By M.A. Quaddus and Lai Lai Tung

EXPLAINING CULTURAL DIFFERENCES IN DECISION CONFERENCING

A comparison of two cultures – Western and Asian – in the context of group conflict generation and management.

Research on Group Decision Support Systems (GDSS) over the last two decades has demonstrated many of its positive effects on group work. The most significant of these benefits are encouraging the increased levels of participation of the group members and facilitating a systematic and structured group process, which results in more effective management of conflict. It was also found that group consensus is higher in GDSS-supported groups as compared to groups using other tools and intervention mechanisms. On the other hand, where a specific technique has proven successful in one society, it may at times prove otherwise in another society. Much of the empirical literature has been in the context of Western society; less research has been conducted in Asian society, where culture and values differ significantly from the West. Limited studies of GDSS in cross-cultural environments are available, for example, see [4, 10, 12]. More significantly, previous studies on conflict in the GDSS domain have also primarily dealt with networked GDSS (where every participant has a PC that is networked) and neglected non-networked GDSS such as Decision Conferencing (see [5, 6, 8]). In addition, most of these studies deal with the efficiency and effectiveness of networked GDSS and do not deal with the generation and management of conflict. Finally, previous studies of conflict in GDSS that we are aware of have concentrated mainly on one task, thus limiting the generalizability to the extent of the task.

To address the preceding problems, we report the effects of a non-networked GDSS—where only the analyst and the facilitator has a PC—known as Decision Conferencing (DC) on group conflict and conflict management on two tasks by conducting two replicated studies, one in Australia [7] and the other in Singapore. A comparative inquiry approach is used to examine the role of cultural differences between the two countries in explaining the discrepancies in results. More specifically, the aim of this study is to make a comparative analysis of two cultures, Western and Asian, in the context of group conflict generation and management using Hofstede's cultural dimensions [2]. Previous studies on conflict have focused mainly on Western culture. This study is the first we are aware of that compares and contrasts the differences in findings of the Australian study with the corresponding Singapore study and investigates the role of culture in explaining these differences in the context of DC.

Group work of any kind generates conflict. It has been observed that group conflict and its management are important determinants of the outcomes of GDSS-supported group work [5, 6]. A lack of conflict can result in group-think situations, while poorly managed conflict is dysfunctional. Figure 1 shows how conflict is generated in any group work, be it DC or manual. Technical support, whether it is DC or manual, in group work interacts with the type of task being supported to generate group conflict. Various conflict generation strategies may then be used to manage the conflict productively. It is noted that this entire conflict generation process works under a specific cultural context, Western or otherwise. Culture, therefore, plays a dominant role in the generation and proper management of conflict.

Decision Conferencing. Decision Conferencing employs a portable, single-user computer system to support groups of managers and executive teams working face-to-face on a wide variety of organizational problems. Verbal and non-verbal communication in decision conferences is not restricted by electronic networking but instead takes a completely connected, "each to all" pattern enhanced by the presence of a group facilitator. Figure 2 shows the configurations of both GDSS and DC. While in GDSS each member of the group has a networked PC, the DC contains only one PC, which is operated by an analyst (part of the facilitation team).

