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Cultural Diversity, Conflict and Team Facilitation in Global Virtual Teams – a research model

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ABSTRACT

Virtual teams are work groups linked together via computer and communication technologies. Since virtual teams are often spread over geographic and organizational boundaries, team diversity makes them susceptible to greater levels of conflict than face-to-face teams. This paper proposes a research model to understand the influence of cultural diversity on conflict in virtual teams, which in turn impacts team performance. While diversity of the team may augment the task-related conflict in virtual teams, anonymous interaction and low level of social presence inherent to group support systems (GSS) based meetings, may help reduce levels of affective conflict. Besides the low richness of the communication medium, other factors that affect intra-group conflict and/or group performance are temporal separation of the team members and the process and content facilitation mechanisms employed in the teamwork. We propose moderating effects of these factors and present a detailed theoretical model of intragroup conflict in GSS based virtual teams. Implications of the study, for team managers in particular and organizations in general are indicated. The limitations and possible extensions of the model are also discussed.

Keywords

Virtual Teams, Cultural Diversity, Conflict, Facilitation, Group Support Systems.

INTRODUCTION

Virtual teams are work groups whose members are spread over geographic and/or organizational boundaries but are linked together via computer and communication technologies (Duarte and Snyder, 1999). These teams interact, either in a synchronous or asynchronous mode. In synchronous teams, members collaborate in real-time, whereas in asynchronous teams, members perform their assigned tasks at different times, at their own pace, and according to their own time limitations. Given today’s fast-paced globalization of commercial activity, multinational and transnational organizations are increasingly relying on virtual teams to perform organizational tasks. However, the use of virtual teams poses many challenges. Virtual teams cut across organizational, national, and functional boundaries, thereby increasing group heterogeneity and temporal separation, which may result in or aggravate intra-group conflicts in the teams. Furthermore, virtual team members communicate using groupware technologies, which are usually lean on certain communication cues (such as voice inflection, body gestures) and have less personal focus than face-to-face (FTF) interactions. As a result, the equivocality about the task and outcome that may be inherent in heterogeneous teams may be further aggravated by the groupware-based interactions in virtual teams. Conflict management is, thus, an important aspect of groupware supported virtual teams. Poorly managed conflicts may degrade team performance and make team members dissatisfied with task process and outcome. This paper attempts to identify sources of conflicts in groupware supported virtual teams and highlight the effect of facilitation on conflict and team performance.

Although prior research has looked into various aspects of virtual teams, very few studies (with the exception of the work by Mortensen and Hinds 2001) have focused specifically on sources and consequences of conflicts in these teams. The research model proposed in this paper attempts to address this lacuna by focusing on the following research questions:

- What is the impact of cultural diversity of team members and the richness of the media used by the team, on intragroup conflicts?
- What is the impact of intragroup conflict on virtual team performance?
- How does temporal separation of team members affect the intragroup conflict and team performance?
- How does facilitation impact intragroup conflict and team performance?
This paper thus presents a theoretical model that explains how cultural diversity, temporal separation, media richness, and facilitation are related to intragroup conflict and team performance.

THEORETICAL MODEL

Absence of a comprehensive theory combining group diversity, media richness, temporal separation, intragroup conflict, group facilitation, and performance of groupware-based virtual teams necessitates the review of related literature which is briefly discussed in the sections below. Based on the brief review of literature we develop some propositions. The overall research model is shown in figure 1.

![Figure 1. The Research Model](image)

Groupware Supported Virtual Teams and Conflicts

A virtual team is a culturally diverse, geographically dispersed and electronically communicating work group that is formed to accomplish an organizational task (Powell, Piccoli and Ives, 2004; Townsend, DeMarie and Hendrickson, 1998). Virtual teams are more complex than traditional face-to-face teams primarily because they cut across time, distance, and organization; and they collaborate using information and communication technology (Duarte and Snyder, 1999). Research on virtual teams has addressed various important issues, such as trust among team members (Jarvenpaa, Knoll and Leidner, 1998); communication and collaboration in virtual teams (Jarvenpaa and Leidner, 1998; Maznevski and Chudoba, 2000); conflict management styles of the teams (Montoya-Weiss, Massey and Song, 2001); strategies to overcome “time-space” divide (Sarker and Sahay, 2002); effective leadership in virtual teams (Kayworth and Leidner, 2001-2002). While some studies have explored conflict management styles (Montoya-Weiss et al., 2001; Miranda and Bostrom, 1993-94; Paul, Seetharaman, Samarah and Mykytyn, 2004), with the exception of the research by Mortensen and Hinds (2001), no major study has focused on intragroup conflicts in virtual teams.

