

# National Diversity and Team Creativity:

## An Integrative Model and Proposition for Future Research\*

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### I Introduction

In an increasingly competitive global marketplace, companies must innovate to survive and prosper (e.g., Danneels, 2002; Pil and Cohen, 2006; Subramaniam and Youndt, 2005). Previous studies have shown that the innovative output of a company is linked to increased profitability, product quality, and market value (e.g., Cho and Pucik, 2005). Because innovation depends on the generation of creative ideas by employees, nurturing creativity is one of the most important ways for a company to ensure success (Amabile, 1983; Thompson, 2003; Van de Ven, 1986).

Since the early work of Osborn (1953), studies have shown that a team-based structure has been important in unlocking employee creativity. By facilitating interactions among a heterogeneous social group, a team-based structure can exploit the diverse knowledge, skills, and expertise of its members (e.g., Mohrman, Cohen, and Morhman Jr, 1995; Taggar, 2002; Tesluk, Farr, and Klein, 1997). This approach also stimulates crucial processes such as divergent and flexible thinking through exposure to different backgrounds, cognitive frameworks, and perspectives (Coser, 1975; Granovetter, 1982). In addition, many previous studies have suggested that communication and interaction within a diverse group of team members may intensify creativity, both by enabling new pathways of thinking and by preventing “groupthink” (e.g., Amabile, 1994; De

Dreu and West, 2001; Watson, Kumar, and Michaelsen, 1993).

Therefore, the diversity of teams warrants careful consideration by companies. Diversity refers to differences between individuals on any attribute that may lead to the perception that another person is different from one’s self (e.g., Jackson, 1992; Triandis, Kurowski, and Gelfand, 1994; Williams and O’Reilly, 1998). Nevertheless, the relationship between diversity and team creativity is unclear for two reasons: First, there have been few empirical studies conducted to examine it and, second, there is no model that logically explains the relationship because most previous research has regarded that relationship as “black box.” There is a need, therefore, to develop a rational model that can be used as a basis for empirical studies.

In order to develop such a model, it is necessary to refer to prior studies that examined the relationship between diversity and team performance; these studies, however, have failed to show a consistent relationship between the two. Some studies determined that diversity promotes task-related debate (e.g., Jehn, Chadwick, and Thatcher, 1997; Jehn, Northcraft, and Neale, 1999; Pelled, Eisenhardt, and Xin, 1999; Simons, Pelled, and Smith, 1999), high quality outcomes (e.g., McLeod and Lobel, 1992; Watson et al., 1993), and increased innovation (e.g., Ancona and Caldwell, 1992; Bantel and Jackson, 1989). Conversely, other studies showed that diversity resulted in an increase in destructive emotional conflict (e.g., Greer, Jehn, and Mannix, 2008; Hobman, Bordia, and Gallois, 2003; Jehn et al., 1997; Jehn et al., 1999; Pelled

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et al., 1999), decreased social integration (e.g., Harrison et al., 2002; Smith et al., 1994), and increased turnover (e.g., Jackson et al., 1991; O'Reilly, Caldwell, and Barnett, 1989; Wagner, Pfeffer, and O'Reilly, 1984). Meta-analytical integration has not been very successful in linking diversity with team performance (Bowers, Pharmed, and Salas, 2000; Webber and Donahue, 2001; Wood, 1987).

One of the reasons that prior studies have yielded inconsistent results is that most of them failed to include both the positive and the negative effects of diversity on team performance in their frameworks. Since it would appear that diversity is a double-edged sword, it is necessary to pay attention to both the positive and the negative effects in order to clarify the relationship between diversity and team performance. The other reason for inconsistent findings in previous research is that the dimensions of diversity have been misunderstood. Prior studies have focused on the dimensions of age, sex, education, function, and so on, but the relationship among these factors remains unclear because the effect of the each has been examined separately. Hence, the relationship between the dimensions of diversity and team performance has not been rationally developed.

One objective of this study is to develop a model of diversity linked to team creativity by integrating the results of prior studies. This includes organizing various kinds of diversity and classifying them, clarifying the positive and negative effects of diversity, and identifying the relationship between these effects and the antecedents of team creativity. This study also focuses on the national diversity. As part of their new product development efforts, many companies must incorporate customer needs, as well as the most advanced technologies, from around the world. To do so, these companies promote diversity by assembling teams in which members from diverse nationalities work collaboratively. Management of national diversity is an important challenge for most companies and something that many companies struggle with. By reviewing previous diversity research, this study offers propositions on the relationship between national diversity and team creativity.

## II Diversity

Diversity research has focused primarily on gender, age, race/ethnicity, tenure, educational background, and functional background (Milliken and Martins, 1996; Williams and O'Reilly, 1998). The relationship among these elements, however, has not been clarified because each has been examined independently. After Williams and O'Reilly (1998) concluded in their review of the diversity literature that different types of diversity have different effects, some studies have categorized these forms of diversity. In this research, diversity has been categorized in two ways, looking first at relation-oriented diversity and task-oriented diversity (Jackson, May, and Whitney, 1995; Joshi and Roh, 2009), and then at surface-level diversity and deep-level diversity (Harrison, Price, and Bell, 1998; Harrison et al., 2002; Mohammed and Angell, 2004).

