

Working Together Apart? Building a Knowledge-Sharing Culture for Global Virtual Teams

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A new impetus for greater knowledge-sharing among team members needs to be emphasized due to the emergence of a significant new form of working known as 'global virtual teams'. As information and communication technologies permeate every aspect of organizational life and impact the way teams communicate, work and structure relationships, global virtual teams require innovative communication and learning capabilities for different team members to effectively work together across cultural, organizational and geographical boundaries. Whereas information technology-facilitated communication processes rely on technologically advanced systems to succeed, the ability to create a knowledge-sharing culture within a global virtual team rests on the existence (and maintenance) of intra-team respect, mutual trust, reciprocity and positive individual and group relationships. Thus, some of the inherent questions we address in our paper are: (1) what are the cross-cultural challenges faced by global virtual teams?; (2) how do organizations develop a knowledge sharing culture to promote effective organizational learning among culturally-diverse team members? and; (3) what are some of the practices that can help maximize the performance of global virtual teams? We conclude by examining ways that global virtual teams can be more effectively managed in order to reach their potential in this new interconnected world and put forward suggestions for further research.

Introduction

The rise of global virtual teams is a phenomenon of globalization. At the same time, new information and communication technologies play an ever-increasing role in all aspects of global business relations, but are particularly important in the emergence of new global organizational work structures and virtual work environments. Information and communication technologies have been viewed as an indispensable tool for multinational corporations that choose to move beyond the geographic constraints of face-to-face employee interactions and endeavour to build a virtual workplace and/or use virtual teams as a new component of a generally traditional work structure. Whereas information and communication technologies are essential in the communication and knowledge-sharing processes for geographically dispersed employees, computer-facilitated communication

technologies are only as effective as those using them. Even though information and communication technologies impact knowledge sharing, team coherence and performance, it is the human component in the virtual environment and the interactive relational bonds that facilitate or hinder the development of a shared knowledge culture and organizational learning.

In a virtual computer-mediated communication environment, global virtual teams rely on information and communication technology usage to facilitate knowledge exchange, transfer and sharing. Nonetheless, creating a knowledge-based environment requires more than information and communication technology; it requires other crucial elements such as intra-team trust and intra-team relational bonds, leadership, intercultural communication competence, and cross-cultural training that foster a collaborative interactive permissive space (albeit a virtual one) where global

virtual team members are actively encouraged to engage in a regular and frequent reciprocal cross-cultural exchange of ideas and the creation of new team-created solutions. Hinds and Weisband (2003) advances the idea of developing a shared understanding in virtual teams through similar perspectives and background, and shared experiences. The concept of shared understanding is defined as 'a collective way of organizing relevant knowledge' (Hinds and Weisband, 2003, p. 21), which can influence the ability of teams to co-ordinate work and perform well.

Knowledge management is often seen as a process by which information is captured, organized, stored, retrieved and transmitted. Knowledge, thus described, is nearly a tangible passive fixed unit that is unrelated to the social and human locale from which it arose (Thomas, Kellogg & Erickson, 2001). Knowledge is shaped, evaluated, discarded or embraced by humans who do so based, among other things, upon their social and cultural assumptions. A rank ordering of knowledge (from most to least important) occurs after such knowledge is filtered through cultural lenses, whether we are aware of such filters or not. Factual knowledge may not be as objective as we might assume and the transmission of such knowledge, both in the process by which it is conveyed, as well as the information itself, cannot be deemed culture-free.

Additionally, global virtual teams' creative and problem-solving capabilities emerge from their culturally mediated knowledge structure and shared knowledge base. Although research has focused on how the lack of physical presence as well as the cross-cultural nature of such a team provides many challenges as mentioned above, yet, what has not been explored is that the knowledge that is generated is itself culturally constructed, defined and constrained by the global virtual team members. Hence, we propose that new patterns of communication and social exchange can emerge in a computer-mediated team environment that influences this cultural learning process. Likewise, the quality and depth of intra-team member relationships impacts the creation and maintenance of a shared knowledge base.

This paper examines the following issues: (1) what are the cross-cultural challenges faced by global virtual teams?; (2) how do organizations develop a knowledge sharing culture to promote effective organizational learning among culturally-diverse team members? and; (3) what are some of the practices that can help maximize the performance of global virtual teams? In doing so, we will consider how global virtual teams can be more effectively

managed in order to reach their potential in this new interconnected world, and base our conclusions on carefully considered observations of literature, theory and practice.

What and Why Global Virtual Teams?

How do we conceptualize 'global virtual teams?' First, let us examine the term 'virtual teams.' According to Cohen and Gibson (2003), the conception of virtual team often induces a problematic use. Apparently people casually use the term by applying it to a wide variety of social and organizational phenomena, which can be correctly, described either as a virtual new product development team or an engineering web-based learning network. Yet, we need to look deeper. We need to be able to identify and differentiate similar types of team such as global teams, transnational teams or multicultural teams. Cohen and Gibson suggest three main attributes for virtual teams – (1) it is a functioning team – interdependent in task management, having shared responsibility for outcomes, and collectively managing relationships across organizational boundaries, that (2) team members are geographically dispersed, and (3) they rely on technology-mediated communications rather than face-to-face interaction to accomplish tasks. In essence, team members are not collocated and definitely use technology-mediated communication such as information and communication technologies.