Decision Conferencing typically spans over inten-

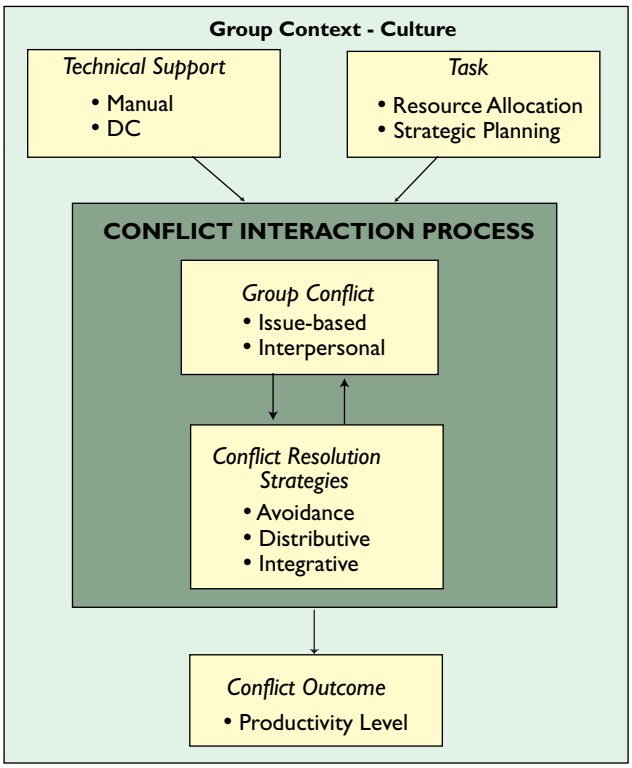


Figure 1. Conflict generation process in group work.

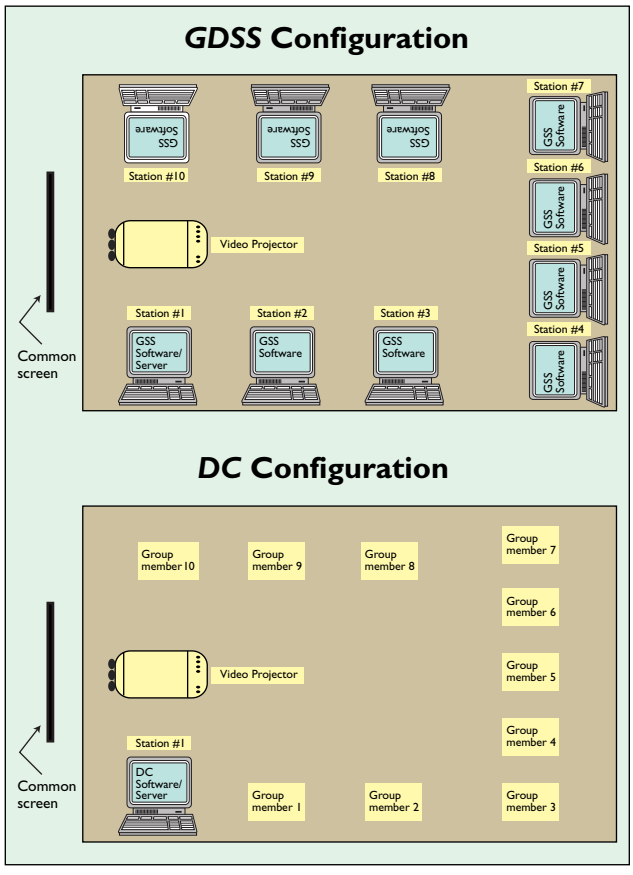
sive two-day sessions attended by a group of people who have substantial interest and motivation in solving a pressing organizational problem. In a meeting room separated from daily interruptions and distractions, the group is offered an opportunity to derive a shared understanding of the problem and to create a clear plan of action. A distinguishing feature of DC is the on-the-spot development of a computer-based model that incorporates the differing perspectives of participants. The group can examine the implications of the decision model, modify it, and test the effects of different assumptions, thereby ruling out ineffective strategies and focusing quickly on the most significant issues. This is the feature that aims at promoting issue-based conflict in group decision making to improve both the quality and productivity of meetings.

Thus, compared to networked GDSS, which has been said to decrease socializing in the group as members work and communicate mainly through the computer, the non-networked feature of DC allows conflict to surface as members communicate with one another and to the facilitator using the technology. This makes DC a better candidate for this research as compared to networked GDSS.

Group Conflict and Conflict Resolution Strategies. Prior research has indicated the nature of group conflict affects the choice of conflict management style used. According to Deutsch [1], there are two dimensions of conflict: issue-based and interpersonal. Issue-based conflict, which focuses on task-related issues, is very desirable because it brings out the differing views and issues of the task, helping groups to better understand the task and hence develop better solutions. Interpersonal conflict tends to draw attention away from the task because it is usually targeted at persons within the group. This type of conflict can be detrimental to group functioning and hence undesirable [1].

