for teamwork – in highly individualistic societies, team members typically view teams as task-specific and transitory, but their counterparts in societies low on individualism view team membership as long lasting and permanent. Consequently, team members in countries low in individualism are more likely to integrate their team into their non work lives and engage in activities such as team dinners and social activities (Gibson & Zellmer-Bruhn, 2001). Other cultural norms that may affect teamwork have to do with information sharing and orientation toward status and hierarchy (Behfar et al., 2006). Among the many examples in the Behfar et al. study, team members from hierarchical cultures were very sensitive to the status of other team members and would not raise issues with high status members’ ideas. In contrast, team members from more egalitarian

cultures violated their teammates' norms for deference to status by trying to get those silent team members to speak up even when high status team members were in the room.

The dependent variable in our model is the creativity of the team. A creative team is one that is judged to produce novel and useful plans, strategies, programs, etc. (Amabile, Conti, Coon, Lazenby, & Herron, 1996). Current theorizing suggests that neither novelty without utility nor utility without novelty is sufficient to judge a teams' production (Finke, 1995). When multicultural teams produce novel ideas they can provide the global organization with unique standing in its markets (Breitzman, 2001). However, if the ideas are novel but unrealistic, that is too far removed from currently available means of implementation, the opportunity nascent in the creative idea cannot be harvested (Finke, 1995)

### *Teamwork and Creativity*

In this section we develop the theoretical link and review the empirical research on the relationships between particular teamwork processes and team creativity. Theory and research on the creativity in teams indicates that processes that encourage divergent thinking increase creativity. Divergent thinking refers to thinking outward from the task (Guilford, 1959, 1967). Teamwork processes that help group creativity in decision-making are those that increase discussion and debate and hold off premature choice (Janis & Mann, 1977; Schweiger, Sandberg & Rechner, 1989, Schultz-Hardt, Jochims, & Frey, 2002). Practices such as "devil's advocacy" and "dialectical inquiry" seem to maintain divergent thinking even in the convergent thinking phase of decision making in teams (Schweiger, Sandberg, & Ragan, 1986; Schweiger et al., 1989). Both techniques are designed to improve decision making by encouraging constructive conflict of ideas and avoiding conformity pressures. "Devil's advocacy" is a process whereby

team members critique a proposed idea or solution before making a decision to adopt that solution. “Dialectical inquiry” uses debates between diametric sets of recommendations and assumptions prior to decision making. In a study specifically examining creative tasks, Nemeth, Personnaz, Personnaz, & Goncalo (2004) showed how discussion and debate positively affected the idea generation phase of creative tasks in a laboratory setting.

More recent research on teams in the field, as opposed to in the laboratory, has provided evidence of the importance of divergent thinking in discussion, debate, and ultimate decision making for the successful implementation of the team’s decision. De Dreu and West (2001) showed that dissent improved innovation, by which they meant the implementation of creative ideas, only when there was a high degree of participation in team decision-making. In another study, having team members with creative ideas was not enough to generate creative team output. “Group members must also be willing to share their novel, controversial, or unique ideas” if the team is to be creative (Chatman et al., 1998, 755).

Thus, according to the creativity literature, processes that encourage divergent thinking, preserve divergent ideas, and enhance the likelihood that ideas will be shared should lead to creativity in teams. If creativity arises from the diverse ideas of team members, any process that the team adopts that encourages team members to think more broadly and consider different perspectives should increase creativity. Given this understanding of what teamwork processes need to be in place to generate creativity, we turn next to the research and theorizing concerning teamwork in multicultural teams.

#### *Fusion Teamwork and Creativity in Multicultural Teams*

This section has two parts. In the first part we develop the construct of fusion and how it is unique to multicultural teams whose members have different teamwork norms, but conceptually related to prior research on teamwork norms that promote creativity. In the second part we discuss what fusion is not and how it is different from other teamwork norms that have been used to describe multicultural teams.

*What fusion is.* As in fusion cooking, the critical element of fusion teamwork is co-existence. What gives a fusion dish its unique flavor is its eclectic mix of cuisines from different countries. What gives a multicultural team its creative advantage is similar co-existence, but here the positive outcome is creativity rather than a culinary delight. In other words, in fusion teamwork, team members from different cultures are allowed to operate in the team environment using their own teamwork norms. An example of this process in action comes from “George,” a manager seeking advice on managing collaboration in an IT team consisting of members from Singapore and Israel (Desai, 2007). George was extremely frustrated because he could not get the Singaporean programmers to confront the Israeli programmers and tell the Israelis about the “bugs” the Singaporeans had found in the software the Israelis had designed. George, whose cultural background led to direct confrontation, could not understand why the Singaporeans would not confront the Israelis. After a conversation about cultural values, George accepted a fusion solution. Rather than attempt to force the Singaporean programmers to engage in a culturally uncomfortable behavior, he appointed an intermediary, with expertise and authority, to relay the Singaporean programmers’ concerns to the Israelis. Several months after he had reluctantly implemented this plan, he saw real progress with the team’s projects.

This example illustrates several important points about co-existence in multicultural teams. First, it illustrates the almost impossible task of asking team members to violate their own culture's norms of teamwork. Second, it demonstrates how the idea of co-existence can be used to generate a creative solution to teamwork impasses. Note that figuring out how to make co-existence happen in teamwork takes creativity. Thus another benefit of co-existence is that it encourages creative solutions to teamwork problems and so reinforces a creative orientation within the team that may carry over to the solution of the team's task. Without co-existence, the team loses an important element of teamwork that should give multicultural teams a creative advantage – namely a means to allow the different cultural values and approaches that we know from the literature drive creativity in teams.

In addition to co-existence, Janssens & Brett's (2006) fusion model highlights the importance of team members' participation in deliberations. As the research on the creativity of homogenous teams has shown, the existence of diverse perspectives in the team will not produce creative outcomes if those ideas remain in the heads of team members and are not shared with team members.

*What fusion is not.* Janssens and Brett (2006) contrasted fusion teamwork with subgroup dominant teamwork (Canney Davison, 1996), where team members suppress their individual differences and identities to those of a dominant subgroup. This reduction of idea diversity may hamper creativity, if lower status team members suppress their contributions in deference to those of the dominant subgroup. In addition, the conformity pressure in such a team may result in a process where even when team members do share ideas, these ideas differ little from those of



other team members. The resultant lack of participation that occurs when team members feel their contributions are not valued is likely to further impede effort to generate creative outcomes.

Janssens and Brett (2006) also discussed another model of teamwork which they called integration identity. An integration-identity model of teamwork is like a third culture in that the team over time develops its own way of doing teamwork that does not necessarily reflect the native cultural approach of a team member. Earley and Mosakowski (2000) called this a hybrid model of teamwork. An integration-identity or hybrid model of teamwork could be fusion if it reflects co-existence of different cultural teamwork processes and participation, but an integration-identity or hybrid model that does not reflect co-existence should not be called fusion, even if there is a norm of participation.

#### *Distinguishing Fusion from other Team Constructs*

As with the introduction of any new construct, it is important to distinguish fusion from other teamwork constructs in the literature. The important point about fusion is that it is a process norm. Many teamwork constructs such as cohesion, satisfaction, psychological safety, and the like describe team properties which are related to team outcomes apparently because team members act differently when the property is present than when it is absent. For example, in one study team members in a safe psychological environment learned more because they were willing to seek feedback. Seeking feedback is the underlying process norm, that explains why the team property, psychological safety, improved team learning (Edmundson, 1999). In general, team properties can be used to describe the team, but they do not necessarily identify the processes that the team uses to accomplish its tasks, rather they are precursors to the effectiveness of a team process.

*Distinguishing fusion from task and procedural conflict.* Task conflict occurs in a team when team members disagree about what to do; procedural conflict occurs when team members disagree about how to accomplish what the team needs to do (Jehn, 1995). Task and procedural conflict are not always distinguished in the literature and may be difficult to distinguish one from the other empirically (Weingart & De Dreu, 2003). However, neither task nor procedural conflict is the same construct as fusion or subgroup dominance, both of which refer to teamwork process norms. Procedural conflict that is culturally based, for instance what constitutes a work day for team members (see, e.g., Behfar et al. 2006), can be managed by a subgroup dominant norm, a small subgroup determines how the team is going to operate, or by a fusion norm. In one example, a financial services team experienced procedural conflict over what constituted a normal work day. The team was geographically split between North and South America, but all team members were operating within the same time zone. However, the South American team members took a 2 hour lunch break and then worked until 7 or 8 pm. The midday break drove the workaholic North American team members crazy until they learned to take advantage of their different work schedules, with the North Americans using the noon break and South Americans using the early evening to do uninterrupted work. In short, this team developed a fusion process to manage their procedural conflict (Behfar et al., 2006).

A fusion teamwork process does not minimize task conflict, but fusion's fundamental elements of co-existence and participation should help to direct and channel task conflict such that quality outcomes result from task conflict. The prior research indicates that the quality of creative solutions to team tasks appears to benefit from task conflict that manifests as discussion and debate but not as interpersonal conflict. Cultural respect underlying the co-existence and

meaningful participation elements of fusion should help to minimize the dysfunctional spillover between task and interpersonal conflict.

Fusion is about generating a teamwork process that allows team members to maintain their cultural identity and as much as possible their own cultural ways of social interaction. Fusion allows a team to live with culturally-based differences rather than enter into conflict leading to the domination of one culture's teamwork process over the teamwork process favored by another culture. The meaningful participation element of fusion may facilitate the surfacing of a myriad of ideas, but the fusion element of co-existence leads away from task conflict, in which ideas clash and one emerges as dominant, and leads to integrative solutions that use the best elements of ideas.

#### Teamwork Process and Creativity in Multicultural Teams

In this section we develop a cross-level model of fusion and creativity that we will be testing in real world multicultural teams. The model is in Figure 1. Note that it has been elaborated from the simple direct relationship between fusion and creativity proposed by Janssens and Brett (2006). Our model includes a precursor to fusion and creativity in multicultural teams, cultural metacognition, and a conditional factor, Western culture dominance, which Janssens and Brett (2006) discussed but did not fully incorporate into their theorizing. We propose that team members' reports of fusion teamwork are a function of their own cultural metacognition and of the level of metacognition in their team. We predict that team members' reports of creativity are a function of fusion process, which is moderated by Western cultural dominance, and of individual level cultural metacognition, which in turn is moderated by the

level of metacognition in the team. Before we begin to develop our hypotheses, we comment on choices we made with respect to the cross-level nature of our model.

*Note on Model Measures and Level of Analysis*

Teams are challenging to study because of level of analysis issues (Klein & Koslowski, 2000). Aggregation treats teams as central tendencies and ignores individual differences within the team. Disaggregation to the individual level violates assumptions of independence of observations. Fortunately, hierarchical linear modeling (HLM) addresses the independence problem of disaggregation. HLM also allows for testing hypotheses concerning cross-level effects that permit the researcher to examine both individual and team level differences.

For this initial field study designed to test an elaborated model of the fusion creativity link, we decided to work with a cross-level model so that we could study interactions between individual team member and team-level effects. This means that our dependent variables, fusion and creativity, are more accurately described as team members' reports of this process and outcome, as dependent variables need to be at the lowest level of analysis in a cross-level model. Our decision of course has implications. For example, our focus on measurement at the individual level may raise concerns about the level of agreement between team members or objections that team member reports may not reflect reality. Two important points allay such concerns. First of all, as we describe in detail in the methods section that follows, HLM analyses require that there be significant differences between groups in the study on all dependent variables. This means that there had to be differences in fusion and creativity between our teams and that within teams, team members were in general agreement about fusion and creativity, even if this assessment was not positive. Second, an aggregated measure is, by its nature, an

aggregation of perceptions, and thus subject to the same concerns about whether team members' opinions reflect reality at the aggregate as at the individual level of analysis. In the particular teams in this study members were geographically dispersed and not under daily management observation; therefore, we felt strongly that team members' reports, rather than those of supervisors, were more accurate reflections of teamwork process they were using and experiencing. In order to rule out the risk that the association between reports of fusion and creativity were due to a general positive halo about the team all models controlled for satisfaction with the team.

*Cultural Metacognition: A Precursor to Fusion Teamwork*

Cultural metacognition, an element of cultural intelligence, may have an effect on the development of fusion teamwork within multicultural teams. The model in Figure 1 predicts that individuals' levels of cultural metacognition affect reports of fusion teamwork, and that this effect is moderated by the level of cultural metacognition in the team. Cultural metacognition refers to cultural consciousness and awareness during social interaction (Ang, Van Dyne, Koh, Ng, Templer, Tay, & Chandrasekar, 2007, Ang, Van Dyne, Koh, & Yee Ng, 2004, Earley & Ang, 2003). Cultural intelligence (CQ) is an indicator of an individual's social competence in situations characterized by cultural diversity (Earley & Ang, 2003).

Cultural metacognition is one of four factors of cultural intelligence. The others are: behavioral (what people do in multicultural situations), motivational (what people are interested in doing in multicultural situations), cognitive (what people know about norms and practices in different cultures). In a series of thorough, multi-sample construct validation studies, researchers showed that of the four factors of cultural intelligence: metacognitive and cognitive factors were

related to individuals' performance; motivational CQ was related to general adjustment, and behavioral CQ was related to individuals' performance and adjustment over and above the effects of demographic characteristics and general cognitive ability (Earley & Ang, 2003; Ang et al., 2004; 2007). We chose cultural metacognition for our model because we believe that successful implementation of fusion teamwork requires cognitive processing about team process.

We have two hypotheses relating cultural metacognition to fusion processes at different levels of analysis. First, we propose that individuals with a high level of cultural metacognition are more likely to be members of multicultural teams that choose fusion teamwork processes than individuals with a low level of cultural metacognition. Cultural metacognition may predispose team members to adopt a fusion approach to teamwork because team members with higher levels of cultural metacognition should have a greater appreciation and tolerance of cultural differences, and favor and therefore foster team processes that reflect these preferences. Also, since cultural metacognition implies enhanced ability to adapt and adjust to cultural differences, those team members who are high in cultural metacognition may be less threatened by and therefore more willing to engage in processes like meaningful participation and co-existence of cultural differences than team members who are low in cultural metacognition. Finally, culturally metacognitive team members may simply favor multiculturalism; thus team members high in cultural metacognition compared to those who are low in cultural metacognition may see diversity as an intrinsic value and its preservation as a goal.

*Hypothesis 1:* Team members with high levels of cultural metacognition are more likely to report that their teams engaged in fusion teamwork processes than team members with low levels of cultural metacognition.

We expect this individual level effect to be moderated by the level of cultural metacognition in the team itself. We propose a cross-level hypothesis: when individuals are members of teams with high levels of cultural metacognition, the relationship between individual-level cultural metacognition and reported fusion teamwork will become stronger. In other words, when teams have high levels of cultural metacognition, the slope of the relationship between team members' individual-level metacognition and fusion is steeper, showing a stronger relationship.

