

## Understanding Conflict in Virtual Teams: An Experimental Investigation using Content

### Analysis

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### Abstract

*Virtual teams are temporally and geographically dispersed groups, which may have members from varied cultures and backgrounds. Such diversity may cause intra-group conflicts in virtual teams. We analyzed the contents of the transcripts of GSS-based virtual teams and identified the conflict episodes and the approaches followed to resolve intra-group conflicts. The conflict episodes that occurred in the early phases of decision-making were separated from those taking place in the choice phase. The results revealed that conflicts in the choice phase of decision-making were detrimental to global virtual teams. We also found that groups following an integrative conflict resolution style had better performance than those following other conflict resolution approaches, such as a distributive style. While the results contribute towards the understanding of conflict in groups, the area warrants further research.*

### 1. Introduction

Organizations use teams and groups for decision making to address a variety of issues. Traditionally, teams operated in face-to-face (F2F) settings, but with the proliferation of advanced computer technology, virtual teams have become commonplace. Jarvenpaa and Leidner [12] define a virtual team as a temporary, culturally diverse, geographically dispersed, and electronically communicating work group. In today's world, it is not uncommon for virtual team members to be of different cultural and functional backgrounds, which may be a source of intra-group conflict in virtual teams. Moreover, the geographic dispersion, the temporal separation and the low richness of the media used may also lead to intra-group conflict. While current literature has examined the various antecedents of virtual team conflict, there has not

been ample research on conflict in virtual teams and its impact on team performance.

The willingness and ability of group members to deal with conflict is likely to have a bearing on the performance of the group. Only recently have researchers begun to address the role that conflict management styles play in tasks performed by virtual teams[22][25].

The major issues examined in prior research on virtual teams deal with dynamics of virtual group work and the characteristics of the formed groups and how these two factors influence performance measures. Typically, researchers collected their data through surveys and/or controlled experiments, and data analyses were mostly conducted using standard quantitative statistical techniques. In this paper, we utilize "content analysis" to investigate whether discussion scripts generated by global virtual teams reveal some insight into the nature of virtual teams' effort and performance.

Content analysis is a "research technique for the objective, semantic, and quantitative description of the manifest content of communication" [2, pg. 74]. Holsti [10] defines content analysis as being an inference technique that is based on an objective and semantic identification of specified attributes of messages. Thus, one objective of content analysis is to transform the qualitative content of textual communications scripts into quantitative and reliable measures of phenomena.

Although content analysis has been employed in research for a long time [34], e.g., in the behavioral and social sciences, its application in information systems (IS) research is relatively new. The extensive use of groupware-supported decision-making in the extant group support systems (GSS) and virtual teams research entails that a considerable body of communication and message content must have been generated in the process. However, very few studies on virtual teams have followed a content analysis methodology. Content analysis of

group communications can help explain performance differences, and the findings can help improve group interaction [1].

In this research, we analyze the content of group discussions to identify conflicts. We also examine the influence of conflict on team performance as measured by the level of agreement on the final decision and by team members' perceptions of decision quality and decision making process.

In the next section we review literature on virtual teams, team conflict, conflict management, and team performance. In section 3, we present the research hypotheses. We describe the research methodology in section 4. The results of hypotheses testing are presented in section 5. Finally, we conclude the paper with discussion of the results, limitations of the study, and future directions.

## 2. Literature Review and Theory Development

### 2.1. Group Decision Making

The normative model of group decision-making stems from Simon's individual rational decision-making model, which includes the broad phases of intelligence, design and choice [33]. The group decision-making process starts with the identification of the problem and the possible solutions. In this stage, relevant information concerning the problem is collected. During the design phase, the group develops and discusses several possible alternative solutions for the problem. Finally, in the choice phase, group members choose a final solution from a set of alternatives.

In contrast to Simon's model is a decision-making model that is the garbage can model [4][6]. In this model, decision-making is viewed as a social-interaction process rather than a sequence of decision-making activities. Decision-making is characterized by an element of chance.

