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Multinational and Multicultural Distributed Teams

A Review and Future Agenda

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Teams that span multiple geographic, temporal, and cultural boundaries have become prevalent in many industries and sectors. Researchers from multiple disciplines have begun to examine these multinational, multicultural (MNMC) distributed teams. The purpose of this article is to provide a review and critique of existing research in this area. To this end, the authors examine the ways scholars have conceptualized culture in this research, discuss the role that distribution is found to play in these teams, and provide a research agenda. The authors argue that scholars should continue to complicate their views of culture and embrace nuanced views of distribution to reflect the complexities of MNMC distributed team characteristics and processes.

Keywords: *culture; distance; distributed teams; multicultural teams; multinational teams*

Distributed teamwork has become commonplace within and among organizations. Indeed, nearly two-thirds of U.S. employees have engaged in virtual work (Modalis Research Technologies, 2001), and according to the Gartner Group, an estimated 41 million workers around the globe will work virtually at least once a week by 2008 (Dempster, 2005). These individuals often work as part of a distributed team that consists of members from various cultural and national backgrounds. Although scholars have examined

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several aspects of distributed teams and the role of culture in teams, they are only just beginning to explore the role of distribution and culture together and their effects on team processes and outcomes.

The purpose of this article is twofold. First, we review the burgeoning literature on multinational multicultural (MNMC) distributed teams. Second, we advance an agenda for future scholarship in this area. In doing so, we argue that future research must broaden its conceptualization of culture, consider various complexities of these teams, and investigate how both culture and distribution influence team processes and outcomes. Drawing on research from communication, management, psychology, and other disciplines, we (a) note the prevalence of MNMC distributed teams across industries and sectors, (b) discuss how this literature is positioned within two debates in the teams literature—what constitutes culture and the role of distribution, (c) identify recurring themes that have emerged in this research to date, and (d) suggest some considerations for future scholarship in this area.

Prevalence of MNMC Distributed Teams

Multinational multicultural distributed teams have become a part of numerous organizations, from privately owned corporations to military settings. Even a cursory examination of private industry (e.g., Eastman Kodak; Tandem Services Company), military operations (e.g., standing joint forces headquarters, SJFHQ, model), nonprofit organizations (e.g., International Red Cross), and research teams (see Rasters, Vissers, & Dankbear, 2002) points to the prevalence of these teams. Indeed, according to Wright and Drewery (2006), diverse and distributed teams are becoming the norm for businesses and governments around the world because of the increased opportunities they provide. And, as Chudoba, Wynn, Lu, and Watson-Manheim (2005) point out, although team members may work “across major time zone differences, across internal business units, and across cultures” (p. 280), they can perform effectively.

Multinational multicultural distributed teams present opportunities and challenges to organizations. Boeing, for instance, uses a distributed multinational team composed of individuals from the United States, Japan, Europe, and Canada to develop new hardware for the International Space Station (Covault, 2006). Additionally, Hewlett-Packard (HP) uses these teams to meet the demands of local economies across the world (“No Borders,” 2005). As an HP executive states, “We are very dependent on working across the world. It’s our survival, the key to our success. We cannot be a U.S.-centric

organization....It's very common for us to have one project team made up of folks from all of our regions" ("No Borders," 2005, p. 37). By using MNMC distributed teams, these organizations believe they are able to better meet the needs of their consumers and enhance profit margins.

Although the ability to use a wider resource base may be an advantage of MNMC distributed teams, these teams can present some challenges. Although more than 60% of tasks at Global 2000 companies will eventually be accomplished by distributed teams (Biggs, 2000), Zakaria, Amelinckx, and Wilemon (2004) warn that "50 per cent of virtual teams would fail to meet either strategic or operational objectives due to the inability to manage the distributed workforce implementation risks" (p. 18). Also, the demands of working in a MNMC distributed team can be taxing to team members. As one professional explains in an article depicting her MNMC distributed team experiences, "There are delays in response and communication, and in such cases I might lose a day instead of a few hours....Communication and collaboration can take up a significant chunk of project time" (Kumar, 2006, p.25). Understanding how to maintain effective MNMC distributed teams that meet the needs of both the team members and organization presents a challenge to both practitioners and researchers.

Our interest in distribution and culture in team contexts is motivated not only by practical reasons such as the ones outlined above but also by theoretical ones. Indeed, scholars have considered distance and culture to be two boundaries that global organizations must cross (Cogburn & Levinson, 2003), two discontinuities that must be managed (Watson-Manheim, Chudoba, & Crowston, 2002), and two constraints that must be overcome (Yuan & Gay, 2006). Distance and culture are perceived as two aspects critical to team effectiveness in a global context and thus worthy of scholarly inquiry. We wondered if empirical research has found distance and culture to be detrimental to team processes and outcomes, and if so, under what circumstances. Are there circumstances under which these features might enhance team processes or might not be factors?

Parameters of This Review

Given their prevalence and projected rise in the future, we sought to assess the state of research on MNMC distributed teams. Specifically, we wanted to know what scholars have tended to focus on when examining MNMC distributed teams, how they have done so, and what they have found. Thus, we reviewed scholarly journal articles from multiple disciplines that examined both multiple cultures and distribution in team contexts.