The three common patterns of conflict resolution strategies identified by Sillars [9] are Avoidance, Distributive, and Integrative. Avoidance is the failure to confront or attempt to resolve conflict—useful when the issue is trivial or where the potential dysfunctional effect of confronting the other party outweighs the benefits of the resolution of conflict. Distributive strategy emphasizes the achievement of the outcomes of one party over those of the others. It demonstrates a high concern for self and low concern for others. It involves moderate information exchange and tends to increase conflict by creating competition in attaining individualistic goals [9]. Integrative strategy attempts to identify and achieve outcomes that are mutually satisfying to all parties. It promotes information exchange, neutral or positive effect, and mutual or bilateral goal orientation. Integrative strategy is useful when dealing

Figure 2. GDSS and DC configurations.



with complex or strategic issues because it utilizes the skills and information possessed by different parties to formulate solutions and successful implementations.

For conflict to be managed functionally, one style may be more appropriate than another depending on the type of support provided, task, and culture. However, for conflicts to be productive, all group members must be satisfied with the outcomes and feel they have gained as a result of the conflict. Conversely, if all group members are dissatisfied with the outcomes and feel they have lost as a result of the conflict, dysfunctional conflict will result [1].

Power Distance (PDI)	Uncertainty Avoidance (UAI)	Individualism (IDV)	Masculinity (MAS)
The extent to which society accepts the fact that power in institutions and organizations is unevenly distributed.	The degree to which a society feels threatened by uncertain and ambiguous situations, which leads them to support beliefs promising certainty and to maintain institutions protecting conformity.	A preference for a loose-knit social framework in society in which individuals are only supposed to take care of themselves and their immediate families; as opposed to *Collectivism*, which implies a preference for a tightly knit social framework in which individuals can expect their relatives and clan to protect them in exchange for loyalty.	A preference for achievement, heroism, assertiveness and material success; as opposed to *Femininity,* which implies a preference for relationships, modesty, caring for the weak and the quality of life.

Table 1. The four dimensions of national culture (from [2]).

Culture. Culture has been defined by various researchers in a number of related ways (see [2, 11]). In short, culture depicts the way members of a society relate to each other and to the environment [11]. Various dimensions of culture have also been suggested in the literature [2, 11] in order for researchers to understand and conduct research on culture. In this study, we use the dimensions of Hofstede [2] in line with similar prior studies [12] and their usage in other empirical studies (for example, [10, 12]). The four dimensions of national culture that Hofstede [2] identified are Power Distance, Uncertainty Avoidance, Individualism, and Masculinity (see Table 1).

In terms of Hofstede's dimensions, Australia and Singapore are societies that are unlike one another in some significant ways. Australia is considered a low power distance country,[1] whereas Singaporeans are comfortable with a relatively unequal distribution of power. In Hofstede's sample, Australia is moderate in terms of being comfortable with uncertainly and ambiguity whereas Singapore was the society that had the weakest Uncertainty Avoidance score in Hofstede's sample. Australia is a highly individualistic society, whereas Singapore is much more collectivist in social relationships. Finally, while both countries are fairly similar on the Masculinity-Femininity dimensions, Australia may be better depicted as having a moderate level of masculinity and Singapore, a moderate level of femininity, because Australia scores slightly higher than Singapore on this dimension. For the comparative inquiry part of this article, we will be making references to these differences repeatedly.

[1]Hofstede's country index scores are a projection of the general societal norm, where the societal norm is meant to be a value system shared by the majority of the middle classes in a society.

Results of Comparative Inquiry

As previously mentioned, this research first replicates an Australian study [7] in Singapore, which involved a laboratory-based experiment using student subjects. The DC, technology, tasks, and the conflict generation processes (see Figure 1) were maintained as similar as possible to compare the two experiments. A rigorous research design and method was used for the comparative study (see Table 2 for details). A series of experiments was conducted in both the Australian and Singapore studies and relevant data on conflict, resolution strategies and productivity were collected via a self-report type of structured questionnaire. The standardized mean values are presented in Figures 3–5; the mean values have been standardized to compare the graphs across the figures.