Conflict in face-to-face teams has been categorized into cognitive conflict and affective conflict (Jehn, 1995). While cognitive conflict is task-oriented and arises from differences in judgment, affective conflict refers to personalized disagreement or individual disaffection. Affective conflict is detrimental to group performance while moderate amounts of task conflict can be beneficial (Jehn, 1995). Mortensen and Hinds (2001) argue that levels of affective and task conflict will be higher in computer-mediated groups as information exchange is “less complete” in a technology-mediated communication than in FTF interaction. Few authors (Miranda and Bostrom, 1993-94; Paul et al., 2004) argue that affective conflict will be less prominent in a virtual team that uses group support systems (GSS). A GSS tool enables anonymous interaction among team members. The team members are less likely to develop major personalized disagreement or individual disaffection in anonymous group interactions. However, as virtual team members come from diverse cultural, organizational, and functional
backgrounds, the possibility of having differences in views about execution of the task can not be ruled out. Members of such diverse backgrounds may differ in their cognition, values, beliefs, and orientation in addition to having variations in their approach to problem solving and decision making (Hambrick, Davison, Snell and Snow, 1998; Pelled, Eisenhardt and Xin, 1999). Hence:

Proposition 1: In groupware supported virtual teams, task conflict will be more prominent than affective conflict.

A major source of task conflict in virtual teams is the group diversity which is discussed next.

**Group Diversity and Intragroup Conflict:**

Diversity in groups may arise from differences in ethnic background, age, or gender, education or functional background (Milliken and Martins, 1996). In addition, in virtual teams, diversity may arise from differences in national culture and organizational culture of the team members. ‘Culture’ is “the collective programming of the mind which distinguishes one group or category (nation) from another” (Hofstede, 1980, p. 89). Hofstede (1993) identified five bipolar dimensions of national culture which are:

- Power Distance: Degree of inequality among people that is considered as normal
- Uncertainty Avoidance: Degree to which people prefer structured over unstructured situations
- Individualism: Degree to which people prefer to act as individuals rather than as members of groups
- Masculinity: Degree to which tough values prevail over tender values
- Long-term Orientation: Degree to which people’s efforts are focused toward the future rather than present

Besides having differences in national cultures, members of virtual teams may also belong to different organizational cultures. Schein (1992, p. 12) defined organizational culture as, “A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.” Various dimensions of organizational culture have been discussed in the literature, such as process vs. results orientation, employee vs. job orientation, parochial vs. professional, open vs. closed system, loose vs. tight control, and normative vs. pragmatic (Hofstede, Neuijen, Ohayv and Sanders., 1990); sociability (the friendliness in relationships between people in an organization) and solidarity (dedication to an organization’s goals) (Hoffman and Klepper, 2000).

Variations across national and organizational cultures of virtual team members give rise to four different types of diversity (as shown in Figure 2). Degree of diversity is maximum when a virtual team includes members from different organizations and nations (type 4) while diversity is minimum when both members belong to same organization and have same national culture (type 1). Type 2 and 3 (i.e. either organizational culture or national culture is different but not both are different) can be categorized under moderate level of group diversity.

<table>
<thead>
<tr>
<th>National Culture</th>
<th>Organizational Culture</th>
<th>Same</th>
<th>Different</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same</td>
<td>Type 1</td>
<td>(Low Diversity)</td>
<td>Type 2</td>
</tr>
<tr>
<td>(Low Diversity)</td>
<td></td>
<td></td>
<td>(Moderate Diversity)</td>
</tr>
<tr>
<td>Different</td>
<td>Type 3</td>
<td>(Moderate Diversity)</td>
<td>Type 4</td>
</tr>
<tr>
<td>(Moderate Diversity)</td>
<td></td>
<td></td>
<td>(High Diversity)</td>
</tr>
</tbody>
</table>