In conducting our search, we quickly discovered that we would need to use several search terms to locate scholarly articles on MNMC distributed teams. The terms *distributed*, *virtual*, *dispersed*, and *geographical* were used to locate works on distributed teams, whereas searches on the terms *international*, *global*, *transnational*, *cross-cultural*, *geographical*, *multinational*, and *multicultural* enabled us to find articles related to the MNMC component. We then selected those articles that focused on both the distributed and cultural aspects of teams. Twenty-five articles were found. Of these, 12 reported results from quantitative studies; 8 involved qualitative analyses; 5 were theoretical or conceptual. Table 1 presents the works included in our review.

The articles reviewed vary in their use of terms to describe the cultural and distributed dimensions of the teams they investigated. As Table 1 shows, scholars used six different terms to refer to the cultural dimensions of these teams: transnational, multicultural, multinational, global, intercultural, and international. In addition, scholars have used three different terms to refer to the distributed elements of these teams: virtual, dispersed, and distributed.

This variation resulted in 14 combinations of terms used to describe these teams. The term *global virtual teams* was the most common (Chudoba et al., 2005; Harvey, Novicevic, & Garrison, 2005; Jarvenpaa & Leidner, 1999; Jarvenpaa, Knoll, & Leidner, 1998; Kayworth & Leidner, 2001-2002; Manzevski & Chudoba, 2000; Montoya-Weiss, Massey, & Song, 2001; Paul, Samarah, Seetharaman, & Mykty, 2005; Saunders, Van Slyke, & Vogel, 2004; Zakaria et al., 2004). Scholars also characterized their studies as investigating virtual intercultural teams (Grosse, 2002), geographically distributed teams (Hinds & Bailey, 2003; Hinds & Mortensen, 2005; Mortensen & Hinds, 2001), geographically dispersed teams (Cramton, 2001), virtual-transnational teams (Boudreau, Loch, Robey, & Straud, 1998), multicultural distributed teams (Vogel, et al., 2001), cross-cultural virtual teams (Oertig & Buegri, 2006), computer-mediated distributed teams (Yuan & Gay, 2006), cross-national teams (Cogburn & Levinson, 2003), global distributed teams (Baba, Gluesing, Ratner, & Wagner, 2004), virtual teaming environment (Chudoba et al., 2005), cross-cultural distributed teams (Sarker, 2005), virtual teams (Gibson & Gibbs, 2006; Maruping & Agarwal, 2004), and global teams (Janssens & Brett, 2006).

The articles reviewed are both conceptual and empirical in nature (see Table 1). In general, scholars advancing conceptual articles seem to have at least one of two goals: (a) to understand and articulate various elements of

(text continues on p. 395)

Table 1
Multinational Multicultural Distributed Teams Articles Reviewed and Their Characteristics

Authors	Year	Journal	Conceptual or Empirical		Method	Terminology	Culture/Diversity Defined
			Empirical	Conceptual			
Baba, Gluesing, Ratner, & Wagner	2004	<i>Journal of Organizational Behavior</i>	Empirical	Conceptual	Field study/qualitative	Geographically distributed teams	Cultural diversity can be represented by differences in backgrounds, norms, life philosophies, language, and social identity
Boudreau, Loch, Robey, & Straud	1998	<i>Academy of Management Executive</i>	Conceptual			Virtual transnational organization	No definition
Chudoba, Wynn, Lu, & Watson-Manheim	2005	<i>Information Systems Journal</i>	Empirical		Survey/field study	Virtual teaming environment	"Culture is a set of values shared by a group of people frequently used to distinguish one group from another." (p. 284)
Cogburn & Levinson	2003	<i>International Studies Perspectives</i>	Empirical		Case study	Cross-national teams	Culture is emphasized as "a history of experiences and concomitant expectations that shape their encounters" (p. 37)
Cramton	2001	<i>Organization Science</i>	Empirical		Qualitative	Geographically dispersed teams	No definition
Gibson & Gibbs	2006	<i>Administrative Science Quarterly</i>	Empirical		Qualitative/field study	Virtual teams	Culture is "broadly defined as characteristic ways of thinking, feeling, and behaving shared among members of an identifiable group" (Gibson & Gibbs, p. 460), and it exists in many forms, including organizational, functional, and national.

(continued)

Table 1 (continued)

Authors	Year	Journal	Conceptual or Empirical		Method	Terminology	Culture/Diversity Defined
			Empirical	Conceptual			
Grosse	2002	<i>Business Communication Quarterly</i>	Empirical	Conceptual	Qualitative	Global virtual teams	Diversity strengthens teams; team members should show respect for other cultures and languages.
Harvey, Novic, & Garrison	2005	<i>International Journal of Human Resource Management</i>	Conceptual			Geographically distributed teams	Cultural intelligence involves the individual capability to adapt effectively to new cultural contexts and/or to be able to effectively bridge issues and activities between two cultures.
Hinds & Mortensen	2005	<i>Organization Science</i>	Empirical		Field Study	Global virtual teams	Culture involves the degree of heterogeneity in a team.
Jarvenpaa & Leidner	1999	<i>Organization Science</i>	Empirical		Case study/ qualitative	Global virtual teams	Culture creates differences in communication and group behaviors; measures culture by individualism and/or collectivism.
Jarvenpaa, Knoll, & Leidner	1998	<i>Journal of Management Information Systems</i>	Empirical		Lab study	Global virtual teams	No definition
Kayworth & Leidner	2001-2002	<i>Journal of Management Information Systems</i>	Empirical		Lab study	Virtual teams	Culture not defined, but does state that cultural biases interfere with communication
Maruping & Agarwal	2004	<i>Journal of Applied Psychology</i>	Conceptual			Global virtual teams	No definition

