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Meta-analysis of Studies
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Abstract

We develop a model of convergent and divergent processes to explain the opposing dynamics created by cultural diversity in teams. The results of a meta-analysis of 80 studies with a combined sample size of 9212 teams suggest that cultural diversity lead to process losses by increasing the potential for conflict. However, these losses are partially offset by process gains from increased creativity. Moderator analyses indicate that the effects of cultural diversity vary depending on team size and gender diversity within the team.

Keywords

Diversity; culture; multicultural teams; team performance; meta-analysis

Unraveling the Diversity-Performance Link in Multicultural Teams: Meta-analysis of Studies on the Impact of Cultural Diversity in Teams

Until recently, managers who worked in international contexts rarely worked with people from more than two or three other cultures. Today, teams are necessarily becoming *multicultural* (e.g. Adler, 2002; Schneider & Barsoux, 2003). Executives travel around broader regions while their jobs remain headquartered in one place. Global teams are created to address important strategic challenges and to become globally competitive (Kirkman, Gibson & Shapiro, 2001). Supplier and customer value chains circle the globe. The traditional wisdom of “understand the other” is no longer enough; today’s managers must interact effectively with people in multiple cultures simultaneously, and “the others” are too numerous and too dynamic to capture in simple terms (Lane, DiStefano & Maznevski, 2006).

Research has examined the nature of managing such diversity for several years; however, the conclusions from this research are not clear. To create more accurate and useful knowledge about managing multicultural interactions, it is important to paint a picture of what we already know and sketch an outline of what needs to be learned next. To accomplish this, we conducted a meta-analysis of the empirical studies on cultural diversity in teams.

LITERATURE REVIEW: A SLOWLY-MATURING FIELD

Despite interest for many years, the literature on multicultural teams is not as well-developed as one might expect given its importance. Reviews on diversity literature published in 1996, 1998, and 2003 each included only between one and three studies on cultural or national diversity (Jackson, Joshi, & Erhardt, 2003; Milliken & Martins, 1996; Williams & O’Reilly, 1998). Culture is difficult to measure, and multicultural teams are challenging to study (Adler, 2002). In this section, we review definitions of culture and cultural diversity, the

opposing dynamics posed by diversity in teams, and the implications for team processes and outcomes.

Culture and Cultural Differences

Culture is a complex, multi-dimensional construct. Kroeber and Kluckhohn (1952) discussed 164 accepted definitions in 1952 and today there are thousands, complemented by over one billion Google referrals. Culture is the set of assumptions and values that are shared by a group of people and that guide the group of people's interaction with each other. Culture consists of a shared, commonly held body of general beliefs and values that define the "shoulds" and the "oughts" of life. These beliefs and values are taught to people so early and so unobtrusively that they are usually unaware of their influence (Lane et al., 2006).

In management, culture has several important implications. First is its role in guiding expectations and priorities: What is the best organizational structure or budgeting procedure? Who should be responsible when something goes wrong? How should activities be organized? The answer to all these questions is guided by a set of values and norms – often unstated – shared by a group of people. Second is the boundary culture creates. People from a culture can usually recognize who is in the culture and who isn't, and the boundary creates a source of identity and safety. Finally, culture provides a link between the individual and group or organizational levels of analyses. Even if individual preferences differ from the norm, individuals often "play along" in the culture in order to facilitate interaction.

Research on values is closely linked to the studies of culture. Values are guiding principles that help people deal with uncertainty, or beliefs upon which one acts by preference (Allport, 1961; Emery & Trist, 1964; Rokeach, 1973). Although values are held by individuals and culture is "held" by groups, people within a culture tend to have more similar values than people across cultures, and individual-level values are usually related to

cultural-level values (Hofstede, 1980; Kluckhohn & Strodtbeck, 1961; Schwartz, 1994). Values, therefore, are often used to measure important aspects of culture in research on multicultural interactions (e.g. Hofstede 1980, 2001; Maznevski et al., 2002; Kirkman & Shapiro, 2001; Schwartz, 1994; Trompenaars, 1993).

Diversity in general has been measured using surface or observable traits and deeper traits. Surface-level diversity is defined as differences among team members in overt demographic characteristics, such as age, sex, racio-ethnicity, or nationality. Deep-level diversity refers to differences among team members' psychological characteristics, including personalities, values, and attitudes (e.g. Harrison et al., 1998). Surface or observable traits represent the vast proportion of research (Jackson et al., 2003) because they are easy to operationalize and are assumed to stand as proxies for underlying or deeper traits (Harrison et al., 1998, 2002; Jackson et al., 2003; Jehn et al., 1999; Pelled, 1996; Pfeffer, 1983), although the legitimacy of this approach is being questioned (e.g., Garcia-Prieto et al., 2003; Lau & Murnighan, 1998). In this review, we examine research with different definitions due to the fact that there is no single accepted definition or operationalization of cultural diversity in the field; however, we are mindful of the relationship between the surface and deeper levels and the recognition that deep-level differences seem to become more important to team members over time (Harrison et al., 1998; Martins et al., 2003; Watson et al., 1993).

The Opposing Dynamics of Diversity

In most research on diversity, the effects of diversity are not differentiated by the source: all sources of diversity are generally assumed to have the same impact. In this part of the review, therefore, we draw on studies that examine all types of diversity to build our hypotheses and differentiate diversity source where possible. In general, diversity has been found to have two opposing effects on the team. On the one hand, the differences among

people create barriers to effective social interaction and make performance difficult. On the other hand, the different perspectives brought to the team provide a source for creativity, innovation and excitement, and a potential for higher performance.

Diversity drives process losses. Organizations and teams have a natural tendency to drive out diversity (e.g. Richard & Johnson, 2001; Schneider, 1987; Tsui & O'Reilly, 1989). A wide variety of studies has shown that team members encourage conformity and ignore differences (e.g. Brown, 1986; George, 1990; Kirchmeyer & Cohen, 1992). This is because people tend to be attracted to those whose attitudes and values are similar to their own, and most people are motivated through such acceptance (Byrne, 1971). Organizations, too, reinforce similarity by attracting, hiring and retaining similar types of people (Jackson et al., 1991; Kanter, 1977; Schneider, 1987). Furthermore, similarity provides positive reinforcement for one's attitudes and beliefs, while dissimilarity is seen as punishment (Williams & O'Reilly, 1998).

At the organizational level, high diversity leads to less integration and more differentiation and fragmentation (Martin, 2002), whereas a high level of homogeneity and consensus around values leads to strong integration (Denison & Mishra, 1995). There is no clear consensus in the literature if 'high integration' enhances or hinders implementation of changes throughout the organization (Frost et al., 1985); however, it is frequently suggested that diversity hinders more than helps the implementation process due to low consensus, negative political dynamics and coherence needed for action (e.g. Cox, 1994; Tushman & O'Reilly, 1999).