### 1 Relations-oriented Diversity and Task-oriented Diversity

Relations-oriented diversity attributes such as age, sex, ethnicity, and nationality are cognitively accessible, pervasive, and immutable. By contrast, task-oriented diversity attributes such as education, function, and tenure are linked to task-related skill, ability, and information. Previous studies have distinguished the two because the effect that each has is different within an organization.

Relations-oriented diversity is associated with social categorization processes (Fiske, 1998; van Knippenberg, De Dreu, and Homan, 2004). The process of social categorization may lead to the development of sub-groups within teams, manifesting in inter-subgroup bias and giving rise to inter-subgroup conflict. People tend to like and trust in-subgroup members more than out-subgroup members and thus tend to prefer to associate with in-subgroup members over out-subgroups (Brewer, 1979; Tajfel and Turner, 1986; Turner et al., 1987).

These negative attitudes toward others in the team may have negative performance consequences. The more heterogeneous the team, the lower

the commitment of team members (Riordan and McFarlane Shore, 1997; Tsui, Egan, and O'Reilly, 1992) and level of team cohesion (O'Reilly et al., 1989). In addition, more relational conflicts can be expected to occur (Jehn et al., 1999; Pelled et al., 1999), and there is likely to be higher member turnover (Wagner et al., 1984). Ultimately, based on social categorization, overall team performance is enhanced when teams are homogeneous rather than heterogeneous (Jehn et al., 1999; Murnighan and Conlon, 1991; Simons et al., 1999).

Meanwhile, task-oriented diversity is associated with skill-based and informational differences among team members (Jackson et al., 1995). These aspects of diversity are assumed to constitute a team's cognitive resource base and are associated with elaboration-based processes, defined as the exchange of information and perspectives among team members, individual-level information processing, gaining feedback, and integrating information and perspectives. This not only gives diverse groups a larger pool of resources, but may also have other beneficial effects. The need to reconcile conflicting viewpoints may force teams to more thoroughly process task-relevant information and may prevent them from opting too easily for a course of action on which there seems to be consensus. In addition, the exposure to diverging and potentially surprising perspectives may lead to more creative and innovative ideas and solutions (Ancona and Caldwell, 1992; Bantel and Jackson, 1989; De Dreu and West, 2001).

These elaboration-based processes explain the positive performance outcomes of work group diversity. Indeed, some previous studies found an association of diversity with increased task conflict (Jehn et al., 1999; Pelled et al., 1999) and higher performance and innovation (Bantel and Jackson, 1989; Cox, Lobel, and McLeod, 1991; Jehn et al., 1999).

In line with the above findings, some studies have suggested that relations-oriented diversity is related to negative team outputs while task-oriented diversity is related to positive team outputs (Brewer, 1979; Jehn, 1995; Jehn et al., 1999; Murnighan and Conlon, 1991; Pelled et al., 1999; Tajfel and Turner, 1986). Other research, however, has yielded contradictory

results, showing relations-oriented diversity to have a positive effect on performance (Cox et al., 1991) and diversity in task-oriented attributes resulting in negative performance consequences (Simons et al., 1999). Furthermore, meta-analyses by Bowers et al. (2000) and Webber and Donahue (2001) failed to support the proposition that diversity type moderated the effects of diversity on performance. These studies showed that neither relations-oriented diversity nor task-oriented diversity could be reliably linked to team performance.

One of the reasons that the results of some prior studies have not corresponded to expectations was oversimplification of the effects of each diversity type. Certainly, relations-oriented diversity significantly influences the social categorization process and task-oriented diversity significantly influences the elaboration process. It is possible, though, that each type of diversity has a different effect on these processes. Indeed, it has been suggested that relations-oriented diversity might be associated with informational differences (Cox et al., 1991; Tsui and O'Reilly, 1989), and that task-oriented dimensions, such as functional and educational diversity, might be associated with social categorization within the teams. Consequently, it is important to identify both the positive and the negative effects of each dimension of diversity in order to reconcile this contradiction.

## 2 Surface-level Diversity and Deep-level Diversity

Surface-level diversity is defined as differences in overt demographic characteristics among team members (Harrison et al., 1998; Milliken and Martins, 1996; Riordan and McFarlane Shore, 1997). These characteristics, including age, sex, and race/ethnicity, are often reflected in physical features. Almost immediately, individuals can make reasonable assumptions about the age, sex, or racial/ethnic background of someone and, therefore, of that person's similarity to themselves (Jackson et al., 1995). Most importantly, it is well established that individuals quickly use these characteristics to assign themselves and others to social classifications involving ascribed patterns of thought, attitudes, and behavior.

iors (e.g., Fiske, 2000).