It is imperative, however, to consider that using technology does not merely render a team as a virtual team because collocated teams frequently rely on technological support. What is more paramount is the degree of reliance on electronic communication that increases the 'virtuality', as virtual teams have no option as to whether or not to use it, since they depend on virtuality. Virtual teams have no historical work background, and seldom meet face-to-face; in fact, team members may not even have the opportunity to do so.

How about global teams? According to Wheatley and Wilemon (1999), global teams are defined as a team that is comprised of individuals located in many different countries or geographic areas, and team members differ in their functionality, which adds complexity to group dynamics. The main idea behind this concept is that people are both geographically dispersed and functionally diverse. Conversely, traditional teams are people that work collaboratively but usually are located in one location and may or may not be functionally

different. In global virtual teams, the barriers can be larger because of national differences. Teams of people from Malaysia, Canada, the USA, Britain, Germany, Japan, and France are more socially, culturally and linguistically complex than teams of people from New York, Nebraska, Massachusetts and California.

In our paper, we use the term 'global virtual teams', which adds a more intricate phenomenon, but not a strangely different concept from both the meaning of virtual and global teams. Here, not only team members differ in the degree of virtuality, but also in terms of their national and cultural backgrounds. As such, a virtual team is considered global when backgrounds are culturally diverse, and members are able to think and work with the diversity of the global environment (DeSanctis & Poole, 1997; Jackson, Aiken, Vanjani & Hasan, 1995). Concisely, global virtual teams are not only separated by time and space, but differ in national, cultural and linguistic attributes, and use information and communication technologies as their primary means of communication and work structure. In short, global virtual teams most distinctive feature lies in the context, defined as 'a way of life and work in a specific geographical area with its own set of business conditions, cultural assumptions, and unique history' (Gluesing et al., 2003).

Why global virtual teams? Lipnack and Stamps (1997) considered virtual teams as a new form of 'working together apart'. Global virtual teams are becoming the prevalent form of work for many multinational corporations. As reported by the Gartner Group survey (Biggs, 2000), it was estimated that 60 per cent of the professional and management tasks at Global 2000 companies would be done via virtual teams by 2004. On the other spectrum, it was also reported 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. Hence, global virtual teams require innovative communication and learning capabilities among different team members across organizational and geographical boundaries. As a result, the intra-team social interactions and work processes cannot be compared to conventional team structures or treated as such by team managers. We need to see them as unique entities to better understand the processes of creating and maintaining effective virtual teams.

The potential advantages of global virtual teams are that they can create culturally synergistic solutions, enhance creativity and cohesiveness among team members, promote a greater acceptance of new ideas and, hence,

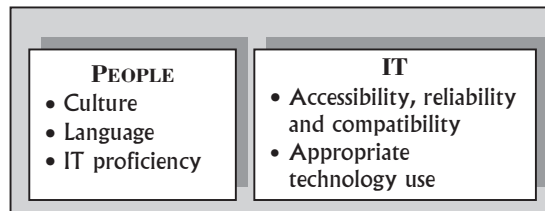


Figure 1. Key Issues in Implementing Global Virtual Teams

Source: Dube and Pare, 2001.

provide a competitive advantage for multinational companies. Though global virtual team diversity offers potential richness, it also presents major challenges. In fact, findings from Dube and Pare (2001) suggest that global virtual teams face more challenges than localized virtual teams. The possible disadvantages are that they tend to have more time-consuming decision-making processes and when miscommunication and misunderstandings occur, stress and conflicts among team members are heightened and less easily dispelled. Dube and Pare provide two key issues (illustrated in Figure 1) to implement global virtual teams. We will provide a detail discussion centered on both key issues in the following sections.

Culture and Knowledge-Sharing Base

Management practitioners have often undervalued the profound influence of culture on knowledge conceptualization and transfer. Knowledge sharing is often facilitated by communication that involves the exchange of meaning. The process of communicating is dynamic, multifaceted and complex. Cultural conditioning affects the evaluation of experience as well as the means by which information and knowledge is conveyed and learned. Another salient concern is that the transmission of information does not necessarily ensure learning. Typically we view the transmission of information from sender to receiver as a one-way process where the active participant is the sender while the receiver remains an inactive recipient. When miscommunication occurs, particularly in a cross-cultural setting, it is due to the sender's inability and/or refusal to shape the information in a culturally appropriate and understandable form for the receiver. However, in reality, the sender and receiver should be seen as both active participants engaged in knowledge

transfer and culturally mediated discourse. The ability to communicate effectively in a cross-cultural setting resides in the abilities of all participants to successfully decode and encode messages so that they are understood within the others' cultural contexts.

The ability to learn is often facilitated by transmitting information via multiple dimensions (visual cues, voice modulations, oral and written means using examples, metaphors and in certain contexts, allegorical storytelling). In cross-cultural settings, however, the use of the above communication techniques may not resonate with those who do not share the same culture cues. In addition, many of the above dimensions are unavailable to those working in a virtual environment. Moreover, in computer-mediated environments, the means by which information is transferred is flattened, less dynamic and thus may become less salient, possibly less easy to grasp, retain and learn. Qureshi and Zigurs (2001) suggest that the greater the degree of virtualization, the more people need to manage the relationships, share knowledge and expertise, and co-ordinate joint activities in completely new ways. In addition, those working in virtual team settings need to enrich their computer-facilitated communication processes through the use of multiple communication channels, media and feedback mechanisms.