Diversity creates process gains. In contrast to these forces is the assumption that different perspectives in a team provide potential for higher performance (Blau, 1977; Cox, 1994; Kanter, 1977; Pfeffer, 1983). Heterogeneous groups have a greater variety of external

social networks (e.g. Ancona & Caldwell, 1992) and thus richer sources of information; a better market place understanding (e.g. Cox & Blake, 1991), which means an increased ability to detect and respond to local preferences; and a diversity of ideas and perspectives that enhance problem solving, creativity and innovation (e.g. Cox & Blake, 1991; Jackson, 1992; O'Reilly et al., 1998; Watson et al., 1993). With increasing environmental complexity, diverse groups are also suggested to be better suited for appropriate responses as they mirror environmental complexity (Katz & Kahn, 1978; Lawrence & Lorsch, 1967; Milliken & Martins, 1996). High member diversity and variety enhances the ability of an organization to adapt (Katz, 1982; Pfeffer, 1983; Weick, 1969).

Opposing dynamics may lead to inconsistent results. The opposing dynamics of diversity are reflected in research results on diverse teams. Previous meta-analyses (not focused specifically on cultural diversity) have found no overall relationship between diversity and performance (Bowers et al., 2000; Webber & Donahue, 2001) or a very small negative effect (Stewart, 2006). Reviews have concluded that findings of studies are inconsistent (Harrison et al., 1998; Kirkman et al., 2004; Kochan et al., 2003; Mohammed & Angell, 2004). This pattern is highlighted by significantly strong positive correlations in many studies (e.g. Earley & Masakowski, 2000; McLeod et al., 1996; Thomas et al., 1996), contrasted by significantly negative correlations in just as many studies (e.g. Jehn & Mannix, 2001; Kirkman et al., 2004; Thomas, 1999; Watson et al., 1993). According to evidence, diversity really presents a 'doubled-edged sword' and 'mixed blessing' (Williams & O'Reilly, 1998).

The nexus of oppositional forces might be a warning that cause and effect is not a simple matter. Smith et al. (1996) and Lawrence (1997) argue that the effect of demographic differences on performance are due to intermediate variables, rather than direct effects. The

effect of diversity on performance may be mediated by processes such as communication, coordination and conflict, and furthermore may also depend on moderator variables (e.g. Brickson, 2000; Jackson et al., 2003; Kochan et al., 2003; Maznevski, 1994; Milliken & Martins, 1996; Pelled, 1996). For example, Watson et al. (1993) showed that the consequences of diversity vary over time. Therefore, rather than examine the direct relationship between diversity and performance, our objective in this study is to focus on these mediating and moderating variables.

Diversity's Effect on Intermediate Outcomes

Research on diverse teams has shown that five variables, of which three are group processes and two are psychological states important to effective team work, combine to predict team performance: Communication, conflict, creativity, cohesion, and satisfaction.

Communication. Effective communication, or the transmission of meaning from one person to another as it was intended, is an important alignment process and it is highly unlikely that any group can exist without the transference and understanding of meaning among its members. Because communication enables organizational functions such as control, information and motivation, effective communication is associated with good team performance, either directly or by impacting for example conflict and cohesiveness (e.g. Keller, 2001).

There are a wide number of sources of interference that can enter and disturb the communication process, one being cultural differences. Effective communication requires that individuals have at least a minimum of shared values and language. The more different people are from each other, the more difficult it is to find such a shared platform (Maznevski, 1994).

Conflict. Conflict is the expression of differences in opinion or priority due to opposing needs or demands (Tjosvold, 1986), and is therefore a divergent process (although *resolving* conflict can be aligning). There is little agreement about whether conflict leads to increased or decreased performance (e.g., Jehn 1994, 1995; Tjosvold, 1991). There is some evidence that task conflict may increase performance, and personal and process conflicts decrease performance (Jehn et al., 1997; Schwenk, 1990), but a recent meta-analysis (De Dreu & Weingart, 2003) found that both types of conflict were negatively related to performance.

As people with diverse backgrounds and experiences hold different belief structures and values, which affect their prioritization, interpretation and response to stimuli (e.g. Walsh, 1988; Wiersema & Bantel, 1992), group diversity inherently increases the potential for conflicts. Thus the research stream on groups and conflicts is united in the view of diversity as a source of conflict (e.g. De Dreu & Weingart, 2003; Pelled, 1996; Pelled et al., 1999).

Creativity. In team processes, creativity is the consideration of a wide variety of alternatives and criteria for evaluating alternatives, as well as the building of novel and useful ideas that were not originally part of the consideration set. This can lead to better decisions. Creativity is an important component of innovation (e.g. O'Reilly et al., 1998) and is considered a recognized source of profit and performance (e.g. Miura & Hida, 2004).

Creativity is clearly a divergent process. It is the core of the “value-in-diversity hypothesis” (Cox & Blake, 1991) and the creative benefits of heterogeneous team compositions have been supported by numerous studies (e.g. Doz et al., 2004; Kanter, 1983; Nemeth & Wachtler, 1983; O'Reilly et al., 1998).

Cohesion. Cohesion is attraction to the group, satisfaction with other members, and the nature of social interaction among group members (Beeber & Schmitt, 1986; Festinger et al.,

1950; Katz & Kahn, 1978; O'Reilly & Roberts, 1977; Shaw, 1981). The definition often includes commitment to tasks, goals or objectives (Carron, 1982; Goodman et al., 1987), and cohesion is often used interchangeably with integration (e.g. McCain et al., 1983). In their meta-analysis, Mullen and Copper (1994) found a significant positive effect of cohesion on performance.

Most research has found that diversity impacts cohesion, but this relationship depends on the type of diversity. Single studies point out that some forms of diversity may have a diminishing effect on cohesion (e.g. Keller, 2001, for functional diversity). It is widely suggested that gender diversity diminishes group cohesion (e.g. Fox et al., 1989; Jackson et al., 1991; Kirchmeyer, 1995), although Webber and Donahue's meta-analysis (1999) did not find any significant relationship between 'readily detectable attributes' and cohesion.

Satisfaction. Satisfaction is the feeling of having a need adequately fulfilled. A wide spectrum of needs can be met by teams, but the team literature tends to focus on satisfaction with the group process and the group outcome as the two most important aspects of satisfaction (Hackman, 1987). Satisfaction is not necessarily directly linked to performance, but does predict organizational commitment, turnover, absenteeism, organizational citizenship, and other variables associated with longer-term operational effectiveness (Petty et al., 1984; Vroom, 1964).

The relationship between diversity and satisfaction has generally been found to be negative (e.g. Basadur & Head, 2001). As we discussed earlier, people tend to be attracted to those who are more similar to them, and interactions with people who are similar therefore tend to be more satisfying. Moreover, people are usually more satisfied the smoother the group operates, and perceive that diversity influences the group in a negative way.

The foregoing discussion suggests that cultural diversity will be negatively associated with convergent outcomes and positively associated with divergent outcomes. In particular,

Hypothesis 1a. Higher cultural diversity will be associated with less effective communication.