This contextual effect arises from the nature of teamwork. Provided that reports of fusion teamwork reflect what occurs in the team, an individual's ability to impact teamwork process grows stronger when he or she is embedded in a team of like-minded individuals. If our hypothesis 1 is correct, then team members with levels of cultural metacognition will tolerate even prefer fusion teamwork, and we further predict that they will be more able to enact these preferences for fusion teamwork when embedded in team of similarly highly culturally metacognitive teammates.

*Hypothesis 2:* The relationship between individual cultural metacognition and reports of fusion teamwork will be stronger in teams with high levels of cultural metacognition.

#### *Predicting Creativity in Multicultural Teams*

The model in Figure 1 proposes that four factors predict creativity in multicultural teams: team members' cultural metacognition as moderated by the teams' level of metacognition, and fusion as moderated by the teams' level of Western culture members. We begin with a discussion of the cultural metacognition relationships and then develop the reasoning underlying the relationship between fusion and creativity.

As illustrated in Figure 1, we expect individual and team-level cultural metacognition will have both an indirect effect on creativity via their effect on fusion and also a direct effect on creativity, with the team-level effect moderating the individual level-effect. Thus, metacognition's effects on creativity are both direct and indirect through fusion. Hypotheses 1 and 2 developed our reasoning for the effects of cultural metacognition on fusion. Here we develop reasoning for hypotheses 3 and 4 pertaining to the effect of individual and team-level cultural metacognition on creativity. Our reasoning is based on theorizing in cognitive psychology concerning the relationship between metacognition in general and creativity.

Metacognition is a core component of creative processes: people who are more metacognitive should also be more creative, because metacognitive skills are “crucial elements of creative thinking and production” (Feldhusen & Goh's, 1995: 243). In an analysis combining a model presented in Wallas's *The Art of Thought* (1926) and firsthand accounts of the creative process from creative individuals, Armbruster (1989) concluded that metacognition is involved in every aspect of the creative process, and that creative individuals may in part be more creative due to their metacognitive abilities. In Pesut's (1990) model, creative thinking is conceptualized as a self-regulatory metacognitive process whereby actions and metacognitive strategies may improve creativity through self regulation of the cognitive process. Thus, if team members' level of cultural metacognition extends to their metacognitive abilities generally, team members who are highly culturally metacognitive should be able to contribute directly to the creativity of the team. In other words, if a high level of cultural metacognition implies a high level of *general* metacognition, then there may be a direct relationship between individual metacognition and creativity, since theory suggests metacognition should reflect creative ability.



*Hypothesis 3:* Team members with high levels of cultural metacognition are more likely to describe their teams as creative than team members with low levels of cultural metacognition.

However, we expect the effect in Hypothesis 3 to be moderated, that is affected by the level of cultural metacognition in the team itself. In other words, we propose a contextual effect of the teams' level of cultural metacognition on the relationship between team members' individual metacognition and their team's reported creativity. We predict that the relationship between individuals' cultural metacognition and reports of team creativity will be stronger when a member of a team with a high level of cultural metacognition. Our reasoning is similar to our reasoning underlying Hypothesis 2: being embedded in a team whose members share cultural metacognition should provide a supportive context for team members to use their metacognitive skills.

*Hypothesis 4:* The relationship between individual cultural metacognition and reports of creativity will be stronger in teams with high levels of cultural metacognition.

An important contribution of our model is to test the hypothesized relationship between fusion teamwork and creativity first proposed by Janssens and Brett (2006). Following their reasoning, we propose that this relationship is due to the dual nature of the fusion teamwork process. First, the co-existence of different approaches to evaluation of ideas and decision making preserves cultural diversity, requires creativity to manage these cultural differences, and so provides a team governance structure that facilitates creativity. Second, meaningful participation allows ideas to compete on an equal footing and encourages the free generation and exchange of these ideas.

*Hypothesis 5:* Team members who report that their team engages in fusion teamwork are more likely to also rate their team's output as creative.

However, we also propose that the relationship between reports of fusion teamwork and creativity is moderated by the degree to which the team is dominated by members from Western cultures. By Western culture we mean team members from the national cultures of Western Europe and North America. Janssens and Brett (2006) suggested that fusion process may be more acceptable to team members from cultures with pluralistic governments, because there is a cultural affinity between experience on the societal level with pluralistic governments and pluralistic ideologies and experience at the team level with the elements of fusion teamwork—meaningful participation and co-existence of differences. According to Hofstede (1980), whose work has been used to measure cultural values for over 25 years (Kirkman, Lowe, & Gibson, 2006), cultural differences on the dimension of power distance affect ideologies about power, government, and social collaboration in organizations. Cultures low in power distance, such as the United States, Western Europe, and Canada, have ideologies of power equalization and are more likely to favor pluralistic governments. Cultural experience with government and ideology tolerant of differences may make team members from Western cultures more likely to favor or be tolerant of fusion in multicultural teams. As the proportion of team members tolerant of and used to pluralistic processes increases, the positive relationship between reports of fusion and creativity should increase. Thus, as the number of Western culture team members increases, the team as a whole is likely to be more comfortable with fusion teamwork which may then enhance the relationship between fusion and creativity in these teams compared to teams with fewer Western culture members.

*Hypothesis 6:* As the proportion of team members from Western culture rises, the relationship between an individual's reports of fusion and reports of creative team output grows stronger. The relationship between individual reports of fusion and creativity will be stronger in teams with a high proportion of team members from Western cultures.

The final variable in our model is affect toward the team. We included this variable to control for the risk that the relationship between measures of creativity and fusion merely reflected a positive disposition toward the team experience in general. The hypothesized moderation in both the fusion and creativity models also provides a control on the threat to validity due to reports that reflect positive associations with team experience rather than reports of fusion or creativity themselves.

## Methods

### *Sample*

Participants were 246 members of 37 multicultural teams embedded in 11 large multinational corporations. Teams averaged 10.7 members; most teams in the study had 9 to 15 members. Teams represented various divisions within the companies. Information technology represented the largest area (42%), closely followed by teams responsible for human resources (33%). See Figure 2 for the organizational areas of all teams. These were permanent teams by which we mean they were not pulled together temporarily to solve a particular problem; rather, these team assignments were full time appointments and team members were responsible for directing and executing various aspects of business for these global corporations. Team members were not generally geographically co-located; however, no team in the study was totally virtual. To participate in the study teams had to have at least 3-4 occasions of face-to-face interaction per

year, in addition to normal electronically mediated interaction. The majority of team members reported that English was their primary language, but 32% of team members did have a primary language other than English. Team members came from 29 countries. The largest representations by nation of origin were U.S., 48%; India, 10%; England, 7%; and Germany, 6%. There were slightly more male than female team members (56% versus 44%).

The response rate for the survey was approximately 51%, well within the acceptable range for organizational survey research. According to Baruch's (1999) analysis of five top management journals for the years 1975, 1985, and 1995, the average response rate for studies in the managerial and behavioral sciences was 55.6% with a standard deviation of 19.7. Compared to studies involving organizational representatives, our survey response rate was rather high. Baruch (1999) reported that studies involving management or organizational representatives had average response rates of 36.1%, with a standard deviation of 13.3. Our higher response rate likely reflects our multiple contacts with team managers and the study's endorsement by the human resources department in each company, factors that may aid in raising response rates in organizational surveys (Simsek & Veiga, 2001).

### *Design*

Multicultural teams were defined for human resource executives as "three or more people who have different nationalities" based on prior research (see, e.g., Earley & Mosakowski, 2000). Thus, the smallest team eligible would have three members, and the smallest number of cultures or nationalities in that team of three would be two. To be in the study teams were limited to 20 or fewer members. Teams could be multifunctional, but this was not a requirement for participation in the study.

Human resource executives identified the teams to participate in the study by working with team managers. Team managers ultimately sent the survey link to team members. The survey was anonymous at the individual level but did identify the team and organization to which the respondent belonged. Team members had several weeks to complete the 30 minute survey online. Team managers were given a summary report that allowed them to compare their team with other teams in their company (if any) and with the rest of the teams in the study. Team managers were encouraged to share the summary report with team members. No individual data could be identified in these summary reports.

*Choice of Multilevel Analysis.* The study's research questions involving cross-level effects and research design using real world permanent teams led us to measure all variables in the model at the level of the individual team member and use HLM for data analysis. This design choice is consistent with the nature of the real world teams we studied, current theorizing concerning multi-level modeling (see, e.g., Klein & Kozlowski, 2000), and prior non laboratory research on team creativity (Chatman et al., 1998).

Although an independent measure of teamwork process or outcomes would have been desirable from a conceptual point of view such a measure was not appropriate given the nature of these real world teams. Note that the teams came from a variety of different functions, were permanent teams with on-going responsibilities, and so were producing multiple products that could be analyzed as more or less creative. Furthermore, although team members worked together face to face at least some of the time, they were also working remotely and electronically. We concluded that team members' reports would be the most accurate measure of teamwork process and creativity.

However, in choosing to use team member reports we were also cognizant of threats to validity. Among these are whether in such a setting there is convergence of opinion among members of a team about their teamwork processes and creativity. To address this threat to validity we required that the data meet the first criterion for valid analysis using HLM. There had to be significant between group differences on our dependent variables. Another potential threat we were concerned with was to ensure that relationships in the model would not just be a function of positive affect toward the team. To address this threat to validity we controlled all models for affect toward the team.

### *Measures*

*Creativity.* Our creativity measure was based in part on a measure used in study by Chatman et al. (1998) that investigated the creativity of student solutions to the same total quality management (TQM) task, performed in simulated organizations. They asked a single question: “How creative are your quality applications?”

The nature of our teams, however, required several modifications to this measure, as did our concern on relying on the answer to a single question. First of all, our teams were engaged in a variety of different tasks, so although we followed Chatman et al.’s (1998) lead in asking team members to report on their team’s creativity, we used a measure of creativity that was theoretically driven, focusing on the criteria of novelty, innovativeness, and usefulness to the organization of the team’s work products (Amabile et al., 1996). Our scaled variable also offered reliability by including three items. The scaled variable included three Likert-type questions: 1) my team comes up with creative solutions to problems, 2) my team has developed novel solutions to problems, and 3) my team’s ideas will be useful to the organization. The alpha

reliability was .75. Certainly, it is possible for team products to meet the “novelty” criteria and not the “usefulness” criteria, but the alpha reliability indicates that team members did use both novelty and usefulness to assess creativity.

*Fusion.* Fusion refers to teamwork process norms that encourage co-existence of cultural approaches to teamwork and participation. Fusion was measured with eight items describing team process interaction. Participants indicated their level of agreement that the statement described their group’s functioning (see Appendix A). This scale is original to this study.

The originality of the fusion scale necessitates addressing the validity of the construct. A common way to address construct validity is to demonstrate convergent and discriminant validity with other measures in a domain related to the focal domain (Nunnally, 1967). We used a measure of another type of teamwork process, subgroup dominance, to demonstrate convergent and discriminant validity. Subgroup dominance refers to teamwork norms that reflect deference to a powerful constituency within the team, lack of full participation within the team, and intolerance of different approaches to decision-making (Janssens & Brett, 2006). All questions for subgroup dominance appear in Appendix A.

To evaluate the construct validity of our fusion measure, we ran a confirmatory factor analysis with fusion and subgroup dominant item parceling as recommended by Bandalos (2002) and Nasser and Wisenbaker (2003). As our theory would predict, the items in the fusion parcels loaded on one factor and those in the subgroup dominant parcels loaded on a separate factor. Neither fusion nor subgroup dominance fit better if divided into two separate factors.

The fit of the hypothesized two factor model was significantly better than the fit of a single factor model. The fit indices included a CFI of .862 for the two-factor model and a CFI of

.599 for the one-factor model, thus demonstrating that the two-factor model was a better fit. The NFI for the two-factor model was .829 and the NFI for the one-factor model was .584. Both the CFI and NFI measures indicate that the two-factor solution fits the data better, though these fit indices also indicate that the two-factor model fits the data reasonably but not perfectly. The RMSEA indices show a similar picture, with values of .109 for the two-factor model and .182 for the one-factor model. According to Schumaker and Lomax (1996), a RMSEA below .05 indicates a good fit, and .05 to .08 represents a satisfactory fit. Thus, our model does not fit the data perfectly, but the two-factor measure greatly improves the fit over a one factor measure. This indicates that fusion teamwork is distinct from subgroup dominant teamwork.

After forming scales, the alpha for subgroup dominance was .78; for fusion, .74 the correlation between the two constructs was negative, as expected ( $r = -.23$ ) and significant at the  $p < .01$  level, but not overly redundant.

*Western culture.* Participants indicated their country of origin. The Western culture variable was coded from these data as 1 for those team members who indicated they were from the United States, EU Countries, Australia, and Canada and 0 for team members of other nationalities.

*Cultural metacognition.* Our indicator of cultural metacognition was based on the metacognitive component of cultural intelligence (CQ) (Earley & Ang, 2003) which measures the ability to perceive and adapt to cultural differences during interaction with people from other cultures. Participants indicated their level of agreement with 5 statements on a 5 point Likert scale. The alpha reliability was .90. The exact questions appear in Appendix A. Cultural metacognition is an individual difference measure, and reflects a malleable state, rather than a



trait, of individuals (Earley & Ang, 2003).

*Affect toward the team.* We measured the extent to which team members felt their team experience was positive. The scaled variable consisted of three questions with an alpha reliability of .85. Team members were asked to indicate their level of agreement with the following statements on a 5-item Likert scale: 1) I am satisfied with being a member of my team, 2) I look forward to team meetings, and 3) I like being a member of this team. Affect was used as a control variable to partition general positive affect from the models using fusion and creativity as dependent variables and reduce the bias associated with the fact that independent and dependent variables were self report.

### *Analysis*

The data were analyzed using hierarchical linear modeling (HLM) to allow partitioning of variance into group- and individual-level effects and simultaneously evaluate both individual and group-level effects (Raudenbush & Bryk, 2002). When individual study participants are embedded within groups, HLM prevents underestimation of standard errors which can lead to erroneous results if data are merely aggregated to the group level.

In this study, the data were collected at the individual level. The dependent variable and some independent variables were individual-level variables (Raudenbush & Bryk, 2002). Other independent variables were team level indicators to allow us to test contextual effects. The format of the data and the use of HLM allowed us to test hypotheses about cross-level interactions. The continuous predictors collected at the individual level were grand-mean centered prior to running any models. The continuous variables at the group level were group mean centered. The dependent variable was not centered.

As the first step in an HLM analysis, researchers must demonstrate that there are group differences on the dependent variable to be used in the cross-level model. To test group differences on our dependent variable creativity and our intervening variable, fusion, we ran a random intercepts model for each variable controlling for affect. Both the random intercepts models for fusion and creativity, controlling for affect, indicated group differences existed with a p-value of .00. This demonstrates within-team agreement on both team members' reports of fusion and creativity, an important justification for our design and measurement choices.

We entered a number of control variables into the model at both the individual and team level. None had an effect, thus they do not appear in the final model. These variables were age, sex, team size, percentage of the team with English as first language, meeting frequency, type of manager (peer or superior), and functional area.