An understanding of how national as well as organizational culture influence team dynamics is crucial to developing a successful knowledge-sharing base and culture for global virtual teams. The following discussions provide some issues facing these two cultural influences.

National Cultural Effects on Global Virtual Teams Intra-team Dynamics

Individuals from different cultures vary in terms of their group behaviours and communications styles (Gudykunst, 1997). Edward Hall's contextual theory (1976) posits that in order to understand the communication and behavioural priorities of those from a particular culture, one must understand the context in which they occur. Certain cultures can be seen as 'high context' relying heavily upon the external environment for behavioural cues where people value subtle and indirect communication styles, while other cultures could be perceived as 'low context' where the communication put less emphasis on non-verbal or behavioural cues, hence communication tends to be more direct, with an avoidance of ambiguity.

Global virtual team members from a high context culture (Hall, 1976) may be less direct in their communication styles and use more formality in initial contact as the relational environment is unclear. On the other hand, those from low-context cultures may be direct, less formal and perceived as discourteous from high-context group members. Incidents of intra-group conflict may lessen in frequency and degree when there is a clear understanding among group members of their own and each other's cultural antecedents, particularly those that could exacerbate disagreement and misunderstanding.

Hofstede's four cultural dimensions framework (1980) (power distance, uncertainty avoidance, individualism versus collectivism, and career success versus quality of life (originally labeled masculinity versus femininity) inform both global virtual team dynamics and can provide useful insight into how a shared knowledge culture can be constructed.

Global virtual team members whose cultures value collectivism may appreciate working within a team setting and emphasize relationship building but may experience feelings of isolation since team members are geographically separated and may work without frequent group input. For those from cultures that place a high value on individual effort, members from collectivist cultures may seem overly needy and demanding; conversely, individualist colleagues may be perceived as cold and not true team players by collectivist members.

One synergistic solution is to create a collaborative interactive virtual space (such as a chat room) where team members are actively encouraged to engage in a regular and frequent reciprocal cross-cultural exchange of ideas. This may help to overcome feelings of isolation experienced by collectivist team members and provide a framework for constructive dialogue that fosters relationship building/maintenance in individualist task-oriented members.

Another concern is that members from cultures that rank low on uncertainty avoidance may feel anxious working within a new, unfamiliar, technologically challenging virtual environment unless clear procedures and rules are established and implemented from the onset. Such rules, however, could result in a backlash from those who rank low on uncertainty avoidance, as they might be perceived as stifling creativity. Again, the use of regular frequent reciprocal sharing between colleagues may lessen anxiety by fostering consistent stable communication channels that are predictable and reliable.

Organizational Culture Effects on Global Virtual Teams

Apart from national culture, organizational culture has a strong affect on management systems. Organizational culture is embedded in the national cultures in which an organization operates. Although both cultures play different roles, each influences the way things operate in multinational corporations. Thus, both factors need to be considered, especially in the context of global virtual teams using information and communication technologies. One must recognize the complexity, range and distinctiveness of corporate cultures. By definition, organizational or corporate culture includes the values and beliefs expressed in artefacts, symbols and practices as well as organizational language, traditions, myths, rituals, and stories. As Schein (1999) views it, 'it is the way we do things around here. In essence, corporate culture is the learned, shared, and tacit assumptions such as values, beliefs, and assumptions' (1999, p. 48). Hence, organizational impact varies greatly on information and communication technology usage by global teams – it may act as a barrier or restraint to information and communications technology usage or provide the necessary support in regards to technology, infrastructure and organizational culture, to actively foster it.

During the team formation period, team members should become both aware and accepting of cultural difference and develop trusting intra-team relationships based on collaboratively negotiated communication protocols. While the establishment of trust-based intra-team relations can foster dialogue, debate, knowledge-sharing and group-mediated solutions, it can also lead to disagreements. How virtual teams manage internal conflict is a crucial factor to their success (Montoya-Weiss, Massey & Song, 2001). The possibility of the global virtual teams creating and sustaining a knowledge-sharing culture will be jeopardized if initial conflict situations are not constructively resolved to membership satisfaction. Organizational management, team leader(s), and members should work on developing consensus-building processes that are responsive to diverse conflict situations and negotiable to change.

Information and Communication Technology as a Facilitating Tool for Knowledge Sharing

Technology is simply a tool that needs human operations. No matter how sophisticated the

technology can be, the implementation of technology has the potential to fail if insufficient considerations are given from the user perspectives. In information and communication technology-mediated environments where geographically dispersed and culturally diverse members electronically converse in English, the language used by members may further obscure intended meaning and hamper knowledge management when members assume that terms and slang in one English-language culture have identical meanings in another English language environment. It is interesting to note, however, that one recent study found that English language usage may modulate individualist/collectivist tendencies in certain group situations and indicated that language played a significant role in individuals' cultural orientations (Ayyash-Abdo, 2001).

Another area of potential conflict in information technology-mediated communication is the language itself. For global virtual teams whose team language is English, studies have observed and confirmed that native and non-native English speakers exhibit culture-based differences in discourse preferences and formats (Ulijn et al., 2000). Individual team members need to be cognizant of English language variation in intra-team electronic communication, particularly in regards to tone, style, formality, salutations and closings, and aware that substantial sociolinguistic and grammatical variations exist within the global English-speaking community and will impact intra-team communications. Yet English language variance within the English-language global business community has generally been downplayed and its implications for virtual teams, unexamined (Bloch & Starks, 1999). English language competency as an unvarying uniform entity does not and cannot exist, as the English language, now a global business language, has become more diverse and less standardized.