Hypothesis 1b. Higher cultural diversity will be associated with more conflict.

Hypothesis 1c. Higher cultural diversity will be associated with more creativity.

Hypothesis 1d. Higher cultural diversity will be associated with lower cohesion.

Hypothesis 1e. Higher cultural diversity will be associated with lower satisfaction.

Moderating Variables Augment or Reduce the Effect of Cultural Diversity

As indicated above, the effects of diversity on performance may depend on other variables. We propose four moderating variables that augment or reduce the effect of diversity on the intermediate outcomes: task complexity, team size, time, and additional sources of diversity.

Task complexity. Tasks are more complex to the extent that they are less structured, less routine, more ambiguous, and require higher levels of interdependence (Burns & Stalker, 1961; McGrath, 1984; Steiner 1972). Task complexity has been studied as a moderator in several studies, but with inconclusive results. Jehn (1995) and Stewart (2006) found that in non-routine tasks diversity's effect is less negative than in routine tasks. However, De Dreu and Weingart (2003) concluded from their meta-analysis that the higher the task complexity the stronger the negative correlation between diversity and performance. The different perspectives brought by diversity can increase a team's ability to see, describe and address the complexity. However, due to increased difficulty with communication and increased conflict, diverse teams will have difficulty managing those different perspectives well (DiStefano & Maznevski, 2000). In general, it seems that the process losses outweigh the potential gains. Therefore, we propose the following hypotheses.

Hypothesis 2a. The more complex the task, the more cultural diversity will be associated with decreased communication effectiveness.

Hypothesis 2b. The more complex the task, the more cultural diversity will be associated with increased conflict.

Hypothesis 2c. The more complex the task, the more cultural diversity will be associated with increased creativity.

Hypothesis 2d. The more complex the task, the more cultural diversity will be associated with decreased cohesion.

Hypothesis 2e. The more complex the task, the more cultural diversity will be associated with decreased satisfaction.

Team size. As groups grow in size, they experience increasing problems in many areas, including communication (Blau, 1977; Indik, 1965), coordination (e.g. Blau, 1977; Markham et al., 1982), risk of social loafing (e.g. Kravitz & Martin, 1986; Mullen et al., 1987), free-riding (Kerr & Bruun, 1983), diffusion of responsibility (Darley & Latane, 1968), and lower cohesion (e.g. Indik, 1965; Mullen & Copper, 1994; Shaw, 1981; Steers & Rhodes, 1978). Although some studies find increased performance when groups are larger (e.g. Yetton & Bottger, 1983), as larger teams may be more able to obtain resources such as time, energy, money and expertise, it is generally concluded that increased group size significantly reduces performance and productivity in quality as well as quantity of the output (e.g. Mullen et al., 1991; Steers & Rhodes, 1978). Like complexity, an increase in team size increases the number of variables a team must manage. A five-person group must manage up to 15 bilateral relationships; doubling the group to ten members increases the number of potential relationships almost four-fold to 57. We hypothesize, therefore, that group size will increase the effects of diversity, making both the process losses and process gains greater.

Hypothesis 3a. The larger the team, the more cultural diversity will be associated with decreased communication effectiveness.

Hypothesis 3b. The larger the team, the more cultural diversity will be associated with increased conflict.

Hypothesis 3c. The larger the team, the more cultural diversity will be associated with increased creativity.

Hypothesis 3d. The larger the team, the more cultural diversity will be associated with decreased cohesion.

Hypothesis 3e. The larger the team, the more cultural diversity will be associated with decreased satisfaction.

Time. Time has long been considered an important influence on group development and performance, deeply founded in various theories within psychology and organizational theory (e.g. Pfeffer, 1983; Weick, 1969), and its effects are complex. In general, the longer a team is together the smoother and more automatic its processes become. Usually this is thought to be helpful to groups, for example for reducing conflict (e.g., Jehn & Mannix, 2001). But such automatic processes can also hurt teams' performance in the long run if they lead to decreased creativity (Austin, 1997) or decreased internal communication frequency and increased isolation of members (e.g., Katz, 1982). With cultural diversity, time seems to allow a shift in the group's focus from 'surface level' characteristics that are used for instant categorization and stereotyping (e.g. Fiske & Neuberg, 1990) to a deeper understanding and appreciation of group members' underlying or deep level psychological characteristics (Harrison et al., 2002; Milliken & Martins, 1996). Watson et al. (1993) and Harrison et al. (1998) found that the negative effects of diversity decreased over time, as people got to know each other and appreciate their differences. Time also allows heterogeneous teams to create a common identity, which contributes to their performance (Earley & Mosakowski, 2000). We therefore expect time to decrease the process loss effects of cultural diversity, while at the same time reducing the creative potential of diversity.

Hypothesis 4a. The longer a team works together, the less cultural diversity will be associated with decreased communication effectiveness.

Hypothesis 4b. The longer a team works together, the less cultural diversity will be associated with increased conflict.

Hypothesis 4c. The longer a team works together, the less cultural diversity will be associated with increased creativity.

Hypothesis 4d. The longer a team works together, the less cultural diversity will be associated with decreased cohesion.

Hypothesis 4e. The longer a team works together, the less cultural diversity will be associated with decreased satisfaction.

Additional sources of diversity. Multicultural groups may be diverse on other dimensions, as well. With more sources of diversity, the process loss and gain effects of diversity are likely to be increased. On the one hand, we can expect more sources of identity (Tajfel & Turner, 1986), and fewer opportunities for similarities to attract (Byrne, 1971). On the other hand, the additional sources of diversity provide more information and perspectives, which can support divergent processes. In contrast to this linear effect, however, Lau and Murnighan (1998) argue that the effect of multiple sources of diversity depends on the configuration of those different sources. If sources of diversity are aligned (e.g., all the marketers are Taiwanese, all the finance experts are American, and all the production engineers are German) then “faultlines” are created. The diversity creates greater friction and may prevent the process gains from arising. If sources of diversity are not aligned (e.g., marketers, finance experts, and engineers come from all three countries), then the crossing of diversity sources reduces its negative impact on processes related to social identity and similarity-attraction without decreasing process gains. Unfortunately, most previous studies have not examined the configuration of diversity, so we hypothesize here that additional

sources of diversity increase cultural diversity's effects on convergent and divergent processes, but we are mindful that configuration of diversity is likely also important.

Although several sources of diversity have been examined in the literature, research on cultural diversity has mainly focused on gender as additional source of diversity. The impact of gender diversity has been studied extensively (e.g. Eagly & Mladinic, 1989; Eagly & Steffen, 1984; Kanter, 1977; McGuire, 1984; Prasad et al., 1997) and although its dynamics are complex, it seems to affect the variables we examine here in similar ways as other sources of diversity (e.g., diversity in functional backgrounds) do. We hypothesize that gender diversity will moderate the relationship between cultural diversity and the intermediate outcomes, such that the direct positive or negative effects of diversity will be increased. In particular,

Hypothesis 5a. The more diverse a team is in gender, the more cultural diversity will be associated with decreased communication effectiveness.