Maznevski & Chudoba	2000	<i>Organization Science</i>	Empirical	Case study/ qualitative	Global virtual teams	“Culture is the set of deep-level values associated with societal effectiveness, shared by an identifiable group of people.” (p. 474) No definition
Montoya-Weiss, Massey, & Song	2001	<i>Academy of Management Journal</i>	Empirical	Field study	Geographically distributed teams	No definition
Mortensen & Hinds	2001	<i>International Journal of Conflict Management</i>	Empirical	Qualitative	Geographically distributed teams	Culture is looked at as the degree of team member heterogeneity
Oertig & Buegri	2006	<i>Team Performance Management</i>	Empirical	Lab study	Cross-cultural distributed teams	No definition
Paul, Samarah, Seetharaman, & Mykty	2005	<i>Journal of Management Information Systems</i>	Empirical		Global virtual teams	Diversity in team composition involves varying backgrounds, skills, unit affiliations, and cultural backgrounds; cultural orientation is measured by degree of individualism-collectivism.
Sarker	2005	<i>Journal of Computer-Mediated Communication</i>	Empirical	Field study	Cross-cultural distributed teams	Culture is examined in terms of the degree of individualism-collectivism.
Saunders, Van Slyke, & Vogel	2004	<i>Academy of Management Executive</i>	Conceptual		Global virtual teams	No definition

(continued)

Table 1 (continued)

Authors	Year	Journal	Conceptual or Empirical	Method	Terminology	Culture/Diversity Defined
Vogel, van Genuchten, Lou, Verveen, van Eskout, & Adams	2001	<i>IEEE Transactions on Professional Communication</i>	Empirical	Survey/qualitative	Multicultural distributed teams	Culture is viewed as "patterned ways of thinking, feeling, and reacting," which "suggests that both national and professional cultures come into play." (p. 114)
Walther	1996	<i>Human Communication Research</i>	Empirical	Lab study	International computer-mediated collaboration	No definition
Workman	2005	<i>Human Resource Development Quarterly</i>	Empirical	Lab study	Global virtual teams	Culture is viewed through Hofstede's (1980) dimensions.
Yuan & Gay	2006	<i>Journal of Computer-Mediated Communication</i>	Empirical	Field study	Computer-mediated distributed teams	Looks at cultural issues in terms of homophily
Zakaria, Amelincx, & Wilemon	2004	<i>Communication Creativity and Innovation Management</i>	Conceptual	Field study	Global virtual teams	Culture is examined at both the organizational and national level, and it affects the way "information and knowledge is conveyed and learned" (p. 17)

MNMC distributed teams to conduct future research (Maruping & Agarwal, 2004), or (b) to advance practical recommendations for managers or members of MNMC distributed teams (Harvey et al., 2005). The 20 empirical (data-driven) articles use a variety of theories and employ several methodological approaches. Hinds and Mortensen (2005), for instance, draw on the teams taxonomy of Marks, Mathieu, and Zaccaro (2001) and on social identity theory; Maznevski and Chudoba (2000) use adaptive structuration theory (DeSanctis & Poole, 1994); and Maruping and Agarwal (2004) use media synchronicity theory. These studies also showcase various methodological approaches including laboratory experiments, survey research, ethnohistory, in-depth interviews, and observation.

Our review reveals that scholars interested in MNMC distributed teams are just beginning to explore how distribution and culture together influence team processes and outcomes. In the following sections, we will present what research has focused on by analyzing (a) how culture is constructed and when it is viewed as consequential, (b) the role of distribution in these teams, and (c) recurring themes in existing empirical research. Doing so will point to some assumptions about culture and distribution in this body of research and to current debates emerging about the nature of MNMC distributed teams. We will conclude by presenting an agenda for future scholarship in this area.

What Constitutes Culture in MNMC Distributed Teams Research

Culture has been defined in numerous ways in academic research (Jenks, 1993; Stohl, 2001; Ting-Toomey, 1999). Indeed, one of the ongoing conversations among scholars in the teams literature and elsewhere involves how culture should be conceptualized and when it is salient and consequential (Brannen, 2003; Osland & Bird, 2000). An important part of this conversation involves the complex, multifaceted nature of culture (Erez & Gati, 2004). Chao and Moon's (2005) model of cultural mosaic points to these complexities. They suggest that a complex pattern of demographic, geographic, and associative facets make up an individual's cultural identity. This model demonstrates that culture not only encompasses broad national differences but also includes ethnic, racial, gender, and other demographic characteristics as well as collectives or groups with which an individual may associate.

