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EFFECTS OF LEADERSHIP AND TASK
DEMONSTRABILITY ON INFORMATION
REPETITION IN DECISION-MAKING GROUPS

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Isabel Cristina Botero

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EFFECTS OF LEADERSHIP AND TASK DEMONSTRABILITY ON INFORMATION REPETITION IN DECISION-MAKING GROUPS

By

Isabel Cristina Botero

A THESIS

Submitted to
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ABSTRACT

EFFECTS OF LEADERSHIP AND TASK DEMONSTRABILITY ON
INFORMATION REPETITION IN DECISION-MAKING GROUPS

By

Isabel Cristina Botero

This study examined the effects of leadership and task demonstrability on the repetition of shared and unshared information in decision-making groups. Participants worked in 3-person groups (one leader and two non-leaders) to either solve a murder mystery (intellective task) or rank the three murder suspects in order of likely guilt (judgmental task). After discussion, members of groups that construed the task as intellective chose the correct suspect more often than members of groups that construed the task as judgmental. As expected, leaders repeated more information than non-leaders. However, their repetitions focused largely on shared rather than unshared information. Task demonstrability did not qualify the effects of leadership on information repetition.

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I. C. B.

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INTRODUCTION

In many political and organizational contexts, important decisions are entrusted to groups. During the process of decision-making, group members come together to exchange information concerning the best possible decision. The diversity of knowledge, experience, and points of view that each member brings can benefit the group decision. If members effectively communicate their unique knowledge, the group may reach a better decision compared to that of a single member. Therefore, groups are assumed to be better decision-makers than individuals because group members have access to and can communicate unique information from various expertise domains. However, research has shown that groups tend to mention and repeat information that all members already know (shared information) in a greater proportion than the unique knowledge of single members (unshared information; e.g., Larson, Foster-Fishman, & Franz, 1998; Larson, Foster-Fishman, & Keys, 1994; Stasser & Stewart, 1992; Stasser, Taylor & Hanna, 1989; Stasser & Titus, 1987; Stasser, Vaughan, & Stewart, 2000; Winquist & Larson, 1998; Wittenbaum, 2000). Wittenbaum, Hubbell, and Zuckerman (1999) referred to this bias as the Collective Information Sampling (CIS) bias (see Stasser, 1999, and Wittenbaum & Stasser, 1996, for reviews). Research has tried to identify the factors that reduce the bias and increase group discussion of unshared information.

One factor that may increase groups' use of unshared information is leadership. As explained by Bass (1990), in group process the leader is the

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center of the group interaction, motivating members to obtain individual and group goals. The leader plays an important role for structuring and presenting information in a group, stimulating discussion, clarifying information, and assessing consensus (Yukl, 1998). In decision-making groups, leaders play an active role in the management and use of information, coordinating the retrieval of information between members. In sum, leaders have the responsibility to keep a group focused on the task, stimulate members' contributions, and integrate contributions to solve the problem (Maier, 1967). Not surprisingly leaders help group members to more thoroughly exchange information, particularly unshared information. To demonstrate leadership's effect on information sampling, Larson, Christensen, Abbot, and Franz (1996) formed 3-person medical decision making teams consisting of a resident (who was accountable for the group decision), an intern, and a medical student. Teams received information about two hypothetical medical cases and diagnosed each case. Larson et al. found that leaders (i.e., the residents) repeated more unshared information than other members, and over time leaders increased the amount of unshared information repeated (see also Larson, Christensen, Franz & Abbott, 1998; Larson, Foster-Fishman & Franz, 1998). In particular, leaders repeated the unshared information communicated by other members. By doing so, leaders kept the unshared information "alive" during discussion and within the collective focus of attention (Larson et al., 1996). Therefore, leaders can benefit the information pooling process in groups. The purpose of the present study is to understand the conditions under which leadership benefits information sampling.

CHAPTER 1

MODERATORS OF LEADERSHIP'S EFFECT ON THE CIS BIAS

One factor that moderates the way leaders pool information in decision-making groups is leadership style. Participative leaders share their power with subordinates by actively including them in the decision making process, whereas directive leaders place less value in member input and instead direct members' preferences toward a particular solution. Larson, et al. (1998) found that participative leaders were the ones who encouraged the discussion of more information (shared and unshared) than groups with directive leaders. Alternatively, directive leaders repeated more unshared information, particularly their own, when compared to participative leaders. Directive leaders can also influence the quality of the group decision. They may share information that supports their own preference, resulting in a low quality group decision when the leader's preference is suboptimal (Cruz, Henningsen, & Smith, 1999).

Another factor that may moderate how leaders sample information is task demonstrability. According to Laughlin (1980) and Laughlin and Ellis (1986) tasks can be defined along a continuum from intellective to judgmental depending on the demonstrability of the task solution. A task solution is said to be demonstrable when sufficient information is available for the completion of the task, the group is motivated to perform the task, members have the ability and opportunity to propose and defend solutions, and there is a shared system for identifying the correctness of the solution. Intellective tasks are considered to

have a correct answer, and presumed to have an objective standard against which to evaluate the group's decision. When group members believe that their task is to solve a problem, the goal of the group is to identify the necessary information and reasoning to find the correct answer. Judgmental tasks (also called decision making tasks) are those that are perceived as not having one demonstrably correct answer, or members believe that they have insufficient information for identifying the correct solution. As a result, the group has to reach a consensus for identifying which solution is preferred. Larson, Christensen et al. (1996; 1998) found that leaders were more likely than non-leader members to repeat unshared information using a task with intellective qualities. Members of medical decision-making teams attempted to diagnose correctly hypothetical medical cases. For both studies, teams listed possible diagnoses for medical cases, and the leader completed a team diagnosis report that asked for the probability that each diagnosis was the correct one. In addition, leaders were held responsible for the team's accuracy. It is possible that the quest to find the right diagnosis motivated leaders to repeat information, particularly that which was unshared. Likewise, the task used by Larson, Foster-Fishman, and Franz (1998) had intellective qualities. Three-person groups were asked to identify which of three hypothetical professors would be the best one to teach an advanced undergraduate course in personality psychology. The experimental materials were constructed such that there was a superior professor, and group members' task was to correctly identify that professor. The search to find the best professor may have motivated leaders to repeat unshared information.