**Figure 2. Cultural Diversity in Virtual Teams**

Prior studies predominantly focused on impact of group diversity on group performance (Cox, Lobel and McLeod, 1991; Earley, 1989; Earley and Mosakowski, 2000; Watson, Kumar and Michaelson, 1993). Although some studies did assess impact of group diversity on conflicts in teams (Pelled, 1996, Pelled et al., 1999), very few studies focused on this relationship in the context of virtual teams. Mortensen and Hinds (2001) and Hinds and Mortensen (2002) studied teams that were geographically distributed but did not cut across organizational boundaries. As virtual teams may cut across both organizational and national boundaries, it is important to study group diversity primarily based on variations in organizational
and national cultures of team members. It is expected that a culturally diverse virtual team will have multiple views regarding execution of task and its outcome, thereby resulting in higher level of intragroup conflict. Hence, 

**Proposition 2:** Cultural diversity in the virtual teams will be positively associated with the conflict in the teams.

### Media Characteristics

Virtual teams are separated by time and space and hence communicate using computers and other communication technologies. Such technology has been found to have a low capacity to carry information cues. Communication media vary in their capacity to process rich information. Media richness refers to this ability of the medium to change understanding in a given time interval (Daft and Lengel, 1986). Table 1 (adapted from Burke and Aytes, 1998) briefly lists relative richness of various communication media in use in organizations today.

<table>
<thead>
<tr>
<th>Media</th>
<th>Richness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-Face</td>
<td>High</td>
</tr>
<tr>
<td>Video conference</td>
<td>High moderate</td>
</tr>
<tr>
<td>Combined video and audio</td>
<td>Moderate</td>
</tr>
<tr>
<td>Audio conference</td>
<td>Low moderate</td>
</tr>
<tr>
<td>CMC synchronous</td>
<td>Low</td>
</tr>
<tr>
<td>CMC asynchronous</td>
<td>Very Low</td>
</tr>
</tbody>
</table>

*Table 1. Relative Richness of Media*

Sproull and Kiesler (1986) argue that decreasing social context cues has substantial deregulatory effects on communication due to absorption, perceived status equalization, and uninhibited behavior. Such deregulatory behavior may lead to greater levels of conflict in virtual teams. Burke and Aytes (1998) have argued that groups using richer media are likely to exhibit higher levels of cohesion especially during initial phases of the group. In virtual teams using lean media, members are unlikely to be affected by personality characteristics and other visible differences that may exist between them. In addition, anonymity in a lean medium reduces the possibility of members developing personal disaffection to others. On the other hand, use of richer media may allow members to develop positive or negative inclination to other members. Hence

**Proposition 3a:** The richness of the media used by virtual teams will strengthen the positive association between cultural diversity and affective conflict.

In virtual teams that use lean media, features such as anonymity, parallelism, and simultaneous input would force team members to focus on the task set before them. However, information communicated through lean media is less effective in reducing equivocality (Daft and Lengel, 1986). On the other hand, the use of rich media enable communication of multiple cues and help group members to clarify doubts about the task. Groups using richer media are more likely to converge on common interpretation of task than their counterparts using lean media. Hence

**Proposition 3b:** The richness of the media used by virtual teams will weaken the positive association between cultural diversity and task conflict.

The impact of conflict on virtual team performance is discussed next.

### Conflict and Virtual Team Performance:

There is evidence that interpersonal conflicts that are related to personality issues are damaging to group effort while task-based conflict is actually helpful and improves group decisions (Amason and Schweiger, 1994; Amason, 1996; Jehn, 1997). However, Jehn (1995) found that both task and interpersonal conflicts have negative association with an individual’s satisfaction in a group.

As groupware supported virtual teams interact anonymously, interpersonal conflict is expected to be low in these teams. However, anonymous interactions do not hinder virtual team members from disagreeing over the content and execution of the task. Task conflicts in these teams may cause unhappiness and dissatisfaction with the decision making process. As members have to resolve the intragroup conflict, the time taken to complete the task increases. Task conflicts also increase discussion of various views on the task (Jehn, 1997) and exploration of the decision situation from multiple perspectives.
(Pelled et al., 1999). When members engaged in a task conflict reach a decision, they are likely to perceive that various possible aspects of the decision have been considered and a high quality decision has been made. Hence:

**Proposition 4:** Intragroup conflicts in virtual teams will be negatively associated with satisfaction with decision making process.