The current work on MNMC distributed teams, however, often has focused on the geographical facet, conceiving of culture in terms of broad national differences. This tendency is of consequence for it equates culture and nationality and may neglect culture's multiplicities and dynamism. These works often use Hofstede's (1980) individualism or collectivism dimension to assess how cultural differences among individuals from different nation-states may affect team processes and outcomes. For instance, Sarker (2005) examined student teams that consisted of U.S. and Thai students and found that culture had a significant effect on knowledge transfer. Individuals from the individualistic culture were perceived as transferring more knowledge than those from the collectivist culture. Paul et al. (2005) also used Hofstede's individualism dimension to look at cultural orientation and found that collaborative style was influenced by cultural orientation. A collectivist orientation, they found, can help enhance collaboration. In doing so, they rely on a single dimension of cultural values.

Building on Hofstede's (1980) depiction of culture as the software of the mind, some scholars have pointed to the divergent logics of people from various nation-states. This depiction is evident in Baba et al.'s (2004) ethnohistory of global virtual teams. Notice how the focus is on *difference* when the authors discuss their findings: "French and American culturally grounded beliefs about business models and practices contradicted and rejected certain aspects of knowledge held by the 'other'" (p. 573). The conclusion is that globally distributed teams will be effective vehicles for knowledge sharing in an organization as long as individuals learn the cultural logic of others' divergent beliefs. If not, culture is constructed as something which divides individuals.

The utility of Hofstede's (1980) dimensions constitutes an ongoing conversation in teams cultural research. On the one hand, Hofstede's dimensions, particularly the individualism–collectivism dimension, are useful in understanding cross-cultural team processes. Sarker (2005) points to the utility of Hofstede's dimension and cites Triandis (1995) among others when she writes, "While culture has been studied in terms of a number of dimensions, there is growing acceptance of individualism...being the key dimension for understanding differences in attitudes, values, norms, and behaviors" (para. 19). Indeed, national culture has been presented as one factor that affects knowledge sharing (Simonin, 1999; Yoo & Torrey, 2002), the focus of Sarker's research. Paul et al. (2005) also argue in favor of using the individualism dimension for a distributed team context when they write, "In virtual teams, the individualism–collectivism dimension is an important

dimension of culture as it reflects the extent to which members are inclined toward teamwork and open to accommodating others' views" (p. 190). And, studies have shown that national culture is influential, for it can affect organizational culture and other issues related to teams (Lee & Barnett, 1997; Lindsley, 1999).

Yet other scholars have argued that the individualism–collectivism dimension does not account for the fluid and dynamic aspects of culture. Ancona (1987), for instance, contends that although team members may originate from certain nation-states, they themselves are influenced by the context in which they are engaged. Moreover, strict classifications, particularly at the national level, may not reflect the mobile nature of contemporary populations who relocate for professional, economic, and social reasons. Although Hofstede's dimensions may help to shed light on important differences among peoples from different nation-states, one questions whether researchers are able to access the subtleties of culture or its fluidity by relying solely on nationality as the indicator of culture.

A second indicator of this literature's focus on the nationality aspects of MNMC distributed teams is the nature of the team composition examined in these empirical studies. Kayworth and Leidner (2001-2002), for instance, examined 13 virtual teams with 5 to 7 members each from three universities in France (MBA program), Mexico (graduate program), and the United States (upper level business undergraduates). Even when no specific definitions of culture are given, the nature of the sample indicates that the researcher relies on nationality as an index of members' cultures and is interested in multiple cultures. Oertig and Buegri's (2006) study is a good example of this tendency. The scholars interviewed project leaders and managers at an organization with offices in Switzerland, the United States, and Japan. The nationalities represented in their sample included 3 Americans, 4 British, 4 Swiss, 3 German, 1 French, 1 French Canadian, and 1 Japanese.

In addition to national culture, scholars have focused on what Paul et al. (2005) call visible markers of culture or what Chao and Moon (2005) refer to as the demographic tile. When doing so, they have couched their work as exploring the heterogeneity (diversity) of a team's composition and the effects that heterogeneity may have on processes and outcomes. Yuan and Gay (2006), for example, examine race and ethnicity in terms of White and non-White students and collected data on students' race and sex to determine homophily. They found that homophily in gender and race had no significant impact on the development of either instrumental or expressive ties. And they conclude that "in distributed teams, socio-contextual homophily

exerted stronger influence than did demographic homophily on the formation of network ties” (p. 1077). In interpreting these findings, the authors argue that they present encouraging news, for team members felt comfortable reaching out to diverse individuals regardless of race or gender. Paul et al. (2005) also examine diversity in team composition, including varying backgrounds, skills, unit affiliations, and cultural backgrounds. They found that teams with greater diversity tended to have a more collaborative conflict management style, and had more in-depth discussions before making decisions to understand all of the diverse contributing perspectives.

The question underlying these works, although it is not always explicitly stated, is the following: When does culture matter? Some research on MNMC distributed teams has implied that culture is consequential with regard to certain processes and outcomes. For instance, cultural biases are argued to cause misinterpretations of messages, creating additional challenges for leadership (Kayworth & Leidner, 2002). These teams are found to be effective for knowledge sharing, but only if members understand the various logics of other nationalities’ beliefs (Baba et al., 2004). Culture also was found to have a significant effect on knowledge transfer (Sarker, 2005). Cultural differences, conceived of as varying ideologies and attitudes toward capitalism has been found to influence trust in these teams (Cogburn & Levinson, 2003). Having cross-cultural capital (having individuals on the team who are culturally intelligent) is argued to be an essential part of global virtual teams (Paul et al., 2005). Culture has been found, or argued, to relate to some team processes and outcomes.