Other research suggests that intellective tasks, as compared to judgmental tasks, inspire group members to pool information more thoroughly. Stasser and Stewart (1992) proposed that when groups work on judgmental tasks, the way that members share information in discussion is guided by an attempt to reach a consensus. Thus, if the shared information leads to agreement, members may not explore unshared information. Alternatively, when a task is intellective the assumption of demonstrability may lead members to search for a critical set of information that allows group members to identify and defend a superior choice. To test this assumption they asked university students to read and review evidence in a homicide investigation. There were three possible suspects, but two of these could be ruled out and the third one could be implicated. In the judgmental conditions, the participants were told that their task was to decide which suspect "was the most likely to have committed the crime" and noted that they might not have enough information to determine definitely who was the guilty suspect. Under the intellective conditions, they told participants that their task was to determine who was the guilty suspect. Stewart and Stasser found that groups discussed more unshared information when they believed that the case could be solved, supporting the idea that information exchange in decision making groups is affected by a task's perceived demonstrability. When a task is judgmental, there is a tendency to pool shared information, instead of unshared information. When the task is intellective, groups will take into account more unshared information when reaching a decision.

Given that intellective tasks facilitate groups' use of unshared information, relative to judgmental tasks, Larson and colleagues' finding that leaders repeat unshared information may be pronounced for tasks such as theirs, with intellective qualities. Leadership may facilitate the pooling of unshared information when groups work on intellective tasks for at least three reasons. First, intellective tasks may require that members effectively pool information in order to find the correct solution. Although information pooling is not necessary to solve all types of intellective tasks (e.g. math problems), successful completion of tasks used to study the information sharing in groups have required information exchange. That is, the optimal decision alternative was apparent only when all unshared information was communicated. Leaders should be more sensitive to task demands than non-leaders because it is the responsibility of leaders to motivate the group to perform the task. If leaders recognize the demand to pool information when the task is intellective, they may take responsibility for facilitating information exchange and repeating information that is critical for task solution. Likewise, leaders should recognize that judgmental tasks require consensus seeking rather than information pooling and should emphasize the former instead of the latter. Second, group discussions last longer when the task is intellective compared to judgmental (Stasser & Stewart, 1992). Because leaders' tendency to repeat unshared information increases over time, while non-leaders' tendency to repeat unshared information decreases over time, increases in discussion length should increase the disparity between leaders' and non-leaders repetition of unshared information. Thus, if discussions last longer for

intellective than judgmental tasks, the tendency for leaders to repeat unshared information more than non-leaders will be greater for intellective than judgmental tasks. Third, confident members have more influence in decision-making groups when the task is intellective compared to judgmental (Zarnoth & Sniezek, 1997). Because leaders likely have more task confidence than non-leader members, leaders may exert greater influence on information pooling when the groups' task is intellective rather than judgmental. In sum, the tendency for leaders to keep unshared information alive during discussion will be stronger in groups that work on intellective rather than judgmental tasks.

The Present Study and Hypotheses

The present study examined the effects of leadership and task demonstrability on information repetition in decision-making groups. Participants received information about a homicide investigation and the perceived task demonstrability manipulation used by Stasser and Stewart (1992) and Stewart and Stasser (1998). Participants individually read and reviewed evidence in a homicide investigation, and then determined the guilty suspect in three-person groups. Each member read unshared clues that other members did not read, and shared clues that all members read. The evidence in this mystery case suggested three possible suspects, and instructions led them to perceive a task as intellective or judgmental. For the judgmental condition, participants were told that they should decide which suspect "was the most likely to have committed the crime" and there were indications that they did not have sufficient information to determine the guilty suspect. For the intellective condition, participants were told

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that their task was to solve the mystery by uncovering the correct guilty suspect. For both conditions, one member played the role of the group leader. The leaders were older and had more experience, knowledge, responsibility and education in the decision-making process compared to non-leader members. Leadership style was not specified given that, overall, leaders repeat more unshared than shared information, regardless of their leadership style (Larson, Foster-Fishman, & Franz, 1998).

Stasser and Stewart (1992) and Stewart and Stasser (1998) found that when group members perceived that the homicide case could be solved (intellective task) they were more likely to choose the guilty suspect compared to group members who perceived that they did not have enough information to solve the case (judgmental task). As a replication of the work of Stasser and Stewart and Stewart and Stasser, the following hypothesis was formulated:

Hypothesis 1: A higher proportion of groups in the intellective condition will choose the correct compared to groups in the judgmental condition.

The present study also aimed to replicate the findings from Larson and colleagues (1996, 1998) where leaders repeated more information than non-leaders and especially more unshared information than the other group members. The following hypotheses predict replications of past research.

Hypothesis 2: Leaders will repeat a higher proportion of total clues compared to non-leaders.

Hypothesis 3: Leaders will repeat a higher proportion of unshared clues compared to non-leaders.

Although the research of Larson and colleagues (1996, 1998) used a decision-making task, the researchers emphasized decision accuracy when describing the task requirements to group members. Perceiving the decision-making task as being intellective may have enhanced leaders' use of unshared information. The present study expected that the perceived task demonstrability would affect the tendency for leaders to repeat unshared information. A perceived intellective task should create greater demand for leaders to repeat unshared information compared to a perceived judgmental task. The following hypothesis was formulated:

> Hypothesis 4: The tendency for leaders to repeat a higher proportion of unshared clues compared to non-leaders will be stronger when the task is perceived as intellective compared to when it is perceived as judgmental.

CHAPTER 2

METHOD

<u>Design and Participants</u>

The present study used a 2 x 2 mixed factorial design. The factors studied were Task Demonstrability (intellective vs. judgmental), and Member (leader vs. non-leader), with the latter factor occurring within groups. A total of 223 undergraduate students at a large midwestern university participated in partial fulfillment of a research requirement for their communication courses. Participants were randomly assigned to mixed-sex, three-person groups comprised of two students from an introductory communication class (i.e., non-leaders) and one student from a leadership and group communication class (i.e., leaders). There were a total of 50 three-person groups, twenty-four in the intellective task condition and twenty-six in the judgmental task condition. Sixty-two participants remained after groups were formed. These participants worked on individual tasks; their data are excluded from this report.

<u>Decision Task</u>

Participants read a 27-page booklet containing interviews from a homicide investigation. The booklet had interviews with the three suspects and related characters, a newspaper article, area maps, and a hand-written note. This information contained 24 critical clues that incriminated or exonerated the three suspects in the case (E, B, and M). Six clues incriminated each suspect, but 3 clues exonerated each of Suspects B and M. The critical clues showed that Suspect E had the motive and opportunity to commit the crime and that he had

attempted to frame Suspect B. Of the 24 critical clues, 15 were distributed to all members as shared information. The remaining 9 clues were critical in that they were necessary in identifying the guilty suspect. Of these 9 critical clues, three exonerated Suspect B, three exonerated Suspect M, and three incriminated Suspect E. Each member of the group received 3 of these critical clues as unshared information - one critical clue about each suspect. To assure that leaders' behavior was not due to the kind of critical clues they read, leaders received each of the three sets of critical clues an equal number of times in each task demonstrability condition (i.e., unshared information was counterbalanced across members). There were also 28 additional pieces of information (i.e., details) that were shared by all members but were not needed to solve the mystery.