The HLM analysis used robust standard errors for the final estimation of fixed effects, which is appropriate for moderate to large numbers of groups (Raudenbush & Bryk, 2002). The 37 teams in our analysis constitute a moderate number of groups (Raudenbush & Bryk, 2002).

## Results

Our predictions concerning the cross-level relationships between creativity, fusion, cultural metacognition, and Western culture dominance were generally supported by the HLM analysis. We tested two models: one predicting team members' reports of fusion and the other team members' reports of creativity. The means, standard deviations, and correlations among variables appear in Table 1.

### *The Fusion Model*

The fusion model tested Hypotheses 1 and 2 that individual metacognition would predict team members' reports that fusion occurred in their teams, especially if there was a high overall team level of metacognition. To evaluate the usefulness of the model predicting fusion we used a deviance statistic, which is a chi-square measuring the predictive power of the model compared to the random intercepts model with only the affect control variable as a predictor. The chi-square test statistic was 11.54 with 3 degrees of freedom and was significant at the  $p=.01$  level. This shows that the model was useful in predicting fusion; it accounted for significantly more variance in fusion than the random intercepts model controlling for affect.

Hypotheses 1 and 2 proposed that team members with high levels of cultural metacognition would be more likely to report that their teams engaged in fusion teamwork, than team members low in cultural metacognition, especially in the context of a highly metacognitive team. These hypotheses were supported when controlled for level of affect with the team. Table 2 shows the results of testing the fusion model. The equations for the fusion model were at level 1  $Y = 3.73 (\beta_0) + .15 \beta_1 + .30 \beta_2 + R$ , and at level 2,  $\beta_0 = 3.73(\gamma_{00}) + .20 \gamma_{01} + u_0$ ;  $\beta_1 = .15 (\gamma_{10}) + .37 \gamma_{11} + u_1$ ;  $\beta_2 = .30 (\gamma_{20}) + u_2$ . This model contained the following predictors: affect toward the team (used as a control for affective halo), and individual and team level cultural metacognition. Team members with higher levels of cultural metacognition were more likely to report fusion (coefficient  $\beta_1=.15$ ,  $p < .04$ ), especially if they were members of teams high on cultural metacognition (coefficient  $\gamma_{11} = .37$ ,  $p < .01$ ), controlling for a team member's affect with the team (coefficient  $\beta_2=.30$ ,  $p=.00$ ). In addition, Table 2 shows that the aggregate level of cultural metacognition in the team predicted team differences in reports of fusion (coefficient  $\gamma_{01}=.20$ ,

$p=.01$ ). The positive signs of these coefficients imply that as the team's level of cultural cognition increased, so also did the positive slope between individual team members' cultural metacognition and reported fusion. This cross-level effect shows that in teams with high levels of cultural metacognition, the relationship between individual-level cultural metacognition and reports of fusion was more positive.

### *The Creativity Model*

The creativity model tested Hypotheses 3 and 4 which proposed that metacognition would predict reports of creativity and that relationship would be moderated by team level metacognition. The creativity model also tested Hypotheses 5 and 6 which proposed that team members who reported higher levels of fusion would also report higher levels of creativity and that this relationship would be moderated by the contextual factor of team Western culture dominance. These hypotheses were supported when the model was controlled for overall affect within the team. The equations for the creativity model were at level 1,  $Y = 3.81(\beta_0) + .08 \beta_1 + .32 \beta_2 + .27 \beta_3 + R$  and at level 2,  $\beta_0 = 3.81 (\gamma_{00}) + u_0$ ;  $\beta_1 = .08 (\gamma_{10}) + .29 \gamma_{11} + u_1$ ;  $\beta_2 = .32 (\gamma_{20}) + u_2$ ; and  $\beta_3 = .27 (\gamma_{30}) + .72 \gamma_{31} + u_3$ .

The creativity model fit the data significantly better than the random intercepts model with only affect as a predictor. To test the usefulness of the creativity model, we used the chi-square analysis of the deviance statistic comparing the final model with all the predictors to the random intercepts model with only affect as a predictor. The chi-square statistic (chi sq = 21.14, 7) was significant at  $p=.00$ , showing that the model was useful at predicting creativity beyond the null model.

The creativity model contains the following predictors: cultural metacognition, team-level cultural metacognition, affect, fusion, and Western culture dominance. The results reported in Table 3 show that team members' cultural metacognition predicted reports of creativity only when their teams had a high level of cultural metacognition (coefficient  $\gamma_{11}=.29$ ). This result supports Hypothesis 4. Hypothesis 3 predicting a direct non moderated relationship between cultural metacognition and reports of team creativity was not significant (coefficient  $\beta_1=.08$ ). Thus, as team cultural metacognition increased, the slope of the relationship between individual cultural metacognition and creativity became steeper and more positive.

The results in Table 3 also support Hypotheses 5 and 6. Reported fusion was related to reported creativity (coefficient  $\beta_3=.27$ ,  $p=.00$ ). This positive coefficient indicates that as team members who reported high levels of fusion also reported high levels of creativity. However, this fusion effect was moderated by the Western culture context of the team as proposed by Hypothesis 6. The coefficient for Western culture of the team (coefficient  $\gamma_{31}=.72$ ) was positive and significant ( $p < .01$ ), demonstrating that as the proportion of team members from Western cultures increased, so did the positive slope of the relationship between team members' reports of fusion teamwork and their reports of creativity. Therefore, in teams more dominated by members from Western cultures, the relationship between fusion and creativity became more positive.

The variance components in Tables 2 and 3 show whether the effect of each Level 1 item varied across teams in the study. In Table 2, the model predicting fusion, the variance components for cultural meta-cognition and affect were not significant. This indicates that the effects (slopes) of cultural metacognition and affect on reports of fusion were similar across

teams. In other words, the effects of cultural metacognition and affect on fusion were consistent across the teams. In Table 3, the model predicting creativity, the variance components for cultural metacognition, affect, and fusion were also not significant. Again, this demonstrates that the effect of cultural metacognition, affect, and fusion on creativity was similar across the 37 teams in the sample. Since none of the variance components was significant, we can be confident that the effects (slopes) of the relationships between independent and dependent variables in each model operated similarly across all teams. Therefore, the overall models reflect underlying processes in each of the 37 teams in the sample.

### Discussion

This field study testing the relationship between reported fusion teamwork and a team's creativity contributes to theory concerning the functioning of multicultural teams and the practice of managing such teams. In addition, it identifies opportunities for future research linking teamwork processes to creativity and other team outcomes.

### *Theoretical Contributions*

This research is important theoretically for several reasons: First, the study elaborates and tests Janssens and Brett's (2006) fusion model of multicultural teamwork. We also differentiate the construct of fusion from constructs such as task conflict which also appear in the teams and multicultural teams literatures. Second, the study contributes to the management literature by offering insight into teamwork in multicultural teams, an important but often neglected area of research. Third, the study contributes to the growing body of research on cultural intelligence, demonstrating that the cultural metacognition has important implications for fusion teamwork process and creativity in multicultural teams.

This study demonstrates that Janssens and Brett's (2006) conceptualization of fusion teamwork has important implications for creativity, although the relationships were not quite as straightforward as Janssens and Brett proposed. Step one in testing a model is measuring constructs. The items we wrote (see Appendix A) to measure fusion tap into meaningful participation and co-existence of different cultural processes. These items had acceptable reliability and demonstrated convergent and discriminant validity. Step two in testing a model about teams requires that measured variables discriminate between teams. The significant random intercepts models for both fusion and creativity established that there were differences between the teams in our study on these constructs and provide further evidence of the validity of the operationalizations of constructs. Not all the teams we studied could be characterized by a high level of fusion teamwork or by creativity.

Having achieved measurement validity, the study then provided empirical evidence for an elaboration of Janssens and Brett's (2006) theoretical model linking fusion teamwork to creativity in multicultural teams. The model we tested elaborated the relationship between fusion and creativity in two ways: we proposed conditions, such as level of cultural metacognition in the team and dominance of Western culture members, under which the model should hold. Furthermore, we proposed and showed that individual team member's cultural metacognition was conceptually related to team members' reports of fusion teamwork and had a moderated relationship with creativity. Finally, our study showed that the relationships we hypothesized were not simply due to positive feelings about the team in general.

Data from 246 members of 37 multicultural teams embedded in 11 large multinational organizations provided evidence for both parts of the model in Figure 1. The model of fusion

identified two factors affecting whether or not a multicultural team adopts a fusion process of teamwork. These were the team members own level of cultural metacognition and the team's contextual level of cultural metacognition. This study links the metacognitive element of CQ to teamwork and demonstrates that in multicultural teams, the context of cultural metacognition makes a difference if the team is to experience fusion teamwork.

The model for creativity identified four factors affecting creativity in multicultural teams. Two of these factors were associated with cultural metacognition, the others were fusion teamwork and Western culture dominance. Both of these findings, although consistent with Janssens and Brett's (2006) theorizing, were not anticipated in their paper. Reports of creativity were related to team members' cultural metacognition as moderated by the level of metacognition in the team and to reports of fusion as moderated by the team's dominance by Western culture members. These two moderated relationships provide a much more elaborated and nuanced understanding of the conditions under which fusion teamwork is likely to produce creative outcomes than was given in the original Janssens and Brett (2006) theoretical paper.

The Western culture member dominance finding is extremely important in that it suggests that making fusion teamwork produce creative outcomes is much easier when team members come from cultures that tolerate pluralism in terms of social and political ideology and so may be culturally comfortable with pluralistic processes. This was not a limitation anticipated by Janssens and Brett (2006). It certainly deserves further investigation, because it identifies an ironic phenomenon. If teams need to be multicultural to be creative, they also need to have members who tolerate multiculturalism and those tend to be members from a single cultural tradition.



Cultural intelligence is a relatively new construct. The dimension of cultural intelligence we chose to study, cultural metacognition, focuses on an individual's processing of cultural differences when outside of his or her own culture. We chose the metacognitive dimension of cultural intelligence for our study because we thought it fit well with the two underlying dimensions of fusion teamwork: meaningful participation and co-existence. We thought that people who were metacognitive about culture would be more likely to engage in these two sub-processes of fusion. Research by Ang and colleagues (2004; 2007) – not all of which was available to us when we began our study – indicates that metacognitive and cognitive cultural intelligence predict cultural judgment and decision making and should improve performance through an ability to better understand supervisors' expectations, adapting behavior to meet those expectations, and suspending cultural judgment, a factor previously linked to expatriate success.

Our study illustrates the relationship between cultural metacognition, fusion and creativity on two levels: as an individual difference measure, as it has been previously used, and as a team context variable, which is a departure from prior use of the construct. We found a positive relationship between team members' cultural metacognition and their reports of creativity that was moderated by the level of cultural metacognition within the team. In short, when teams had members with higher levels of cultural metacognition the positive relationship between individual level metacognition and creativity was stronger. This same moderated relationship was characteristic of the model relating metacognition to fusion. In teams with more highly metacognitive members, the relationship between team members' metacognition and fusion was stronger. These findings are important in the specific context of this study – creativity in multicultural teams. However, they may also be important to the broader

management and culture literature concerning metacognition and creativity. Although scholars have discussed the link between metacognition and creativity, our review of the literature did not uncover empirical studies documenting this link. Thus, our study which documents a moderated link between cultural metacognition and team creativity contributes to the growing discussion of the effects of different modes of cognition on important behavioral outcomes. In our study cultural metacognition was important not just as an individual difference but also as a team contextual variable.

Furthermore, although the study identified relationships between cultural metacognition and team members' reports of fusion and between cultural metacognition and team members' reports of creativity, fusion was not a complete mediator of the relationship between metacognition and creativity. There is more work to be done in understanding the nature of the relationship between of cultural metacognition and creativity beyond fusion processes.

One more important point before leaving this section on theoretical contributions concerning elaboration of the Janssens and Brett (2006) fusion model: It was not team-level metacognition that affected the relationship between fusion and creativity but the team's level of Western culture. Thus, these two team-level context variables are making rather different contributions. The team-level metacognition's impact is in two places: on the metacognition-fusion relationship and on the metacognition-creativity relationship. Western culture dominance's impact is on the fusion-creativity link.

### *Managerial Implications*

The managerial implications of the finding that fusion teamwork is related to team creativity are clear: generate fusion processes in multicultural teams if you want team members

to report the team as being creative. How to do that is going to require balancing selection processes and possibly developing some very imaginative team training.

Organizations can select multicultural team members based on their cultural metacognition. We show that cultural metacognition is associated with reports that the team is using a fusion process. Thus, we link the ability to look beyond cultural differences and adapt to these differences to team processes that favor debate and discussion, full participation, and the co-existence of different approaches to teamwork. Teams with members with a high degree of cultural metacognition should be able to generate fusion teamwork and to produce creative outcomes.

In addition, our use of creativity as a performance metric reflects an important dependent variable in the business world, as creativity and innovation (the implementation of creative ideas) are likely to make more of a difference in organizational differentiation than routine tasks requiring lower-level thought processes. The importance of the relationship between cultural metacognition and creativity is embedded in the moderation of that relationship by team level cultural metacognition. Thus, to be creative, multicultural teams need to have members with a high level of cultural metacognition.

The second team construction criterion – Western culture – is trickier to implement. The whole purpose of having a multicultural team is to avoid cultural dominance. Therefore, it is important that the team be somehow balanced between cultural heterogeneity and Western culture dominance. It would be easier if there had been a strong correlation between Western culture dominance and team level metacognition, but there was not. Hence building a team that is dominated by Western culture members may risk too little heterogeneity to facilitate creativity.

Organizations that are looking to multicultural teams for creative ideas, decision making, and implementation have some serious choices to make based on this research.

It also seems reasonable to ask whether people can be trained to be more metacognitive and to use and embrace fusion teamwork. Answering these questions goes beyond the scope of this research study, but opens the door to an entire program of future research opportunities.

### *Strengths and Limitations and Future Research Opportunities*

Our study of fusion teamwork represents an important addition to the literature because it focuses on the “black box” of teamwork process. Existing research in multicultural teams generally takes a different approach, examining how diversity (input) impacts performance (output) (see, e.g., Earley & Mosakowski, 2000; Elron, 1997; Watson, Kumar, & Michaelsen, 1993). In contrast, our research takes diversity as a “given” – a characterization that may more closely reflect business realities in an increasingly globalized business environment. Rather than attempting to determine an optimal level of diversity or examining how levels of diversity affect performance, our research showed that using a particular teamwork process, fusion, to manage cultural differences concerning teamwork was associated with the generation of creative team products.

This study established a means of measuring fusion teamwork and demonstrated a moderated relationship between fusion teamwork and reports of creativity in a field study. As such it provides a basis for future research both in the field and the lab to extend and elaborate and understand more deeply fusion teamwork, its precursors, its mechanisms, its relationships with the more familiar constructs of team conflict, and its link to other measures of team performance and creativity.