Mintzberg, Raisinghani, and Theoret [20] synthesize these two perspectives by introducing interruptions, delays and deviations into the rational, linear decision-making model. Decision makers may loop back and forth among decision-making activities.

While a group decision-making process involves similar phases of activities, it has additional complexities. It requires discussions among team members and a decision process structure to arrive at a final solution. During the course of discussion, group members may encounter differences in views, beliefs, and objectives thus engaging in conflicts. The nature of the emerging conflict is likely to vary depending on the decision phase in which the conflict arises, and group members follow different conflict resolution styles to resolve conflicts.

The intra-group conflict and group members' conflict resolution style is likely to impact the group performance.

### 2.2. Global Virtual Teams

Virtual teams are groups of geographically dispersed co-workers who are brought together using telecommunication and information technologies to work on a particular task [38]. Global virtual teams usually span across space, time and organizational boundaries [16]; are culturally diverse and geographically dispersed [12]; and perform tasks of a global nature [19].

Prior research on virtual teams has addressed many aspects such as conflict and cultural heterogeneity [23], communication patterns and challenges [31], coordination and perceived conflict management styles [22], effects of communication media [35][36], trust [12], and best practices [17], to list a few. We believe that cultural and functional diversity in virtual teams lead to differences in the members' thought processes. Consequently, conflict may be inevitable, which necessitates a close examination by information systems researchers.

### 2.3. Team Conflict

Conflict refers to the awareness by various parties of their differences, discrepancies, incompatible wishes or irreconcilable desires [18]. Behavioral scientists have argued variedly over the role of conflict in team performance in organizations. While some contend that conflict is dysfunctional and must be avoided, others have put forth that conflict is natural and inevitable and may aid group performance. A more recent school of thought maintains that conflict is necessary for groups to perform effectively. Thus the effect of conflict on decision-making has not been clearly established [8]. Conflict may hinder decision-making and disrupt the exchange of information, thus reducing decision quality [32]. When used constructively, conflicts may cause a thorough evaluation of decision alternatives [7][13] as each member brings unique perspectives and knowledge to the group discussion, which may question the assumptions made by the participants..

Two types of conflict have been discussed consistently in the behavioral science literature – issue-based (task) and interpersonal (affective) conflict. Issue-based conflict refers to task-related discord among group members. Interpersonal conflict refers to discord among people who differ from each other in their preferred outcomes, attitudes, values or behavior. Jehn [13] argues that while interpersonal conflict can be detrimental to group performance, moderate amounts of task or issue-based conflict can be beneficial. Groups using computer support are likely to have less affective conflict and more

task conflict, as they are more focused in their discussions, than the groups having no computer support [23]. The anonymous interaction supported by GSS could be a major reason for low levels or absence of interpersonal conflict. Anonymity allows greater freedom to participate openly, and hence it may encourage more productive conflict [27]. On the other hand, some authors have also argued that the lean medium does not allow context and social cues to be conveyed, and hence virtual teams are likely to experience greater coordination and communication challenges [22]. This may therefore lead to greater conflict among team members. In addition, team diversity creates obstacles to effective communication [14][15][19]. Such communication difficulties may lead to conflict in virtual teams and affect the team performance.

Conflict in GSS groups may occur in any of the three phases of the decision-making process. While during the intelligence phase differences may occur in the basic definition of the problem or decision situation, during the design phase, members may argue how to make the final selection from a set of alternatives. Finally, in the choice phase each group member, based on his/her perceptions, values, beliefs, and preferences, may try to select his/her own preferred solution. When group members favor different solutions, the group experiences conflicts. We use the term "choice conflict" to refer to this type of conflict. Literature has examined certain styles of conflict management that arise in multi-party decision situations, which are described next.