Procedure

Pre-discussion phase. Groups were formed of two introductory communication students and one leader from a leadership and group communication course. As students arrived, they were welcomed and assigned to a group. The experimenter then asked participants to sign a consent form (see Appendix A) that explained the study's purpose and procedures. After signing the consent form, participants received the murder case material and pre-discussion ballot (see Appendices B and C). At this point, the experimenter introduced the leader by saying that "member number one" was assigned as the group leader because he or she was a student in the leadership and group communication course, and that this student had the most leadership expertise of anyone else

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the group. Then verbal instructions were varied according to task demonstrability (judgmental or intellective; see Appendices D and E). The judgmental groups were told "the detectives in this case did not have sufficient evidence to charge anybody for the homicide, so we are asking you to use the available evidence and rank the suspects in order of who seems more likely to have committed the crime." The pre-discussion ballot for the judgmental groups asked members to rank-order the suspects from most to least likely to have committed the crime. The intellective task participants were told that "only one of the suspects could have committed the crime, and we would like you to read over the material carefully and correctly choose the guilty suspect." The pre-discussion ballot asked members to select individually the one suspect who committed the crime. When all members finished reading the case information, the materials and ballots were collected.

Discussion phase. Participants had up to 30 minutes to discuss the mystery and determine the guilty suspect for the intellective task, or the likelihood of guilt, for the judgmental task. Leaders were responsible for completing a group discussion ballot (see Appendices B and C) that asked for the order of the suspects for the judgmental condition, or the guilty suspect for the intellective task. These discussions were videotaped.

Post-discussion phase. After discussion had finished, each participant individually completed a post-discussion ballot (see Appendices B and C) again asking for members' suspect choice(s), followed by a post-discussion questionnaire that asked for members' impressions of one another and checks

on the manipulations (see Appendix F). Participants were debriefed, given an information sheet (see Appendix G) and credit, and an opportunity to receive by e-mail the final results and solution to the mystery.

<u>Discussion Content</u>

Three coders, who were blind to the experimental hypotheses, independently viewed two thirds of the group discussions. Two different coders coded each group discussion (See the coding instructions in Appendix H). Each coder recorded every informational utterance along with the member who made the utterance. The utterances included statements citing information from the murder mystery booklet. To be counted as correct information, a speaker needed to convey, explicitly or by context, the essential meaning of a clue and the suspect to whom that clue was related, as cited in the mystery booklet. An item was considered to be repeated if the discussion moved to another topic and then returned to a piece of information that was mentioned earlier.

From these coding protocols the proportion of information mentioned and repeated were calculated. The dependent variables calculated from the codings were: proportion of shared clues, unshared clues and details mentioned and repeated. Measures were calculated for leaders and non-leaders of each group. The proportion of shared information mentioned was calculated by dividing the number of shared items mentioned at least once by the total number of shared items (i.e., 15). The proportion of unshared information mentioned was calculated by dividing the number of unshared items mentioned at least once by the total number of unshared items available to each member (i.e., 3). The proportion of

details mentioned was calculated by dividing the number of details mentioned at least once by the total number of details (i.e., 28). The proportion of total information mentioned by each member was calculated by first adding the number of shared items, unshared items and details mentioned by each member, and then dividing by the total number of clues available to each member (i.e., 46). The repetitions were calculated as a proportion of shared clues, unshared clues, details, or total clues that were mentioned, which were later repeated.[1] The proportion of shared items repeated was calculated by dividing the number

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[1] Repetitions were also computed in three additional ways. First, to replicate Larson's studies, the proportion of shared clues, unshared clues, details and total clues repeated were calculated by dividing the number of times items were repeated by the total items that were mentioned. This measure of repetitions differs from the one reported in the body of the paper in that it counts the number of times an item was repeated to achieve a measure of repetitions per item mentioned. Shared repetitions were calculated by counting the number of times shared items were repeated by each member and dividing it by the number of shared items that were mentioned by group. Unshared repetitions were calculated by counting the number of times that each member repeated unshared items and dividing it by the number of unshared items mentioned by the group. Details and total repetitions were calculated the same way. Second, repetitions were computed by counting the number of clues (shared, unshared, details and total) that were repeated one or more times (i.e., number of items repeated). Third, repetitions were calculated by counting the number of times each member repeated each type of clue (shared, unshared, details and total). This measure identified the number of times clues were repeated rather than the number of items repeated. Both of these later measures of repetitions were frequencies rather than proportions adjusted for information mentioned. The original and three additional measures of repetitions were submitted to the same significance tests. None of the statistical conclusions changed with the different analyses.

of shared clues that were repeated by each member by the number of shared clues that were mentioned by the group. The proportion of unshared clues repeated was calculated by dividing the number of unshared clues that each member repeated by the number unshared items previously mentioned. The proportion of details repeated was calculated by dividing the number of details repeated by each member by the number of details previously mentioned by the group. And, total information repeated was computed by dividing all the information (shared, unshared, and details) repeated by any by the total clues that were mentioned by the group.

The coder reliability estimates were obtained by correlating the measures taken from two independent codings across 50 group discussions. Because the following analyses used the average of the measure taken from the two codings, these correlations were adjusted (via Spearman-Brown prophesy formula) to obtain the estimated reliability of the average. The resulting reliability estimates are given for each dependent measure. The reliabilities were .91 for shared items mentioned, .96 for unshared items mentioned, .97 for details mentioned, .98 for total clues mentioned, .91 for shared items repeated, .91 for unshared items repeated, .93 for details repeated, and .96 for total repetitions.

CHAPTER 3

RESULTS

<u>Manipulation Checks</u>

<u>Task Demonstrability.</u> Three items tested the success of the task demonstrability manipulation: (a) "The information I had was sufficient to determine who was the guilty suspect, " (b) "I was given enough information to find a solution to the mystery, " and (c) "The mystery was solvable." Because these items were highly correlated, a composite measure was created by averaging the three items (Cronbach's α=.95). This measure was analyzed in a Task Demonstrability (intellective vs. judgmental) x Member (leader vs. non-leader) mixed factorial analysis of variance (ANOVA) with the member factor occurring within groups. Intellective groups ($\underline{M}$=6.01, $\underline{SD}$= 1.68) perceived that the information provided was more sufficient to solve the mystery compared to judgmental groups ($\underline{M}$=4.63, $\underline{SD}$= 1.83), $\underline{F}$ (1,48)= 11.05, $\underline{p}$< .01, η^2= .13. The effect of member and its interaction with task demonstrability were non-significant. Therefore, the task demonstrability manipulation was successful.