The most commonly studied forms of diversity have been heterogeneity in age, sex, and race. The emphasis on those variables is perhaps owing to the ease with which researchers can measure them and group members can observe them, and the widespread belief that they are reasonable proxies for underlying psychological characteristics (Bantel and Jackson, 1989; Jackson, Stone, and Alvarez, 1993; Pfeffer, 1983; Tsui et al., 1992). Attention to those variables may also be driven by legislation prohibiting employment discrimination and mandating equal treatment without regard to race, sex, and age.

However, the effects of heterogeneity in these commonly studied characteristics have been inconsistent across studies. Some of this inconsistency may have arisen because the connection between overt demographic differences among employees and the less obvious, but important, attitudinal differences among them was weaker than has been assumed. Therefore, Jackson et al. (1995) and Milliken and Martins (1996) described diversity in both readily detectable attributes (e.g., race/ethnicity, sex, age) and underlying, deeper-level attributes (e.g., attitudes, values). Along the same lines, Harrison et al. (1998) differentiated between surface-level diversity and deep-level diversity in their research.

Deep-level diversity refers to differences among team members' psychological characteristics, including personalities, values, and attitudes (Harrison et al., 1998; Jackson et al., 1995). Clues to these latent individual differences are taken from members' interactions with one another as they unfold over time. Those clues are expressed in behavior patterns, verbal and nonverbal communication, and exchanges of personal information.

Notably, the theories marshaled by authors to support surface-level diversity effects say as much, if not more, about deep-level effects (Tsui et al., 1992). That is, presumed underlying differences between people in their attitudes, values, and personalities are the basis of similarity-attraction or fit paradigms, including social psychological theories about similarity in attitudes (e.g., Byrne, 1971; Newcomb, 1961) and organizational behavior theories

about similarity in values and personality (e.g., Schneider, 1987). People prefer to interact with others who have similar psychological characteristics, because that interaction verifies and reinforces their own beliefs, affect, and expressed behaviors (e.g., Swann, Stein-Seroussi, and Giesler, 1992). This form of attraction occurs even when attitudes are negative or when personality dimensions are dysphoric (Locke and Horowitz, 1990).

Although surface-level differentiation significantly influences social classification in the early stages of team development, the impact of perceived deep-level diversity on social integration will intensify as team members collaborate more (spend more time performing together.) Social categorization perspective supports the notion that in initial interactions, team members' categorization of one another is based on surface-level features (Berger, Rosenholtz, and Zelditch, 1980; Schneider, Goldstein, and Smith, 1995). Over time, however, as team members collaborate, they have more opportunities for the exchange of personal, idiosyncratic information, and larger samples of each other's behavior to observe (Gruenfeld et al., 1996). Consequently, surface-level diversity becomes less important and deep-level diversity becomes more important in determining team social integration over time. Indeed, Harrison and Mohammed showed that time neutralized, or made less important, the effects of surface-level diversity on team outcomes, and that it enhanced, or made more important, the effects of deep-level diversity.

This categorization-surface-level and deep-level diversity-contributes to diversity research by forcing researchers to focus on differences in psychological aspects, including attitudes, values, and personality. Before this, most research had paid attention only to the surface-level heterogeneity of teams. Nevertheless, this categorization has a serious drawback in that the majority of research in this categorization perspective equates surface-level diversity with demographical diversity (Harrison et al., 1998; Harrison et al., 2002; Mohammed and Angell, 2004).

For this reason, most research has focused on only the social categorization process between sur-

face-level diversity and team performance. Certainly, demographic differentiation is one of the most important aspects of surface-level differentiation. However, some studies pointed out that demographic diversity influences information elaboration (Homan et al., 2008; Kearney and Gebert, 2009; Kearney, Gebert, and Voelpel, 2009). This relationship dictates the need to also focus on the information elaboration process as a process that links surface-level diversity to team performance. In addition, there are other important forms of surface-level differentiation, such as functional, educational, and tenure differentiation, which team members can recognize in the early stages of team development. Harrison et al. (2002) included marital status as a form of surface-level diversity because it is both an overt and immediately recognizable demographic characteristic. In the same way, functional, educational, and tenure differentiation are overt characteristics that team members can assess in short-term collaboration.

### 3 Integrated Typology of Diversity

Categorization of relations-oriented and task-oriented diversity is conceptually independent from categorization of surface-level and deep-level diversity. The former focuses on whether diversity is associated with demography or task while the latter focuses on whether or not diversity is associated with psychological aspects. Although Harrison et al. (1998) focused on only the demographic aspects of surface-level diversity, surface-level diversity logically includes not only demographic diversity but also other overt forms of diversity. Indeed, Jackson et al. (1995) included education as a surface-level attribute.

When we assign relations-oriented and task-oriented diversity to the x-axis and surface-level and deep-level diversity to the y-axis, we can construct a four-quadrant diversity matrix, as shown in Figure 1. In the upper left quadrant are surface-level, relations-oriented diversity categories, including age, sex, race, and nationality diversity. Shown in the upper right quadrant are the surface-level, task-oriented diversity characteristics of functional, educational and tenure diversity. Values, personality, and

cognition are deep-level, relation-oriented diversity attributes, shown in the lower left quadrant, and job attitude, information, and ability are examples of deep-level, task-oriented diversity listed in the lower right quadrant.