## 2.4. Conflict Management Styles

Five types of conflict resolution styles have been discussed in the literature [28][37]. These are avoidance, accommodating, competitive, collaborative, and compromise. The avoidance style refers to intentional withdrawal from the conflict situation. The accommodating style signifies a focus on areas of agreement and attempts to smooth out differences. The competitive style describes an approach in which members enforce their own views on others. The collaborative style pertains to integrating the views of all involved. Finally, the compromising style is associated with finding a middle ground solution or a common solution that addresses everybody's interest. An abridged form of conflict resolution style categories that includes integrative, distributive, and avoidance approaches has also been discussed in the literature [21][30]. In this classification, avoidance is the absence of an attempt to resolve the team conflict; the integrative conflict management style is an attempt to arrive at solutions and outcomes that are satisfying to all members; and the distributive conflict management style emphasizes the enforcement of one person's choices over those of the

other. While resolving intra-group conflicts, GSS groups may tend to follow more integrative and fewer distributive or avoidance approaches than face-to-face groups [21]. This study focuses on GSS-based virtual teams, and we restrict our discussion to only three categories of conflict resolution, which are integrative, distributive, and avoidance approaches. As discussed below, we concentrate on integrative conflict resolution style, which promises best performance of GSS-based groups [22][25][27].

## 2.5. Virtual Teams Performance

Prior studies on the performance of GSS-based groups and virtual teams have frequently included variables such as decision time, member satisfaction, participation, consensus, agreement, and decision quality [3][17][22][36][39]. In this preliminary study on conflicts in GSS-based virtual teams, we primarily explore the issues concerning the effectiveness rather than the efficiency of virtual teams. Thus, we shall exclude decision time from our current research and concentrate on satisfaction with the decision process, agreement, and perceived decision quality as the indicators of team performance. The following section develops the theory and presents the related hypothesis tested in this paper.

## 3. Theory Development and Hypotheses

Virtual teams are composed of people from varied backgrounds and cultures, which may cause diverse beliefs, opinions, perceptions, outlooks and attitudes to prevail in the activities of the teams, and team members may have to encounter conflicts. We expect that the nature of the conflict depends on the task type and, more precisely, on the phase of the task that a group is engaged in. In decision-making tasks (the type that is studied in this research), in the early phases (e.g., intelligence and design) group members may differ in their views on various alternatives and the method to be adopted to eliminate the less promising ones so that a final choice can be made. Although the prevalence of conflicting viewpoints may slow down the decision making process, it enables group members to understand the preferences of other members. The nature of intra-group conflict changes once a group decision process enters into the choice phase of decision-making. As group members try to make a final choice from a set of filtered alternatives, each of which has a minimum level of acceptance to one or more members of the group, the intra-group conflict may intensify. The conflict that arises in the "choice" phase of decision-making is referred to as "group choice conflict" or simply "choice conflict" in this study.

In the early phase of decision-making when the virtual team members actively discuss the various possible alternatives, conflict occurs mainly due to variances in members' opinions, beliefs and attitude with regard to the each alternative. These conflicting views may or may not be intense depending on the preferences of team members. We expect that the number of conflicting views that prevail in the early phase of decision-making will influence the performance of the virtual teams. The occurrence of too many conflicting views may lead team members to perceive the decision making process as not being smooth and that the final decision does not have unanimous acceptance. We, however, do not expect the initial conflicting views to have any significant effect on the agreement level of the team members with respect to the final choice. Hence:

*H1a: In GSS-based global virtual teams, the higher the number of conflicting views prevailing in the early phase of decision-making, the less favorable are the members' perceptions of the decision quality.*

*H1b: In GSS-based global virtual teams, the higher the number of conflicting views in the early phase of decision-making, the lower is group members' satisfaction with the decision-making process.*

Conflicts that occur in the choice phase of a group decision-making process are expected to be focused and intense mainly because the decision makers concentrate on very few selected alternatives, evaluate the features of the choice alternatives [11] and try to justify their individual preferences for the final solution. Intense choice conflicts are likely to have adverse effects on team members' perceptions of the decision outcome and process and will be reflected in the level of their agreement on the final decision outcome. Hence:

*H2a: In GSS-based global virtual teams the higher the intensity of choice conflict, the less favorable are the members' perceptions of the decision quality.*

*H2b: In GSS-based global virtual teams, the higher the intensity of choice conflict, the lower is group members' satisfaction with the decision-making process.*

*H2c: In GSS-based global virtual teams, higher the intensity of choice conflict, the lower is the level of group members' agreement on the final decision.*

When virtual team members' preferences converge on only one alternative in the early phase of decision-making, the intra-group conflict is less likely to occur in the choice phase. Teams with no choice conflict are expected to have higher levels of agreement on the final choice and

more favorable perceptions about the decision process and outcome than those experiencing choice conflicts. Hence:

*H3a: GSS-based global virtual teams experiencing choice conflict will have lower perceived decision quality than the teams that do not experience such conflict.*

*H3b: GSS-based global virtual teams experiencing choice conflict will have lower satisfaction with the decision-making process than the teams that do not experience such conflict.*

*H3c: GSS-based global virtual teams experiencing choice conflict will have lower levels of members' agreement than the teams that do not experience such conflict.*

Of the various conflict resolution styles pursued by virtual teams, the collaborative (integrative) approach has been consistently favored in IS research. Prior research has consistently shown that collaborative (integrative) conflict management style has a positive influence on the performance of global virtual teams [21][22][25][27]. In virtual teams that attempt to follow an integrative approach, members discuss and attempt to patch differences, and try to arrive at a win-win solution. The choice would thus appear fair and acceptable. Hence:

*H4a: GSS-based global virtual teams following an integrative conflict resolution style will experience higher perceived decision quality than the teams following other conflict resolution approaches.*

Members of the teams pursuing integrative conflict resolution style are also expected to perceive that the decision-making process has been fair and lead to a solution that is acceptable to all members. Hence:

*H4b: GSS-based global virtual teams following an integrative conflict resolution style will have higher levels of satisfaction with the decision-making process than the teams following other types of conflict resolution approaches.*

Integrative conflict resolution allows group members to resolve the conflict without having to compromise their respective viewpoints and opinions. When such a resolution style is followed, members are likely to experience higher levels of agreement on the final decision. Hence,

*H4c: GSS-based global virtual teams following an integrative conflict resolution style will have higher levels of member agreement on the final decision than do the teams that follow other conflict resolution approaches.*

## 4. Research Method

We used the data collected in a laboratory experiment on global virtual teams to test our hypotheses. Volunteer subjects enrolled in MBA programs at a major Midwestern US university participated along with graduate students from a premier management school in India. All subjects were experienced with information technology, including internet/Web skills as measured by a questionnaire completed by all subjects. The student subjects were distributed among the following categories:

- US-homogeneous: Consisting of students who had lived in the US since birth and the students who had resided in the US for a long duration (typically over 10 years).
- Indian-homogeneous: Consisting of students residing in India.
- Heterogeneous: A mix of students who had lived in the US since birth, the students residing in India, and the foreign students who had lived in the US for a shorter duration (typically less than 10 years).

For the purpose of conducting statistical analyses, the US- and Indian-homogeneous were considered *culturally homogeneous groups*, whereas the heterogeneous groups were labeled as *culturally heterogeneous groups*. A total of 83 persons completed all phases of the study as follows: 4 US homogeneous, 9 Indian homogeneous, and 9 heterogeneous groups. Seventeen groups had four persons; five groups had three.

Once the availability of the students in each location was known, accounting for the 10 ½ hour time difference between the two countries and class schedules of the participants, students were randomly assigned to either homogeneous or heterogeneous groups, based on their availability.

Subjects participated in a detailed training session. The session consisted of a demonstration of each command of the GDSS software package to be used in the experiment and of a dummy task. The training session was conducted in a computer laboratory that was also used for the actual experiment. The session was conducted by two of the researchers who had extensive experience with the software.