<u>Member Status.</u> Several measures from the post-discussion questionnaire were used to assess the accuracy of the leadership manipulation. Leaders as compared to non-leaders, were expected to have more years in college, be older, and have taken more leadership and group communication courses. Overall seventy-eight percent of the leaders ($\underline{N}$=38) were seniors, twenty two percent ($\underline{N}$=11) were juniors, and none were freshmen or sophomores. One leader failed

to answer this question. Of the non-leaders, thirty percent ($\underline{N}$=29) were freshmen,

thirty-nine percent ($\underline{N}$=38) were sophomores, fourteen percent ($\underline{N}$=14) were

juniors, and seventeen percent ($\underline{N}$=17) were seniors. Two non-leaders did not

answer this question. Leaders were also older in years ($\underline{M}$= 22.22, $\underline{SD}$= 4.26)

than non-leaders ($\underline{M}$= 19.51, $\underline{SD}$= 1.07), $\underline{F}$ (1, 46)= 19.55, $\underline{p}$<.001, η^2=.16. Ninety-

one percent of the leaders had previously taken a leadership and group

communication course, while only 23 percent of non-leaders reported having

taken a leadership course.[2] Overall chi-square analyses showed that type of

member (leader vs. non-leader) and having taken a leadership and group

communication course (yes vs. no) were not independent, χ^2 (1,$\underline{N}$=143)= 57.49,

$\underline{p}$<0.001. Four leaders and three non-leaders did not answer this question. Direct

comparisons using z-test for the difference in proportions showed that leaders

reported having taken a leadership and group communication course (91%) more

than expected by chance, $\underline{z}$= 2.96, $\underline{p}$<.001, whereas, non-leaders reported to

have taken a leadership and group communication course (24%) less than

expected by chance, $\underline{z}$= - 7.58, $\underline{p}$<.001. A direct comparison showed that leaders

were more likely to take a leadership and group communication class than non-

leaders, χ^2 (1,$\underline{N}$=65)= 5.55, $\underline{p}$<0.05.

In the post-discussion questionnaire, participants were asked 14

questions about the leadership-related qualities of themselves and the other

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2 All of the leaders should have reported taking a leadership course because they were recruited

from that course to participate in the study. Four leaders incorrectly reported not taking such a

course, and for this reason the percentage was underestimated.

group members. An exploratory factor analysis using principle components and varimax rotation was conducted. On these items three factors emerged: task capability (Cronbach's α= 0.88), communication (Cronbach's α= 0.91) and leadership (Cronbach's α= 0.83). Questionnaire items and factor loadings for all factors are displayed in Table 1.

The communication factor was composed of six items: (a) "Member _ facilitated communication in the group," (b) "Member _ asked for the contributions of other members," (c) "Member _ encouraged other members to give their opinions," (d)"Member _ took into consideration other members' opinions," (e) "Member _ is knowledgeable about group communication," and (f) Member _ participated a lot in the discussion." The communication factor dealt with the extent to which members managed communication within the group. The task capability factor was composed of four different items: (a) "Member _ was competent when working on the mystery task," (b) "Member _ was knowledgeable about the homicide investigation," (c) "Member _ was a credible source of information about the homicide investigation," and (d) "Member _ felt confident about which suspect was guilty." This factor dealt with members' capability to perform the murder mystery task. The leadership factor included three items: (a) "Member _ was the person responsible for completing the discussion ballot," (b) "Member _ is responsible for the group's performance," and (c) "Member _ was the leader in the group." This factor included perceptions of responsibility for playing the leadership role in the group. The item: "Member _ made valuable contributions to discussion", was eliminated due to high loading

on two factors: task capability and communication. The inclusion of this item in the task capability factor did not produce different results in subsequent analyses.

Each of the three measures was analyzed in a Task Demonstrability (intellective vs. judgmental) x Member (leader vs. non-leader) x Member Rated (leader vs. non-leader) mixed factorial ANOVA with the two latter factors occurring within groups.[3] For the task capability factor, no main effect for member rated was found, $F(1,48)$= 0.00, n.s.; leaders and non-leaders were perceived equally competent in performing the murder mystery. However, members rated each other differently, the member x member rated interaction reached significance, $F(1,48)$= 9.09, $p<.01$, $\eta^2=.01$. Leaders rated non-leaders (M=7.85, SD=1.03) as more capable than themselves (M=7.67, SD=1.05), $F(1,48)$= 4.37, $p<.05$, $\eta^2=.01$, whereas non-leaders rated leaders (M=8.35, SD=0.53) as more capable than themselves (M=8.16, SD=0.58), $F(1,48)$= 4.61, $p<.05$, $\eta^2=.01$.

Leaders (M=8.15, SD=0.89) were perceived as managing more communication within the group compared to non-leaders (M=7.21, SD=1.20), $F(1,48)$= 46.11, $p<.001$, $\eta^2=.15$. Leaders were rated higher than non-leaders in their ability to facilitate communication within the group, ask and take into

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[3] The effects of member were examined for all dependent measures once with three levels of member (leader, non-leader 1, and non-leader 2) and again by averaging non-leader members (i.e., leader vs. non-leader). Because only a few random differences emerged between the two non-leader members, all presented results were averaged across non-leaders members.

account members' contributions, and encourage members to give their opinions. This effect was not qualified by member , $F(1,48)=1.58$, ns.

For the leadership factor, leaders ($\underline{M}=7.84$, $\underline{SD}=1.10$) were rated higher than non-leader members ($\underline{M}=4.09$, $\underline{SD}=1.70$), $\underline{F}(1,48)=230.02$, $\underline{p}<.001$, $\eta^2=.59$. Overall, the participants that were assigned to the leadership position were perceived as being the leaders in the group and being responsible for group performance more than non-leader members. This effect was not qualified by member making the rating, $\underline{F}(1,48)=0.07$, n.s.

These results indicate that leadership was successfully manipulated. Leaders compared to non-leaders were perceived as facilitating group discussion by asking and encouraging non-leader members to give their opinions and taking those opinions into consideration when making the group decision. Leaders were also perceived as fulfilling the leader role in the group by completing the group ballot and being responsible for the decision the group made. It seems that each type of member was gracious in seeing the other type as more task capable. The fact that leaders were not seen as more capable than non-leaders overall when performing the murder mystery makes sense in that all members had equal exposure to the murder mystery and equal importance and amount of information. In sum, leadership was successfully manipulated by having leaders relative to non-leaders that had more years in school, were older, had more knowledge of leadership and group communication, assumed the leadership role by facilitating communication during group discussion, and took responsibility for the decision that the group made.