**Proposition 5:** Intragroup conflicts in virtual teams will be positively associated with decision time.

**Proposition 6:** Intragroup conflicts in virtual teams will be positively associated with satisfaction with decision outcome.

Prior literature indicates that the relationship between conflict and group performance is likely to be moderated by other factors such as resolution potential, emotionality (Jehn, 1997). Montoya-Weiss et al. (2001) demonstrated the moderating effects of temporal coordination on the relationship between conflict management style and performance of asynchronous virtual teams. Temporal coordination is aimed at avoiding discontinuous and disjointed discussions in teams that operate in asynchronous mode. Although in the context of synchronous virtual teams the issue of temporal coordination is not relevant, the fact that the team members dispersed over different time zones need to interact in the real-time mode, gives rise to issues concerning temporal separation.

**Temporal Separation**

Members of virtual teams may be separated temporally. This separation can be advantageous, especially when organizations need to utilize available workforce time effectively over a 24-hour time span. Recent interest in use of synchronous virtual teams may be largely attributed to the availability of improved communication technology. The issue of temporal separation poses a major challenge for synchronous virtual teams (Montoya-Weiss et al., 2001; Espinosa and Carmel, 2004), especially if team members are in time zones that are substantially different. Synchronous interaction may necessitate that some members of the team, work at inconvenient hours. For example, a normal work hour in U.S.A. is a sleep time in India and vice versa. Because of this inconvenience to work in a synchronous, temporally separated virtual team, some members may feel stressed which may increase their emotional responses to group interactions. The result will be a moderating effect on the relationship between conflict and performance such that group performance degrades. Hence:

**Proposition 7a:** In synchronous virtual teams, the temporal separation will strengthen the negative association between intragroup conflict and satisfaction with decision making process.

**Proposition 7b:** In synchronous virtual teams, the temporal separation will strengthen the positive association between intragroup conflict and decision time.

**Proposition 7c:** In synchronous virtual teams, the temporal separation will weaken the positive association between intragroup conflict and satisfaction with decision outcome.

**Group Facilitation**

A facilitator plans, coordinates, and directs the work of group members while using a GSS. Prior GSS research has emphasized importance of the role of facilitator in computer-supported group decision making (Miranda and Bostrom, 1999). Anson, Bostrom and Wynne (1995) argue that facilitation may in fact explain many of the inconsistent findings of prior GSS research with respect to performance of GSS groups. They also argue that higher quality of group facilitation may help produce better GSS results. Griffith, Fuller and Northeraft (1998) identified two facilitation roles including technical facilitation, which ensured smooth and seamless operation of GSS technology and group process facilitation which supported and guided group interaction thus maximizing group potential and appropriately channeling group conflict.

Miranda and Bostrom (1999) describe two kinds of facilitation used by computer supported teams – process and content facilitation. While content facilitation involves interventions that relate directly to the problem being discussed, process facilitation is defined as provision of procedural structure and general support to groups through the meeting process. Miranda and Bostrom also analyzed the impact of content and process facilitation on group decision process and group performance and found that while process facilitation had a positive impact on meeting process, content facilitation had a negative impact. A similar effect was also found on the meeting performance. While their group process variable included interpersonal and issue-based conflict, their research did not specifically examine impact of content or process facilitation on conflict. They thus argued that content facilitation was not beneficial to performance of the group unlike process facilitation,
and should hence be restrictively used. Some authors (Eden, 1990), on the other hand argued that content and process facilitation are not exclusive of each other and should be used together to get the multiplier effect.

Content Facilitation

Content facilitation, as defined earlier, includes intervention of the facilitator by providing insight, opinion, and interpretation of facts surrounding the decision task. Facilitators can help groups refocus on the task, provide clues for brainstorming thus ensuring adequate responses. Through probing, facilitators can ensure a high depth of evaluation of alternatives set before the group thus decreasing the effect of group diversity on task-related conflict. Hence

Proposition 8a: Content facilitation will weaken the positive association between group diversity and intragroup task conflict.