To date, few studies have explored the areas of information or ability diversity. The exclusion of these forms of differentiation may be due to the difficulty with which they can be measured and/or to the belief that they are closely related to characteristics of surface-level, task-oriented diversity, such as function, education, and tenure. In fact, however, information and ability diversity are conceptually different from surface-level, task-oriented diversity. For example, it is possible that, in teams with low functional diversity and high national diversity, the diversity of regional marketing information would be high because team members are familiar with their respective nations' markets. This suggests that informational diversity is not only linked to surface-level, task-oriented diversity but can also be reasonably regarded as a type of deep-level, task-oriented diversity.

Previous research has considered national diversity, on which this study focuses, as a type of surface-level, relations-oriented diversity. Nationality is not linked directly to tasks, and is overt and easily recognizable. In business practice, national diversity is an important issue because it poses unique challenges for management in areas such as visas, pensions, housing environment, and so on. In addition, national diversity may be associated with the social categorization process, which influences team creativity. As such, it is important to pay attention to national diversity as a type of surface-level, relations-oriented diversity.

It is also possible that national diversity has a positive influence on team creativity as a deep-level, rather than a surface-level type of diversity. In addition to the overt, recognizable aspects of nationality, diversity in values, cognition, and information, which arises from national diversity, may also affect the creative performance of a team. It is important, therefore, to look at both surface-level, relations-oriented diversity and deep-level diversity when clarifying the relationship between nationality and

Figure 1 Diversity Matrix

	Surface-level diversity		
	Surface-level, relations-oriented diversity	Surface-level, task-oriented diversity	
	- Age - Sex - Race - Nationality	- Function - Education - Tenure	
Relations-oriented diversity	Deep-level, task-oriented diversity		Task-oriented diversity
	Deep-level, relations-oriented diversity	Deep-level, task-oriented diversity	
	- Values - Personality - Cognition	- Job attitude - Information - Ability	
	Deep-level diversity		

creative performance.

### III The Effects of Diversity on Team Performance

This section discusses the mediators and moderators between diversity and team performance on which previous studies have focused. A review of these studies aids in elucidating the mechanisms by which nationality influences team creative performance.

#### 1 Surface-level, Relations-oriented Diversity

Many studies have focused on surface-level, relations-oriented diversity, looking primarily at team identity and task-related information elaboration as mediators. Kearney et al. (2009) showed that team identity and information elaboration mediates the relationship between age diversity and team performance. Age diversity positively influences team performance through team identity and information elaboration in such a way that age diversity promotes both team identity and information elaboration, and these foster team performance when team members' need for cognition is high. Likewise, Kearney and Gebert (2009) showed that age and national diversity positively influence information elaboration, which, in turn, positively influences

team performance. They found that collective team identification moderates the relationship between age and national diversity and information elaboration in such a way that age and national diversity positively influence collective team identification, which, in turn, positively influences information elaboration. Moreover, Kearney and Gebert (2009) showed that transformational leadership moderates the positive effect of age and national diversity on information elaboration and collective team identification. Nederveen Pieterse, Van Knippenberg, and Van Dierendonck (2013) found that information elaboration mediates the relationship between national diversity and team performance. Further, they found that learning approach and performance avoidance orientation moderate the relationship between national diversity and information elaboration. In their study, when learning approach orientation in the teams was high and performance avoidance orientation was low, the relationship between national diversity and information elaboration tended to be strong. Harrison et al. (2002) identified age, race, and marital status as negatively influencing team performance through perceived surface-level diversity, which was the overall perception of the team's diversity of age, sex, race, and social integration. Actual diversity of age, race, and marital status positively influenced perceived diver-

sity, which, in turn, negatively influenced team performance in such a way that perceived surface-level diversity promoted team social integration that reduced team performance. Moreover, Harrison et al. (2002) identified interaction time as having a moderating effect on the relationship between perceived surface-level diversity and social integration in such a way that the longer the interaction time, the weaker the association between them was. As Harrison et al. (2002) showed, interaction time is one of most important moderators between diversity and outcome. Watson et al. (1993) further demonstrated that interaction time has a moderating effect on the relationship between national and ethnic diversity and team performance. Initially, teams similar in nationality and ethnicity scored higher on team performance than teams that were more nationally diverse. However, by week 17, the differences in performance had disappeared. Moreover, the diverse team showed superiority in some kinds of performance. The diverse teams became more effective at identifying problem perspectives and generating solution alternatives. Harrison et al. (1998) also showed the moderating effect of interaction time, finding that the negative impact of sexual diversity on team cohesion weakens as interaction time increases. Acar (2010) determined that interaction time moderates the association between perceived surface-level diversity and emotional conflict, and found a negative association between perceived surface-level diversity and emotional conflict in the beginning and at the end of team interactions. Acar (2010) also found that shared leadership moderates the association between perceived surface-level diversity and emotional conflict.