This study's organizational setting offers substantial external validity: the model held despite the substantial heterogeneity of the multicultural teams we studied. At the same time that field studies such as this one establish evidence for relationships, they also raise questions about mechanisms that must be answered in different research settings. For example, this study identified contextual effects of team level metacognition and Western cultural dominance. How exactly do these contextual factors operate? Cultural metacognition was only indirectly related to creativity through fusion and as moderated by team level cultural metacognition. Is this evidence against the general proposition that more metacognitive people are more creative, or is this effect due to the context of a multicultural team? Do teams with fusion processes experience less task and relationship conflict, less minority retribution than teams using other teamwork processes? All of these questions are worthy of research now that this study has established that fusion teamwork can be measured and does relate to an important team outcome.

### Conclusion

This study offers important insight into teamwork in multicultural teams, and how one particular teamwork process, fusion, may enhance creativity in these teams. We proposed and tested a model that built on prior theorizing concerning fusion teamwork and creativity (Janssens & Brett, 2006) and we elaborated that model with two team-level factors that moderated relationships: Western culture dominance and team level cultural metacognition. Our findings have immediate implications for teamwork in multicultural teams whose goal is to produce and implement creative and innovative outcomes.

Cultural Fit, Teamwork Process, and Creativity: Extending Dynamic Constructivism to  
Multicultural Teams

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### Abstract

In a study of 315 members of 35 multicultural teams, I apply dynamic constructivism theory (Hong, Morris, Chiu, & Benet-Martinez, 2000; Morris & Fu, 2001) to teamwork process, demonstrating that optimal creative outcomes result from the teamwork process that best fits with the cultural norms of the teams' majority subgroup. Though other research has applied dynamic constructivism to negotiations and dispute resolution, this study represents the first application of dynamic constructivism to the teamwork process setting by showing that the teamwork process that leads to creativity depends on the cultural majority within the team. Specifically, controlling for age, Asian-dominated multicultural teams were most creative when using subgroup dominant team norms, characterized by submission to the dominant members in the team and lack of full participation. This teamwork process matches Asian cultural norms surrounding hierarchy and collectivism. In Western-dominated teams, teamwork process predicted by current creativity literature did not increase creativity, although the trend was in that direction.

## Introduction

In a special report on managing the global workforce, *Businessweek* concluded “The companies that play this global, mobile game best will emerge the winners” (McGregor & Hamm, 2008). One of the biggest challenges of managing the global workforce, according to *Businessweek*, is coordinating teamwork when team members come from different cultures. The scholarly literature on multicultural teams provides quite a few insights both theoretical and empirical into how cultural differences affect teamwork and team outcomes (Kirkman, Gibson, & Shapiro, 2001; Kirkman & Shapiro, 1997; Kirkman & Shapiro, 2001a, 2001b). What the multicultural teams’ literature lacks is a meta-model that provides a framework for predicting cultural effects and for integrating the different theoretical insights and empirical findings.

In this study I use the dynamic constructivist meta-model developed by Hong, Morris, Chiu, and Benet-Martinez (2000) and Morris and Fu (2001) in cross-cultural psychology to frame my own research on culture, teamwork process, and creative outcomes in multicultural teams. Dynamic constructivism describes how aspects of a perceiver, context, and stimulus affect reliance on knowledge structures that produce culturally varying behavioral patterns. These knowledge structures interact with situations to produce different behaviors within and between cultures. In the present study, this is demonstrated by an interaction between the cultural of the majority subgroup and the teamwork process. I am particularly interested in creative outcomes in multicultural teams because creativity gives organizations financial rewards in the marketplace (Breitzman, 2001).



The results of this study of 35 multicultural teams participating in a creativity task are important both theoretically and practically. From a theoretical point of view they are wholly consistent with hypotheses derived from the dynamic constructivist model: a dominant culture by teamwork process interaction produced creative outcomes. In other words, the teamwork process that fit most closely with the culture of the majority subgroup produced the most creative outcomes. Importantly, my results illustrate the model working in two very different ways depending on the fit between culture and context. I show that multicultural teams dominated by Asian culture members produced creative outcomes when their teamwork process was subgroup dominated (a more hierarchical process). The teamwork process hypothesized to produce creativity in Western-dominated teams according to Western culture research did not yield results, although effects trended in that direction. In other words, at least in Asian-dominated teams, teams dominated by members from different cultural regions achieved optimal creativity via different teamwork processes. In the following sections I describe multicultural teams, present the dynamic constructivist model, define my constructs, and develop my hypotheses.

### Theory and Hypotheses

A multicultural team is a group of people representing two or more national cultures (see, e.g., Earley & Mosakowski, 2000) who seek to combine their efforts to achieve a common goal (Thompson, 2008). I recognize that there are many different ways to delineate cultural group membership. In the present research, I divide cultures regionally, into Western and Asian cultures based on the demographic nature of the sample. In Hofstede's (1980) extensive research on cultural values, the Western culture represented here (United States) and the Asian cultures represented here (primarily India and South Korea) differ sharply on the cultural values of

Individualism and Power Distance. The values of U.S. culture are generally characterized as individualistic and low Power Distance whereas the values Asian cultures such as India and South Korea are characterized as collectivist and high Power Distance (Hofstede, 1980; Schwartz, 1994). These cultural value differences are important due to the behavioral norms they create surrounding teamwork process. Specifically, I argue that for people in Western cultures, ideologies surrounding individual inputs, pluralism, and equality will match their cultural values and behavioral norms arising from high Individualism and low Power Distance. Similarly, as cultures in the region of Asia, teamwork process matching values of low Individualism and high Power Distance will need to reflect ideologies and behavioral norms of group unity, deference to those in power, and a de-emphasis on individual inputs and equality.

#### *Dynamic Constructivism*

To begin to understand dynamic constructivism, I define culture from a functional perspective. Culture is a functional solution that grows out of the patterned ways that people in a group respond to the fundamental problems of social interaction (Smith, Dugan, & Trompenaars, 1996). There is no restriction that people in different groups will rely on the same functional solution to the same social problem. Indeed, research on multicultural teams has documented that team members from different cultural backgrounds have different norms and metaphors for teamwork (Gibson & Zellmer-Bruhn, 2001). According to dynamic constructivist theory, the norms that people use depend on accessibility, availability, and activation (Hong et al., 2000; Morris & Fu, 2001). In teams, norms that are accessible and get imported to (activated in) new situations are those that people have used and that have produced good outcomes in the past (see, e.g., Bettinghausen & Murnighan, 1985). Kitayama (2002), referencing the work of culturalists

such as Geertz (1975) and Kroeber & Kluckhohn (1963), noted that the norms accessible to people are those that are embedded in their cultures.

The principle idea behind dynamic constructivism is that context cues cognitions that elicit behaviors that have a cultural fit. In a review of culture and negotiation research, Brett and Crotty (2008) identified three effects uncovered by constructivist research that are relevant to our application of the theory to multicultural teams: First, cultural groups differ in the knowledge structures that cultural members rely on to interpret and act (Fu et al., 2007; Liu, Friedman, & Chi, 2005). Second, context can amplify cultural effects by producing the culturally normative behavior (see, e.g., Gelfand & Realo, 1999). Third, context can cue dynamism (that is turn on turn off) cultural effects (see, e.g., Brett, Tinsley, Shapiro, & Okumura, 2007).

Applying dynamic constructivist reasoning to the relationships between culture, teamwork process and creativity in multicultural teams leads to the following general hypothesis: multicultural teams will be more creative when there is a fit between the teamwork process and the teamwork norms of the teams' culturally dominant subgroup. In the next sections I build our specific hypotheses first by discussing teamwork processes in multicultural teams, then by reviewing the literature on teamwork and creativity, and finally by reviewing recent theorizing and research on teamwork and creativity in multicultural teams.

### *Teamwork Process*

Teamwork refers to the processes a team uses as it goes about its tasks. I begin by reviewing existing Western culture research on teamwork process and creativity. I then discuss how Western cultural values match the teamwork process norms described in this research, reflecting dynamic constructivist theory. Next, I link the cultural value differences referenced

above in Asian cultures to a teamwork process from the multicultural teams literature that fits Asian cultural values of low Individualism and high Power Distance. I also generate hypotheses concerning linkages between culture and teamwork process in teams dominated by either Western or Asian culture team members.

### *Teamwork and Creativity in Teams*

There has been a great deal of research on creativity in team settings. We know, for example, that creative tasks require both divergent and convergent thinking, as the team must generate ideas (divergent thinking) and then choose among those ideas (convergent thinking) (Guilford, 1959, 1967). We know that it is not enough in practical terms for teams to generate creative ideas if they then fail to select the most creative among them, or vice versa. And, we know quite a bit about the teamwork processes that facilitate creative idea generation and idea selection, specifically, the importance of discussion and debate and full participation.

*Discussion and debate.* There have been several studies documenting that team discussion and debate facilitate idea generation. Discussion and debate refers to a teamwork process of considering the pros and cons of ideas. The traditional rules for brainstorming (or generating ideas in creative tasks) introduced by Osborn (1957) bar criticism, but Nemeth, Personnaz, Personnaz, & Goncalo (2004) showed that discussion and debate positively affected the idea generation phase of creative tasks, when team members criticized ideas aired by fellow team members.

Discussion and debate is also important in the area of idea selection. To select the most creative solution from within a set of possibilities, team members must consider all the

alternatives available to them. Although the selection of the best solution or solutions requires convergent thinking and team agreement, discussion, debate, and different perspectives within that discussion may prompt team members to consider a variety of alternatives more deeply and therefore make a better selection. One literature that addresses the association between discussion and debate and better idea selection is the minority influence literature. The idea is that minorities bring new perspectives to the team and thus generate discussion that leads the team to consider more alternatives and options than the team may have considered otherwise. In several such studies (Nemeth & Kwan, 1985, 1987; Nemeth & Wachtler, 1983) teams were judged on the creativity of their responses. Therefore, in the selection of ideas, discussion and debate are an important part of teams converging on a creative solution.

Research on group decision making also shows the importance of discussion and debate for the selection of superior solutions. In strategic problem solving tasks, debate within teams improved decision quality (Camacho & Paulus, 1995; Schweiger, Sandberg, & Ragan, 1986; Schweiger, Sandberg, & Rechner, 1989). The authors attributed these improvements in decision quality to the teams considering greater numbers of alternatives when they did as opposed to when they did not receive instructions mandating discussion and debate.

*Full participation.* In addition to discussion and debate, full participation may also be very important for team performance in creative tasks. Full participation refers to a teamwork process in which all team members are engaged in the discussion and debate. Just as discussion and debate increase the chance that ideas will be aired and evaluated, full participation also increases the potential contribution of different members of the team who may have different experiences on which to draw to help the team generate creative solutions. Full participation

engages all team members in discussion and debate.

In research on innovation, which includes not only the creation but implementation of creative ideas, two studies have found that participation is an important component of successful innovation. In a longitudinal study of top management teams in 27 hospitals, participation within the team was the best predictor of both the number of innovations and team self-reports of innovation (West & Anderson, 1996). Likewise, a study of post office employees showed that dissent improved innovation only when there was a high degree of participation in team decision-making (De Dreu & West, 2001).

### *Hypotheses*

Given this dynamic constructivist hypothesis linking culture to teamwork process, I now consider which teamwork process best matches particular cultures. First of all, I explain which teamwork process models likely fit Western culture-dominated multicultural teams. Then, I discuss which processes fit Asian-dominated multicultural teams. Although the world obviously cannot be divided into this dichotomy (i.e. Asian versus Western) this comparison is highly present in cross-cultural research (some of which is outlined above) and these cultural regions differ strongly in two cultural values that have important implications for teamwork process norms: Hofstede's dimensions of Individualism and Power distance (the latter of which is similar to Schwartz's egalitarianism/hierarchy measure).

As outlined above, the creativity and teamwork process literature suggests that discussion and debate and full participation are important for achieving creativity. This research has been done in Western culture (primarily the United States and Northern Europe) with teams of Western culture members. Dynamic constructivism suggests that cultural values and social

structures create different knowledge structures across cultures. These knowledge structures cue different behaviors between individuals across cultures, because these structures arise from the differing cultural values and social structures in particular countries or regions. These knowledge structures influence a variety of behaviors, including what behavior is normative in a given setting such as teamwork. It is probable, therefore, that if there is an affinity between Western culture and the teamwork process of debate and participation that leads to creativity in Western culture dominated teams that there should also be an affinity between Asian culture and a teamwork process that leads to creativity in Asian culture dominated teams. The “clue” to optimizing creativity in Asian teams, therefore, may lie in uncovering which cultural values underlie the importance of participation and debate for Western culture teams and identifying a teamwork process norm that interacts with these values in Eastern/Asian cultures.

Western cultures are low on Power Distance have ideologies of power equalization and pluralism (Hofstede, 1980). Similarly, Western cultures are high on Individualism are individualistic cultures that value individual contributions and individual autonomy (Hofstede, 1980). The full participation and discussion and debate teamwork model identified by Western culture research as producing creative outcomes closely aligns with Western culture values favoring individual rights/individual participation and equality. Given this cultural fit, I predict that Western-culture dominated multicultural teams will reach optimal creativity through teamwork processes emphasizing discussion and debate and full participation.

The point is not that team members with a common cultural background impose a teamwork process, but that they are more or less comfortable with different teamwork processes, and that they are better able to use a teamwork process with which they are comfortable to

generate high quality outcomes for the team. It is also important to point out that I am not suggesting that the majority cultural group within the team *controls* the teamwork process either. The majority cultural group is key not for dictating the result or procedure (although that is the case in subgroup dominant teamwork); rather the majority cultural group determines which culture needs to match the norms for teamwork process that the team uses. Thus, the teamwork process fitting the culture of most team members will increase creativity since that teamwork process is comfortable, familiar, and culturally prototypical for most of the members of the team.

*Hypothesis 1: Full participation and discussion and debate will facilitate creativity in multicultural teams with high proportions of Western culture members.*

Just as Individualism and Power Distance underlie the knowledge structures cued by teamwork in Western cultures, these cultural values should operate similarly for cultures in the Asian region. Unlike Western cultures, Asian cultures are high on Power Distance and low on Individualism (Hofstede, 1980). Cultures low on Power Distance emphasize hierarchy based on social status (Hofstede, 1980). Thus, it is normative in such cultures to be deferent to those in authority. Cultures that are low on Individualism have values for communal behavior and stress the importance of group unity (Hofstede, 1980). Norms accessible to people are those that are embedded in their cultures (Kitayama, 2002). People from cultures where social power is distributed unequally may be culturally comfortable with a teamwork process such as subgroup dominance, in which a few people decide for the team. Asian cultures such as South Korea and India tend to have strong social status differentials (Hofstede, 1980).

The cultural value differences between Asian cultures and Western cultures described thus far suggest we may not reasonably expect these cultural regions to have similar knowledge



structures and behavioral norms surrounding teamwork. Accordingly, I propose that a different teamwork process, subgroup dominance, will produce creativity in Asian-dominated teams.

A team using a subgroup dominant process defers to the preferences of the subgroup both with respect to what processes the team uses and what outcomes it chooses among an array of options (Canney Davison, 1996). The subgroup's dominance may be won in a contest for ascendancy or gained as a result of deference on the part of the non- dominant subgroup. The dominant subgroup may impose its own culturally familiar processes on the team or lead the team to follow a culturally hybrid set of procedures (see, e.g., Earley & Mosakowski, 2000). Decisions may be made by majority rule, by subgroup rule (as subgroup does not have to be a majority), or even by consensus with the non-dominant group withdrawing their opposition.