Team members' cultural differences in work emphasis, deadline adherence, project management style all need to be made transparent to the team and a synergistic team approach to each concern be mediated and agreed upon early in the team formation process. If such cultural differences are not clearly understood, information and communication technology usage could promote an escalation of conflict rather than promote a shared-knowledge culture and learning environment.

The degree of technological sophistication among global virtual team members may not be an accurate predictor of its effectiveness. Duarte and Snyder (1999) emphasized that

technology is only one of the critical factors for virtual teams' success. Moreover, virtual teams and their leaders seldom claim technology as a primary reason for success or failure (Nunamaker et al., 1997). As Potter and Balthazard observed, '[t]he effects of communication technology and its usage may be quite secondary to those that result from how the virtual group or team interacts' (Potter & Balthazard, 2002, p. 2). For example, Morris, Marshall & Rainier (2002) found that while user satisfaction and trust were positively related to a virtual team's job satisfaction, system use did not play a significant role.

While information technology-facilitated communication processes rely on technologically advanced systems to succeed, the ability to create a knowledge-sharing culture within a global virtual team rests on the existence (and maintenance) of intra-team respect, mutual trust, reciprocity and positive individual and group relationships. Emphasis on the human and social components of global virtual teams does not simultaneously minimize the central role of technology in the process. The use of electronic communication technology has the capacity to reduce or overcome certain cultural challenges within global teams as information and communication technologies facilitate intra-team interaction by introducing a shared framework and virtual work setting. In that light, the role of information and communication technologies is regarded as a *functional* tool that facilitates the cross-cultural collaboration and communication. Information and communication technologies can provide a common medium for work and shared meaning.

Human Challenges of Virtual Team Membership

Understanding human challenges of virtual team membership in order to create a knowledge-sharing culture and capabilities provide numerous key implications for multinational corporations. What needs to be clearly emphasized and articulated here is the fact that teamwork is a culturally and linguistically bounded concept. Teamwork conceptualizations vary across cultures and organizations and how teams are perceived will differ based on the organizational and national cultural attributes of its members (Gibson & Zellmer-Bruhn, 2001). In global virtual teams, all members will not share the same perceptions. Members from different cultures will, in all probability, describe a team's objectives, membership criteria and activities in very different terms. Hence, in global virtual teams, one

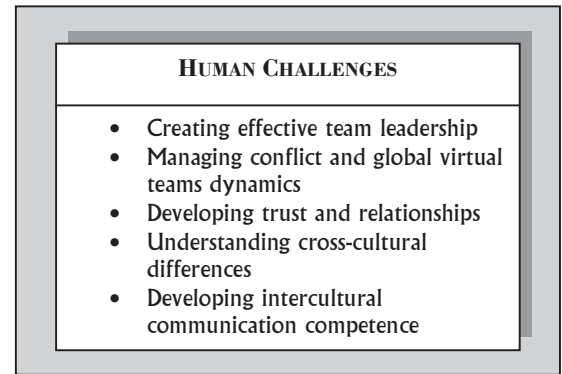


Figure 2. Human Challenges in Implementing Global Virtual Teams

must assume that different members will have different understandings of the concept of teamwork (Gibson & Zellmer-Bruhn, 2001). The following sub-sections summarized in Figure 2 highlight the key challenges facing multinational organizations that increasingly employ global virtual teams.

Creating Effective Team Leadership

As mentioned above, a synergistic team approach to cultural difference needs to be mediated and agreed upon early in the team formation process (Adler, 2002). However, a synergistic team-management approach does not create itself but must be actively developed and maintained by team leadership in agreement with team members, and such leadership must be designated and also addressed at the formation stage. Whether a global virtual team has one or more team leaders – such role differentiation must exist.

Recent research on teamwork across cultures has found cross-cultural variance in defining and understanding team membership and team leader roles (Pillai & Meindl, 1998), team goal-setting (Earley & Erez, 1987), and social loafing and conflict (Earley, 1994; Montoya-Weiss, Massey & Song, 2001). Given that there will be an initial divergence in teamwork conceptualization among group members, the manager should provide active leadership in explicitly creating a shared conceptualization of team meaning, focus and function rather than assuming an implicit mutual understanding of the term.

To begin this discussion, we must first ask, 'what is leadership?'. Cultures vary in their understandings of and their expectations for authority roles. In designating a leader or leaders, it is important for both the organization and the team to understand that the meaning of 'leadership' depends on national

and organizational cultural orientations and will differ for individual team members based on their cultural background.

Ascertaining effective modes of leadership for the global team involves having a firm understanding of the cultural preconceptions of *effective leadership* for each member since leader prototypes are culturally-determined and followers tend to use these implicit prototypes when evaluating leadership behaviour. In determining an effective leadership style or styles for a culturally diverse team, one might consider the various ways that leaders can influence followers: a directive mode of influence (ranging from directive to participatory), a transactional mode of influence (rewards) or transformational influence.