Hypothesis 5b. The more diverse a team is in gender, the more cultural diversity will be associated with increased conflict.

Hypothesis 5c. The more diverse a team is in gender, the more cultural diversity will be associated with increased creativity.

Hypothesis 5d. The more diverse a team is in gender, the more cultural diversity will be associated with decreased cohesion.

Hypothesis 5e. The more diverse a team is in gender, the more cultural diversity will be associated with decreased satisfaction.

The hypotheses are summarized in Figure 1.

Figure 1 about here

METHOD

Sample

Because meta-analysis involves aggregation of effect sizes across studies, only studies that provided the statistical information required to calculate an effect size for the relationship between cultural diversity and one or more intermediate outcomes were included. The literature search involved manual and computerized searches of relevant published and unpublished studies. In an attempt to minimize the “file drawer problem” (Rosenthal, 1984), team researchers were contacted by email and copies of potentially relevant unpublished papers were requested.

A total of 82 studies were identified through this search process. In cases where two or more studies relied on the same sample, the study that provided the most complete statistical information was selected and the others were excluded. In cases where no effect sizes could be calculated due to missing or incomplete information, an email was sent to the author with a request for additional information. The final sample consisted of 80 empirical studies with a combined sample size of $N = 9212$ teams.

Dependent Variables

The five intermediate outcomes proposed to be predictors of team performance (see Figure 1) are the dependent variables in the present meta-analysis. Although no explicit hypothesis was formulated regarding the relationship between cultural diversity and performance, we included performance as an additional dependent variable as a matter of interest to research.

Communication effectiveness. The majority of studies included in the meta-analysis directly assessed communication effectiveness among team members (e.g., Earley & Mosakowski, 2000; Maznevski, 1995). Some studies focused on more qualitative aspects of

group communication, e.g., whether people talked with one another openly (Earley & Mosakowski, 2000) or if interpretative ambiguity arose due to ambiguous communication episodes (Kilduff et al., 2000).

Conflict. Following Jehn and Mannix (2001), three types of conflict were examined: task, relationship, and process conflicts. Task conflict is an awareness of differences in viewpoints and opinions pertaining to a group task. Relationship conflict is an awareness of interpersonal incompatibilities, including affective components such as feeling tension and friction (Jehn & Mannix, 2001). Process conflict is defined as an awareness of controversies about how task accomplishment will proceed (Jehn et al., 1999).

Creativity. A creative work process is engagement in behaviors and activities directed at developing novel solutions that might work for various tasks (Drazin, Glynn & Kazanjian, 1999). Studies included in the meta-analysis assessed creativity in terms of the novelty of ideas generated on a brainstorming task (McLeod et al., 1996), the ability to generate creative solutions to problems or case studies (O'Reilly et al., 1998; Rodriguez, 1998), and the development of creative endings to short stories (Paletz et al., 2004).

Cohesion. Cohesion is a multifaceted construct that captures several aspects of team climate and spirit. It has been assessed directly (e.g. Elron, 1997; Miller, 1994) or indirectly, through behavioral correlates such as team citizenship behavior (Randel, 2003). Studies that examined closely related constructs like cooperation and collaboration (e.g. Harrison et al., 2002; Kirkman & Shapiro, 2002), trust, respect, and liking among group members (e.g. Jehn & Mannix, 2001), or willingness to work together again (Maznevski, 1995) were also included.

Satisfaction. Satisfaction was measured at the group-level in the studies included. Satisfaction can originate from pleasant social interactions (e.g., Martins et al., 2003; Miller,

1994) or from performing satisfactorily as a collective (e.g., Earley & Mosakowski, 2000; Rohn, 2004), and thus captures two aspects of the affective well-being of the group: satisfaction with the group in general, and with its performance in particular.

Performance. As many of the studies were based on student samples and conducted in an educational context, performance measures typically consisted of group project scores or grades assigned for course-related projects (e.g., Chatman & Flynn, 2001; Harrison et al., 2002; Jehn & Mannix, 2001). Some studies more generally defined effective teamwork as the extent to which the team accomplished its purpose and produced the intended results (e.g., McLeod, Lobel & Cox, 1996). Another stream of field studies captured more externally-validated performance indicators like sales performance figures (Ely, 2004; Jackson & Joshi, 2002), workgroup composite bonus (Jehn & Bezrukova, 2004), quality of customer service (Kirkman & Shapiro, 2002), or the winning percentage of teams in a sports context (Timmerman, 2000).

Independent Variable

Cultural diversity is a multifaceted construct that has been defined and operationalized in many different ways. Some studies focused solely on surface-level demographic attributes like racio-ethnicity (e.g., Baugh & Graen, 1997), nationality (e.g., Earley & Mosakowski, 2000) or a combination of both (e.g., Chatman & Flynn, 2001) as the independent variable. Other studies measured deep-level attributes such as the values held by the members of the group (e.g., Jehn & Mannix, 2001), or assessed diversity in terms of national cultural distance (Elron, 1997). The present meta-analysis included both surface-level and deep-level measures.

Moderators and Control Variables

Moderators. To ease analysis and interpretation, moderators were created with bimodal values. *Task complexity* is a categorical variable (high/low), based on a median split of coder ratings of several task characteristics, including task ambiguity, structure, routineness and interdependence. To measure *team size* (small/large), a median split of z-standardized team size scores was performed. *Time* was the amount of time that the team members spent together prior to measurement of the dependent variable, with a split of up to 20 hours and more than 20 hours based on a natural grouping of studies. Longitudinal studies providing multiple measurement points were excluded from this moderator analysis, as conclusions regarding the effect of time cannot be drawn after multiple data points have been averaged. To measure *gender diversity*, we calculated Blau's (1977) index of heterogeneity ($1 - \sum P_i^2$, where P_i is the proportion of the group in the i th category), which is the most commonly used measure of diversity for categorical variables (e.g., Ely, 2004; Martins et al., 2003). A median split was then performed to create two categories (low/high).

Controls. Each of the studies included in the meta-analysis was coded for a variety of research design and sample characteristics, which served as controls. They included: *study design* (cross-sectional/longitudinal); *study setting* (educational/field); whether cultural diversity was *actively influenced* through the team assignment (no/yes); *publication status* (unpublished/ published); *geographic region* in which study was conducted (North-America/other); *operationalization of cultural diversity* (racio-ethnicity/nationality/values); *method for assessing team performance* (e.g., survey/archival data); *information source* (objective/subjective).