I propose that the subgroup dominant teamwork process will be culturally normative for Asians in multicultural teams because of the compatibility of subgroup dominant team process with culturally based knowledge structures created by low Individualism and high Power Distance. Subgroup dominance is a teamwork process characterized by a lack of full participation and submission to the dominant subgroup in the team (Canney Davison, 1996). I propose that the high Power Distance present in countries in the Asian region would create knowledge structures that make deference to a dominant group within the team culturally acceptable. The effect of high Power Distance and its emphasis on deference might be strengthened by the co-existence of low Individualism in this region. Low Individualism may be associated with knowledge structures informing teamwork that suggest teammates should avoid standing out individually and conform with the wishes of their teammates.

*Hypothesis 2: Subgroup dominant teamwork processes will facilitate creativity in*

*multicultural teams with high proportions of Asian culture members.*

Though this hypothesis directly counters Western culture research on creativity, what research exists on teamwork process in Asian teams suggests such the proposition is not so far-fetched. For instance, Rice (2006) found controlling, hierarchical organizational environments did not inhibit creative behavior on the part of Egyptian employees. In fact, Rice (2006) found that self-perceptions of creativity were higher for Egyptians when they were in controlling hierarchical environments, than when they were not, a finding she attributed to the high Power Distance in Egyptian culture (see Hofstede, 1980). In other words, workers were creative when the cultural values of their organization fit those of their national culture.

In another study of majority influence in teams of Chinese and U.S. undergraduates, Chinese students in the minority were more susceptible to majority influence than were U.S. undergraduates in the minority (Zhang, Lowry, Zhou, & Fu, 2007). Though again these scholars did not address dynamic constructivism, they argued the mechanism behind greater deference to majority rule lay in culturally normative behavior.

Thus, both the (limited) empirical evidence on creativity in Asian teams and the suggestions of dynamic constructivism lead us to expect that normative teamwork processes will differ between Asian- and Western-dominated teams and for Asian-dominated multicultural teams to be creative these processes should fit with the cultural values of the region. Subgroup dominant teamwork represents a much closer match to Asian values than do other teamwork models, particularly the very egalitarian, individualistic model presented by Western culture creativity research.

## Methods

### *Sample*

Participants were 315 part-time MBA students participating in an orientation program. The program is held four times annually, and these 315 participants represent 5 orientation sessions. Participation in the orientation exercise was mandatory, but participation survey completion was optional, though all students completed at least part of the survey.

A total of 36 teams completed the exercise, with groups ranging from 7 to 14 participants. The mean group size was 9 members and the mode was 8. Within each session, group sizes were nearly identical due to the procedure used to assign groups described below. One group was dropped from the data set because its average age fell over three standard deviations from the mean. Two team members were dropped due to missing data on primary variables. The final sample included 315 team members comprising 35 teams.

The average age of participants was 29.32, with a range of age 23 to age 50. The median age was 29. The majority, 70.9 % (232 participants, with 5 missing), were male. Of the 322 students who provided information on race, 215, or 65.7%, were white. The largest racial minority was Asian, with 84 participants, representing 25.7%. There were 11 African-Americans (3.4%), 6 Hispanic or Latinos, (1.8%), 2 Native Hawaiians or Pacific Islanders (.6%), and 4 who designated their race as “other” (1.2%).

### *Design*

*Box task.* In keeping with Amabile et al.’s (1996) widely used definition of creativity, where creative ideas are both novel and useful, team members were asked both generate and select creative ideas for a plain cardboard box that met this criterion. This task is similar creative

tasks widely used in the teams literature (see, e.g. Choi & Thompson, 2005). Team members had 10 minutes to generate as many ideas of the box as they could, and then they had 10 minutes to select the two best ideas to present to the class.

*Survey completion.* After the Box Task, participants completed questionnaires asking them about their teamwork process and satisfaction.

### *Dependent Variable*

*Creativity.* The dependent variable for the study was the creativity of the group's decision as to its two best ideas. I used a method adapted from Beersma & De Dreu (2005) to rate these ideas. The procedure was as follows: two independent raters, blind to my hypotheses, rated each idea on nine semantic differential scales. Four of these scales (ineffective-effective, dysfunctional-functional, unclear-clear, and vague-plain) focused on the usefulness of the idea and five scales (unoriginal-original, classical-fashionable, conservative-innovative, uncreative-creative, and old-fashioned-trendy) focused on the novelty of the idea. Each semantic differential judgment was made on a 5-point scale.

Each team selected its two "best" ideas, thus the two raters judged a total of 72 ideas. Following Beersma & De Dreu (2005), I considered raters to be "in agreement" if their ratings were within one point of the mean of the two ratings. Based on this metric, they were in agreement on usefulness for 96% of the ratings, and for 97% of the ratings on novelty.

Cronbach's alpha justified the aggregation of scaled variables. This analysis was done before averaging the raters' scores. For idea 1, the alpha reliability for usefulness (4 items) was .906 and the alpha reliability for novelty (5 items) was .963. For idea 2, the alpha reliability for usefulness (4 items) was .889 and the alpha reliability for novelty (5 items) was .965.

I then averaged all four scores, so that the regressions predict the groups highest on *both* novelty and usefulness, in line with Amabile et al.'s (1996) definition.

### *Measures of Teamwork*

Survey questions measuring teamwork process appear in Appendix A in their entirety. All questions were 5-point Likert-type scales ranging from strongly disagree (1) to strongly agree (5). Because team members have the most insight into what happened within their teams, team members' perceptions of debate/participation and subgroup dominant teamwork was used to measure teamwork processes. Using team members' perceptions of teamwork process is common throughout the literature, provided researchers show sufficient within-team agreement (Johnston, Reed, Lawrence, & Onken, 2007; Senior & Swailes, 2007; Zhang, Hampel, Yan, & Tjosvold, 2007).

To ensure that there was sufficient agreement within each team, I performed random intercepts modeling for both debate/participation and subgroup dominance. If significant, random intercepts models show there is greater between than within group variance (Raudenbush & Bryk, 2002) and a justification for aggregation (Klein & Kozlowski, 2000) for both debate/participation and subgroup dominance, the p value of the random intercepts model was .00.

*Discussion/debate and full participation.* This teamwork process was measured using a five-item Likert-type scale measuring participants' agreement with seven statements such as, "When we were generating ideas for the Box task, I felt my participation was important," and "When we were choosing the two best ideas for the Box task, our team encouraged all members

to air their opinions.” This seven item scale had an alpha reliability of .79. All questions appear in Appendix B.

*Subgroup dominance.* Subgroup dominance was measured using a five-item Likert type scale measuring participants agreement with five statements such as, “ When my team was completing the Box Task, one subgroup controlled the brainstorming/idea generation process,” and “When my team was completing the Box Task, one subgroup controlled the process of choosing the best idea.” This five item scale had an alpha reliability of .86. All questions appear in Appendix B.

Since the debate/participation and subgroup dominance scales are original to this study, confirmatory factor analysis (CFA) was required. The confirmatory factor analysis (CFA) was conducted in Lisrel 8.8 (Joreskog & Sorbom, 2006) using weighted least squares (WLS) with the polychoric correlation matrix. Although many researchers treat ordinal variables such as subgroup dominance and debate/participation as continuous variables and assess fit in CFA with maximum likelihood, this approach may produce misleading results (See, e.g., Joreskog, 1994; Joreskog & Sorbom, 1999). Since subgroup dominance and debate/full participation are Likert-type scales and thus ordinal variables, the WLS with the polychoric correlation matrix was used.

According to several fit indices, the model fit the data well. The chi-square statistic for the two factor model was significant, with a p-value of 0.00, which does not indicate a good fit. However, given this statistic’s sensitivity to sample size and other uncertainties surrounding its performance, several other fit indices are more commonly used to assess overall model fit (see, e.g., Stevens, 1996). Such indices include the comparative fit index (CFI), the goodness of fit index (GFI), and the RMSEA. For both the CFI and the GFI, values >.95 indicate a good fit and

values  $>.90$  constitute an acceptable fit (Medsker, Williams, & Holahan, 1994). For the RMSEA, values  $<.05$  indicate a good fit, values from  $.05$  to  $.08$  an acceptable fit, values of  $.08$  to  $.10$  a marginal fit, and values  $>.10$  a poor fit (Browne & Cudek, 1992).

For the two factor solution, the CFI was  $.965$ , indicating a good fit. The GFI was  $.977$ , also demonstrating a good fit for the model. Finally, the RMSEA was  $.078$ , showing an acceptable fit. Taken together, these fit indices show that the two-factor model is a good fit for the data. Therefore, we can be confident in the validity of these scales for both the current study and future research.

The two-factor model was also compared to the fit of a one-factor model. In addition to the fit statistics for the two-factor model in the preceding paragraph showing it is a good fit for the data, both a Chi-square comparison between the one- and two-factor models and the fit indices for the one-factor model indicate the superiority of the two-factor model. The Chi-square test comparing the difference between one-factor model (Chi-square= $275.31$ ,  $df=54$ ) to the two-factor model (Chi-square= $153.80$ ,  $df=43$ ) is  $121.51$ ,  $df=1$ , with a p-value  $<.001$ . Thus the two-factor model fits the data significantly better than the one-factor model.

In addition, the fit indices for the two-factor model are better than those of the one-factor model. The one-factor model has a RMSEA of  $.12$ , compared to the  $.078$  for the two-factor model. As indicated above, an RMSEA  $.12$  constitutes a “poor fit,” while  $.078$  is an acceptable fit. The CFI and GFI for the one-factor model were  $.92$  and  $.96$  respectively, compared to a  $.965$  CFI and a  $.977$  GFI for the two factor model. Again, the fit indices demonstrate the superiority of the two-factor model.

### *The Moderator Variable: Asian or Western Regional Culture*

The moderator variable in the study was the proportion of team members from a cultural region. In this student population, nearly all participants in the study were from the United States, India, China, or South Korea; thus the primary cultural divide is Western/U.S. culture versus Asian culture. I used two identical operationalizations of this moderator variable: the proportion of team members from Western culture, coded 0 and 1 with 0 representing non-Western culture membership and 1 representing Western culture membership, or the proportion of team members from Asian culture, calculated identically (1 is Asian culture membership and 0 is U.S. culture membership). The reason for using two operationalizations was ease of interpretation. There is a 1 to 1 correspondence between the two versions of this variable. The data on cultural ethnicity was collected by asking students' to choose their primary ethnicity in a multiple choice question. Since culture in this study is a configural property of the group, like average age or proportion of males in the group, it was not a variable that required justification for aggregation to the team level (Klein & Kozlowski, 2000).

### *Control Variables*

*Age.* Age represents the average of team members' age measured in years. Age was used as a control variable because of a possible relationship between age and creativity (see, e.g., (Simonton, 1990, 1991) and the differing ages inherent in a part-time MBA program. In addition, given the nature of the setting (an orientation setting) there was some anecdotal evidence that the older students took the exercise more seriously, which might influence outcomes.



*Other control variables.* Proportion of males in the team and team size did not affect outcomes and therefore do not appear in the models testing the hypotheses.

### *Level of Analysis*

The dependent variable in this study is a group-level variable: the creativity of the group's best ideas for the box. Furthermore the dependent variable was a rating by an outsider. Thus, the dependent variable was at the team level. This means that the study's level of analysis needed to be at the team level and the independent variables measuring teamwork: debate/participation and subgroup dominance and the moderator variable, culture of the majority subgroup also needed to be at the team level. As noted above the culture variable was a configural team level characteristic with no assumption required about within group homogeneity. However, the teamwork variables were shared group properties and within group agreement is a requirement for a shared property (Klein & Kozlowski, 2000).

### *Analysis*

I tested two team level models of creativity, one with debate/participation as a predictor and one with subgroup dominance. Culture or rather the cultural region of the team's numerically dominant subgroup was the moderator. Both models were controlled for average team age. I used moderated linear regression to test hypotheses. The means, standard deviations, and correlations of variables appear in Table 4.

## Results

The hypotheses based on dynamic constructivist theory proposed interactions between the nature of the culturally dominant subgroup in the multicultural team and the teamwork process that the team reported using on creativity. Hypothesis 1 predicted that teams high in

Western culture team members would have more creative outcomes when using debate/participation teamwork process. The results did not support Hypothesis 1. Hypothesis 2 predicted that for teams with high proportions of Asian members would have more creative team outcomes when using subgroup dominant teamwork processes. Results strongly supported the prediction.

Hypothesis 1 proposed that in teams with high proportions of Western culture team members, debate/participation would lead to creativity. The overall model predicting creativity (Table 5) was significant at the .02 level with an R-squared value of .44. This indicated that the model accounted for about 44% of the variance in creativity between teams. The interaction term testing the hypothesis was the interaction between age (a control), debate/participation, and U.S./Western culture. This term was positive ( $b = 1.80$ ) but not significant ( $p = .23$ ). Thus, this hypothesis was not supported, but the statistical trend was in the direction of my hypothesis, as the coefficient was positive, indicating a trend toward a positive relationship between teams with high proportions of U.S. /Western team members and creativity, when controlling for age. Controlling for age was necessary because of the strong positive correlation between age and creativity.

The results from testing hypothesis 2, which proposed that in teams with high proportions of Asian team members, subgroup dominance is associated with creativity are presented in Table 6. This hypothesis was supported. The overall model predicting creativity was significant ( $F(7, 27) = 3.1, p=.02$ ), with an R-squared value of .44. This indicates that the overall model accounted for approximately 44% of the variance in creativity between teams. Once the overall model was found to be significant, I analyzed the interaction term of interest to test Hypothesis 2.

The interaction between age (control), Asian, and subgroup dominance was both positive ( $b = 1.5$ ) and significant ( $p = .04$ ). The plot of this interaction appears in Figure 3. This indicates that controlling for age, there was a positive relationship between subgroup dominant teamwork and creativity especially in teams where there was a higher proportion of Asian members. The F-change statistic comparing the model with the three two-way interactions (i.e. Asian\*age, age\*subgroup dominance, subgroup dominance\*Asian) was significant at  $p = .04$ , indicating that the three-way interaction adds significant predictive value. In other words, for teams high in Asian-culture team members, subgroup dominance predicted creativity, when controlling for the average age of group members, which had an overall positive relationship with creativity.

### Discussion

The present study makes several notable contributions, both in organizational theory and for practitioners in the field. In the theoretical realm, the most notable contribution lies in the extension of the dynamic constructivist perspective to teamwork process in multicultural teams and linking this fit to creative outcomes. Second, the findings in Asian-culture dominant teams suggest that Western research evidence identifying what teamwork processes lead to creativity in teams may not be universally applicable. Finally, this study answers multiple calls from those reviewing the creativity literature to address creativity in cross-cultural settings (Shalley, Zhou, & Oldman, 2004; Westwood & Low, 2003).