Conflict. Figure 3 presents the standardized mean values of issue-based and interpersonal conflicts generated in Singapore and Australia using both resource allocation and strategic planning tasks. The results reveal that levels of conflict generated (both issue-based and interpersonal) are generally more in Australia than in Singapore for various combinations of group support and task. Generally speaking, DC seems to produce more issue-based and interpersonal conflicts for Australia compared to Singapore. It is also observed that levels of issue-based conflict are generally high and the same for interpersonal conflict are quite low (Figure 3). This is a desirable result for both Singapore and Australia.

Conflict Resolution Strategies. Figure 4 shows the standardized mean values of conflict resolution strategies used by the subject groups. It is observed that the Australians tend to use less avoidance strategies than the Singaporeans. The levels of integrative strategy were generally high compared to the avoidance and distributive strategies (Figure 4). It was also observed that Australians tend to use more integrative strategies than the Singaporeans. There was no trend in the use of distributive strategies. For the DC-resource allocation and manual-strategic planning tasks, Australians tend to use more distributive strategies (Figure 4). However, for the

combinations of DC-strategic planning and manual-resource allocation tasks Singaporeans tend to use more distributive strategies.

Productivity of Conflict. Figure 5 compares the productivity of conflict reported by various subject groups. Although not significant, Australians in general reported more productivity than the Singaporeans.

No. of groups for each country		5*
No. of members in each group		3–5 members
Subjects		Undergraduates in large universities
Research design	Tasks	Task 1 – resource allocation case Task 2 – strategic planning cases Each group will perform both tasks
	Technical support	Each group participates in 2 consecutive sessions, a manual (without computer support) and a DC session, Groups are randomly assigned to do either one of the two sessions first.
	Task sequence	There is random assignment of task to session.
The manual environment		No facilitating team or computer for manual groups. Group members were free to discuss among themselves to reach a group decision.
The DC environment		Use of two facilitators for all sessions. A written script guides facilitators to ensure experiments are similar.
Post-session questionnaires		Self-reports of amount and type of conflict experienced, the conflict resolution strategies used and the productivity of the conflict

*The five groups for the Singapore study are the pilot groups. No further changes were made to the pilot sessions and they are replicates of the Australian groups.

Table 2. Research design for both Australia and Singapore studies.

Comparative Inquiry Based on Culture

Figures 3–5 reveal some major differences in results between Singapore and Australia, but they do not show any conclusive pattern. However, comparisons of the cultural dimensions do yield some interesting results. A more detailed discussion of the four dimensions with respect to the Australian and Singaporean culture is presented here with reference to Figures 3–5.

Power Distance. As mentioned previously, the Australian society is portrayed as having low power distance while the Singapore society is characterized by high power distance. Countries characterized as having low power distance do not perceive a gap between themselves and people who may be of higher status or who wield greater power, while countries depicted as having high power distance do. For the Australians, this indicates they feel they are all on equal footing and that each person's ideas are important. As a result, they are more comfortable in candidly expressing their opinions without fear of being judged. Consequently, the avoidance scores found in the Australian study are lower than those reported in Singapore study (Figure 4). The reverse is true for the Singaporeans, who may perceive the views of the higher status individual as superior to their own. As a result, they may be more reserved in contributing their opinions and tend not to express their views openly for fear of being viewed negatively. Therefore, the higher avoidance behavior documented in the Singapore study as compared to the Australian study (Figure 4) may be partially explained by the fact that Singapore is depicted by higher power distance.