Individual Preferences and Group Choices

Pre-discussion Choices. After reading the materials but before group discussion, participants indicated either the one guilty suspect (intellective condition) or which suspect was most likely to be guilty (judgmental condition). In the judgmental condition, the suspect with the number one rank was used as members' suspect choice.[4] The choices (E, B, or M) were analyzed in a Task Demonstrability (intellective vs. judgmental) x Member (leader vs. non-leader) log-linear analysis of variance. No significant effects emerged (see Table 2). Before discussion, task demonstrability did not affect the suspect choice, $\chi^2(2, \underline{N}=150)= 0.38$, $\underline{n.s.}$ Groups in the intellective condition had the same distribution of preferences before discussion as groups in the judgmental condition.

Post-discussion Choices. After group discussion, participants were asked to privately indicate the guilty suspect (intellective condition) or the suspect most likely to be guilty (judgmental condition). The results were analyzed in a Task Demonstrability (intellective vs. judgmental) X Member (leader vs. non-leader) log-linear analysis of variance. A main effect for task was found $\chi^2 (2, \underline{N}=150)= 22.37$, $\underline{p}<0.001$. Participants in the intellective condition (60%) chose the guilty

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[4] Assigning a number one ranking is not the same measure of preference as choosing one among several options. It is possible that members who assigned a number one to a suspect would not have chosen the same suspect in the intellective condition. However, such an occurrence is probably rare. In most cases, the number one rank corresponds to what would have been the chosen suspect. Therefore the rank and choice measures are comparable.

suspect more often than those in the judgmental condition (33%), χ^2 (1,$\underline{N}$=69)=

4.19, $\underline{p}$<0.05, $\underline{r}$=.25. Direct comparisons using the z-test for the difference in

proportion expected and observed showed that in the intellective condition,

participants chose the guilty suspect (60%) more than expected by chance, $\underline{z}$=

3.24, $\underline{p}$<.01. Participants in the intellective condition (14%) also chose suspect M

less than expected by chance, $\underline{z}$=-4.99, $\underline{p}$<.001. Participants in the judgmental

condition chose the guilty suspect (33%) less than expected by chance, $\underline{z}$= -3.24,

$\underline{p}$<.01, whereas they selected suspect M (53%) more than expected by chance,

$\underline{z}$=4.99, $\underline{p}$<.001. Thus, the intellective task motivated members to turn away from

suspect M and toward the correct suspect in comparison to members in the

judgmental condition. This pattern is consistent with predictions from hypothesis

1, which predicted that groups under intellective conditions would be more likely

to choose the correct suspect (E) compared to groups under judgmental

conditions.

    Group Decision. Groups in the intellective condition decided which

suspect was guilty, whereas groups in the judgmental condition decided which

suspect was the most likely to have committed the crime. In the judgmental

condition, the group's suspect choice was the suspect judged as the most likely

to have committed the crime. Table 2 presents the proportion of groups that

chose each suspect. As with the pre- and post-discussion preferences, the data

were analyzed in a Task Demonstrability (intellective vs. judgmental) x Member

(leader vs. non-leader) log-linear analysis of variance. This test showed a

marginal effect for task χ^2 (2,$\underline{N}$=50)= 4.66, $\underline{p}$=0.09.

As predicted by hypothesis 1, groups in the intellective condition were expected to choose the correct subject more often than groups in the judgmental condition. Fifty eight percent (58%) of the groups in the intellective condition chose E as the guilty suspect while only thirty nine percent (39%) of the groups in the judgmental condition chose E as the guilty suspect, χ^2 (1,$\underline{N}$=50)=.66, $\underline{n.s.}$, $\underline{r}$=.20. Direct comparisons using a z-test for the difference in proportions of expected and observed frequencies suggest that in intellective conditions groups chose suspect E (58%) marginally more than expected by chance, $\underline{z}$=1.42, $\underline{p}$<.07; and chose suspect M (17%) less than expected by chance, $\underline{z}$= -2.20, $\underline{p}$<.05. Groups in judgmental conditions chose suspect E (38%) marginally less than expected, $\underline{z}$= -1.37, $\underline{p}$<.08; and chose suspect M (46%) more than expected by chance, $\underline{z}$=2.25, $\underline{p}$<.05. Even though the trends of group choices were consistent with this hypothesis, the data did not reach significance. For this reason hypothesis 1 was marginally supported.

Discussion Content

Information Mentioned. The means for the proportion of shared information, unshared information, details and total information mentioned were analyzed in a Task Demonstrability (intellective vs. judgmental) x Member (leader vs. non-leader) mixed factorial ANOVA, with member occurring within groups. There were no specific predictions about mentioning information, but it is important to understand the mentioning pattern because information cannot be repeated unless it has been previously mentioned. The means for information mentioned are displayed in Table 3. There were no effects of the independent

variables on mentioning of shared information. Leaders and non-leaders mentioned about 17% of the shared information that was available, independent from the task demonstrability condition. Leaders ($\underline{M}$=0.67, $\underline{SD}$=0.47) mentioned a higher proportion of unshared information compared to non-leaders ($\underline{M}$=0.48, $\underline{SD}$=0.26), $\underline{F}$(1,48)=5.63, $\underline{p}$<.05, η^2=.05. Leaders ($\underline{M}$=0.15, $\underline{SD}$=.10) also mentioned a higher proportion of details than non-leaders ($\underline{M}$=0.10, $\underline{SD}$=.06), $\underline{F}$(1,48)=8.05, $\underline{p}$<.01, η^2=.064. And, overall leaders ($\underline{M}$=0.19, $\underline{SD}$=.11) mentioned a higher proportion of total information than non-leaders ($\underline{M}$=.14, $\underline{SD}$=.07), $\underline{F}$(1,48)=5.66, $\underline{p}$<.05, η^2=.05. All of these effects were independent of the task's demonstrability. Overall, leaders were found to mention a higher proportion of unshared information, details, and total information compared to non-leaders, independent of the group's task.

Information Repeated. As used by Stasser and Stewart (1992), the proportion of repetitions were calculated by dividing the number of clues that were repeated by the number of clues that were mentioned. This was done independently for shared clues, unshared clues, total clues and details. The means for the proportion of shared clues, unshared clues, details and total clues repeated were analyzed in a Task Demonstrability (intellective vs. judgmental) x Member (leader vs. non-leader) mixed factorial ANOVA, with member occurring within groups. The means for information repeated are displayed in Table 4.

Leaders were expected to repeat more total clues than non-leaders. In support of hypothesis 2, a main effect for Member was found $\underline{F}$(1,47)=7.85, $\underline{p}$<.01, η^2=.045. One group did not mention or repeat any information. Leaders

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($\underline{M}$=0.21, $\underline{SD}$=.15) repeated a higher proportion of total information compared to non-leaders ($\underline{M}$=0.16, $\underline{SD}$=.09). This effect was independent from the type of group task, $\underline{F}$(1,47)=0.63, $\underline{n.s.}$

As predicted by hypothesis 3, leaders were also expected to repeat more unshared information than non-leaders. Leaders ($\underline{M}$=0.21, $\underline{SD}$=.18) repeated slightly more unshared information than non-leaders ($\underline{M}$=0.17, $\underline{SD}$=2.44), but the difference did not reach statistical significance $\underline{F}$(1,47)=2.44, *ns*, η^2=.012. Hypothesis 3 was not supported.