Cross-cultural research on leadership emphasizes that different cultural groups generally have different leadership constructs and expectations (House et al., 2002). For instance, in a collectivist culture like Malaysia where social harmony and hierarchical differences are valued, effective leadership is expected to be autocratic yet compassionate rather than participatory (Kennedy, 2002). Similarly, Turkish culture has been described as being high on the collectivism and power distance value dimensions and Turkish organizations are distinguished by centralized decision-making, strong directive leadership and limited delegation (Pasa, 2000; Ronen, 1986). Team members from individualist cultures that place a higher priority on individual initiative and achievement tend to be more motivated by transactional leadership styles, motivated through contingent reward-based exchanges while team members from collectivist cultures tend to be more responsive to directive leadership and have a stronger attachment to their organization, subordinate individual goals to group goals and be concerned with maintaining group unity. However, while different culture groups tend to have preferred leadership style expectations, certain attributes of transformation leadership may be universally endorsed (Den Hartog et al., 1999), in that collectivists and individualists may both respond favourably to transformational leaders who motivate followers' higher performance levels by inspiring subordinates, are considerate of individual and group developmental needs and lead the organization towards a higher collective purpose or vision.

Team leaders play a crucial role in effective global virtual team management and in creating a knowledge-sharing environment. The leader(s) co-ordinate activities/tasks, motivate team members, monitor and/or facilitate collaboration and address/resolve

conflict. Team leadership must involve effective cross-cultural communication and understanding, ensure that there is a collective sense of belonging, and that team values, task assignment and plans are shared. Team leaders need to build intra-team participation, ensure that all ideas are heard, and monitor participation rates.

Managing Conflict and Global Virtual Team Dynamics

In information and communication technologies-mediated environments, addressing conflict situations and even detecting the existence of conflict, is not always straightforward. For example, in one hand, *avoidance behaviour* may indicate conflict in certain cultures. On the other hand, *confrontational behaviour* can lead to conflict in other cultures. Global virtual teams need to anticipate potential areas of conflict in the formation stage and develop norms/rules around conflict resolution. While all cultures have strategies to prevent or minimize conflict situations, the ways that societies perceive and address conflict reflect profound cultural difference.

Team members from low-context cultures are more apt to separate issues from people, while those members from high-context cultures are less likely to separate people from issues and take personal affront to disagreement (perceived as conflict). The consequence for the global virtual team is that members from low-context cultures are more apt to perceive disagreements as an integral part of knowledge sharing – not only acceptable but a positive attribute that encourages creative discourse while those high-context members could perceive open disagreement and confrontation as highly insulting, and causing both parties to lose face.

Conflict or dispute resolution varies than between cultures since conflict is at a very basic level viewed very differently based on the cultural context. Cultural difference may also impact the resolution process with team members from low-context cultures responding in a direct, confrontational way and expecting quick resolution. On the contrary, high-context members may respond to conflict in an evasive and non-confrontational manner, leading to an indirect, inactive approach to resolution. Global virtual teams need to be aware of such differences and create protocols that effectively respond conflict or pre-conflict situations. Unacknowledged conflict, particularly in information and communication technology-mediated work environments where non-response is not necessarily seen as an indication of conflict has the capacity to

diminish intra-team trust and negatively impact team cohesion.

Developing Trust and Relationships

For global virtual teams, being both heterogeneous cultural entities and geographically dispersed virtual entities, the risk of potential misunderstandings and mistrust is heightened. Certain researchers contend that trust is facilitated, even for virtual teams, by initial face-to-face interactions (Maznevski & Chudoba, 2000). While face-to-face interactions have the capacity to facilitate trust when people relate well to each other and 'click', it may not further trust or team grounding when individual members do not have a shared or common understanding of each other and/or of the nature of the team itself. As Roberts observed, '[t]he development of trust, whether on a local or international basis, requires more than face-to-face contact or its technological and spatially indifferent substitute video-conferencing ellipses [T]rust depends on the sharing of a set of socially embedded values, cultural institutions and expectations' (Roberts, 2000, p. 6).

In order for global virtual teams to be effective, intra-group trust must exist (Jarvenpaa & Leidner, 1998). However, initial relationship building between global or cross-cultural members face more challenges, as does the establishment of intra-team trust. Jarvenpaa, Knoll, and Leidner (1998) posit that virtual teams have no time to gradually develop trust and therefore require a high degree of 'swift trust' to be demonstrated by enthusiastic and proactive team members' behaviours. Lipnack and Stamps (1997) contend that '[I]n the networks and virtual teams of the information age, trust is a "need to have" quality in productive relationships' (Lipnack & Stamps, 1997, p. 225). Trust between group members as well as trust between the team and the organization is equally important. The ability to collaborate depends heavily upon trust as open reciprocity and sharing of information and knowledge will not freely occur without it (Scott, 2000).

Global virtual team members are often brought together to work on a common task with specialized skills and competencies. Members essentially work virtually with little or no face-to-face contact and focus on a finite lifespan or a temporal basis. This implies a limited history of working together as well as less potential of working together in the future. As such, swift trust needs to be imported, rather than developed. According to Meyerson, Weick and Kramer (1996), swift trust is a form of trust that is created in tem-

porary system, a system that demonstrates behaviour that presupposes trust. Hence, 'sources of trust like familiarity, shared experience, reciprocal disclosure, threats and deterrents, fulfilled promises, and demonstrations of non-exploitation of vulnerability – are not obvious in such system' (Meyerson, Weick & Kramer, 1996, p. 167).