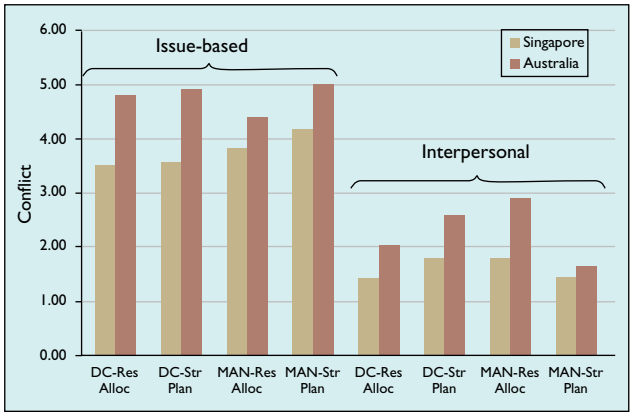
Uncertainty Avoidance. For this dimension, Australia is characterized by a moderate UAI while Singapore is represented by a low UAI. By definition, countries characterized as having a low UAI are less threatened by uncertainty and ambiguous situations, while countries depicted as having a moderate or higher UAI are more threatened by the uncertainties in life and aggressive behavior is also more accepted [2]. Therefore, in a moderate UAI country such as Australia, there is a greater showing of emotions and aggressive behavior than in Singapore. The fact that aggressive behavior may be displayed during group interactions is a possible explanation for the higher level of interpersonal conflict detected in the Australian study as compared to the Singaporean study (Figure 3). In the face of strong opposing viewpoints, it might be difficult to get individuals to concede and the only means of concluding would then be to come to a consensus. Consequently, the standardized mean score for integrative conflict resolution in the Australian study is higher than its counterpart in the Singapore study for all combinations (see Figure 4).

For Singaporeans, there is greater acceptance of dissent and greater tolerance for deviance [2], emotions tend to be suppressed by social pressures, and conflict rarely leads to aggression. Conflict and competition between people can be maintained on a constructive level and used to an advantage for Singaporeans. In order to accommodate the ideas of all group members, even dissenting ones, group members tend to work toward compromising as a way to manage conflict. The evidence for this situation derives from the fact that the integrative conflict resolution strategy is the most often used among the three strategies (Figure 4). The standardized mean scores for integrative conflict resolution (compared to avoidance and distributive conflict resolution strategies) reported in the Singapore study are higher, reflecting the need for compromise and consensus.

Individualism. Australia is characterized as an individualistic society while Singapore is a collectivist society with low IDV score. Societies characterized as individualistic prefer a loose-knit social framework; those that are collectivist a tightly knit social framework. Thus, members of an individualistic society are less concerned with harmony within the group as compared to their collectivist counterpart. On the other hand, members of a collectivist society feel a strong need to maintain harmony within the group, and may choose to maintain group harmony at the expense of giving up their ideas.

Stemming from this argument, Australians will stand by their opinions if they feel they are right. Therefore, task will always remain the central focus. When group members manage to keep the task in perspective, any conflict that arises would then pertain to the problem. This is a possible explanation for the higher issue-based conflict reported in the Australian study (Figure 3) as compared to the Singapore study. Overall, the lower levels of both issue-based and interpersonal conflicts reported in the Singapore study (Figure 3) as compared to the Australian study may be partially due to the fact that the Singapore society values harmony. Such a situation may be indicative of the relationship prevailing over the task.

Figure 3. Comparison of issue-based and interpersonal conflicts.