Hypothesis 4 suggested an interaction between task demonstrability and member such that the tendency for leaders to repeat more unshared clues than non-leaders would be stronger when the task was perceived as intellective compared to when the task was perceived as judgmental. This interaction was non-significant, $\underline{F}$(1,47)=0.39, $\underline{n.s.}$, η^2=.002. For this reason, hypothesis 4 was not supported.

Even though no predictions were made, leaders ($\underline{M}$=0.27, $\underline{SD}$=.20) repeated a higher proportion of shared information compared to non-leader members ($\underline{M}$=0.19, $\underline{SD}$=.11), $\underline{F}$(1,47)=8.77, $\underline{p}$<.01, η^2=.057. Leaders ($\underline{M}$=0.16, $\underline{SD}$=.15) also repeated a marginally higher proportion of details compared to non-leaders ($\underline{M}$=0.13, $\underline{SD}$=.10), $\underline{F}$(1,47)=3.02, $\underline{p}$=.08, η^2=.02. Neither effect was qualified by task demonstrability.

Overall, leaders repeated a higher proportion of shared and total information compared to non-leaders. Leaders also repeated a marginally higher proportion of details compared to non-leaders. However, unlike expected,

leadership and task demonstrability did not affect the proportion of unshared

information repeated.

CHAPTER 4

DISCUSSION

Effects of Leadership on Information Repetition

Leadership appears to influence the repetition of information in decision-making groups but not in expected ways. In decision-making groups, leaders have the responsibility to manage and facilitate information exchange (Maier, 1967). One of the ways leaders help the group to manage information effectively during discussion is through repeating previously mentioned information. As predicted and consistent with previous research, leaders repeated more total information compared to non-leaders (Hypothesis 2). Findings by Larson, Christensen et al. (1996, 1998) showed that leaders in decision-making groups take a more active role in the management of information compared to other group members. It is the leader's role to manage information, and by repeating information leaders keep information alive during discussion and within the group's collective focus of attention.

In addition to repeating more information than non-leaders, leaders also mentioned more information than non-leaders. Thus leaders were not emphasizing repetitions of information exclusively. They tended to mention both common (details) and unique information more than non-leaders. It seems then, that another explanation for why leaders repeated more total information than non-leaders was because of a general propensity to talk more than non-leader members. Leaders may not have been trying to keep information alive during discussion, but rather assuming more floor time because of their role. This

explanation is consistent with previous research that demonstrates that leaders have a higher rate of verbal participation in group discussion compared to non-leaders (e.g., Hastie & Pennington, 1991; Reynolds, 1984; Ruback, Dabbs & Hopper, 1984).

Contrary to expectations, this study failed to replicate the tendency for leaders to repeat more unshared information than non-leaders (Hypothesis 3). There are at least three possible explanations for why this finding was not replicated. First, leaders in this study had less experience with the task; they had never performed a task similar to the murder mystery. In studies conducted by Larson and colleagues, leaders were medical residents, and they were making decisions on medical cases. Residents make decisions about medical cases as part of their training, so they are experienced with this type of task. Their occupational experience was relevant to the fictitious case diagnosis task used in two of Larson's studies (Larson, Christensen, et al, 1996; 1998). In the present study, leaders and non-leaders alike had no experience working on a homicide investigation that involved reading pages of interviews and determining suspects' guilt. Research suggests that members with previous task experience, as compared to inexperienced members, repeat more unshared information in group decision-making (Wittenbaum, 1998). Therefore, leaders in Larson's studies may have repeated more unshared information than non-leader members because leaders had more experience working on the task. The present study may have failed to replicate this repetition effect because leaders did not have more task experience than non-leaders.

A second explanation for why leaders did not repeat more unshared information than non-leaders is because leaders did not feel more confident in their task capabilities than non-leaders. In the present study, leaders did not rate themselves as more confident about which suspect was guilty (M=7.5, $\underline{SD}$=1.55) compared to non-leaders (M=7.48, $\underline{SD}$=0.99), $\underline{F}$ (1,48)=.01, $\underline{n.s.}$ Surprisingly, non-leader members rated themselves (M=8.16, $\underline{SD}$=0.58) as more task capable than leaders rated themselves (M=7.67, $\underline{SD}$=1.06), $\underline{F}$ (1,48)=29.96, $\underline{p}$<.01, η^2=.04 . Member confidence and felt task capability have been theorized to drive the tendency to repeat unshared information (see Wittenbaum, 1998, 2000; Wittenbaum et al., 1999; Wittenbaum & Park, 2001). If leaders did not feel more confident in their task competence than non-leaders, then leaders would not be expected to repeat more unshared information. Future research should examine how the task confidence of leaders can affect the repetition of unshared information in decision-making groups.

A third possible explanation for why leaders did not repeat more unshared clues is because the task used for this study had a high information load (amount of information available to decision makers) and the ratio of shared to unshared information was very large. The studies that found that leaders repeated more unshared information than non-leaders (i.e., Larson, Christensen et al, 1996,1998) used tasks with a lower information load and a lower proportion of shared information compared to the present study. Larson, Christensen et al. (1996, 1998) used a task with 22 items, fifty percent of which were shared and the other fifty percent were unshared. The task used in the present study had 52

clues, seventeen percent which were unshared (i.e., 9 unshared clues) and eighty-three percent shared (i.e., 43 shared items). Previous research suggests that groups are better at disseminating unshared information when tasks have low information load and smaller proportion of shared information available for discussion (Stasser, 1992; Stasser & Titus, 1987). Leaders in previous studies may have repeated unshared information because the tasks that were used in those studies had a low information load and high percentage of unshared information. By designing the present materials to include much information, very little of which was unshared, the balance was tipped away from members discussing unshared information. This may have affected leaders' propensity to repeat unshared information. Further research in this area should examine the effects of information load and percentage of shared information on leader's repetition of unshared information.

The present study also failed to find a member by task interaction for the repetition of unshared information (Hypothesis 4). There are at least four possible explanations for why this interaction was not found. First, leaders did not feel more task confident than non-leaders. Past research found that confident members have more influence within a group over less confident members when working on intellective rather than judgmental tasks (Zarnoth & Snizek, 1997). Because in the present study leaders did not report feeling more confident than non-leaders, it can not be expected then that leaders under intellective conditions would influence the pooling of information in a greater extent than leaders under judgmental conditions.