In addition to the variables mentioned above, other moderators were explored in earlier studies. Gonzalez and DeNisi (2009) found that the association between sexual and racial diversity and organizational performance is moderated by the organizational diversity climate. The association between gender diversity and productivity is an inverse U-shape when the organizational diversity climate is supportive, but U-shaped when it is unsupportive. Meanwhile, racial diversity was found to be negatively associated with productivity under unsup-

portive organizational diversity conditions, but positively associated in a more favorable environment. Richard et al. (2004) found that the effects of sexual and racial diversity were moderated by a firm's risk tolerance, so that the higher the risk tolerance, the stronger the relationship between sexual diversity and firm performance. A U-shaped relationship was also seen between racial diversity and firm performance, so that the relationship was stronger when a firm's innovation orientation was higher. Chatman and O'Reilly (2004) determined that the reaction to sexual diversity is different between men and women. In their research, women expressed greater likelihood to leave homogeneous teams than did men, even though women working in all-female teams expressed greater commitment, positive affect, and perceptions of cooperation.

Additional research can be found that has shown interaction effects between diversity and other factors. Homan et al. (2008) identified the interaction effect between sexual diversity and team members' openness to experience, which was one of five classifications of personality known as the Big Five of personality. Sexually diverse teams with higher levels of openness to experience performed better than sexually diverse teams with lower levels of openness to experience. Van der Vegt and Janssen (2003) found a three-way interaction between task interdependence, goal interdependence, and demographic diversity. In teams with high levels of demographic diversity, as measured by sex, age, and ethnicity, task interdependence was strongly and positively related to innovative behavior for individuals who perceived high levels of goal interdependence, and unrelated to innovative behavior for those who perceived low levels of goal interdependence.

## 2 Surface-level, Task-oriented Diversity

In studies of surface-level, task-oriented diversity, team identity, information elaboration, and information sharing have been widely viewed as mediators between diversity and team outcomes. Bunderson and Sutcliffe (2002) examined the effects of functional diversity on unit performance in business unit management teams, differentiating between

dominant function diversity and intrapersonal functional diversity. Dominant function diversity was defined as the diversity of functional experts on a team whereas intrapersonal diversity was the aggregate functional breadth of team members. Their analysis showed that dominant function diversity negatively influences information sharing, which, in turn, positively influences unit performance. By contrast, intrapersonal function diversity positively influences information sharing which promotes unit performance. Kearney et al. (2009) showed that educational diversity and age diversity promote collective team identification and information elaboration, which foster team performance. In addition, Kearney et al. (2009) showed that a team's need for cognition moderates the association between educational diversity and both collective identification and information elaboration. In Kearney and Gebert (2009) study, national diversity was shown to have a positive influence on team performance through collective team identification and information elaboration. Collective team identification mediated the relationship between educational diversity and information elaboration, and transformational leadership moderated the relationship between educational diversity and collective team identification.

Jehn and Bezrukova (2004) found that the effects of functional and educational diversity are moderated by business strategy and human resource management (HRM). Teams with high levels of educational diversity are likely to perform better in departments that pursue growth-oriented business strategies and worse in environments with an emphasis on training- and diversity-oriented human resource practices. Van Der Vegt, Van De Vliert, and Xu (2005) found that power distance moderates the effects of tenure and background diversity on the climate of innovation at organizational locations of multinational firms. In their study, tenure and functional background diversity were negatively related to innovation climate in high-power-distance countries, but positively related to innovation climate in low-power-distance countries.

### 3 Deep-level, Relation-oriented Diversity

Shin, Kim, Lee, and Bian (2012) found that team members' creative self-efficacy moderates the relationship between cognitive team diversity and individual creativity. Cognitive team diversity refers to perceived differences in thinking styles, knowledge, skills, values, and beliefs among individual team members<sup>1</sup>. The effect of cognitive diversity on individual creativity is positive when the creative self-efficacy of team members is high. Moreover, they found that transformational leadership moderates the relationship between cognitive team diversity and individual creativity in such a way that cognitive team diversity is positively related to individual creativity only when transformational leadership is high.

Mohammed and Nadkarni (2011) revealed that team temporal leadership moderates the relationships between time urgency diversity and team performance and the relationship between pacing style diversity and team performance, where the impact of time urgency and pacing style diversity on team performance is more positive under conditions of stronger team temporal leadership. Team temporal leadership also has a direct, positive influence on team performance.

Van der Vegt and Janssen (2003) identified three-way interaction effects of cognitive diversity, task interdependence, and goal interdependence on individual innovative behavior in the teams<sup>2</sup>. In highly cognitively diverse teams, task interdependence was strongly and positively related to innovative behavior for individuals who perceived high levels of goal interdependence, and unrelated to innovative behavior for those who perceived low levels of goal interdependence.