Under extreme job deadline constraints, trust is formed without any relationship building. Thus, how do cross-cultural members form swift trust? Jarvenpaa and Leidner (1998) suggested that the virtual members would then import the expectations of trust from other settings that they are familiar with. In such a case, stereotypical impressions of others are formed based on the initial use of category driven information processing. It is important to note, however, that this technique may be problematic for a culturally-diverse virtual team, if individual team members' cultural stereotypes are flawed, biased or incomplete. Once communication is developed between members, trust could be maintained by actions that are highly dynamic, proactive, and enthusiastic. Again, such active communication must be premised on accurate cultural knowledge to be effective. Therefore, swift trust is made possible because when teams work in a temporal and virtual environment, they bring their competence and expertise to meet the goals set.

According to Johnson and Cullen (2002), the formation of cross-cultural trust includes a reciprocal element in it and falls under two behavioural categories. First, *credibility* where one party (focal) believes that the other party (referent) has capabilities, competence, expertise and resources to make a successful exchange that meets outcome expectations. Focal also believes that referent will act in a reliable and predictable manner to meet the expectations. All these behaviours certainly have a cultural root to it – a work expectation of a person in culture A is different from expectations of a person in culture B. This is where the challenge of importing the swift trust exists in global virtual teams with cross-cultural differences.

The second category is *benevolence* – beliefs about the emotional aspects of the referent's behaviour like positive intention to exchange (McAllister, 1995). Such beliefs include a referent's good will and that the referent will not jeopardize the exchange outcome, and will in fact support enhanced outcomes in the exchange. This will also result in some challenges because swift trust is less focused on interpersonal relationships, but places greater stress on initial broad social structures, rather than action. Therefore for swift trust to be

imported successfully, team members need to maintain the high level of actions, regardless of their cultural preferences or differences. As suggested by Kirkman et al. 'levels of trust based on performance compensate for lack of social interaction' (2002, p. 70).

Understanding Cross-Cultural Differences

Information and communication technologies-mediated virtual work environments can foster interdependence between less and more powerful team members and promote equality of participation (Strauss, 1997), reduce organizational hierarchy (Kock, 2000), and generally enhance member participation in virtual meetings compared to face-to-face meetings (Bikson, 1996; Sheffield & Gallupe, 1994; Slater & Anderson, 1994; Williams & Wilson, 1997). Global virtual teams that exclusively use information and communication technologies exclude social or physical presence and rely on a depersonalized form of communication between team members (Ketrow, 1999). Intuitively, one may argue that this hinders the creation of a knowledge-sharing culture, yet over time, the exclusion of social and physical presence can foster positive intra-team coalitions and strengthen working relationships that would be less likely to thrive in a more traditional team framework.

The absence of non-verbal cues may pose certain initial difficulties for some whose culture relies on body language, gestures, facial expressions and proximity (Farmer & Hyatt, 1994). For example, in high-context cultures, people in general value subtle and indirect speech when communicating. Visual cues such as a nod, smile, posture, voice and eye contact provide important indications and meanings to establish certain understanding of what is communicated by another person. Without these cues, it may be initially difficult for people to carry out tasks as complex as making decisions to as basic as communicating. 'Low social presence generally is unsatisfying and leaves people in some situations, such as those involving conflict, unable to resolve differences effectively or meet their goals' (Ketrow, 1999, p. 272).

From another perspective, the challenge for high-context people is the difficulty in establishing trust and relationships with the diverse team members because they do not have sufficient verbal cues. As Rosa and Mazur (1979) concluded; 'when a group is composed of strangers, they very quickly make use of whatever limited status cues are immediately at hand, even such subtle signs as eye contact and speaking order'. Thus the impact of

information and communication technologies can be exacerbated by the lack of both elements. For global team members from cultures that value directness and informality, information and communication technology usage can promote dialogue since it already fits within their own cultural framework. The absence of physical cues may actually promote understanding when intra-team trust has developed, as they will not be faced with potentially confusing dissonant cultural signals from culturally-diverse team members.

Developing Intercultural Communication Competence

Before a global virtual team ever exists, steps have been taken by the organization to create it, team members have been tentatively chosen (usually based on their professional and technical competencies), and provisional team task/project assignments made. What may or may not have been considered at any early point in the process is whether individual team members have had any prior experience working across borders (virtually or otherwise), whether members have any cross-cultural competency, or whether selected members are even *willing* to gain such competency. Such oversights may lead to serious problems later on after the team has organized and begins to work on its assigned project. *Who* is selected for the team may be as important as *what* technical expertise they bring to the group. This issue gains greater importance and consequence the greater the cultural difference between members. In selecting team members, consideration should include determining whether an individual has the characteristics to work cross-culturally and/or indicates a willingness to gain such skills, since one needs high personal motivation to communicate effectively in a cross-cultural setting, find commonalities and establish a common reality – despite cultural differences.

As a result, global virtual team group members need to possess both appropriate information technology and intercultural communication competence in order to be effective (Zakaria, 2000). Hence, it is crucial for global virtual teams to inculcate global communication skills that enable them to collaborate, address conflict, sustain intra-team relations and create an effective knowledge-sharing culture. Although communication is not the only factor that influences collaboration, it is seen as a prerequisite for effective team collaboration (Schrage, 1990). The preparation of global team members, individually and collectively, to effectively communicate

cross-culturally is a prerequisite to successful collaboration and is as important as the team's technological competency and skill. As Gudykunst and Ting Toomey (1988) alleged, when one has an ability to interact across different cultural contexts and become aware of one's own and other cultural conditioning, one is known as having the intercultural communication competence.