Second, discussions did not last longer for groups that worked on intellective tasks as opposed to judgmental tasks. Groups in the intellective condition discussed for as many minutes ($\underline{M}$=14.21, $\underline{SD}$=7.88) as judgmental groups ($\underline{M}$=15.46, $\underline{SD}$=10.19), $\underline{t}$ (46)= -.48, $\underline{n.s}$. Stasser and Stewart (1992) and Stewart and Stasser (1998) found that groups under intellective conditions discussed longer compared to judgmental tasks. Larson, Christensen et al. (1996,1998) found that leaders' tendency to repeat more unshared information than non-leaders emerged over time. Therefore leaders should have repeated more unshared information than non-leaders when discussions were longer (i.e., intellective task) rather than shorter (i.e., judgmental task). Because the length of discussions in this study did not differ across task conditions, it would not be expected for leaders in the intellective condition to repeat more unshared information compared to those in the judgmental condition.

A third explanation for why hypothesis 4 was not supported might be that leaders were not more sensitive to task demands than non-leaders. When the murder mystery was framed as solvable, it demanded more information sharing than when it was framed a matter of judgment. Members who picked up on these task demands should have felt a greater need to emphasize unique information when the task was solvable compared to when it was not. The measure used to asses the success of the task demonstrability manipulation is one index of members' sensitivity to task demands. If the leaders, in the present study, had been more task sensitive compared to non-leaders, the task demonstrability manipulation check would have shown an interaction between Task

Demonstrability (intellective vs. judgmental) and Member (leader vs. non-leader). However leaders did not see a bigger distinction between task demands for intellective ($\underline{M}$=6.26, $\underline{SD}$=1.55) and judgmental tasks ($\underline{M}$=4.33, $\underline{SD}$=2.05) compared to non-leaders (Intellective: $\underline{M}$=5.76, $\underline{SD}$=1.81, Judgmental: $\underline{M}$=4.92, $\underline{SD}$=1.58), $\underline{F}$ (1,47)=2.63, $\underline{p}$=.11, η^2=.01. (One leader did not answer this question.) Therefore, it seems that leaders were not more sensitive to the task demonstrability manipulation compared to non-leaders. However, better measures of perceptions of task demands need to be used to test this explanation. Future research should concentrate on understanding if leaders are more task sensitive compared to non-leader members, and how this sensitivity may influence the repetition of information in the decision making process.

A fourth explanation for why the member by task demonstrability interaction in the repetition of unshared information failed could be that the task manipulation was unsuccessful. Two pieces of information are inconsistent with this argument. First, the task demonstrability manipulation check showed that intellective groups perceived that the information provided was more sufficient to solve the mystery compared to judgmental groups. This manipulation check was strong. Second, if the task manipulation failed in this experiment, then it should not have affected any dependent variables. The task demonstrability did affect the post-discussion preferences. Participants in the intellective condition chose the guilty suspect more often than participants in the judgmental condition. This suggests that overall participants were sensitive to the task manipulation, and this manipulation affected the way they solved the murder mystery. So, failure of

the task demonstrability manipulation is not a viable explanation for why hypothesis 4 was not supported.

Effects of Task Demonstrability on Member and Group Choices

Hypothesis 1 predicted that groups in the intellective condition would choose the guilty suspect more often than groups in the judgmental condition. While not statistically significant, findings suggest that when groups perceived the task as a problem to be solved they choose the correct suspect more often (58%) than when the groups perceived the task as not having a correct answer (39%). A possible explanation for the non-significance of the test hypothesis 1 is the small sample size. A post hoc analysis found that this study replicated findings by Stasser and Stewart (1992) by finding the same-sized effect (Phi Coefficient =.20). Stasser and Stewart found that in intellective conditions 65% of the groups chose the guilty suspect while only 35% of the groups in the judgmental condition chose the guilty suspect. Given that this study found similar percentages and a pattern in the expected direction, it is possible to say that we replicated previous results (Stasser & Stewart, 1992), but the results did not reach significance due to a smaller sample size (50 groups in this study, compared to 85 in the previous study). The effect of task demonstrability on choices seemed stronger after discussion, when members indicated their post - discussion preferences. After discussion, members who perceived a task to be intellective chose the correct suspect (60%) more often than members in the judgmental condition (33%). However, because post discussion preferences were analyzed at the member level with 150 observations, the extra boost in

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power may have increased the statistical significance of the task demonstrability effect for member choices rather than group choices.

<u>Implications and Interesting Directions</u>

The research of Larson and colleagues has established what was believed to be a reliable finding: Leaders repeat unshared information to a greater degree than non-leaders. The results of the present study call into question the pervasiveness of this leadership effect. Although there is no definitive explanation for why this effect was not replicated in the present study, the present results and those from other research hint at four possible moderators. Leader experience, confidence in task capabilities, information load and ratio of shared to unshared information may affect leaders' tendency to emphasize unshared information during discussion. Future research can vary these moderators to better understand how leaders manage information in decision-making groups.

This study raises another question about a commonly believed collective information sampling process. Previous research suggests that the perceptions of task demonstrability affect the way group members pool unshared information. In both of their studies (Stasser & Stewart, 1992; Stewart & Stasser, 1998), Stasser and Stewart found that group members who perceived a task as intellective mentioned and repeated more unshared information compared to when they perceived the task as judgmental. Past research also suggests that the sampling of unshared information is critical for the successful completion of hidden profile (Winquist & Larson, 1998). It would then be expected that when group members perceive a task as intellective they will mention and repeat more

unshared information compared to judgmental groups. The effective sampling of unshared information will then lead intellective groups to choose the best decision alternative more often than judgmental groups as was found by Stasser and Stewart (1992). In the present study, members of intellective groups choose the guilty suspect more often than members of judgmental groups, despite the fact that intellective groups did not pool and repeat more unshared information compared to judgmental groups. The finding raises a question about whether processes other than information sharing affect group's ability to solve a hidden profile. For example groups that worked on our intellective task may have weighted and evaluated unshared information more highly than groups that worked on a judgmental task. Recent research by Postmes, Spears and Cihangir (2001) supports the notion that positively valuing unshared information helps groups to solve a hidden profile. Future research should explore this and other processes besides information sharing that may affect the solution of a hidden profile.

Conclusions

In important political and organizational contexts, groups and teams are used to make decisions that affect others. Understanding how leadership and task features affect information sharing in decision-making groups can help researchers to explain and predict decision-making quality. Armed with this knowledge, practitioners can help improve the quality of outcomes in group decision making.

Table 1

Member Status Manipulation Check Questions, and Factor Loadings from a Varimax-Rotated Factor Analysis.