### 4 Deep-level, Task-oriented Diversity

Harrison et al. (1998) showed that interaction time moderates the link between diversity in overall satisfaction and group cohesion, finding that the initial negative impact of overall satisfaction diversity on cohesiveness is enhanced as team members spend more time interacting. Harrison et al. (2002) also showed the impact of deep-level diversity on



team performance. The actual diversity of task meaningfulness and outcome importance influences perceived deep-level task-oriented diversity, which is the members' overall perception of the diversity of the team's task-related values, personality, and attitudes<sup>3</sup>. Perceived deep-level task-oriented diversity negatively influences social integration, which positively influences team performance, and interaction time moderates the relationship between perceived deep-level task-oriented diversity and social integration in such a way that the longer the interaction time is, the stronger the negative effect of perceived deep-level task oriented diversity is.

Acar (2010) indicated that perceived deep-level diversity is positively associated with emotional conflict in the middle of team interaction. In this study, perceived deep-level diversity was the same as the one in Harrison et al. (2002). This association between perceived deep-level diversity and emotional conflict in the middle of team interaction is moderated by shared leadership in the teams.

Martins et al. (2013) identified the moderating effect of psychological safety and relationship conflict on the association between expertise and expertness diversity and team performance. Expertise diversity is the variation within the team in the types of knowledge, skills, and capabilities team members possess owing to education, experience, and natural ability. Expertness diversity, on the other hand, is the extent to which team members differ in their level of expertise at performing the team's tasks. When team psychological safety is lower, expertise diversity is negatively associated with team performance, while expertness diversity is positively related. When team relationship conflict is lower, expertness diversity is more positively related to team performance. Martins et al. (2013) consider expertise and expertness diversity to be examples of surface-level, task-oriented diversity, but also regard them as constructs of deep-level task-oriented diversity.

The literature review indicates that previous studies have identified only a few mediators of the relationship between diversity and team outcomes, as compared with moderators. The most important

mediators that have been identified are emotional conflict and information elaboration, the former coming from a social categorization perspective and the latter from an information processing perspective. Whereas team performance is negatively influenced by emotional conflict, it is positively affected by information elaboration. The next step, then, is to examine the influence of emotional conflict and information elaboration on team creativity. To do so, it is necessary to look at the antecedent factors of creativity, and to clarify the association of emotional conflict and information elaboration with these antecedents.

#### IV Antecedent Factors of Team Creativity

In creativity literature (Amabile et al., 1996; Shalley, Zhou, and Oldham, 2004), team creativity is most often defined as the production of novel and useful ideas concerning products, services, processes, and procedures by a team of employees working together. According to this definition, creativity is different from innovation in that creativity emphasizes the production of ideas, whereas innovation primarily involves implementing new ideas throughout an organization (Amabile, 1983; Oldham and Cummings, 1996).

Amabile's (1983, 1996) componential model of individual creativity predicts that domain-relevant skills, creativity-relevant processes, and task motivation, are important elements of individual creativity, and that there are individual differences in the levels of the three components. Mounting empirical evidence suggests that individuals are more creative when they possess higher levels of these components (Conti, Coon, and Amabile, 1996; Ruscio, Whitney, and Amabile, 1998).

"Domain-relevant skills" refers to the ability to learn certain types of domain-specific knowledge (Amabile, 1996). Domain-relevant skills require familiarity with the domain in question, including memory of factual knowledge, technical proficiency, opinions about various questions in the domain, knowledge of paradigms, performance scripts for solving problems in the domain, and aesthetic crite-

ria (Ruscio et al., 1998). Therefore, domain-relevant skills represent an individual's depth and breadth of information related to the problems to be solved.

Creativity-relevant processes refer to the flexibility with which cognitive pathways are explored, the attention given to particular aspects of the task, and the extent to which a particular pathway is followed in pursuit of a solution (Amabile, 1996). Creativity-relevant processes are associated with a cognitive style favorable to taking new perspectives on problems, an application of heuristics for the exploration of new cognitive pathways, and a working style conducive to persistence (Amabile, 1983, 1996).

Task motivation is linked to the amount and persistence of effort. Amabile (1994) found that intrinsically motivated people show greater commitment and devote more time to task completion. Ruscio et al. (1998) found that behavior related to involvement in the task is associated with intrinsic motivation. Motivated individuals show deep levels of involvement in problems by focusing on solving them, minimizing distractions, and being absorbed in work (Ruscio et al., 1998).

Although it has been posited that individual creativity contributes to team creativity (Woodman, Sawyer, and Griffin, 1993), team creativity is not simply the average of individual creativity, it is the product of social influences arising from the creative acts of individuals (Drazin, Glynn, and Kazanjian, 1999; Morgeson and Hofmann, 1999). Unlike individual creativity, however, the mechanism of creativity that is peculiar to teams has not been clearly theorized and demonstrated. Therefore, most studies of team creativity have applied a three components model to team level factors.