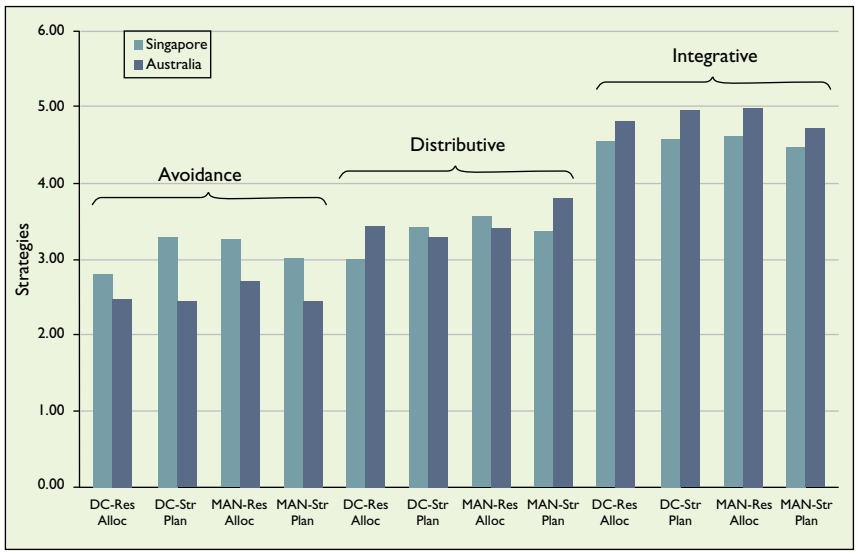


Figure 4. Comparison of avoidance, distributive, and integrative strategies.

Masculinity. Because Australia scores slightly higher than Singapore on the MAS rating, Australia may be better depicted as having a moderate level of masculinity and Singapore with a moderate level of femininity. Femininity refers to a preference for relationships while masculinity refers to a preference for achievement and assertiveness. In countries characterized by masculinity, the population is generally less people-oriented and less concerned with societal ties as compared to countries characterized by femininity.

For a society such as Australia, the higher reported interpersonal conflict as compared to Singapore (Figure 3) may be due to the lesser importance placed on social relations and higher emphasis placed on gaining material success and other achievements. On the other hand, for a society with a high degree of femininity such as Singapore, they would therefore work toward serving the society and improving the quality of life. Singaporeans therefore are more likely to encounter less interpersonal conflict due to concerns with societal ties.

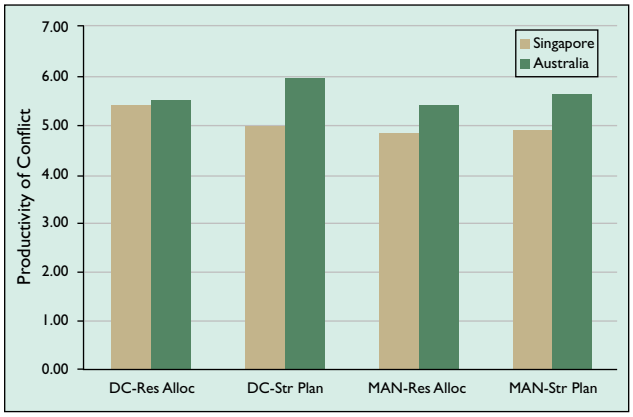
Discussion

A close examination of the Australian study indicates that DC promoted higher levels of issue-based conflict—the direct opposite of the Singapore results. Higher levels of interpersonal conflict and lower use of avoidance strategies were also reported in the Australian study, attributed to the perception that Australians on the whole are more individualistic, masculine, and prone to aggressive behavior. As such, they are not afraid to express their views and make their opinions known, which may promote more interpersonal than issue-based conflict. Singaporeans, on the other hand, are more feminine and less individualistic. The need to maintain harmonic ties is a strong virtue; hence they tend to practice more use of avoidance strategies than the Australians.

The Australian study also showed for the resource allocation task, DC produced higher issue-based conflict and lower interpersonal conflict versus manual methods. Both of these are desirable;it revealed DC could be used effectively for this kind of task.

In the preceding sections, the societal norms of Australia and Singapore were portrayed with respect to the four dimensions proposed by Hofstede [2]. These norms seek to explain the behavior of individuals in the two countries. In so doing, they may explain the differences in how the people of these two cultures make decisions. The experimental aspect of our study aims to provide some evidence with which to support these propositions. However, it must be borne in mind that these norms are part of a value system shared by a majority of society and may not apply to every individual. Also, the strength with which these societal norms apply varies from country to country.

Figure 5. Comparison of productivity of conflict.