Some empirical work questions that assumption; however, Jarvenpaa, et al. (1998) found that in situations where swift trust has developed, culture (defined as national culture) is less relevant to distributed team effectiveness. In addition, Yuan and Gay (2006) show that in the formation of network ties, sex and race did not matter as much as sociocontextual variables. And Maznevski and Chudoba (2000) imply that in situations where communication is patterned, the cultural diversity of team members may not be consequential. Thus, it seems scholars are beginning to ponder the salience of culture, at least as it relates to trust, context, and communication.

As the above paragraphs demonstrate, there appears to be a strong focus on nationality when investigating culture in this body of research, and several researchers rely on Hofstede’s dimensions. Scholars also examine team composition, often referred to as cultural heterogeneity. Some findings suggest that cultural differences matter, whereas other research suggests that they may not in teams that experience high trust or regular communication. Further research exploring these issues is needed.

The Role of Distance in MNMC Distributed Teams

The studies included in this review present mixed findings about whether distance is necessarily challenging to MNMC distributed teams' effectiveness. This variation resembles work on distributed teams and leadership (see Connaughton & Daly, 2005) and distributed teams and distance (see Kiesler & Cummings, 2002).

Similar to other scholarship on distributed work relationships, distance is often framed initially as a constraint, a factor that must be overcome. In particular, these articles construct distance as constraining to relationship formation (Jarvenpaa et al., 1998), team leadership (Kayworth & Leidner, 2001-2002), conflict management (Maruping & Agarwal, 2004), isolation (Maruping & Agarwal, 2004), social identity (Maruping & Agarwal, 2004), socialization processes (see Mortensen & Hinds, 2001), communication (see Cogburn & Levinson, 2003), trust (Jarvenpaa & Leidner, 1999), and knowledge sharing (Cramton, 2001).

Notably, some of these findings are at the level of perception, as in works finding that leaders of MNMC distributed teams perceive distance to challenge leadership, communication, and trust building (Oertig & Buegri, 2006). And it is important to note that often these works do not compare distributed team processes with those of collocated teams (see Hinds & Mortensen, 2005; Mortensen & Hinds, 2001, for exceptions). In essence, the argument presented in many of these articles is that distance necessarily complicates and challenges processes and outcomes of MNMC distributed teams. For example, Cogburn and Levinson (2003) address distribution in a learning environment as being potentially problematic because of issues of distance and time preventing continual communication. Zakaria and colleagues (2004) also see geographical and temporal distribution as a barrier that must be overcome for a knowledge sharing culture to be established. The assumption shared among these works seems to be that because these teams are distributed, they must necessarily be more challenging than collocated teams.

Yet some of the empirical work presents evidence that distance does not adversely affect MNMC team processes and outcomes. For one, distance itself is not found to be a factor that impairs virtual collaboration (Chudoba et al., 2005). Indeed, Chudoba et al. (2005) do not find a relationship between team distribution and performance—the latter of which includes mutual trust, effectiveness of communication, commitment and contributions of team members, and quality and punctuality of team products. Furthermore, shared identity, shared context, and spontaneous communication have been found to moderate the effects of distribution on both task and affective conflict (Hinds

& Mortensen, 2005). The Hinds and Mortensen (2005) study is noteworthy, for it represents one of the few empirical works that compares processes in collocated teams and in distributed teams.

Given these varied findings and viewpoints, it appears the role of distance still remains an empirical question whose answer may depend on which team processes and outcomes one is exploring and how distance is measured. This mirrors lingering debate in the distributed teams literature about whether distance is necessarily a challenge to team processes and outcomes. Some argue that distance matters, particularly in terms of leader-follower relationships. Kerr and Jerimer (1978), Bass (1990), and Napier and Ferris (1993) contend that physical distance makes it more challenging for leaders to engage in relational and task behaviors with followers and thus complicates the quality of the relationships leaders have with their distributed team members. Other scholars challenge this notion, arguing that distance does not necessarily cripple team processes (see Connaughton & Daly, 2005; Kirkman & Mathieu, 2005). As part of this discussion, scholars are beginning to question the extent to which face-to-face communication is necessary for distributed teams to function effectively and why (Alge, Wiethoff, & Klein, 2003; Rice, 1984; Zack, 1994). This debate about the effects of distribution is just one of the many unanswered issues facing scholars' understanding of MNMC distributed teams and one which must be considered further in future research.

In summary, distance is viewed as both a challenge and as a nonissue to MNMC distributed teams. Although some work continues to frame distribution as a constraint, some empirical findings suggest that distribution does not impair MNMC distributed team collaboration or performance. This variation points to the need for future research to clarify the role of distribution and its effects (or lack thereof) on team processes and outcomes. Moreover, it should be noted that generally, previous empirical research on MNMC distributed teams tends to treat distance as a discrete difference (i.e., the team is distributed or it is not distributed). Although few empirical studies explicitly frame distance as a step function, an implicit argument in several articles reviewed here is that greater distance places more constraints on teams.