On the other hand, content facilitators can help reduce affective conflict by resolving or preventing interpersonal differences from assuming dominance. Miranda and Bostrom (1999) put forth that a well-managed role of content facilitator may help reenergize a group or even help in breaking an impasse. Anson et al. (1995) found that facilitators significantly influenced group cohesion and process outcomes and also argued that use of facilitation strongly influenced perceptions of team members with regard to GSS efficacy. Facilitation if consciously managed can help mitigate interpersonal conflicts among members. Among the characteristics of good facilitators, ability to handle and sort out conflicts between team members is an important attribute (Clawson and Bostrom, 1995). Facilitators can thus enhance mutual relationships (Powell et al., 2004). Thus

Proposition 8b: Content facilitation will weaken the positive association between group diversity and intragroup affective conflict.

Process Facilitation

Process facilitation includes those interventions, which help the team focus on the task. It improves task orientation and elicits equal participation from all group members. Facilitators who use process interventions can ensure that an equality of participation is achieved through a structured decision making process and reasonably strict adherence to the formulated structure. Such facilitation, therefore brings about greater satisfaction with decision making process among team members. Additionally, process facilitation can also ensure that blind alleys are not overtly explored and thus time is managed effectively.

Wheeler and Valacich (1996) found that process facilitation in GSS based meetings led to faithful appropriation of decision making heuristics and improved the quality of decision. By adequately structuring the processes, facilitators can ensure that critical information is shared in a timely manner through detailed and prompt communication (Powell et al., 2004). Team members are thus likely to be more satisfied with the final decision outcome when process facilitation is used in virtual teams.

While intragroup conflict has a negative association the team’s satisfaction with decision making process and positive association with decision time and team’s satisfaction with decision outcome, process facilitation will influence these associations as proposed below:

Proposition 9a: Process facilitation will weaken the negative association between intragroup conflict and satisfaction with decision making process.

Proposition 9b: Process facilitation will weaken the positive association between intragroup conflict and decision time.

Proposition 9c: Process facilitation will strengthen the positive association between intragroup conflict and satisfaction with decision outcome.

IMPLICATIONS OF THE RESEARCH

Intragroup conflict in virtual teams is an important area of research in management and information systems. An understanding of the determinants and mechanisms of intragroup conflict will help multinational and transnational organizations make plans for effective utilization of their virtual teams. Organizations can also be aware of possible limitations in using heterogeneous virtual teams so that managers use interventions to guard against the pitfalls and maneuver the teams appropriately.
The theoretical framework proposed in this research has several implications for managers supervising virtual teams. Knowledge on the impact of cultural diversity, the use of lean medium, and the temporal separation of virtual teams on the intragroup conflict and team performance, will help managers to determine the composition of the teams and design virtual work structures. Team leaders and managers can also suitably identify effective facilitation mechanisms, choose appropriate facilitators, and construct operating procedures to help facilitators get the best of the virtual teams.

LIMITATIONS AND POSSIBLE EXTENSIONS

Critics of media richness theory argue that over time individuals and groups adapt to the leaness of media and through social construction such adaptation may help change perceptions of people regarding richness of the media and its impact (Markus, 1994). Our model does not account for this dynamic nature of the impact of media richness.

Though intra-group conflict is a major handicap of group diversity, there are many positives to using heterogeneous teams. Heterogeneous groups, researchers argue, tend to perform better in certain task conditions, like idea generation or brainstorming tasks. Hence performance of culturally diverse teams in various task contexts needs to be studied. The inclusion of task type in the theoretical model proposed in this paper will enrich our understanding of diversity, conflict, and performance of GSS based virtual teams.

Our conceptualization of cultural diversity is simple and does not include complexities arising from variations in language, social class, and so on. In addition, we imply in our discussion that national and organizational cultures are independent, ignoring the possibility of having interdependent relationship between them. We intend to address these issues in our future research.

Another limitation of the research model is the exclusion of the interpersonal trust which varies from nation to nation. Low interpersonal trust can be a potential cause of lack of confidence in global virtual teams and thus may lead to conflicts.

CONCLUSION

In an attempt to considerably extend and improve existing theories of team diversity, intra-group conflict and team performance in the context of virtual teams, this paper proposes a theoretical model that includes the moderating effects of media-richness, group facilitation, and temporal separation. We hope to test the theoretical model initially through a controlled experiment. However, our model of intra-group conflict needs to be expanded to include other issues, such as interpersonal trust and the complexities of group diversity and culture. It may also be worthwhile to study the process through which virtual team members learn to appropriate GSS faithfully. Longitudinal case studies involving global virtual teams will be helpful in this regard.

REFERENCES