Coding and Inter-Rater Agreement

All studies were coded by two independent raters. The inter-rater reliability coefficient used was Cohen's *kappa*, a coefficient that is widely considered to be a suitable measure for categorical variables and a more conservative measure than percentage agreement (Orwin, 1994). As a rule of thumb, *kappas* above .80 can be considered good and those above .90 excellent (Neuendorf, 2002). The inter-rater reliability coefficients for the variables included in the meta-analyses ranged between .81 and .95, suggesting that the coding process produced reliable data. Any disagreements between coders were discussed and resolved.

Meta-Analytical Procedure

Control for artifacts and calculation of mean effect sizes. To rule out bias due to uneven sampling, point-biserial correlation coefficients were corrected for the attenuation effect of unequal sampling (Hunter & Schmidt, 1990). Studies that relied on self-report measures were corrected for unreliability. Undesirable statistical properties of the product-moment correlation coefficient were controlled by applying Fisher's Z_r -transformation (Hedges & Olkin, 1985). Finally, each effect size was weighted by the inverse of its squared standard error value following a fixed-effects model when calculating mean effect sizes (Lipsey & Wilson, 2001).

Treatment of multiple effect sizes. Since multiple effect sizes from the same study are statistically dependent, effect sizes were averaged when a study provided multiple indicators of the same outcome variable (e.g., different facets of cohesion). If a study examined several different outcome variables (e.g., cohesion and creativity), the resulting effect sizes were included in separate meta-analyses.

Homogeneity testing and moderator analysis. If homogeneity of the effect size distribution could not be established, further analyses were undertaken to determine the

presence of moderator variables. Homogeneity testing was done in two ways. First, the homogeneity Q statistic was computed to test the overall variability of study-level effect sizes (Hedges & Olkin, 1985). Second, the observed effect size variability was divided into the portion attributable to subject-level sampling error and the portion attributable to other between-study differences. Exploration of moderators is indicated when the sampling error accounts for less than 75 percent of the observed variability (Hunter & Schmidt, 1990). Moderator analysis was undertaken by comparing subgroups. Subgroup analysis involves calculating the mean effect size for each of the two categories of the moderator or control variable as an estimate for the respective population r . A critical ratio test is then performed to determine if the population r s are significantly different, as indicated by the Z statistic (Hunter & Schmidt, 1990). A significant Z statistic suggests that the characteristic used to divide the sample (e.g., gender) is a moderator.

A synopsis of study characteristics, samples, scale reliabilities, and effect sizes for the 80 studies included in the meta-analysis is available from the authors.

RESULTS

Impact of Team Cultural Diversity on Intermediate Outcomes

The model presented in Figure 1 proposes that cultural diversity affects five intermediate outcomes: communication effectiveness, conflict, creativity, cohesion and satisfaction. We hypothesize that cultural diversity is negatively associated with communication effectiveness, cohesion and satisfaction, and positively associated with conflict and creativity.

Table 1 about here

As indicated by Table 1, the meta-analysis of studies that investigated the relationship between cultural diversity and communication effectiveness yielded a non-significant mean effect size of .08, which suggests that cultural diversity does not affect communication effectiveness. Thus, Hypothesis 1a is not supported.

In the meta-analysis of conflict measures, a statistically significant mean effect size of .12 ($p < .01$) emerged, providing support for Hypothesis 1b. We conducted additional meta-analyses on the different types of conflict and found that cultural diversity is positively associated with task conflict with a significant mean effect size of .17 ($p < .001$), and to a lesser extent with relationship conflict (mean effect size .09, $p < .10$). It is unrelated to process conflict.

The meta-analysis of studies that examined the relationship between cultural diversity and creativity yielded a significant mean effect size of .31 ($p < .01$), which suggests that cultural diversity is positively associated with creativity in teams. Thus, Hypothesis 1c is supported.

The mean effect sizes obtained in the meta-analyses of satisfaction (.09, $p < .10$) and cohesion (-.05, $p < .10$) measures approached significance but are arguably too small to be theoretically meaningful. Moreover, the results obtained in the meta-analysis of satisfaction measures were not in the predicted direction, suggesting that cultural diversity is associated with higher, not lower, levels of satisfaction. Thus, Hypotheses 1d and 1e are not supported.

No explicit hypothesis was formulated regarding the relationship between cultural diversity and performance. Figure 1 suggests that there is not a direct and unequivocally negative effect of cultural diversity on team performance. Rather, negative effects of diversity on communication, conflict, cohesion and satisfaction may be partially compensated by process gains through creativity. The meta-analysis of performance measures lends some

support to this idea. As indicated by Table 1, a mean effect size of about zero was obtained. This finding is robust, as it is based on data from 32 studies with a combined sample size of 6640 teams.

Collectively, the main effect analyses suggest that cultural diversity increases the potential for task conflict and, to a lesser extent, for relationship conflict in teams; however, process losses due to increased conflict are partially offset by process gains in the form of enhanced creativity and, counter to our hypothesis, satisfaction.

Moderating Effects

As indicated by Table 1, the effect sizes included in the meta-analyses ranged widely (e.g., from -.44 to .36 for studies that used cohesion as the dependent variable), which suggests the presence of moderators. Exploration of moderators is indicated when the homogeneity Q statistic is significant (Hedges & Olkin, 1985) or the sampling error accounts for less than 75% of the observed variability (Hunter & Schmidt, 1990). Both of these criteria were met for the conflict measures (all three types of conflict combined) and cohesion and satisfaction measures, but not for the communication effectiveness and creativity measures; thus, moderator analyses were performed only for the former. Regarding the relationship between cultural diversity and performance, no moderator hypotheses were tested. Moderator analysis involves conducting separate meta-analyses for the two categories of the hypothesized moderator (e.g., high/low levels of task complexity) and comparing the mean effect sizes between the subgroups. In some cases we could not test moderator effects because the number of effect sizes for a subgroup was fewer than the required three effect sizes (Dalton et al., 2003; Lipsey & Wilson, 2001).

Table 2 about here

For task complexity, we could only conduct moderator analysis for cohesion measures. As indicated by Table 2, no evidence of a moderating effect emerged for this outcome variable. Thus, Hypothesis 2d is not supported.

For team size, subgroup analysis could be performed for two of the outcome variables: conflict and cohesion. The results of critical ratio tests indicate that team size moderates the effects of cultural diversity on conflict, but not on cohesion. As hypothesized, team size increased the negative effect of cultural diversity on conflict such that diversity was positively associated with conflict when the team was large but unrelated to conflict when it was small. Thus, Hypothesis 3b was supported.

The moderating effect of time (the amount of time the team had spent together) was tested for all three outcome variables considered. No significant moderating effects emerged for any of these variables, thus Hypotheses 4b, d and e are not supported.

Finally, we hypothesized that additional sources of diversity (specifically, in the form of gender diversity) moderate the effects of cultural diversity on the intermediate outcomes. The results of critical ratio tests presented in Table 2 suggest that cultural diversity tends to be associated with greater team satisfaction when gender diversity is low and with lower levels of cohesion when gender diversity is high. These findings support Hypotheses 5d and 5e.