Recurring Themes in Existing MNMC Distributed Teams Research

Scholars interested in MNMC distributed teams have examined several topics, including: cognitive processes, communication technologies, group dynamics, homophily, human resource capital, identity, innovation, knowledge

transfer, leadership, time, and trust (see Table 1). In this section, we examine how scholars have examined some of these topics and summarize key findings. Because of page limitations, we limited our discussion to topics that were investigated in three or more of the scholarly works in our sample. Those topics that received frequent attention are communication, conflict, and temporality.

Communication

This research has been concerned with pointing to communicative behaviors that are deemed effective in MNMC teams. Two behaviors emerge somewhat consistently in this research: frequent communication and face-to-face communication.

Frequent communication. Several of these works suggest that communication frequency is a necessary ingredient in MNMC distributed team effectiveness. For instance, frequent informal and unplanned communication has been shown to be related to shared identity and shared context (Hinds & Mortensen, 2005). Frequent spontaneous communication has a direct moderating effect on the conflict-distribution relationship, mitigating the effect of distribution on both interpersonal and task conflict (Hinds & Mortensen, 2005). Also, frequent interaction is related to the medium used (e-mail, phone) and complexity of the message (Manzevski & Chudoba, 2000). Finally, frequent bursts of interaction are linked to high trust in these teams (Jarvenpaa et al., 1998).

Face-to-face communication. A second communication behavior often highlighted in these articles is face-to-face communication. Some articles privilege face-to-face communication as necessary for MNMC distributed team effectiveness. Face to face is found to be beneficial to reducing task conflict (Mortensen & Hinds, 2001), fostering trust (Oertig & Buegri, 2006), and enhancing team dynamics (Vogel et al., 2001). The latter study notes differences in preferences for face-to-face communication among nationalities, suggesting that the Dutch perceived lack of face-to-face interaction as more of a challenge to team processes than the Hong Kong students.

Face-to-face communication is tied to team effectiveness. Nine months of observation, 3 months of informal conversations with team members, and 9 months of additional conversations led Manzevski and Chudoba (2000) to argue that, even though these team members often work apart, effective global virtual teams create a "deep rhythm of face-to-face communication"

(p. 473). Face-to-face communication is prescribed as a behavior that will enhance MNMC team effectiveness (Grosse, 2002) and is perceived as critical early on in a team's development (Oertig & Buegri, 2006). These scholars all contend that face-to-face communication is a necessary aspect of MNMC distributed team communication.

As with the findings about the role of distance in MNMC distributed teams, the role of face-to-face communication is questioned in the distributed team and organizational literatures. Walther (1996), for instance, found that geographically dispersed and culturally diverse partners who relied completely on computer-mediated communication without ever meeting face to face communicated more affection and reported higher levels of intimacy than did individuals who were collocated. These findings complement other findings in team research. Zack (1994), for example, found that initial face-to-face interactions enhance team processes but that as time goes on, and team members become more familiar with one another, mediated communication does not hinder team processes. Moreover, Alge et al. (2003) found that teams with an established history are able to use electronic means of communicating just as effectively as face to face.

Although communication frequency and face-to-face communication are aspects of communication, they alone do not reflect the complexities of communication. Indeed, communication processes and content also need to be examined in future studies. It may be that when the nature of team members' communication is consistently negative and demeaning, recipient members will be less satisfied even when interactions are frequent. In the MNMC distributed teams literature, some scholars have begun to examine communication as process and content (e.g., communication incidents; Manzevski & Chudoba, 2000), communication patterns, and communication content (Montoya-Weiss et al., 2001). Gibson and Gibbs (2006), for instance, find that a psychologically safe communication climate can help minimize the effects of distribution and national diversity in MNMC distributed teams.

Conflict

Conflict has been conceived of as something that must be managed in these teams. Montoya-Weiss et al. (2001) investigate the moderating role of a temporal coordination mechanism, a structure guiding processes including "the pattern, timing and content of communication in a group" (p. 1252), on the relationship between conflict management behavior and virtual team performance. They found that: (a) the way virtual team members manage conflict is crucial in their success (conceived of as team

performance), and (b) temporal coordination has some significant moderating effects on team performance. They examine conflict in terms of specific conflict management behaviors, including avoidance, accommodation, competition, collaboration, and compromise.

Distribution has not been found to influence task or affective conflict in these teams. Hinds and Mortensen (2005) examine conflict, its antecedents, and its effects on performance. The authors differentiate between interpersonal conflict and task conflict and they propose that distribution contributes to conflict and that the effect is moderated by shared identity and shared context (an informational factor). Distance was found not to be a factor. They conclude that over time, distributed team members must have become more harmonious as team members developed shared familiarity and shared processes.

Temporality

These articles note relationships between temporality and MNMC distributed teams in two ways: (a) stages or phases in MNMC distributed team development and (b) time as culture bound. Some works point to stages or phases of MNMC distributed team development. Several scholars depict team development processes as occurring over time. The MNMC distributed teams are characterized as having a temporal rhythm (Manzevski & Chudoba, 2000) or a natural history (Baba et al., 2004). Jarvenpaa et al. (1998) hypothesized and found that earlier in a team's development, trust is better predicted by perceptions of integrity than by benevolent actions, but that later on, benevolence will have the stronger effect. Montoya-Weiss et al. (2001) found that temporal coordination has some significant moderating effects on team performance.