At a practical level, this study points out the importance of considering *fit* where culture is involved. Rather than arguing that a particular teamwork process leads to creative outcomes, the present findings demonstrate that the fit, rather than the process itself determines whether optimal creativity results. There is no main effect for subgroup dominance in the models,

meaning that subgroup dominance only works in the older Asian-dominated teams. For managers, this means that they should remain vigilant when dealing with team members from other cultures, as the teamwork process that is culturally comfortable for one team member or one set of team members may not be culturally comfortable for other team members.

### *Theoretical Contributions*

The extension of dynamic constructivism to teamwork process and my non-laboratory setting contributes to a growing but relatively nascent knowledge of the more subtle ways culture may operate in social psychological and organizational settings. Thus far, much of the research in dynamic constructivism involves negotiations (see, e.g., Adair, Taylor, & Tinsley, 2006; Brett & Gelfand, 2006; Gelfand et al., 2001; Gelfand & Realo, 1999 ; Morris et al., 1998) or social psychological research in laboratory settings (Fu et al., 2007; Gelfand et al., 2002; Morris & Peng, 1994) This study extends efforts to broaden the application of dynamic constructivism beyond these areas such as Brett, Tinsley, Shapiro, and Okumura (2007), who show dynamic constructivism at work in simulated employee dispute resolution. I show an association between cultural norms for teamwork and teamwork process, and how this effect varies across cultural regions, although the effect was only significant for Asian-dominated teams.

Extending this perspective is crucial for several related reasons. First of all, culture and setting interact, and an awareness of this interaction allows researchers (and, potentially managers) to anticipate the teamwork process that works best may not be similar across all cultural regions. The present study demonstrates that culturally normative ways of behaving may influence which teamwork process is most effective for people from different cultural backgrounds. As Hofstede (1980) and others have documented, social institutions reflect social

values and these institutions constrain and regulate behavior. Thus, we should expect that when cultural differences exist, different sets of behavioral processes, including teamwork processes for creativity, may fit better or worse with people's socially familiar ways of behaving and interacting.

This linkage of fit to outcomes represents another contribution in the area of dynamic constructivism research. Much of the work in this area thus far aims to explain different outcomes or behaviors in terms of how settings cue different knowledge structures between people from different cultures. In the present study, however, I do not show differences in creativity contingent on which teamwork process is used – there is no “main effect” for teamwork process in either model. In other words, the present findings suggest that either teamwork process can lead to creativity, *provided that that process fits* with the culturally normative ways of behaving for the dominant group.

In addition to extending the application of dynamic constructivism, I also address concerns that the creativity literature has largely ignored cross-cultural differences, much less how creativity operates in multicultural teams (Shalley et al., 2004; Westwood & Low, 2003). In short, what organizational researchers and social psychologists know about creativity is drawn primarily from Western, laboratory settings. My research shows the importance of cultural fit but also suggests future research is needed, as Western culture findings may not apply universally.

### *Practical Contributions*

On a practical level, these findings demonstrate the need for managers to consider the fit between their managerial strategies and the cultures they manage. Simply put, the processes that

lead to optimal outcomes in Western settings may actually hurt performance in cultures where normative behavior conflicts with such processes.

In the specific area of teamwork process and creativity, managers should be aware that team members may need to adjust their culturally normative teamwork strategies to achieve the most creative outcomes, depending on the cultural makeup of the team. This study suggests Asian- and Western/U.S.-dominated teams may require different teamwork processes to achieve the best results.

This study is also makes an important practical point concerning different ways of going about teamwork. Many of us, managers included, fall prey to the idea that the culturally normative behavior to which we are accustomed must be the best way to get to desired outcomes in all settings. These findings suggest that we may need to challenge our assumptions, and that no culture seems to have a monopoly on “best practices.” What teamwork process works depends on the cultural makeup of the team.

#### *Strengths and limitations*

The present study makes an important contribution to teamwork process research in multicultural teams by demonstrating the importance of cultural fit in determining which set of process norms will lead to optimal creativity. The student orientation setting allows for precise and independent creativity measurement, a standardized task for all participants, and a task standard in the Western creativity literature to allow comparison to prior research on creativity.

The fact that discussion and debate teamwork did not produce creative outcomes in Western-dominated teams requires further investigation. Two possibilities seem likely, but of course further research must determine which is correct. The first possibility has to do with the

nature of the exercise and the level of attention each group of students gave to their participation. The second possibility lies in the creativity measure. I address each briefly and suggest how future research may clarify these findings.

The most likely explanation for the lack of Western-culture findings is the fact that many of the Western culture teams simply did not appear to take the exercise particularly seriously, so it is difficult to determine whether their teamwork process affected their outcomes. Although there is no main effect for culture, meaning that Western cultures were not necessarily less creative overall, the fact that they took the exercise less seriously may have influenced how they answered questions about teamwork process.

The exercise took place on a weekend orientation program for MBA students, a motivational impediment compounded by the younger age in Western culture participants. In general, older students take these projects more seriously. Researchers observed during the study anecdotally that Western-dominated teams did. There is also empirical support for these suppositions. For instance, two Western-dominated teams came up with an idea for the box that was based on a Saturday Night Live skit by Adam Sandler (surprisingly they managed to arrive at the same idea on different days without consulting each other). Needless to say, this idea did not meet the “usefulness” criteria when raters rated it. Another Western-dominated team decided to make their ideas all related to marijuana use. Again, this idea did not receive a high overall score. Thus, even though the Western-dominated teams tended to use a teamwork process that reflected full participation and discussion and debate, whatever process they used was unlikely to generate highly rated ideas if they failed to take the task seriously and some teams tended to aim for the most amusing idea they could think of rather than following directions to generate and

select among creative and realistic ideas. Future research in different task settings may offer further insight into the reasons underlying this null finding. It may be particularly important to test the model when participants have a stake in the outcome, such as ongoing class teams that meet over the course of a semester or year.

In addition to less than fully motivated Western-culture students, the creativity measure itself makes it difficult to directly compare my findings to Western culture creativity research. I used a creativity measure that reflected both idea generation and participation because I wanted to more accurately reflect management environments and I am also aware of criticism in the literature surrounding apparent over-reliance on idea generation at the expense of idea selection (See Rietzschel, Nijstad, & Stroebe, 2006 for a recent review/critique). Merely relying on ideas generated examines only half the creative process and does not mirror the sort of creativity required at the organizational level. Managers cannot simply create lots of ideas; they must determine which of these ideas are best and should be implemented. Thus, I sought to measure creativity in a way that required teams to meet both of these criteria. Moreover, I wanted to link teamwork process to the overall task, rather than one part of the process. That choice, however, means that a direct comparison to the creativity literature is not possible. Future research can determine whether these findings hold in tasks involving only brainstorming, but given my hypotheses, testing brainstorming was not insufficient to address my research questions, and, I contend, generally insufficient to provide prescriptive advice to managers engaged in real creative tasks.



### Conclusion

The present research shows the importance of considering the fit between cultural values and context in teamwork process and multicultural teams, thus extending the dynamic constructivist perspective to multicultural teams. These findings suggest that since national cultures create institutions and knowledge structures that guide behavior, people from different cultures may have different levels of comfort and facility with different sets of teamwork processes as well. Thus, the teamwork process that best matches their normative ways of behaving may lead to the best performance levels in teams dominated by members of a particular culture.

## Thesis Conclusions and Contributions

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## Introduction

The forgoing thesis provided an extensive theoretical integration and review as well as two empirical studies examining teamwork process and creativity in multicultural teams. In this final chapter, I summarize these findings, resolve apparent contradictions in the empirical findings, discuss the overall contributions of the dissertation, and suggest directions for future research.

In the theory chapter, I presented an overall model applying dynamic constructivism to multicultural teams. This model provides a framework predicting what teamwork process optimizes creativity in multicultural teams. Dynamic constructivism (Hong et al., 2000, Morris & Fu, 2001) is a theory of culture begun in cross-cultural psychology that offers a more dynamic (hence its name) view of culture that is attendant to context. Dynamic constructivist theory suggests that individuals have access to a variety of norms and values, that there are cultural differences in norms and values, and that as a result, the same situation will cue different behaviors in people from different cultural groups. My theorizing proposed that the teamwork process most closely matching the dominant subgroups' cultural norms for teamwork will lead to the highest level of creativity in multicultural teams.

The theory chapter combined dynamic constructivism with Western culture teamwork process literature and research on teamwork process in multicultural teams to form an integrated model. According to prior research, creativity in teams increases when the team engages in a) discussion and debate and b) full participation from team members. In a conceptual paper on creativity in multicultural teams, Janssens & Brett (2006) argued that fusion teamwork process, a

process characterized by meaningful participation and co-existence, would lead to greater creativity than subgroup dominant teamwork process, a process where team members defer to the will of the most powerful subgroup within the team.

The original creativity research was done by Western culture researchers using Western culture participants as team members. Western cultural values of individualism and low power distance are consistent with a teamwork process encouraging discussion and debate. Fusion teamwork principles of meaningful participation and co-existence although conceptually somewhat different from pure discussion and debate are also consistent with Western cultural values emphasizing the importance of social pluralism and individual inputs (Hofstede, 1980). In contrast, subgroup dominance, where team members defer to the dominant subgroup within the team, more closely matches Asian cultural values of social hierarchy and communal interests. Accordingly, the theory chapter proposed that the relationship between fusion teamwork process and creativity would be stronger in long-term multicultural teams dominated by Western culture team members, that discussion and debate and full participation would be associated with creativity in short-term simulated multicultural teams dominated by Western culture team members, and that subgroup dominance would be associated with creativity in simulated teams dominated by Asian culture team members.

I tested these propositions in two empirical studies. Study 1 was a field study that tested a model proposing relationships between fusion and creativity as moderated by Western cultural dominance of the group. The data were from a web-based survey of 246 team members in 37 long-term multicultural teams from 11 large multinational corporations. In Study 2, I tested two hypotheses linking teamwork process, cultural dominance and creativity using a creativity task

common in Western culture creativity research. The teams were multicultural and were MBA students who were participating in the study as a part of an orientation exercise. Together these two studies offer insight into the dynamic relationships between cultural dominance in multicultural teams, teamwork process, and creativity.

Study 1 offered several contributions. First, Study 1 provides empirical evidence for the concept of fusion teamwork. We were able to measure fusion in a reliable and valid manner. Second, we demonstrated that fusion teamwork was associated with higher levels of creativity in teams – a main effect, but that this effect was stronger in teams dominated by Western culture team members – an interaction. In addition, we found that cultural metacognition, one of Earley & Ang's four dimensions of cultural intelligence (CQ), was associated with higher levels of fusion teamwork. Cultural metacognition, or the ability to perceive and adapt to cultural differences, was associated with members' reports of fusion, and this effect occurred for both individual- and team-level cultural metacognition.

Study 1 left important questions unanswered, however. First, given the panoply of tasks the real-world teams in the study were engaged in, we relied on self-report to measure creativity. Thus, I needed to replicate findings in a study where teams were engaged in a common task and creativity could be evaluated by raters who were not privy to the internal team process. In addition, the finding that Western-culture dominated teams had stronger fusion –creativity relationships than the non-Western-dominated teams required greater exploration. Just as cultural values inform teamwork process, they also inform organizational structure, and this Western culture setting (companies with Western headquarters) might therefore have affected the relationship between fusion teamwork and creativity. Since we had only Western multinational

companies in this sample, we could not test whether or not the country of origin was a factor in this relationship.

Several reasons, then, led to an interest in further examination of these relationships between cultural dominance, teamwork process and creativity in multicultural teams. Study 2 represents an initial step in that process. Study 2 addressed the limitations of Study 1 in several ways. First of all, all teams in Study 2 were engaged in the same creativity task, a task commonly used by Western culture creativity researchers (see e.g., Choi & Thompson, 2005). Second, creativity was measured by independent raters using a system adapted from Beersma and De Dreu (2005). Finally, Study 2 afforded the chance to test creativity and teamwork process in multicultural teams dominated by non-Western culture (specifically, Asian) team members as contrasted to the multicultural teams in Study 1 which were more or less dominated by Western culture members but were not ever majority dominated by Asian culture members.

Study 2 provided partial support for the propositions in my theoretical review. Controlling for age, subgroup dominance enhanced creativity in teams dominated by Asian team members. This finding is important, because it shows the opposite effect predicted by Western culture research (i.e. that full participation and discussion and debate are required for creativity). Although Western culture creativity research predicts subgroup dominance should hamper creativity, in teams where subgroup dominance matches cultural norms for teamwork behavior (here, Asian-dominated teams), creativity actually increased when teams used subgroup dominance. Although the trend was positive, there was no significant relationship between discussion and debate and full participation and creativity in Western-dominated multicultural teams, a limitation addressed in the theory section.

These two empirical studies offer important findings but require additional discussion to resolve apparent contradictions. At the very least, these two studies suggest that culture and its accompanying norms for teamwork behavior and social interaction do affect which teamwork process leads to creativity. Even without resolving differences, as I do in the present chapter, these studies offer empirical evidence that ideas from dynamic constructivism warrant application in multicultural teams research. Study 1, however, found a strong fusion-creativity link, while Study 2 did not find such a relationship between full participation and discussion and debate, at least not a relationship that was statistically significant. Therefore, the present chapter integrates these findings and reaches overall conclusions. In addition, I end by discussing limitations and areas for future research.

### Linking the Studies

Although the two studies converge around the main theme of dynamic constructivism and teamwork process, this section further integrates these findings. Though Study 1 found a greater fusion-creativity link in Western-dominated multicultural teams, there was a direct effect for fusion in all teams in the sample. In contrast, Study 2 found that controlling for the average age of the team, subgroup dominance was related to creativity in multicultural teams dominated by Asian-culture team members. Study 2 also found a weak but directionally correct connection between discussion and debate and full participation and teamwork and creativity.

Two issues are addressed in this section: First, I address measurement differences in teamwork process, reasons for this difference, and the implications. Second, I briefly address demographic differences in the teams, before segueing into a section offering overall conclusions of the thesis.

The first difference in Studies 1 and 2 lies in the context of the type of teams studied. In both studies, teams were multicultural. However, in Study 1 these were permanent teams with long-term tasks such as IT projects, and strategic planning and implementation for which creativity was only one element of the task. Moreover, the Study 1 teams were embedded in Western culture based multinational organizations. If members of permanent multicultural teams do not agree about teamwork processes, (and research documents that they will not), they cannot easily leave the team. They also cannot just “wait it out” until the task is complete and the team disperses, since such teams have ongoing non discrete tasks. Permanent teams with ongoing non discrete tasks have to determine how to work effectively with each other (Behfar Kern & Brett, 2006). Fusion teamwork is one way to manage their teamwork differences. Fusion may be particularly acceptable when team majorities are from Western culture and teams are embedded in Western culture dominated multinational organizations, because of Western culture’s emphasis on pluralism and independences (Janssens & Brett, 2006). Fusion, because it preserves cultural differences via its principle of co-existence, allows differences to surface via its principle of meaningful participation and co-existence. In contrast, in Study 2 the teams were short-term and engaged in a task that was explicitly a creativity task. These Study 2 teams were given a definition of creativity. While the Study 2 teams could be viewed as embedded in a Western culture dominated organization – the school and university in which the student participants were enrolled - the teams’ products were not being evaluated by the organization, and therefore were for the purpose of their exercise less tightly linked to their organization than the permanent teams of Study 1. These differences in context between multicultural teams in Studies 1 and 2 suggest



that there were few factors present in Study 2 to motivate multicultural team members to manage their teamwork process differences with a fusion approach.