One obvious practical implication of the preceding sections for facilitators, team leaders, and members of groups is to increase their sensitivity to differences in cultural dimensions across groups of different cultures. To obtain the best results from group meetings, stakeholders must be aware of differences in assumptions of the group members, facilitators, and leaders arising from cultural differences. In addition, this research offered some indication concerning the impact of cultural differences on the escalation or reduction of certain types of conflict as well as to the use of strategy to manage the conflict. Future research may offer prescriptions of how to harness the effects of cultural differences for improving the group process.

Conclusion

In recent years various researchers have identified the impact of culture in modern business environments. Johnston and Johal [3] classify the Internet as a "virtual cultural region," stating that with millions of users (residents) from all over the world the Internet has developed its own culture. The authors also map the Internet culture by using Hofstede's cultural dimensions [2]. Any organization using the Internet extensively for e-commerce, e-business, and Internet marketing activities will find this mapping useful. Kersten and his colleagues have produced a number of research reports on the influence of culture in international business negotiations (see interneg.org/interneg/research/papers/index.html). The researchers have primarily used Hofstede's cultural dimensions in their experiments [2]. Their results confirm that considerable cultural differences exist in both negotiation expectations and process.

Our study adds on to these streams of research and reveals that culture plays an important role in determining the effectiveness of decision making using DC. It has been noted here that culture plays a significant role in decision making and the type of technologies used in decision support. People with different values, preferences, and beliefs tend to view and use DC differently. As a concluding remark, while reviewing research conducted across different cultures, we urge researchers to consider the issue of cultural differences as one potential source of explanation for differences in the results of studies. C

References

1. Deutsch, M. Conflicts: Productive and destructive. In F.E. Jandt, Ed., *Conflict Resolution Through Communication*. Harper and Row, New York, 1969.
2. Hofstede, G. Culture's Consequences—International differences. In *Work-Related Values*. Sage, Beverly Hills, 1984.
3. Johnston, K. and Johal, P. The Internet as a "virtual cultural region": Are extant cultural classification schemes appropriate? *Internet Research: Electronic Networking Applications and Policy 9*, 3 178–186.
4. Mejias, R.J., Shepherd, M.M., Vogel, D.R., and Lazaneo, L. Consensus and perceived satisfaction Level: A cross-cultural comparison of GSS and non-GSS outcomes within and between the United States and Mexico. *Journal of Management Information Systems 13*, 3 (1997), 137–161.
5. Miranda, S. and Bostrom, R. The impact of group support systems on group conflict and conflict management. In *Proceedings of the Twenty-Sixth Annual Hawaii International Conference on System Sciences*, Hawaii, 1993.
6. Poole, M. and DeSanctis, G. Conflict management in a computer-supported meeting environment. *Management Science 37*, 8 (1991), 926–953.
7. Quaddus, M., Klass, D., and DeSouza, J. Impact of non-networked group support systems on group conflict and conflict management: An experimental research with small groups. In *Proceedings of the Fourth International Meeting of the DSI*, Sydney, Australia, 1997.
8. Sambamurthy, V. and Poole, M. The effects of variations in capabilities of GDSS designs on management of cognitive conflict in groups. *Information Systems Research 3*, 3 (1992), 224–251.
9. Sillars, A. Attributions and communication in roommate conflicts. *Communication Monographs 47*, 3 (1980), 180–200.
10. Tan, B.C.Y., Watson, R.T., Wei, K.K., Raman, K.S., and Kerola, P.K. National culture and group support systems: Examining the situation where some people are more equal than others. In *Proceedings of the 26th Hawaii International Conference on System Sciences*, Hawaii, 1993.
11. Trompenaars, F. *Riding the Waves of Culture*. McGraw-Hill, New York, 1998.
12. Watson, R.T., Ho, T.H., and Raman, K.S. Culture: A fourth dimension of group support systems. *Commun. ACM 37*, 10 (Oct. 1994), 44–55.

M.A. Quaddus (quaddusm@gsb.curtin.edu.au) is an associate professor with the Graduate School of Business, Curtin University of Technology, Australia.

Lai Lai Tung (alltung@ntu.edu.sg) is an associate director of the Information Management Research Centre (IMARC) at the Nanyang Business School, Nanyang Technological University, Singapore.