Other researchers, such as Saunders et al. (2004), define time as culture bound; that is, time is defined differently depending on cultural background. Saunders et al. connect time and interaction when they suggest that what constitutes time for an individual is dependent on that individual's interactions with society and is refined by organizations in which he or she works.

MNMC Distributed Teams: A Future Research Agenda

As this review reveals, MNMC distributed teams have several features. For one, they involve various types of dispersion beyond temporal and

spatial dispersion. Indeed, as Hinds and Mortensen (2005) point out, distributed teams are geographically distributed in that they are separated by (great) physical distance (different cities, different countries). The presumption is that geographic distribution constitutes both structural and psychological distribution. Team members are physically separated from other team members (structural distribution), and they may experience feelings of isolation and imbalance created by this physical separation (psychological distribution). And, as will be discussed momentarily, this dispersion may occur in varying degrees.

Second, similar to other distributed teams, MNMC distributed teams may be permanent or temporary. In much of the current research, scholars conceive of these teams as temporary (Jarvenpaa & Leidner, 1999; Oakley, 1998; Townsend, DeMarie, & Hendrickson, 1998). Indeed, many are, and scholars who study student teams will surely be examining teams that are temporary in nature. But as organizations continue to become comfortable with dispersed work arrangements, these sorts of teams may become permanent as confidence grows in them. As Zakaria et al. (2004) project, global teams will become a vital and everyday occurrence in the workplace as steady, ongoing structures.

Third, although members of MNMC distributed teams often communicate via technological means, they may not communicate exclusively in this manner. Indeed, as many of the articles reviewed indicate, some teams may choose to meet face to face, deeming it necessary for team effectiveness.

The fourth characteristic distinguishes these teams from other distributed teams. That is, they are made up of members who self-define as being (or are considered to be) from two or more national (nation-states), ethnic, and/or cultural backgrounds. In presenting this feature, we adopt a broad view of culture, and we note that culture is a multilayered construct. We include various markers of culture including nation-state and citizenship (place of birth), national culture, ethnicity, language(s) spoke fluently, and religion or faith. We also incorporate organizational and team culture in our conceptualization, although, as will be discussed momentarily, research has not yet systematically examined these aspects of culture in the context of distributed teams. Thus, when conceptualizing what is meant by a MNMC distributed team, we note two layers of complexity: (a) multinational and multicultural and (b) distribution.

The potential influences that culture and distribution together may have on team processes and outcomes make MNMC distributed teams ripe for further investigation. Few researchers have examined or theorized about their combined effects. Scholars must continue to explore the complexities

of both distribution and culture, and in so doing, must continue to broaden how culture and distribution are examined.

Adopt Multi-Faceted, Multi-Level Views of Culture

First, future researchers should expand their conceptualization of culture to include not only multiple nationalities and demographics but also multiple team and organizational cultures. In describing the boundaries that distributed teams cross, Martins, Gilson, and Maynard (2004) note that in addition to locational and temporal boundaries, distributed teams also cross relational boundaries. This boundary considers "the differences in relational networks of VT [virtual team] members, that is, their affiliations with other teams, departments, organizations, and cultural sub-groups" (p. 808). The authors suggest that in cases where virtual teams overlap multiple relational networks, members have to work through different frames of reference, motivations, knowledge domains, and work styles.

Contemporary military operations provide a good example of this. The SJFHQ model is essentially a way to organize interactions among nations and military branches so that they can function effectively together. The current SJFHQ model is a collection of both distributed and multinational individuals from a variety of backgrounds who must work together effectively (Peck, 2005). These headquarters consist of officers from every branch of the military (e.g., Army, Navy, Air Force, Marine Corps), as well as civilians with specialized skills (Goodwin & Halpin, 2006). When these individuals form distributed teams, they bring with them norms and expectations from their military branches. Thus, they are operating not only in different locations from each other but also with potentially varied organizational norms. And, although the coordination among military branches with their own unit cultures may be challenging enough, doing so becomes even more difficult with the introduction of branches from different nations. A U.S. army officer, for instance, may be supervised by a British naval officer or by a civilian. As Goodwin and Halpin (2006) note, these organizations are also often partially distributed, in which the headquarters may actually consist of multiple, distributed locations that contain numerous individuals.

In distributed teams, not only does a team culture emerge, but also multiple cultures and subcultures may develop or be pre-existing. Workman (2005) notes that although subcultures are often recognized as a part of the larger organizational culture, they also occur at the team level, and are just as likely to affect team processes and outcomes. For example, according to

Goodwin and Halpin (2006), there is resistance to the development of a single culture in SJFHQ, as both military and national cultures are pre-existing. This can particularly be recognized through the organizational culture issues; army officers often have more difficulty working with naval or air force officers than with individuals from different countries because of the strong organizational cultures ingrained in their training and development. Sagie and Aycan (2003) also found in their study of cross-cultural organizations that subcultures emerged based on nationality and influenced participative decision making.