Impact of Study Design and Sample Characteristics

Each of the studies was coded for study design and sample characteristics, which served as controls. The results of subgroup analyses suggest that the research design (cross-sectional/ longitudinal) affected the meta-analytic results, but only for performance measures and not for the intermediate outcomes. The meta-analysis of effect sizes obtained from longitudinal studies yielded a positive mean effect size of .04, while the meta-analysis of

effect sizes derived from cross-sectional studies produced a negative mean effect size of $-.04$. Although the difference between the mean effect sizes is small, it is statistically significant ($Z = 2.86, p < .01$).

Additional subgroup analyses indicated that cultural diversity is positively associated with team performance when performance is measured objectively, that is by external observers using objective criteria such as sales performance figures or winning game percentage (Mean ES = $.08$), but negatively when measured subjectively, that is by self-ratings (Mean ES = $-.11$). The difference between the mean effect sizes is substantial ($Z = 6.79, p < .001$), which suggests that the measurement method used to evaluate team performance is a major influence on the results.

Finally, subgroup analyses suggest that the publication status affects the meta-analytic results. In unpublished studies cultural diversity tends to be positively associated with team cohesion (Mean ES = $.15$) and satisfaction (Mean ES = $.21$), but published studies find negative effect sizes for cohesion (Mean ES = $-.10$) and non-significant effect sizes for satisfaction (Mean ES = $.00$). In both cases the differences are significant (for cohesion $Z = 3.29, p < .01$; for satisfaction $Z = 1.98, p < .05$).

Collectively, the meta-analytic results show that the effect sizes obtained in multicultural team research are not independent of study design and sample characteristics.

DISCUSSION

Previous research on the performance impact of cultural diversity in teams has yielded inconclusive, and often contradictory, results. While some studies have found a negative relationship between cultural diversity and team performance, others observed a positive relationship or found cultural diversity to be unrelated to performance. In an attempt to reconcile these conflicting findings, we developed a model of the mechanisms through which

cultural diversity affects team performance and tested it using meta-analytic techniques. Our overall results for the diversity-performance link confirmed the pattern of results in the field: team performance was unrelated to cultural diversity. Our meta-analysis was designed to explore the nature of this relationship more closely, looking at intermediate outcomes and moderators of the relationship between cultural diversity and those intermediate outcomes. We found three complementary explanations for a “zero-direct-effect” relationship between cultural diversity and performance: positive and negative effects on intermediate variables; moderated relationships with intermediate variables; effects of study design and sample characteristics.

According to the theory, cultural diversity raises barriers to convergence and increases forces of divergence in teams. As hypothesized, the meta-analytic findings suggest that cultural diversity increases the potential for task conflict and, to a lesser extent, for relationship conflict in teams, while at the same time leading to process gains in the form of enhanced creativity. On the one hand, cultural differences can create barriers to social interaction, making effective team work difficult. On the other hand, the different perspectives brought to the team provide a source for creativity and innovation, and a potential for higher performance. Thus, process losses may be partially offset by the process gains associated with cultural diversity. Contrary to our expectations, cultural diversity had a small positive effect on satisfaction with the team. We had hypothesized, based on previous research, that satisfaction was a convergent process and would be negatively affected by cultural diversity. However, students and managers often express interest in working with people from other cultures (Marks, 2003), and this exposure to other ideas and the learning potential inherent in a multicultural environment may be satisfying.

Collectively, the meta-analytic results presented in this paper suggest that the cause and effect relationship between cultural diversity and team performance is more complex than has traditionally been assumed and contingent on moderator variables. Unfortunately, moderator variables were seldom measured in the research we drew from: of 25 hypothesized moderator relationships, we had enough data to test only eleven. Of these eleven relationships, three showed significant moderator effects. As hypothesized, team size moderated the relationship between cultural diversity and conflict, such that the larger the team the more cultural diversity was associated with conflict. This finding suggests that it is wise for managers to keep multicultural teams relatively small in size.

Gender diversity moderated the relationship between cultural diversity and two intermediate outcomes: cohesion and satisfaction. The higher the cultural diversity *and* gender diversity, the lower the cohesion and satisfaction. This finding is consistent with other research. For example, Baugh and Graen (1997) argue that the team's own perception of reduced effectiveness due to the combination of gender and race in teams can become a self-fulfilling prophecy; this can potentially explain some decrease in cohesion and satisfaction, which are closely related to the team's perception of its way of working. Earley and Mosakowski (2000) suggested that teams with both nationality and gender diversity may function differently than those with only gender diversity, and Jackson and Joshi (2004) found that the benefits of ethnic diversity were greater for teams with relatively low gender diversity. This result therefore seems to be robust, but it is discouraging to those in an increasingly diverse workplace. We address this issue further in recommendations for future research.

Implications for Future Research

This meta-analysis suggests several directions for future research. Most importantly, we believe that the convergent and divergent processes discussed above are critical to more fully understanding the role of cultural diversity in teams. How the intermediate variables examined in this study interact and combine to influence overall team performance should be addressed by future research.

Clearly, this meta-analysis points to the need for a more sophisticated conceptualization of cultural diversity and its relationship with team outcomes. We suggest four important directions for future research: specifying the effect of *cultural* diversity on teams; investigating moderator relationships more fully; examining the effects of diversity configuration; and, incorporating contextual and longitudinal aspects into the research.

The literature on diversity in teams tends to assume that all sources of diversity affect teams the same way; in fact, due to the prevalence of this assumption we used it to ground our hypotheses. However, it is probable that different sources of diversity affect teams differently (Joshi et al., 2006). There is some suggestion of this in the current study. For example, the effect of cultural diversity on satisfaction was positive, not negative as hypothesized and found with other sources of diversity. Culture differs from other types of demographic characteristics in at least two important ways: it is not always visible, and it is grounded in deeper sources of identity and norm-development than other demographic characteristics (Earley & Mosakowski, 2000). These differences may be related to category formation (e.g. Schneider, 2004), i.e., the process by which team members categorize themselves and others, and should be taken into account in future research. A more sophisticated understanding of diversity's effect would also require simultaneous consideration of the roles of diversity and similarity in teams. For example, there are many

dimensions on which cultures differ, and diversity on one dimension may affect teams differently from diversity on other dimensions. Recent studies suggest that differences on some cultural dimensions can be aligned by raising the salience of similarities on others (Cunningham & Sagas, 2004; Maloney & Zellmer-Bruhn, forthcoming; Miura & Hida, 2004).

We also suggest that research investigate moderator relationships more fully. The fact that we could test fewer than half of our hypothesized relationships (and some of those with few effect sizes) suggests that this aspect of the research is under-developed. Also, with one exception (time), all moderators examined in this study were structural rather than process-oriented; consequently, they capture only static aspects of teams. However, the management-oriented literature on diversity is filled with examples (e.g. Dietz & Petersen, 2006; Thomas & Ely, 1996; Thomas, 2004) of diversity having a positive or negative effect depending on *how* the diversity is managed. Research has not yet been able to isolate and specify these process-oriented or management-related moderator variables, and this is a much-needed future direction.