The domain-relevant skills of teams represent the teams' depth and breadth of information related to the problem to be solved. In order to create new ideas, new combinations or new interpretation of existing information is required. The more the information is relevant to the problem, the greater the chance is that such combinations and interpretation will occur. The creativity-relevant processes of teams represent teams' cognitive flexibility, meaning the ability of team members to view problems differently, redefine problems, and combine

previously unrelated information into something new and better (Mumford and Gustafson, 1988). In order to increase the chances for new combinations and interpretation of information, cognitive flexibility is necessary. Task motivation refers to a team's goal orientation, meaning the collective motivation of team members to achieve team goals. Each member of the team has to commit to the team's goal because each member has to search for and gather new information, exchange information, and interpret and combine diverse information (Gong et al., 2013). Collective task motivation is necessary for directing individual efforts toward the goal of team creativity.

Based on this discussion of team creativity, it is now important to clarify the relationship between national diversity and the components of the team—the team's depth and breadth of information related to goal achievement, its cognitive flexibility, and its goal orientation. To do so, it is necessary to identify the factors that mediate the relationship between the three components. Given that diversity is a double-edged sword, it is possible that there are two types of mediators: those having a positive impact and those having a negative impact.

## V Proposition for National Diversity

As discussed earlier, nationality is categorized as a surface-level, relation-oriented diversity. Nationality is also strongly connected to social category, and differentiation by nationality can generate multiple social sub-groups within a team. These social sub-groups have strong social identification and differentiate between in-group members and out-group team members, reducing inter-group communication and cooperation. This differentiation may also lead to bias among sub-groups. These effects can cause emotional conflict, which will have a negative impact on team creativity.

Proposition 1: National diversity increases emotional conflict, which negatively affects team creativity.

Although nationality is classified as a type of surface-level, relations-oriented diversity, it is also re-

lated to elements of deep-level, relations-oriented diversity, such as values and cognitive diversity. Members of national identity groups share certain worldviews, sociocultural heritages, norms, and values (Cox, 1993; Ely and Thomas, 2001; Worchel, 2005). Therefore, people from different national backgrounds might have different values and cognition, such as belief structures, priorities, perceptions, and assumptions about future events (Cox and Blake, 1991; Ely and Thomas, 2001; Hall, 1976; Hambrick, 2007; Maznevski, 1994; Pelled et al., 1999; Tsui and O'Reilly, 1989). Accordingly, teams consisting of members of different nationalities will have diverse values and cognition represented in the team. For example, Hofstede (1991) indicated that time orientation, one dimension of culture, is different across nations. Members of nations with a long-term orientation tend to emphasize persistence whereas members of nations with short-term orientations tend to emphasize quick results. This suggests that the value of time, which influences time urgency and pacing style, differs by nation.

It is likely that value and cognitive diversity cause emotional conflict among team members. Differences in time urgency and pacing style among team members will lead to frustration, while differences in values may lead to bias or prejudice. These differences may strengthen social identity inside a subgroup, but will impede communication and cooperation among team members, eventually leading to emotional conflict between sub-groups.

Proposition 2: National diversity has a positive influence on value and cognitive diversity, which positively influence emotional conflict, and emotional conflict negatively influences team creativity.

In contrast to the above proposition, value and cognitive diversity might positively affect cognitive flexibility in teams. Different value and cognitive frameworks bring alternative perspectives for problem solving, allowing team members to understand issues from multiple points of view. Being confronted with different values and cognition may allow team members to see how these additional perspectives can lead to more effective problem solving. In addition, value and cognitive diversity can lead to

constructive criticism that can facilitate vigilant problem solving, an approach that Janis (1982) recommends for making important decisions. If group members fail to criticize each other's ideas because they are too concerned about maintaining unanimity, they may overlook important details, succumbing to groupthink (Janis, 1982). Indeed, Pelled et al. (1999) showed task conflict to have positive effects on team performance.

High cognitive flexibility has a positive impact on information elaboration. Members of such teams know the importance of multiple perspectives and constructive criticism and are open to sharing, exchanging, combining, and integrating information, which is the definition of information elaboration. By allowing diverse perspectives to promote the possibility of new combinations or new understanding of existing information, elaboration of information positively influences team creativity.

Proposition 3: National diversity positively influences value and cognitive diversity, which have a positive impact on information elaboration; information elaboration then positively influences team creativity.

National diversity also influences information diversity which is categorized as a type of deep-level, task-oriented diversity. Usually, members have information peculiar to their own nations related to customer needs, competitors, suppliers, regulations, HRM practices, and so on. By comparison, technical information is less nation-specific, although each nation has a competitive advantage or expertise in some technical area. Acquiring technical information is also different from nation to nation because the network of technology experts is specific to each country. If team members have different information from one another, the team's depth and breadth of information increases.

Because creativity requires the availability of a wide array of information, the depth and breadth of information has a positive impact on team creativity. New knowledge is created by new combinations of or new perspectives on existing information. Therefore, the possibility of knowledge creation increases when teams have deep and broad information, which serves as a base for knowledge creation.

Proposition 4: National diversity positively influences information diversity, which in turn positively influences team creativity through the depth and breadth of information; the depth and breadth of information positively influences team creativity.