Subcultures need not only develop based on shared national culture. Individuals may also form subcultures based on their dispersion: Members who are collocated may form their own norms and cultures from their interactions together. Although these subgroups have their own individual cultural characteristics, this still adds to the larger, team-level culture of the entire MNMC distributed team; though the added dynamics may cause a culture much different from that of a typical face-to-face team. Whereas evidence in group development research and in cross-cultural research points to the development of multiple cultures and subcultures in teams, their influence on distributed team dynamics and outcomes is still to be determined.

Furthermore, future researchers should explore the *multi* in multinational, multicultural distributed teams. Some studies have done so by examining teams whose members represent multiple nationalities. We encourage scholars to study not only multiple national cultures, but other multiplicities of culture as well, such as multiple team cultures and multiple organizational cultures. In other words, future researchers must continue to examine culture in ways that acknowledge its complexities and multidimensionality.

Acknowledge the Complexities of Distribution

Second, future researchers should consider the complexities of distribution. Future research must take into account the variation in distribution. This can be accomplished by considering distribution to lie on various continua as opposed to thinking of distribution in terms of dichotomies (e.g., considering a team to be either distributed or collocated). Based on previous research on distributed teams, we recommend that scholars consider the following continua in future research.

Degree of virtuality. Virtuality (space, time, modality) is a matter of degree, and teams may be considered highly virtual or less virtual (Gibson & Gibbs, 2006). A team's degree of virtuality relates to the richness of the

communication media typically used by members to accomplish tasks (Cohen & Gibson, 2003; Townsend et al., 1998) and the extent to which team members are separated by time and space. A highly virtual team, for example, may communicate using only chat rooms, listservs, or instant messenger; contrarily, a less virtual team is likely to meet face to face once in awhile and use richer media (see Daft & Lengel, 1986) such as video-conferencing or teleconferencing to communicate otherwise. Additionally, a highly virtual team may have members located around the globe, whereas a less virtual team may have members located in the same building.

Degree of distribution. Another type of variation among distributed teams concerns whether the team is partially or fully distributed. Partially distributed teams occur when some team members are distributed across various locations, whereas other team members are collocated. Very little empirical research, if any, exists on the study of partially distributed teams.

History of the team. As in any team, prior knowledge about team members or experience working with a particular group of individuals can affect team dynamics. Klimoski and Mohammed (1994) argue that teams with a history have a better developed collective mind, which may increase their ability to share and communicate knowledge. Team members with a full or partial knowledge of the habits, abilities, and behaviors of one another should be at a different level of development than teams without this prior history. Of particular interest is whether or not this team history occurs in a face-to-face setting prior to distribution. Although this is of great importance in MNMC distributed teams, no empirical work has been conducted on this latter point to date.

Degree of (im)permanence. The relative permanence of the team has also been argued to be a feature of distributed teams (Mowshowitz, 1997; Oakley, 1998; Townsend et al., 1998). Jarvenpaa and Leidner (1999) are among these scholars as well and note that virtual teams can be temporary work forms, where "members have never worked together before, and who may not expect to work together again as a group" (p. 792). As organizations continue to become comfortable with MNMC distributed teams, however, and as global conditions dictate their necessity, permanent teams of this nature may become more common (Zakaria et al., 2004).

Degree of task complexity. The implications of task complexity are discussed in Bell and Kozlowski's (2002) typology of virtual teams. Essentially,

more complex tasks require higher levels of interdependence within a team, which can have an effect of many of these team processes, depending on where the team lies on other continua.

When Are Culture and Distribution Consequential to Teams?

Third, future research must look at how a multifaceted view of culture and these complexities of distribution relate to each other in influencing team processes and outcomes. For example, in combining the complexities of distribution (partially vs. fully distributed) with the complexities of culture, one may wonder if a team that is partially distributed may be challenged (or enhanced) by the subcultures that may arise as a result of different locations. Other questions must be addressed as well. How do national culture and cocultures (Orbe, 1996) influence MNMC distributed teams? How do distribution and culture influence the ways in which team decisions are made (Oetzel, 1998)? What communication processes enable MNMC distributed teams? Are distributed team members with more experience in culturally heterogeneous environments more likely to share knowledge and be open to new experiences than their less-experienced counterparts? How would this affect team outcomes? In partially distributed teams, what are the effects of the leader's collocation with a subgroup of team subordinates on team culture? Do leaders establish a stronger team culture and stronger relationships with collocated team members than with distributed team members? Research questions in this spirit, which combine the complexities of distribution and culture, should be pursued in future research.

In reviewing the existing literature on MNMC distributed teams, our purpose has been to note what scholars have found thus far, what recurring themes have emerged, and what has yet to be explored. In doing so, some interesting themes emerged. Culture is often explored in terms of nationality, race, and sex. And like other teams and organizational scholars, researchers interested in MNMC distributed teams present conflicting views about the role of distribution in team processes and outcomes. We contend that scholars must continue to move beyond unidimensional views of culture and beyond static, dichotomous views of distribution to reflect the complexities of MNMC distributed team characteristics and processes. Future researchers also must continue to question when culture and distribution matter. Both culture and distribution are increasingly features of contemporary teams, not unlike task interdependence and other features.

Thus, determining when culture and distribution are more salient and why that salience matters to team processes and outcomes is necessary for future theorizing.

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