The configuration of diversity must be captured in future research (e.g., Blau, 1977; Hopkins & Hopkins, 2002; Hopkins et al., 2005; Thatcher et al., 2003). Lau and Murnighan (1998) argued that diversity's effects may not be strictly linear; whether or not additional sources of diversity create problems is likely to depend on the configuration of that diversity, i.e., whether or not the sources of diversity are aligned. There is not yet enough research in this area to conduct a meta-analysis, but the direction seems to be fruitful. Although we know a lot about the factors that strengthen or weaken faultlines (e.g. Dyck & Starke, 1999), the effects of faultlines are not yet clear. Gibson and Vermeulen (2003) argue for the importance of subgroups in team learning and that strong subgroups can provide a safe environment,

which enhances the acceptance of diversity (Austin, 1997) and thus the individual ‘minority’ team members’ participation and added value (see also Hornsey & Hogg, 2000). Shaw (2004) argues that a high level of diversity can enhance group performance because it insulates the group from faultline formation, which reduces the in-group out-group effect especially likely to occur in collectivistic cultures (Triandis, 2000). Given the ambiguity of results on the direct effects of diversity on performance, the time is ripe for a more fine-grained analysis of cultural diversity and its effects in teams. This will require multidimensional, multilevel approaches that include the effects of diversity on intra-group or cross-subgroup dynamics (e.g., Lau & Murnighan, 2005).

Finally, the context in which multinational teams operate deserves further research attention. Its criticality has been reinforced by several studies (e.g., Richard, 2000) and propositions, including Tsui and Gutek’s (1999) claims of how increased strength of an organizational culture can impact social identity categorization and thereby minimize the negative dynamics of demographic diversity. Consideration of contextual factors, such as organizational culture and climate, can help bring the interpretive focus more towards the conditions rather than the causes when it comes to team performance (Hackman, 2002). What we are still lacking is *the full story* (Ancona & Caldwell, 1992) – a comprehensive model that satisfies the call for a more sophisticated and contextual framework (Bartel, 2001; Bettenhausen, 1991; Gladstein, 1984; Williams & O’Reilly, 1998) by incorporating various types of diversity, outcome variables, intervening processes, moderator variables, and contextual factors. Only through better understanding of the complex interplay among these variables and processes can we help those who work in multicultural teams to manage cultural diversity more effectively.

Limitations

This study provided some new insights into the mechanisms through which diversity may affect team performance. However, there are several possible limitations that need to be discussed.

First, in interpreting the meta-analytic results it is important to note that the mean effect sizes obtained were generally small (Cohen, 1977). The largest effect size, found in the meta-analysis of creativity measures, was about .30. Thus, a large proportion of the variance of the dependent variable remained unexplained. This suggests that cultural diversity has relatively little value in predicting team outcomes without taking moderator variables into consideration. However, as explained above, research on cultural diversity in teams has investigated only a small number of potential moderators extensively enough to be considered for meta-analysis. It is therefore difficult for us to make general conclusions with respect to moderator variables.

The previous concern raises a general problem associated with meta-analytic reviews, namely the mixing of studies of varying quality. Some critics (e.g., Greenland, 1994) argue that a research synthesis should be based solely on findings from rigorous, high-quality studies. For the purpose of this meta-analysis, exclusion of studies that did not meet pre-defined standards was not considered viable (the only exception being qualitative studies), for several reasons. First, since the number of studies meeting the eligibility criteria already was quite small, a decision to sacrifice sample size in favor of methodological quality would have further limited our ability to undertake moderator analyses. Second, the majority of studies had been published in refereed journals, thus guaranteeing a minimum methodological standard. Finally, since meta-analytic techniques make it possible to correct for various statistical artifacts and biases, we decided to include all studies meeting the eligibility criteria

and employed a procedure that allowed us to correct the data for artifacts and to control for variability in study design characteristics.

CONCLUSION

Based on the results of a series of meta-analyses, we conclude that cultural diversity in teams can create barriers to social interaction and increase the potential for conflict, depending on team characteristics such as team size and other sources of diversity present within the team. However, these process losses may be partially offset by process gains through creativity. Thus, cultural diversity in teams can be both an asset and a liability. In this way, the academic field of diversity is ahead of practice, which is still struggling with the “business case” question. Whether the process losses associated with cultural diversity can be minimized and the process gains be realized will ultimately depend on the team’s ability to manage the process in an effective manner, as well as the organizational climate and context. Future research endeavors should focus on the mechanisms through which cultural diversity affects team performance and the conditions that help or hinder effective team performance.

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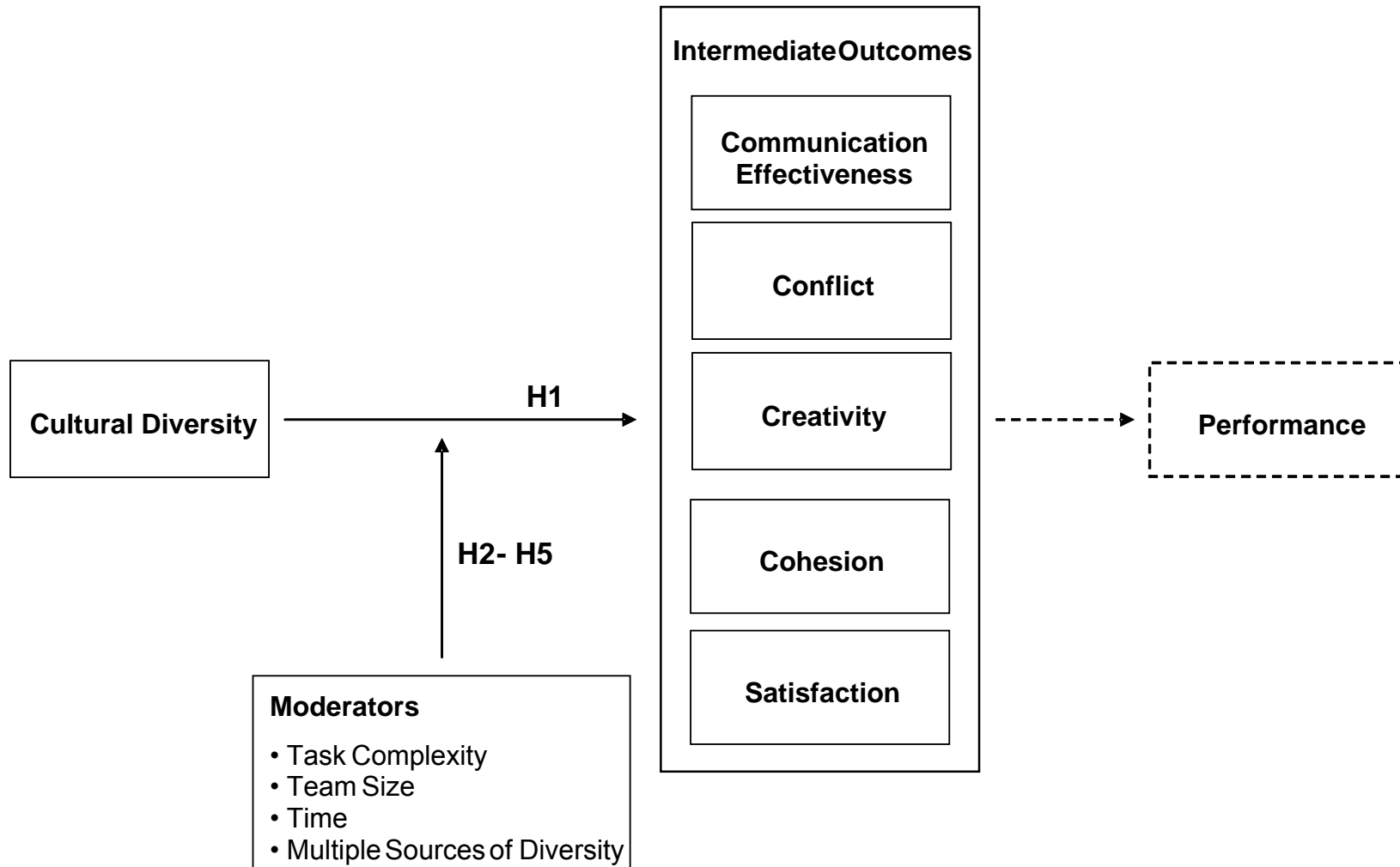
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* Studies marked with an asterisk were included in the meta-analysis.