### 4.1. Task identification and description

Given that the participants were students, it was felt that the involvement of the students would be stronger if the task was one they would easily relate to. Accordingly, the task chosen was the selection of a computer use fee for students enrolled in an online university. Groups were provided with a printed and online task description. It identified reasons why the university's administration was considering the implementation of a fee, e.g., need for a

help desk. The description also identified five fee options: a flat fee for all courses; one fee for undergraduate courses and a higher fee for graduate courses; a graduated fee, based on intensity of computer use in a course; a "fee for use;" and a fee based on the country of origin of the student.

As part of the experimental procedures, described below, students in each group discussed these options among themselves online and selected one option as the final choice of the group. Experimental procedures did not provide for identifying and recommending any option other than the five stated above.

### 4.2. Experimental procedures

The subjects were randomly assigned to groups and were informed as to when they would participate. Anonymity among group members was maintained. Each session consisted of the following activities:

- Activity 1- commenting on advantages, disadvantages, etc. of each option. The software allowed students to read each option, comment on options as desired, comment on other group members' statements, etc. When finished, each group member rated the five options from 0 (least appropriate/worst) to 4 (most appropriate/best). Subsequently, each group member viewed the rating results for his/her group.
- Activity 2 – commenting on the group's rating in activity 1. This Activity centered on discussions about why or why not the highest-ranked option was good, etc. and resolved conflict if more than one option ended up having almost a similar rating. Near the end of Activity 2, each group identified an option as a choice of the group, and members voted "yes" or "no" to accept or reject the proposed choice.
- Activity 3 – each group completed a short post-test questionnaire.

Groups could select an option for computer use fee following multiple paths: selecting the option that had maximum average rating or minimum standard deviation or both in the group rating process of activity 1; or select an option that might not have the highest rating in activity 1 but appeared to be satisfactory to the majority of the group members during the course of the discussion in activity 2.

These activities were implemented using Consensus@nyWARE, a web-based GDSS. Each group was under the control of a facilitator who communicated with team members using "instant messaging." The facilitator monitored the discussions and dealt with any technical software questions; the facilitator did not

interject anything into the discussion regarding the task and the computer use fee options.

### 4.3. Variable identification

In this research, the independent variables are the number of intra-group conflicts in the intelligence phase of decision-making and the intensity of intra-group conflict and the corresponding conflict resolution approach followed by group members in the choice phase of decision making. The dependent variables are the level of group agreement on the final decision, perceived decision quality, and satisfaction with the decision making process. The control variable is cultural diversity consisting of two levels: homogeneous and heterogeneous groups.

The GSS software captured a record of the groups' communications and discussions. The group discussions were analyzed to identify the number of conflict episodes in activities 1 and 2. For each conflict episode in activity 2, the contents were examined to identify the corresponding resolution approaches followed by the group.

In order to measure the intensity of choice conflict, meeting transcripts were coded using the rules based on the classification system used by Valacich and Schwenk [40]. A brief description of the coding rules used to code the group discussion is given in appendix 1. The extent of supportive and critical remarks and arguments made by the group members in activity 2 reflects the level of group choice conflict that prevails among them [26]. We hence measured group choice conflict as the proportion of the total comments (in activity 2) on group choice that were critical in nature, i.e.,  $(CR+CA)/(CR+CA+SR+SG)$ . Two coders independently identified the categories of the comments and confirmed the comments belonging to the supportive and critical categories. The intercoder correlation for number of supportive and critical comments is 0.82 ( $n=22, p < 0.0001$ ), which is acceptable in view of the exploratory nature of the study in the context of virtual teams.

Degree of agreement was measured as the percentage of members voting in favor of the final decision proposed by a group. The other two dependent variables were measured using 5-point Likert-type scales: perceived decision quality and satisfaction with the decision-making process. The indicator items of these scales are presented in appendix 2.

## 5. Results

As some of the measures in this study were based on self-reported data, it was necessary to assess reliability and validity of the instruments used to capture the data.