Diverse information gives teams more alternatives for problem solving, but differences in information may give rise to conflict and dissent. Faced with the need to solve these conflicts and reconcile opposing information, team members may engage in more elaborate processing of information and search for more creative solutions than would be the case in the absence of conflict and dissent.

Proposition 5: National diversity positively influences information diversity, which positively affects the elaboration of information, and the elaboration of information positively influences team creativity.

## VI Discussion

This study was intended to theorize the relationship between national diversity and team creativity by organizing and integrating the results of prior research. Because there is limited research on national diversity, besides studies on national diversity, this study even reviews other types of diversity studies, which can provide insight into the issue of national diversity.

A review of previous studies revealed four dimensions of diversity: surface-level relation-oriented diversity; surface-level task-oriented diversity, deep-level relation-oriented diversity, and deep-level task-oriented diversity. According to this categorization, national diversity falls under surface-level relation-oriented type of diversity. National diversity directly influences team creativity when it serves as surface-level diversity, and it influences creativity through deep-level diversity. National diversity positively influences value and cognitive diversity, which are elements of deep-level relation-oriented diversity, which, in turn, negatively influences team creativity. Moreover, national diversity positively influences information diversity, which is a form of

deep-level task-oriented diversity, which, in turn, positively influences team creativity.

This study identified the mediators between deep-level diversity and team creativity: emotional conflict, depth and breadth of information, and information elaboration. Value and cognitive diversity may have positive impacts on both emotional conflict and information elaboration, whereas information diversity may positively influence both depth and breadth of information, and information elaboration. Team creativity is negatively influenced by emotional conflict, but positively impacted by depth and breadth of information, and information elaboration. These findings suggest that national diversity can have contradictory effects on team creativity through these mediators.

This study contributes to the existing diversity research in two ways. First, it organized and integrated previous diversity studies into categories that were proposed by some prior studies. By using this categorization, the contribution of this study to the field will be apparent, as will the areas in which research is still needed. Second, this study clarifies the mechanism of the relationship between national diversity and team creativity by identifying the mediators between them. Most of the studies so far have suggested a significant relationship between national diversity and team creativity, but few of those studies verified that relationship and none of them theorized the mechanism of it. This study provides insight into this “black box” by identifying the contradictory effects of national diversity, which will benefit future research on the topic.

This study also contributes to management practices in global organizations. Many companies are recognizing the need to leverage the diversity of their employees to sustain their competitive advantages in a global marketplace (Offermann and Gowing, 1990; Thomas and Ely, 1996; Yaprak, 2002). Specifically, the increased occurrence of organizations operating across national boundaries and the embracing of national diversity as a business strategy represent a variety of recent trends. The convergence of these trends virtually ensures that the membership of teams, functioning within the context of domestic and non-domestic organizations,

will become more nationally diverse (e.g., Nahavandi, 2003; Schaubroeck and Lam, 2002). The challenges created by these trends are difficult to translate into solutions for managers and team leaders who are faced with the day-to-day supervision of diverse groups. Company leaders often presume that greater diversity will automatically lead to (often unspecified) benefits while ignoring the complicated issues of managing diverse teams (Kersten, 2000; Shaw and Barrett-Power, 1998). In fact, most companies are struggling with the issue of diversity management because they are trying to implement it without the support of theoretical models outlining the relationship between national diversity and team creativity. This study provides a theoretical model for identifying that relationship. If managers encourage depth and breadth of information and information elaboration, which positively influence creativity, and minimize emotional conflict, which has a negative impact on creativity, they can fully realize the benefits of national diversity.

In spite of these contributions, this study has limitations, the most serious one being the failure to identify the moderators between national diversity and team creativity.

Van Knippenberg et al. (2004) indicated that a "main effects" approach has limitations for diversity research and argued that it is impossible to understand the effects of diversity without taking moderators into account (Pelled et al., 1999). Some moderators, such as team climate, leadership, task characteristics, and faultline activation, significantly influence the effects of diversity. Therefore, it will be important in future research to construct a theoretical model that integrates the mediators and moderators of national diversity and team creativity.

#### Notes

1 Obviously, cognitive diversity in Shin et al. (2012) included differentiation of task-oriented factors. However, cognitive diversity was measured using four items, which included the extent to which the members of the work group differed in their way of thinking, in their knowledge and skills, in how they viewed the world, and in their beliefs about what is right and wrong. Most of them were not task-oriented. Hence, I regard cognitive diversity in

Shin et al. (2012) as deep-level, relation-oriented diversity.

2 I regard cognitive diversity in Van der Vegt and Janssen (2003) as deep-level, relation-oriented diversity for the reason given above.

3 Harrison et al. (2002) included attitudes about school and education in perception of deep-level diversity. Therefore, perception of deep-level diversity in this study is not completely equal to deep-level, task-oriented diversity. However, most factors related to overall perception of diversity are task-oriented ones. Further, the actual diversity of task meaningfulness and outcome importance, which are task-oriented diversities, influences perceived deep-level diversity. Accordingly, I regard deep-level diversity in this study as deep-level, task-oriented diversity.

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