Additionally, to gain this competency a global team, individually and collectively, must develop a global mindset. Having a global mindset means global teams are open-minded, embed appropriate behaviours, and are sensitive to the divergences they encounter during the communication and collaboration processes; it is the foundation for creating and sustaining a knowledge-sharing culture.

Thus, cross-cultural training for global virtual team members, individually and as a group, is critical. This training helps people recognize, adapt and adjust to culturally diverse work environments and develop a global mindset. In regards to global teams, cross-cultural training also addresses and educates members about the cultural differences that they face through electronic communication and how to overcome barriers to knowledge sharing. Training should make clear to the team that cross-cultural communication (electronic or otherwise) does not require a total transformation of behaviour to suit cultural differences but does demand an ability to work within a culturally diverse framework.

Although using information and communication technologies can reduce certain cross-cultural barriers, team members need cross-cultural training to gain the desired cognitive, affective and behavioural competencies (Chen & Starosta, 2000). These competencies respectively mean that people need to understand and recognize cultural differences; feel comfortable with various cultures; and thus act accordingly to suit cultural differences. Furthermore, Wiseman and Koester (1993) conceptualized this competence as culture-specific understanding of other, culture-general understanding, and positive regard of other.

Lessons Learned

In essence, the questions of how managers can help with the establishment and maintenance of virtual teams and how they can facilitate the virtual team process need to be adequately addressed. As noted, building a knowledge-sharing community remains more challenging for global virtual teams than face-to-face

teams due in part to the nature of intra-team relationships, which are often viewed by members as more task-focused rather than relational, particularly outside the work environment. Informal environments where there is a spontaneous sharing of non-work information remains less common and more stilted. As Thomas, Kellogg and Erickson (2001) observe, expressive communication is an important support to instrumental communication and also enhances human capital. Unlike face-to-face work environments where non-work information is shared and informal relationship-building occurs naturally, spontaneous expressive communication is less common in computer-mediated environments.

Successful global virtual teams develop their own dynamics and shared culture and more actively focus on relationship building and trust establishment (Maznevski & Chudoba, 2000). Face-to-face meetings between members at the global virtual team formation process may foster stronger relationships between group members that are geographically dispersed. Understanding how information and communication technology usage impacts virtual teams' social context and performance remains critical. One recent study that compared conventional team and virtual team performance found that on all outcome measures, virtual teams were not as successful as face-to-face teams (Potter & Balthazard, 2002). Similarly, Gallupe et al. (1994) showed that without anonymity, parallel input and brainstorming memory input, electronic groups performed more poorly than non-electronic groups.

Despite the ease of communication with information and communication technologies, studies have shown that teams that wholly rely on virtual communication, replacing all face-to-face communication, report less satisfaction with group interaction (Warekentin, Sayeed, & Hightower, 1997). Research on both virtual teams and global teams indicates that team members face very different challenges from their counterparts in traditional teams. They are more likely to experience information overload, social isolation and uneven power distributions – domination of certain group members over others – within the team (Rogers & Albritton, 1995). Seemingly, this last observation challenges the notion that information and communication technology usage actually diminishes reliance upon organizational hierarchy and levels power-distance relations between members.

However, it may indicate that the authority of traditional roles and power relations diminish but that power dynamics between

members of virtual teams continue to exist and influence group structure. How intra-group power dynamics develop and how they impact team cohesion, knowledge-sharing capabilities/motivations and work effectiveness may depend on whether the team member or members exerting control are recognized by the team as in a legitimate leadership position within the team.

At times, the emergence of leaders is ambiguous in the electronic communication setting when formal leadership roles have not been specifically designated. In certain global virtual team situations, leaders can be team members or more frequently, tend to be managers outside of the global team. As noted earlier, leaders need to be open to change, expressively supportive of the global team, capable of fostering a shared learning environment and most of all encourage team members to actively engage in a knowledge-sharing culture. Leaders are facilitators, as well as intermediaries in the event people face difficulties in sending and receiving the intended messages across the borders. Since information and communication technologies eliminate the verbal and social cues that are prerequisite to certain cultures, leaders must help team members build and maintain trust, ease the transition process, select and use appropriate electronic communication and collaboration technologies, and coach and manage performance without the traditional forms of feedback (Duarte & Snyder, 1999).

As a summary for practical suggestions, Table 1 highlights the need for numerous knowledge, skills and abilities in order for global virtual teams to work effectively in a virtual environment as emphasized by Blackburn, Furst and Rosen (2003).

Implications and Conclusions

Information and communication technologies are not just simple tools, they need to be integrated and aligned with team design, behaviour and the processes of collaboration and communication. Notwithstanding, it is more often than not the human component in the virtual environment and the interactive relational bonds that facilitate or hinder the development of a shared knowledge base and organizational learning. Similarly, the quality and depth of intra-team member relationships also impacts the creation and maintenance of a shared knowledge base.

Group collaboration is a complex matter, with or without electronic technology and the diverse nature of global teams accentuates the issue of cultural difference. Global virtual

teams must be committed to developing new patterns of knowledge sharing, communication and social exchange in a computer-mediated team environment. Creating effective global teams is a daunting task for any organization, particularly when such teams inherently tend to have more time-consuming decision-making processes and when miscommunication and misunderstandings occur, stress and conflicts among team members are heightened and less easily dispelled.