Cronbach Alpha coefficients were calculated for each instrument. As the measurement scales used had not been tested and validated before and the research is exploratory in nature, a cut-off value 0.70 was considered acceptable [24]. An alpha of 0.833 was found for "satisfaction with the decision making process" and 0.903 for "perceived decision quality." In order to determine construct validity, we conducted factor analysis employing VARIMAX orthogonal rotation for each instrument. Factor analysis for each instrument resulted in a single factor structure with high factor loadings.

### 5.1. Hypothesis Testing

The hypotheses were tested using t-test and regression analyses with a level of significance of 0.05. Any weak significance level in the range of .05 to .10 was treated as suggestive of the nature of relationship between the variables. We also conducted t-tests to ensure that the independent variables did not vary significantly across the homogeneous and heterogeneous groups.

Twenty-two groups participated in the experiment. Seventeen of these groups had conflict on the final choice whereas the remaining 5 groups did not have any choice conflict. The results of t-tests demonstrated that groups having choice conflict have lower perceived decision quality than their counterparts with no choice conflicts (table 1).

**Table 1. Results of t-Tests for groups with and without choice conflict**

Dependent Variable	Mean (Std Devn)		t-statistic, df	Prob. (F) Hypotheses Support
	Choice Conflict	No Choice Conflict		
Perceived decision quality	3.39 (0.573)	4.17 (0.136)	2.49, 20	0.022 H3a: Yes
Satisfaction with the decision making process	3.64 (0.376)	3.86 (0.448)	1.12, 20	0.276 H3b: No
Level of agreement	0.59 (0.156)	0.68 (0.097)	1.75, 19	0.097 H3c: Yes [Weak]

We also found weak support for hypothesis 3c, which proposes that virtual teams experiencing choice conflict have a lower level of agreement. Hypothesis 3b remains unsupported in this study.

Next, we considered the 17 groups that had choice conflict and focused on their conflict resolution styles. The results of the t-tests (table 2) demonstrate that groups following an integrative conflict resolution style had a

higher level of agreement, perceived decision quality, and satisfaction with the decision-making process than their counterparts who followed distributive approaches.

**Table 2. Results of t-Tests for integrative and distributive conflict resolution style**

Dependent Variable	Mean (Std Devn)		t-statistic, df	Prob. (F) Hypotheses Support
	Integrative styles	Other styles		
Level of agreement	0.72 (0.164)	0.47 (0.142)	3.86, 14	0.002 H4a: Yes
Perceived decision quality	4.02 (0.518)	3.45 (0.505)	2.28, 15	0.038 H4b: Yes
Satisfaction with decision making process	3.87 (0.401)	3.47 (0.267)	2.49, 15	0.025 H4c: Yes

Finally, we examined if group performance, measured in terms of levels of agreement, perceived decision quality, and satisfaction with the decision-making process, had negative relationships with the number of conflicting views prevailing in the early part of decision-making process and with the intensity of choice conflict. We found that perceived decision quality had negative relationships with the number of conflicting views and with the intensity of choice conflict. We also found that both the level of agreement and satisfaction with the decision making process had negative relationships with the intensity of choice conflict. Table 3 presents the results of the regression analyses.

**Table 3. Results of regression analyses**

Independent Variable	Satisfaction with Decision Outcome		Satisfaction with Decision Making Process		Level of Agreement
Intercept	4.64****		3.99****		0.90****
# of conflicting views in the intelligence phase of decision making	-0.12*		-0.03		
Intensity of choice conflict			-1.52***	-0.68*	-0.47**
R-Square	0.44		0.16		0.21
F	7.47		1.82		5.15
N	22		22		21
Hypotheses Supported?	H1a: Yes [Weak]	H2a: Yes	H1b: No	H2b: Yes [Weak]	H2c: Yes
* p<0.10; ** p<0.05; *** p<0.01; **** p<0.001					

## 6. Discussion

This study aims at enhancing our understanding of conflicts in virtual teams by examining the communication content of several sessions of virtual teams work. Haggarty [9] argues that content analysis can provide valuable knowledge especially when used to complement other techniques. We determined the conflict episodes and the conflict resolution styles through content analyses and conducted statistical analyses to demonstrate that conflicts in the choice phase of decision making are detrimental to global virtual teams. The segregation of conflicts occurring in different phases of a decision-making process is an interesting aspect of this study.