To be sure, in Study 2 I also did not measure fusion as was done in Study 1. There are several reasons. First, in Study 2 I wanted to replicate the relationship between teamwork process and creative outcomes found in prior Western culture based creativity research and contrast that team approach to teamwork that I thought would have more affinity for Asian-dominated teams. Therefore, in Study 2 I measured discussion and debate and full participation compared to subgroup dominance. Second, because Study 2 was only a 20 minute task, and team members knew they would not be working together as a team in the future, it seemed unlikely that they would engage in the adaptation process that theoretically leads to fusion teamwork.

In addition to differences in task context in Studies 1 and 2, there was also a difference in the demographic composition of the teams in each study. Simply put, Study 1 did not have any Asian-dominated teams; teams in Study 1 were more or less Western culture dominated. Thus, we could not test whether fusion is related to creative outcomes in Asian-dominated multicultural teams in the real-world setting, or whether subgroup dominated teamwork might not generate more creative outcomes when teams were Asian-dominated and or embedded in Asian-culture dominated organizations. In contrast, Study 2 had both Asian- and Western-dominated teams in the sample.

Taken together, Studies 1 and 2 provide some of the pieces to the jigsaw puzzle which is the dynamically constructed relationship between the multicultural teams' major subgroup, teamwork process, and creative outcomes. Study 1 provides a direct test of fusion; Study 2 does

not. Study 2 provides a previously researched creativity task with independent measurement of the teams' products; Study 1 does not. Study 2 provides Asian-dominated and Western-dominated teams; Study 1 only provides Western-dominated teams. There are puzzle pieces missing, most noticeably, Asian-dominated teams engaged in long-term tasks. However, both studies in their respective ways do support the overall dynamic constructivist predictions, that the culture of the teams' major subgroup affects what teamwork process is associated with optimal creativity.

### Thesis Conclusions

Beyond extending dynamic constructivism to multicultural teams, theory outlined in the initial theory section, the present theoretical integration leads to an overall conclusion concerning teamwork process and multicultural teams. The cultural differences between optimal teamwork process and creativity documented in Studies 1 and 2 and supported by theory in dynamic constructivism, leads to a potentially important conceptual insight that represents a further unique contribution of the forgoing thesis. If the goal is a culturally universal model for teamwork process in multicultural teams, reframing the initial fusion concept may be important in two areas. The initial fusion paper (Janssens & Brett, 2006) argued that fusion teamwork process is optimal because of its preservation of differences; differences they argued would enhance creativity.

Based on the present thesis I propose two modifications/extensions of the fusion model. First of all, the finding in Study 2 that a teamwork process (subgroup dominance) where participation is not emphasized, suggests that participation, whether full or meaningful, may be specific to cultures such as Western cultures where norms emphasize individual rights and

pluralism. This “cultural tinge” may necessitate reframing fusion with an emphasis on co-existence rather than meaningful participation. Second, the reasoning behind the initial fusion model was the preservation of diversity. Though diversity preservation is certainly a worthwhile goal, the present thesis suggests that co-existence is critical for an entirely different reason: cultural norms affect which teamwork process optimizes creativity; thus to reach that creativity we may need to emphasize a process that permits people from different cultural groups to engage in different processes within the same team, the key idea of co-existence. I now address these additions to the fusion model in more detail.

The first proposed modification involves the fact that participation may be most important for Western culture teams. First, I will address a possibly relevant distinction between the initial model and operationalization in empirical studies. Though Janssens and Brett (2006) referred to such participation as “meaningful,” indicating that team members participate when they have something to contribute, both Studies 1 and 2 measured participation in a manner that more reflects “full participation.” The reason for this measurement choice lies in the difficulty of measuring “meaningful” participation. The present research, as does much of the teamwork process literature, relies on team members’ reports of teamwork process in their teams. It is difficult, if not impossible, for instance, for a team member to determine if one of his teammates did not contribute because his or her input was not meaningful or because he or she felt the team was not supportive of his or her participation. In practical terms, therefore, though meaningful participation is the “true test” of fusion teamwork process, its operationalization is not feasible.

With that background concerning definitional issues, I now turn to my proposition that fusion should be modified to co-existence because participation may not be necessary for

creativity in all cultural settings. Study 2 suggests that Asian-dominated teams, at least in the short-term setting, achieve creative outcomes via subgroup dominance, a process in which team members defer to the will of the dominant subgroup within the team. This finding suggests that participation may be more critical for creativity in Western cultures. Initial findings linking participation to creativity were conducted in Western culture samples, and the Western cultural norms and values for individualism and egalitarianism both fit with the idea of full participation. Full participation matches a normative focus on individual contributions and equality/pluralism present in Western cultures.

The second and more critical difference between the initial fusion model and my current thinking lies in the reasoning behind the necessity of co-existence. In short, I contend that this thesis argues for reframing fusion as co-existence, but placing this emphasis on co-existence on entirely different grounds. The present findings linking culture to optimal creative process, in line with dynamic constructivist theory (Hong et al., 2000; Morris & Fu, 2001) and research showing different norms for teamwork across cultures (Gibson & Zellmer-Bruhn, 2001) suggests team members from different cultures arrive with culturally influenced social and behavioral patterns that are deeply ingrained. So ingrained, in fact, that behaving outside of those strictures hurts performance. To arrive at the best performance, therefore, or even perhaps to work together at all, multicultural teams need to allow their team members to coexist with their cultural differences and reach accommodations which allow them to do this.

Though Janssens & Brett (2006) proposed fusion as a mechanism to preserve diversity and thus increase creativity, I suggest that fusion as co-existence is necessary to allow team members with very different teamwork norms to work together. Study 2 contributes two

important findings in this regard. First of all, Study 2 suggests all teams may not optimize creativity through teamwork processes identified as effective in Western-culture creativity research. Second, Study 2 suggests that it is possible to achieve creative outcomes in short-term teams by using teamwork process that matches the culture of only the majority cultural group. This latter finding seems to contradict my argument for co-existence. If we can get good outcomes by simply allowing *most* of the team to follow culturally normative teamwork processes, why bother with co-existence at all – why not just worry about the majority? Though further research must examine this empirically, the nature of long-term teamwork makes the viability of ignoring the cultural practices of the cultural minority both unwise and likely impractical. In a short-term team where coordination must occur quickly and losing the contributions of a few team members may not have performance impact, as teams typically are not more creative than their most creative member (for instance, research has long documented that individuals outperform teams in brainstorming exercise, see Thompson, 2008 for a review), ignoring the cultural norms of part of the team may be a reasonable option.

In the long-term, real world setting, however, the “majority rule” approach to teamwork suggested by Study 2’s findings would likely lead to poor performance (and may be the reason why discussion and debate was not a successful teamwork strategy for Western-dominated teams). The simulation setting allows team members to participate in one task in which all team members are generally contributing in the same way – generating and selecting among ideas. Contrast that with the multicultural work team, where the purpose of the team itself likely lies in linking people from different functional or regional areas within a company to accomplish a specific goal. In the latter setting, one simply cannot accomplish the task by “dropping out” a

few people's contributions, but one may accomplish the task by allowing different subgroups to do their part in the way that is most feasible given their cultural background.

How might this co-existence approach work when part of the team does not find "full participation" culturally normative? One answer may be to allow team members to split the task at hand and then conduct their work separately while coordinating with a team manager (see Behfar, Kern, & Brett, 2006). Managers who are aware of certain team members' cultural norms for hierarchy and less participation may need to solicit contributions from these team members in a different way than they do with Western culture team members, and they may need to adjust their expectations for contributions in a meeting setting unless equal status is apparent to all parties.

Some findings from the field support the idea of this new conceptualization of fusion as co-existence. According to Behfar, Kern, and Brett (2006), multicultural teams that were successful and satisfied with their outcomes were those teams that allowed individual team members to behave in a culturally prototypical way and team members adjusted to each others' differences over time. In the final section of limitations and future directions, I discuss how future empirical work should test my propositions and other unanswered questions presented here.

### Contributions to Theory

This thesis makes several important contributions to the literature on creativity and teamwork process in multicultural teams in addition to offering areas for future investigation. First of all, I extend dynamic constructivism to multicultural teamwork process, demonstrating the importance of fit between the norms for teamwork and social behavior in team members'

culture of origin and the teamwork process needed to produce creativity in teams they join. Second, the thesis demonstrates that conclusions of creativity research concerning what teamwork processes lead to creativity may not apply universally across cultures. Finally, I suggest that fusion teamwork is possible in multicultural teams, but that it would be preferable to view fusion in terms of emphasizing co-existence alone.

First of all, this thesis represents the first known application of dynamic constructivism to the team setting. Thus far, existing research has accounted for individual and dyadic level behavior using concepts from dynamic constructivism; yet, such findings have not been extended to teams (see Theory Chapter for literature review). Just as dynamic constructivism has allowed prior researchers to account for complex and contingent results, extending this theory to multicultural teams may offer more accurate theoretical and empirical understanding in multicultural teams as well. Both Studies 1 and 2 represent classic predictions of dynamic constructivism. In each study, I found that the process for producing creative outcomes in teams depended on the culture of the majority of team members within that team. Stated another way, team performance was more creative when the team engaged in a teamwork process that was culturally normative for a majority of team members.

Second, the thesis responds to the call to extend creativity research to non-Western and multicultural settings (Westwood & Low, 2003; Shalley et al. 2004). The findings also indicate that teamwork process may not be culturally universal, and that the predictions of Western culture creativity literature may be particularly inappropriate in cultures where behavioral norms surrounding hierarchy and collectivism are prominent, such as most Asian cultures.

Finally, I conclude that the cultural differences in teamwork process optimizing creativity demonstrated in Studies 1 and 2 may suggest that for a fusion model to be universal, we may need to shift focus to co-existence rather than participation and co-existence. Study 2 demonstrates that participation was not necessary for creative outcomes in Asian-dominated teams. This finding offers evidence that the idea of participation may be Western in origin, and therefore inappropriate for a culturally universal model. Second, and perhaps more importantly, the differences in creative processes between cultures observed in Studies 1 and 2 suggest that co-existence may be critical for reasons not initially discussed by Janssens and Brett (2006) – namely the need to fit teamwork process to cultural norms.

#### Limitations and Future Research

The primary limitations of this thesis lie in the limits of the particular settings in each study. Study 1 offered an examination of real-world teams and fusion, but it lacked an independent creativity measure, non-Western companies, a similar task across all teams, and Asian-dominated multicultural teams. Study 2 tested teamwork process in a controlled setting with a single task for all teams and an independent rating of creativity, yet the short-term nature of the teams limited the ability to test co-existence and raise questions about the applicability of simulated findings to real-world multicultural teams. In addition, this study raised interesting questions about teamwork process and creativity in Western culture teams, since discussion and debate and full participation did not lead to creativity in these teams as predicted by creativity literature.

The limitations of Study 1 point to the need to study teamwork process in multicultural teams in non-Western companies and preferably to study teams with similar tasks. In addition,



future research should examine these effects in companies that allow the researcher on site and afford the opportunity to obtain some independent ratings for creativity. The limitations of Study 2 suggest a similar controlled “real world test” suggested by the limitations in Study 1. For instance, future research could examine teams with a more controlled task in both Western and non-Western multinationals. Also, an extension of Study 2 could test this model in a less simulated setting but one that offers control and unified tasks, such as an ongoing management task in an MBA classroom where students interact over several months, thus allowing a test of co-existence and offering greater applicability to real-world teams.

In addition to testing these findings further in the settings outlined above, this thesis also suggests future research in creativity and teamwork process in mono-cultural non-Western teams is warranted. If, as suggested by Study 2, Asian-dominated teams reach optimal creativity through processes running counter to those in our current (Western) creativity literature, then we should examine creativity in non-Western settings.

#### Implications for Managers

This thesis also has important takeaways for global organizations and managers. Most importantly, the strength of cultural differences exhibited in these studies shows that managers ignore cultural effects at their peril. Team members and organizational members from different cultures will arrive with different behavioral patterns, expectations, and values, and effective managers must account for these differences when choosing how to manage their teams and companies.

The present thesis offers different suggestions for short- and long-term teams. Study 1 shows that fusion is associated with creativity, at least for companies with Western-style

management. Therefore, managers of such teams should focus on both eliciting participation for team members and allowing for different approaches to teamwork (i.e. co-existence). In short-term teams dominated by Asian-culture team members, however, subgroup dominance is likely to produce the best creative outcomes. If managers do have short-term tasks for teams, they should be aware that optimal process in Asian-dominated team may run counter to Western styles, although the simulation setting of these findings may not apply to real world teams engaging in more complex creative tasks where the team cannot afford to lose the contributions of some of its members.

Although the “final word” on teamwork process and multicultural teams requires further work, this research shows that managers likely must arrive at some teamwork process for members of multicultural teams that allows each member to continue his or her cultural practices and normative behaviors. Studies 1 and 2 both show that the teamwork process that leads to creativity differs as a function of the dominant culture of the team. Subsequent studies will test whether my proposed new fusion, where co-existence, rather than a specific set of norms is the ultimate goal, will lead to the best outcomes, but it is hard to see an alternative strategy. These studies and others’ research (see, e.g., Behfar et al., 2006) demonstrate the need for team members to adapt to each others’ differences rather than forcing team members into one teamwork process. Not allowing team members to perform their tasks in ways that are culturally consistent lowers creativity, suggesting co-existence may be the method of choice in today’s rapidly increasing ranks of multicultural teams.