New patterns of communication and social exchange can, however, emerge in a computer-mediated team environment and can influence the global virtual team learning process in positive ways. As we have previously noted, the potential advantages of global teams are that they can create culturally synergistic solutions, enhance creativity and cohesiveness among team members, promote a greater acceptance of new ideas and, hence, provide a competitive advantage for the multinational corporations.

As we look to the future of global virtual team-usage in international organizational structures, we predict a greater reliance upon and utilization of global virtual teams. While global virtual teams are often formed now to meet specific short-term project-based needs and are primarily seen as temporary work units that can be disbanded if ineffective, such perceptions of global virtual work teams have begun to change as virtual team-usage has expanded. In the near future, global virtual teams may become ongoing structures rather than short-term project-specific entities and as such, will become an integral and common component of the global work environment. When global virtual teams begin to be viewed as more permanent organizational units, organizational commitment to their success should deepen, increasing both resource allocation and positively impacting their information communication technology-mediated shared knowledge environment.

Future Research Directions

While research is clearly accelerating on global virtual teams, more research is needed as organizations are increasingly using this new organizational approach to accomplish important tasks. Based on our review of the literature and our work reported in this paper, we suggest several areas that can benefit from additional research. First, more research is needed on how, if at all, team members from different cultures benefit from 'feelings of inclusion' and team membership. Do team members from different cultures experience

Table 1. *Building a Winning Virtual Team: Types of Knowledge, Skills and Abilities (KSAs)*

At individual level	Description	At team level	Description
1. Self management	<ul style="list-style-type: none"> • Become one's own coach and leader. • Set personal agendas. • Motivated to take appropriate action. • Behave proactively and manage themselves. 	1. Establish team's goals	<ul style="list-style-type: none"> • Clearly establish goals and define team's roles. • Preliminary face-to-face meeting & series of team-building exercises. • Reach consensus around goals and roles.
2. Communication	<ul style="list-style-type: none"> • Select appropriate transmission medium. • Learn to interpret the signals sent by team members. • Clarify misunderstanding by overcoming language and cultural barriers. 	2. Establish team's norms	<ul style="list-style-type: none"> • Develop a code of conduct and a set of norms. • Use specific modes of communication and acceptable response times. • Document archiving in shared space. • Establish task priorities.
3. Cultural sensitivity & awareness	<ul style="list-style-type: none"> • Cognitively understand the myriad differences. • Perceptively aware of the team members' cultural values, and patterns. • Ability to identify and recognize potential cultural conflicts. 	3. Team problem solving & conflict management	<ul style="list-style-type: none"> • Ability to solve complex problems by bargaining, and negotiating. • Develop creative mechanism by combining computer technology and videoconferencing. • Develop early warning systems to alert potential conflict.
4. Trust	<ul style="list-style-type: none"> • Develop trust based on perceived similarities, responsiveness and dependability. • Understand worthiness is assessed based on behaviours and not merely good intentions. 	4. Team learning	<ul style="list-style-type: none"> • Learn from each other. • Build on each other's work. • Create a safe, secure team environment. • Encourage easy collaboration. • Create a 'community of practice'.
5. Comfort with technology	<ul style="list-style-type: none"> • Competent and confident to use information and communication technologies. • Openness to learn new technologies. • Changed mindset for use of technology to collaborate in new ways. 	5. Balancing relationship & task team	<ul style="list-style-type: none"> • Take opportunities to build social ties. • Share learning experiences. • Get together and reconnect in space as much as possible.

Source: Blackburn, Furst and Rosen, 2003.

these constructs differently? If so, how important are inclusion and membership in facilitating effective team performance? Can information and communication technologies facilitate the process of achieving a sense of belonging?

Second, while we have examined the issue of trust in this paper, we posit that trust and its consequences remains a fruitful area for further inquiry. For example, what role, if any, can information and communication technologies play in facilitating the development of trust? How important is trust within a global virtual team? What hinders the development of trusting relationships within global virtual teams? What alternative methods can be used to accelerate the development of trust among virtual team members? What are the connections, if any, between trust levels within global virtual teams and team performance? How can trusting relationships be developed with key stakeholders of global virtual teams?

Third, we recommend that future research be undertaken on global virtual team leadership. One area where new research initiatives might be fruitful is focusing on how global virtual team leaders (and team members) exercise power and influence within a virtual teamwork environment. For example, are some powers and influence sources more helpful than others in leading a global virtual team? How do team members from different cultures respond to the exercise of interpersonal power and influence?

Our fourth recommended area of inquiry entails research on how conflicts and disagreements are handled in global virtual teams. We posit that this research domain could have many useful benefits – particularly in terms of guidelines on how to manage highly complex global projects administered in a virtual mode. In a similar vein, we know far too little about the process of negotiations within and between global virtual teams and their major stakeholders/sponsors.

Finally, we suggest that additional research is needed on how to assess the performance of global virtual teams. We recommend that global virtual team task issues as well as team satisfaction measures be comprehensively identified and examined.

Global virtual teams present an exciting area for future research. There are many unanswered questions regarding the management of global virtual team. We believe that research that focuses on the problems and challenges encountered in these special teams will help these teams achieve higher performance levels and will result in more satisfying experiences for those who participate in them.

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