We also found that groups following integrative conflict resolution styles had better performance than those following other conflict resolution approaches, such as a distributive style. The findings of this research are similar to those of the prior studies on conflicts in GSS supported groups [21][22]. However, unlike prior studies we analyzed the contents of group discussion to identify conflict episodes and conflict resolution styles.

In this study we did not find any support for the relationship between satisfaction with the decision-making process and the number of conflict episodes in the early phase of decision making. We also found that process satisfaction in teams with and without choice conflict was not different. One possible explanation is that satisfaction with the decision-making process is not directly influenced by intra-group conflicts. Team members are satisfied with a process that results in a consensual solution. We carried out a regression analysis and found that satisfaction with the decision-making process is positively related to the level of agreement ( $\beta=1.30$ ;  $p=0.0006$ ;  $R\text{-square}=0.469$ ). Next, we included the intensity of choice conflict as a regressor variable in the regression model. We found that the original weak relationship between the intensity of choice conflict and satisfaction with the decision-making process (table 3) disappears when level of agreement is present in the regression model. The findings indicate that the relationship between intensity of choice conflict and process satisfaction is mediated by the level of agreement. In-depth study of this relationship is a future research agenda.

### 6.1. Limitations

Content analysis has limitations in its scope and ability to fully capture the meaning and essence of a group discussion. Moreover, content analysis is subject to the interpretation of the coder. Multiple coders can be used to overcome the interpretation bias.

Also, GSS enabled, anonymous group discussions may sometimes generate unproductive discussions and low levels of ownership to views and opinions. This can be reduced if partial anonymity is introduced in GSS based group interactions.

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**Appendix 1  
Coding Rules**

<b>Type of Discussion Statement</b>	<b>Code</b>
<i>Supportive remark</i> Expresses support for the option chosen by the group, without adding evidence or remark. (“I am for this option”; “I agree with you”)	SR
<i>Supportive argument</i> Supports the option chosen by the group, and gives evidence or argument to justify (“I support this option because it will eliminate many problems.”)	SG
<i>Critical remark</i> Expresses opposition to the option chosen by the group but does not add evidence or argument (“I don’t like that”; “I don’t agree with you”)	CR
<i>Critical argument</i> Expresses opposition to the option chosen by the group and gives evidence or argument to justify (“I don’t like this option because it has the following drawbacks.”)	CA
<i>Query</i> Requests clarification of another person’s comment or about the option chosen.	QS
<i>Group comment</i> Remark about the interpersonal process of the group (“let’s summarize”, “lets try to agree on something, anyway”).	GC
<i>Remark about the system</i> General remark about the computer system or the software used for the task.	COM
<i>Off the track comments</i> Remarks that are “off the topic” and do not fit into any of the above categories.	OTT
<i>Uncodable text</i> Uncodable text	UC

**Indicator Items for Satisfaction with the Decision Making Process**

1. I believe my contribution to be significant in our group arriving at the final decision
2. Our group was able to reach a consensual solution without any major conflict
3. I feel that the group members converged on the final decision
4. The decision making process of the group was complete
5. The progress of the group towards the stated goals of the task was satisfactory
6. Overall, as a member of our team, I am satisfied with the process I employed in arriving at the final solution
7. Overall, I am satisfied with the solution process

**Appendix 2**

**Indicator Items for Perceived Decision Quality**

1. The decision made by my group is practical
2. The decision made by my group is fair
3. I am confident that the final decision we came up with is the best decision
4. I feel that the quality of the group's decision would have positive effects on the performance of the university
5. Overall, it is my opinion that our final decision is of high quality