Figure 1  
Relationships between Cultural Metacognition, Fusion, and Creativity

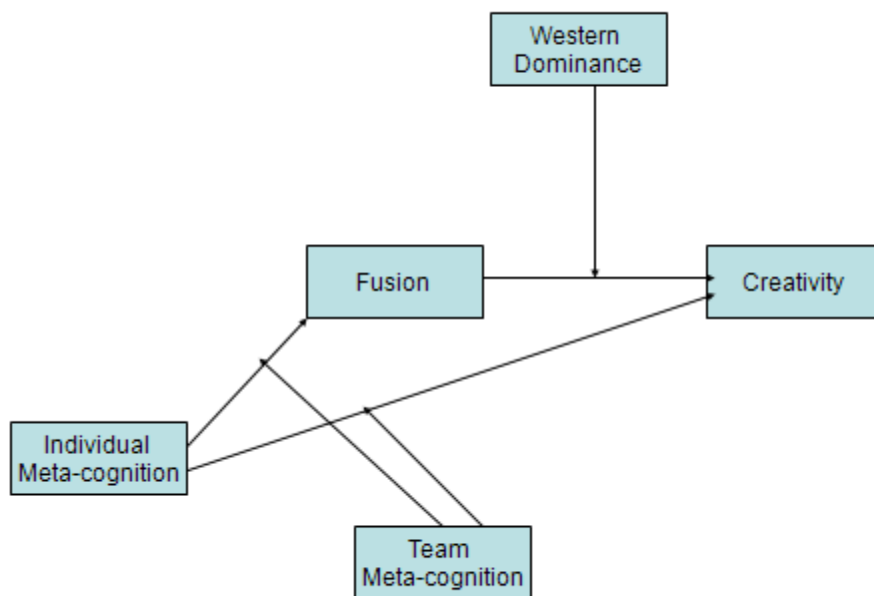


Figure 2

Organizational Areas of Participating Teams

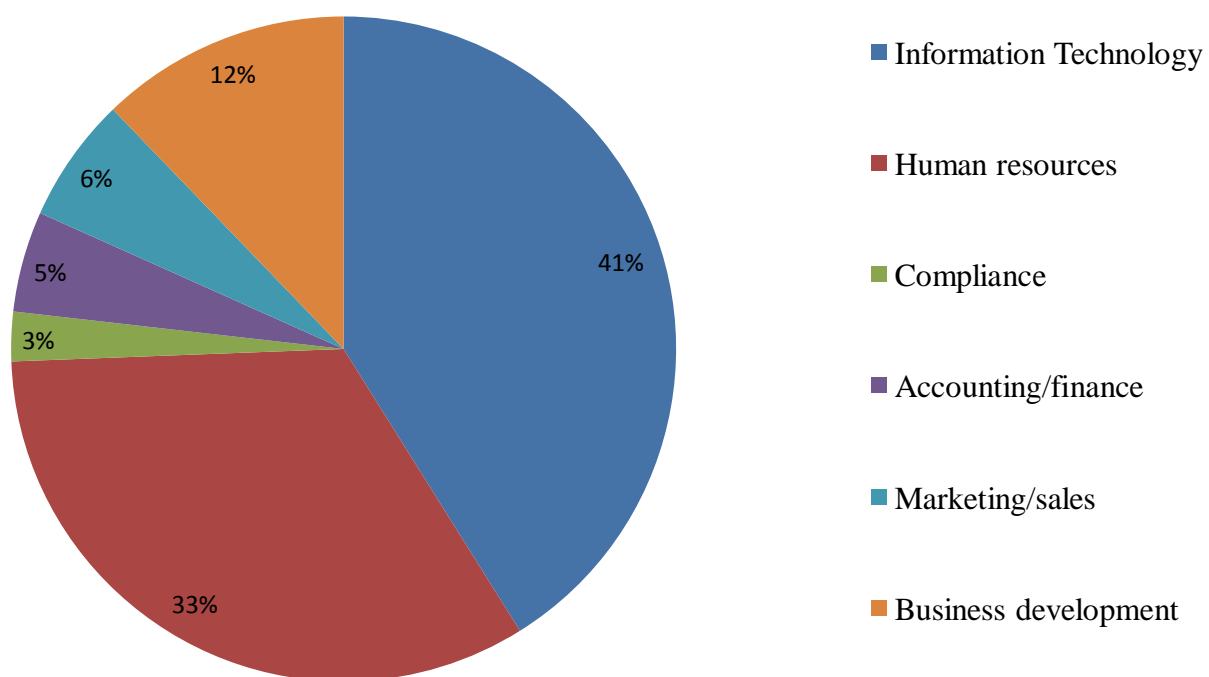


Table 1

Means, Standard Deviations, and Correlations of Variables

Variable	Mean	S.D.	1	2	3	4	5	6
1. Cultural metacognition	4.01	.73	1.00	.25**	.05	.21**	.15*	.06
2. Fusion	3.72	.47		1.00	-.23**	.51**	.41**	.05
3. Subgroup dominance	2.84	.56			1.00	-.21**	-.11	.16*
4. Affect	4.15	.64				1.00	.53**	.04
5. Creativity	3.83	.56					1.00	.04
6. Western culture	.74	.44						1.00

\*  $p \leq .05$ \*\* $p \leq .01$

Table 2

## Hierarchical Linear Model Predicting Reports of Fusion

Fixed Effect (level 2)	Coefficient	p value
Intercept $\beta_0, \gamma_{00}$	3.73	.00**
Team cultural metacognition, $\gamma_{01}$	.20	.01**
Cultural metacognition, $\beta_1, \gamma_{10}$	.15	.04**
Team cultural metacognition, $\gamma_{11}$	.37	.01**
Affect, $\beta_2, \gamma_{20}$	.30	.00**
Random Effect	Variance	p value
	Component	
Intercept, $U_0$	.01	.013
Cultural metacognition slope	.03	.09
Affect slope	.03	.07
Level-1, R	.13	

\* $p \leq .05$ \*\* $p \leq .01$

Table 3

Hierarchical Linear Model Predicting Reports of Creativity

Fixed Effect (level 2)	Coefficient	p value
Intercept $\beta_0, \gamma_{00}$	3.81	.00**
Cultural metacognition, $\beta_1, \gamma_{10}$	.08	.08
Team cultural metacognition, $\gamma_{11}$	.29	.00**
Affect, $\beta_2, \gamma_{20}$	.32	.00**
Fusion, $\beta_3, \gamma_{30}$	.27	.00**
Western culture $\gamma_{31}$	.72	.00**
Random Effect	Variance	p value
	Component	
Intercept, $U_0$	.05	.00
Cultural metacognition slope	.00	.20
Affect slope	.02	.50
Fusion slope	.10	.32
Level-1, R	.17	
* $p \leq .05$		
** $p \leq .01$		

Table 4

*Means, Standard Deviations, and Correlations of Variables*

	Mean	SD	Age	Western	Subgroup dom.	Debate/ Part.	Creativity
Age	29.32	1.14	1.00	-.33	.32	-.018	.36*
Western/ U.S. Culture	.77	.17	-.33	1.00	.080	-.33	-.09
Subgroup dominance	2.89	.24	.32	.08	1.00	-.67**	.43**
Debate/part.	3.71	.24	-.018	-.33	-.67**	1.00	-.33
Creativity	3.15	.36	.36*	-.09	.431**	-.33	1.00

\* =  $p < .05$ \*\* =  $p < .01$



Table 5

*Debate/Participation, U.S./Western Culture, and Creativity*

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.67	.44	.30	.30

Dependent variable: Creativity

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	1.99	7	.28	3.06	.02*
	Residual	2.50	27	.09		
	Total	4.49	34			

		B	Std. Error	Beta		
Model 2	(Constant)	3.24	.07		49.92	.000
	Age	.20	.06	.61	3.16	.00
	Debate/Participation (DP)	-.39	.26	-.26	-1.50	.15
	Western/U.S. culture	-.34	.36	-.16	-.94	.36
	DP * Age	-.34	.26	-.239	-1.33	.20
	DP* Western/U.S. culture	.20	1.58	.021	.12	.90
	Western * Age	.37	.29	.24	1.27	.22
	DP * Age * Western/U.S. culture	1.80	1.46	.236	1.23	.23

Dependent variable: Creativity

\*=  $p < .05$

\*\*=  $p < .01$

Table 6

*Subgroup Dominance, Asian Culture, and Creativity*

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.67	.44	.30	.30

Dependent variable: Creativity

ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	1.99	7	.28	3.10	.02*
Residual	2.50	27	.093		
Total	4.49	34			

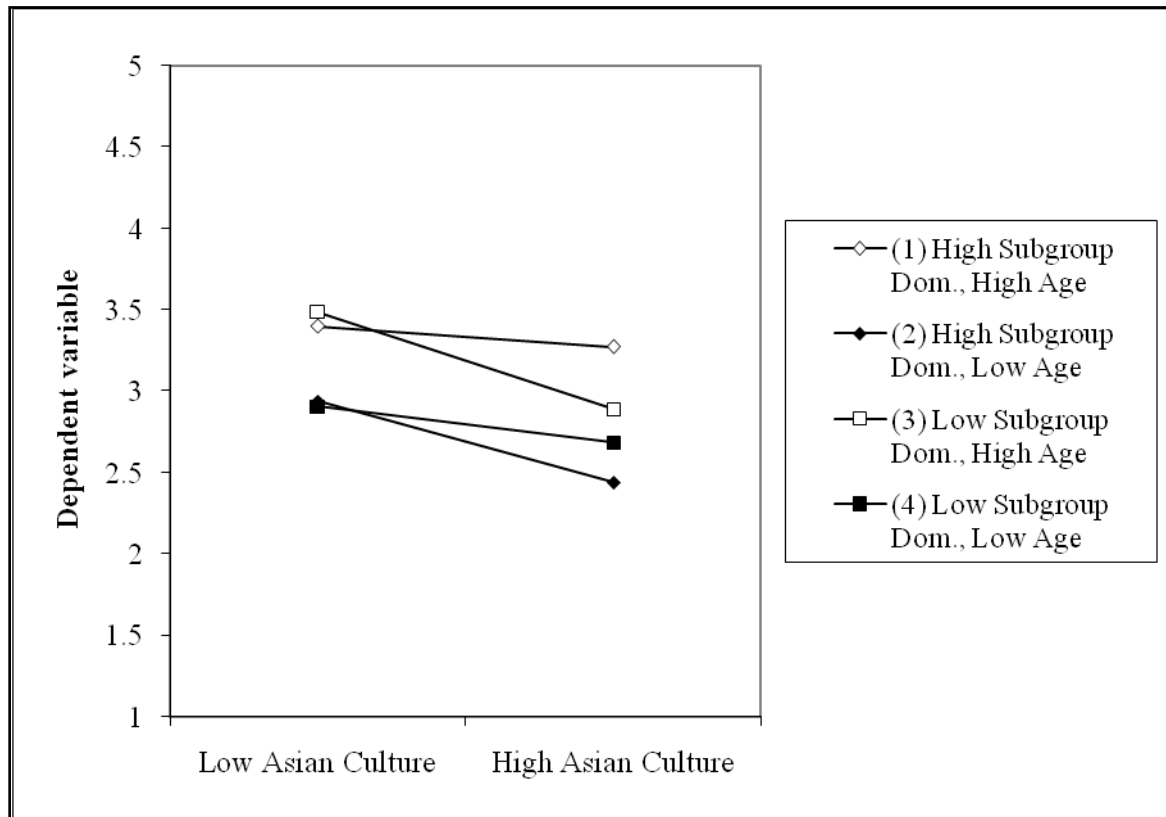
		B	Std. Error	Beta		
Model1	(Constant)	3.30	.08		43.16	.00
	Age	.26	.08	.82	3.14	.00**
	Asian culture	-.18	.36	-.09	-.55	.60
	Subgroup dominance	.01	.13	.02	.10	.92
	Subgroup dominance * Age	-.14	.13	-.20	-1.12	.27
	Asian culture * Age	-.76	.31	-.56	-2.45	.02*
	Subgroup dominance * Asian culture	.79	.70	.18	1.14	.27
	Subgroup dominance * Asian culture * Age	1.50	.70	.37	2.15	.04*

Dependent variable: Creativity

\* =  $p < .05$ \*\* =  $p < .01$

Figure 3

*Subgroup dominance x Asian Culture x Age Interaction*



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## Appendix A

Variable	Questions	Alpha reliability
Cultural meta-cognition	<ol style="list-style-type: none"> <li>1. I test my cultural knowledge to ensure it is correct in cross-cultural interactions.</li> <li>2. I check the accuracy of my cultural knowledge as I interact with people from different cultures.</li> <li>3. I adjust my cultural knowledge as I interact with people from different cultures that are unfamiliar to me.</li> <li>4. I work hard to understand the perspectives of people from other cultures.</li> <li>5. I am conscious of the cultural knowledge I used when interacting with people from other cultures.</li> </ol>	.90
Fusion	<ol style="list-style-type: none"> <li>1. The team uses a combination of norms and practices from different members' cultures.</li> <li>2. The team tolerates members following their own cultural norms and practices.</li> <li>3. The team accepts that members from different cultures have different ways of expressing themselves.</li> <li>4. The team's norms and practices are a cultural hybrid, that is, a mix of the different cultural practices of its members.</li> <li>5. The team uses some norms and practices from some members and some norms and practices from others.</li> <li>6. Team members participate in team discussions openly and freely.</li> <li>7. Each team members participates in decision-making.</li> <li>8. All team members are encouraged to participate in team discussions.</li> </ol>	.74

Subgroup dominance	<ol style="list-style-type: none"> <li>1. The team uses the norms and practices of a dominant subgroup of members.</li> <li>2. Team members are expected to give up their own cultural norms and practices and follow those of the dominant subgroup.</li> <li>3. The team is intolerant of multiple approaches to decision-making and problem solving.</li> <li>4. The team's norms and practices were given to the team by the manager.</li> <li>5. Some dominant team members decide on the norms and practices of the team.</li> <li>6. The team follows the approach that is used by some dominant team members.</li> <li>7. The team tolerates some members not speaking very much in meetings.</li> <li>8. A few team members dominate the discussions.</li> <li>9. Not all team members have a chance to express their opinions.</li> <li>10. Some team members find it difficult to express their opinions in meetings.</li> </ol>	.78
Affect	<ol style="list-style-type: none"> <li>1. I am satisfied with being a member of my team.</li> <li>2. I look forward to team meetings.</li> <li>3. I like being a member of this team.</li> </ol>	.85
Creativity	<ol style="list-style-type: none"> <li>1. My team comes up with creative solutions to problems.</li> <li>2. My team has developed novel solutions to problems.</li> <li>3. My team's ideas will be useful to the organization.</li> </ol>	.75

## Appendix B

*Survey Questions, Variables, and Alpha Reliabilities*

Variable	Questions	Alpha reliability
Debate/ Participation	<ol style="list-style-type: none"> <li>1. When we were generating ideas for the Box Task, I felt my participation was important.</li> <li>2. When we were generating ideas for the box during the Box Task, everyone discussed ideas and disagreement and debate was tolerated or encouraged.</li> <li>3. When we were selecting the two best ideas for the Box Task, disagreement and debate was tolerated or encouraged.</li> <li>4. I felt my ideas and opinions were heard by my team mates.</li> <li>5. When we were choosing the two best ideas for the Box Task, our team encouraged all members to air their opinions.</li> <li>6. When we were choosing ideas for the Box Task, I felt I could share my ideas.</li> <li>7. During the Box Task, I felt that debate and discussion was encouraged in my Box task Team</li> </ol>	.79
Subgroup dominance	<ol style="list-style-type: none"> <li>1. When my team was completing the Box Task, one subgroup controlled the brainstorming/idea generation process.</li> <li>2. When my team was completing the Box Task, one subgroup controlled the process of choosing the best idea.</li> <li>3. When we were generating ideas for the Box Task, one faction within our team dominated the process.</li> <li>4. I felt that a subgroup within our team controlled the brainstorming process during the Box Task.</li> <li>5. I felt that a subgroup within our team controlled the process of selecting the two best ideas during the Box Task.</li> </ol>	.86