FIGURE 1
Hypothesized Relationships among Cultural Diversity, Intermediate Outcomes, and Moderators



Note: Solid arrows indicate relationships examined in this study; dotted arrows indicate proposed or inferred relationships.

TABLE 1
Results of Meta-Analyses of Studies on the Impact of Cultural Diversity in Teams

Outcome Measure	<i>k</i>	<i>N</i>	Mean ES	-95%CI	+95%CI	Range of Effect Sizes	<i>Q</i>	Variance explained by S.E.	Moderation Indicated
Communication Effectiveness	6	224	0.08	-0.06	0.21	-0.20; 0.32	7.39	80.10 %	No
Conflict	12	747	0.12**	0.05	0.20	-0.31; 0.34	27.52**	42.36 %	Yes
Task Conflict	7	465	0.17***	0.07	0.26	-0.40; 0.35	25.00***	26.41 %	Yes
Relationship Conflict	7	389	0.09†	-0.01	0.20	-0.24; 0.22	7.67	89.12 %	No
Process Conflict	4	253	0.01	-0.11	0.14	-0.24; 0.18	7.62†	51.86 %	Yes
Creativity	4	110	0.31**	0.11	0.50	0.03; 0.48	4.16	82.50 %	No
Cohesion	18	1145	-0.05†	-0.11	0.00	-0.44; 0.36	32.51**	55.03 %	Yes
Satisfaction	8	346	0.09†	-0.02	0.20	-0.14; 0.41	11.49†	68.50 %	Yes
Performance	32	6640	-0.01	-0.04	0.01	-0.60; 0.48	135.37***	24.80 %	Yes

Notes. *k* = Number of effect sizes; *N* = Number of teams examined; Mean ES = Weighted mean effect size; -95%CI = Lower bound of the 95% confidence interval; +95%CI = Upper bound of the 95% confidence interval; *Q* = Value of chi-square distributed homogeneity statistic *Q*; Variance explained by S.E. = Percentage of observed variance explained by sampling error; † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 2
Results of Moderator Analyses^a

Outcome Measure	Subgroups	Z	k	N	Mean ES	-95%CI	+95%CI	Range of Effect Sizes	Q	Variance expl. by S.E.	Moderation Indicated
Task Complexity											
Cohesion	Low	0.45	10	637	-0.05	-0.13	0.03	-0.44; 0.31	25.88**	39.53 %	Yes
	High		3	166	-0.09	-0.24	0.07	-0.22; 0.36	2.51	100.00 %	No
Team Size											
Conflict	Small	2.30*	4	164	-0.04	-0.20	0.12	-0.31; 0.22	5.89	76.92 %	No
	Large		4	320	0.19**	0.07	0.30	0.13; 0.30	1.12	100.00 %	No
Cohesion	Small	1.41	5	307	-0.04	-0.16	0.07	-0.18; 0.36	5.79	85.50 %	No
	Large		5	308	-0.16**	-0.27	-0.04	-0.35; -0.01	2.40	100.00 %	No
Time											
Conflict	Up to 20 hours	1.05	4	237	0.05	-0.08	0.18	-0.24; 0.30	8.85*	43.59 %	Yes
	> 20 hours		6	414	0.14**	0.04	0.24	-0.31; 0.34	16.35**	36.59 %	Yes
Cohesion	Up to 20 hours	0.38	3	213	-0.03	-0.17	0.10	-0.35; 0.31	13.26**	22.67 %	Yes
	> 20 hours		10	621	-0.06	-0.14	0.02	-0.29; 0.13	9.33	100.00 %	No
Satisfaction	Up to 20 hours	0.77	4	237	0.12†	-0.01	0.25	-0.14; 0.41	10.42*	36.96 %	Yes
	> 20 hours		3	86	0.02	-0.20	0.25	-0.04; 0.22	0.46	100.00 %	No
Gender Diversity											
Conflict	Low	0.36	5	308	0.10†	-0.02	0.21	-0.24; 0.34	18.39**	28.33 %	No
	High		5	310	0.13*	0.01	0.24	-0.31; 0.30	6.63	81.91 %	No
Cohesion	Low	2.66**	7	384	0.04	-0.07	0.14	-0.29; 0.36	11.94†	58.25 %	Yes
	High		7	580	-0.13**	-0.21	-0.05	-0.44; 0.02	10.43	75.22 %	No
Satisfaction	Low	2.75***	3	120	0.31**	0.12	0.50	0.03; 0.41	0.07	100.00 %	No
	High		3	159	-0.02	-0.18	0.14	-0.04; 0.22	1.71	100.00 %	No

Notes. ^a Moderator analyses could not be conducted for all outcome categories as the number of studies providing the necessary information to test moderator hypotheses sometimes did not meet the minimum requirement of three effect sizes per subgroup; Z = Z value of critical ratio test for the comparison of subgroups; k = Number of effect sizes; N = Number of teams examined; Mean ES = Weighted mean effect size; -95%CI = Lower bound of the 95% confidence interval; +95%CI = Upper bound of the 95% confidence interval; Q = Value of chi-square distributed homogeneity statistic Q; Variance expl. by S.E. = Percentage of observed variance explained by sampling error; † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

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