Question	Communi-cation	Task Capability	Leader-ship
"Member _ ..."			
facilitated communication in the group.	0.68	0.39	0.30
asked for the contributions of other members.	0.78	0.25	0.30
encouraged other members to give their opinions.	0.76	0.26	0.30
took into consideration other members' opinions.	0.80	0.27	-0.03
is knowledgeable about group communication.	0.65	0.18	0.22
participated a lot in the discussion.	0.79	0.24	0.04
competent when working on the mystery task.	0.47	0.72	0.01
was knowledgeable about the homicide Investigation.	0.28	0.87	0.09
was a credible source of information about the homicide investigation.	0.30	0.81	0.05
made valuable contributions to discussion.	0.61	0.65	0.03
felt confident about which suspect was guilty.	0.11	0.77	0.21
was the person responsible for completing the discussion ballot.	-0.03	0.08	0.84
is responsible for the group's performance.	0.20	0.10	0.80
was the leader in the group.	0.36	0.07	0.77

Table 2

Pre-discussion and Post-discussion Preferences and Group Choices as a
Function of Task Demonstrability.

Choice	Intellective Condition			Judgmental Condition		
	E	B	M	E	B	M
Pre-discussion	24%	44%	32%	21%	42%	37%
Post-discussion	60%	26%	14%	33%	14%	53%
Group	58%	25%	17%	39%	15%	46%

Note. The suspects for the murder mystery were Eddie (E), Billy (B), and Mickey
(M).

Table 3

Mean Proportion of Information Mentioned During Discussion as a Function of Member and Task Demonstrability

| | Intellective | | | | Judgmental | | | |
| | Leader (N=24) | | Non-leader (N=24) | | Leader (N=26) | | Non-leader (N=26) | |
Information	M	SD	M	SD	M	SD	M	SD
Shared	.17	.14	.15	.08	.17	.10	.17	.08
Unshared	.17	.11	.10	.06	.13	.11	.11	.07
Details	.67	.52	.49	.23	.68	.45	.49	.29
Total	.20	.12	.14	.06	.18	.11	.15	.08

Table 4

Mean Proportion of Information Repeated During Discussion as a Function of Member and Task Demonstrability

| | Intellective | | | | Judgmental | | | |
| | Leader (N=24) | | Non-leader (N=24) | | Leader (N=26) | | Non-leader (N=26) | |
Information	M	SD	M	SD	M	SD	M	SD
Shared	.27	.18	.20	.13	.29	.23	.20	.10
Unshared	.22	.20	.20	.17	.20	.17	.15	.13
Details	.15	.15	.14	.10	.19	.16	.13	.10
Total	.21	.14	.17	.11	.23	.16	.16	.09

Appendix A

Informed Consent – Murder Mystery

Informed Consent – Murder Mystery

Welcome to the Murder Mystery study! This study concerns how groups come together to make decisions. If you choose to be part of this study, you will work as a member of a three-person group that will individually read information about a homicide investigation. After reading all the information, you will have the opportunity to discuss the mystery with the other group members. You will then make some ratings of yourself, each of the group members, and the task. Before and after the group discussion, you will have the opportunity to indicate who you think could be the guilty suspect. All of the ratings you make in this study will be confidential and your privacy will be protected to the maximum extent allowable by law.

We will also be videotaping your group discussion so that we have a sense of what you talked about. Because your identity will be apparent from the recordings, the tapes will be kept under lock and key, only to be viewed by the principle investigator and research assistants. Therefore, you can be assured that the tapes will remain confidential. However, if you feel uncomfortable about your group's discussion being taped, please let the experimenter know. You may opt to work on a group task individually, with no discussion, for the same credit.

Full participation in this study will take 2 hours or less, and you will be given credit points in your communication course. Although participation in this study is not expected to produce discomfort or stress, please note that you may refuse to answer certain questions or withdraw from the experiment at any time without penalty. If you choose to withdraw before the end of the experiment, you will receive credit for the amount of time that you participated (e.g., ½ credit for ½ participation). At the end of the experiment, you will be told the purpose of the study and given the opportunity to sign up to receive the final results once the study has been completed. The experimenter can answer any questions you have about the study to help you choose whether to participate. If you have any further questions regarding this study please contact Isabel C. Botero (phone: 355-5162; Office: CAS 445). Any concerns about the study can be addressed to the University Committee for Research Involving Human Subjects at (517) 355-2180.

Thank you,
Isabel C. Botero

I have read the description of the research procedures involved in the **Murder Mystery** study and feel that the procedures have been explained to my satisfaction. In light of this information, I voluntary choose to participate in **Murder Mystery** to receive credit in my communication course. I understand that I may refuse to answer questions, refuse to participate in certain procedures, or withdraw from the experiment without penalty.

| _____ | _____ |
| Your Signature | Today's Date |

| _____ | _____ |
| Print your name | PID |

Appendix B

Pre-discussion, Group Discussion, and Post- Discussion Ballot

Intellective task

Group: _____ IT   Member: _____

MURDER MYSTERY – Pre-discussion Ballot

Instructions

Please choose the suspect who is responsible for the murder in this mystery. Circle the name of the suspect of your choice below. Secondly, decide the likelihood that you correctly chose the guilty suspect by circling a number on the scale below (question #2). When you are done reading the Mystery and answering the questions, please sit quietly and wait for all to finish.

---

1. Which suspect committed the crime in this murder mystery? (CIRCLE ONLY ONE NAME)

   Eddie Sullivan   Billy Prentice   Mickey Malone

2. Indicate the likelihood that you have correctly chosen the guilty suspect (circle **a number** only on the scale below).

   1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 : 9
   very unlikely   neither likely   very likely
                             nor unlikely

Group: _____ IT

MURDER MYSTERY – Group-discussion Ballot

Instructions

Please choose the suspect who is responsible for the murder in this mystery. Circle the name of the suspect of your group's choice below. Secondly, decide the likelihood that your group correctly chose the guilty suspect by circling a number on the scale below (question # 4). When you are done with your discussion and have answered these questions, please send one member out to let the experimenter know.

---

3. Which suspect committed the crime in this murder mystery? (CIRCLE ONLY ONE NAME)

   Eddie Sullivan   Billy Prentice   Mickey Malone

4. Indicate the likelihood that your group has correctly chosen the guilty suspect (circle a **number** only on the scale below).

   1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 : 9
   very unlikely   neither likely   very likely
                             nor unlikely

Group: _____ IT   Member: _____

MURDER MYSTERY – Post-discussion Ballot

Instructions
Please choose the suspect who is responsible for the murder in this mystery. Circle the name of the suspect of your choice below. You are free to choose a different suspect from the one chosen before discussion if indeed now your opinion has changed. Secondly, decide the likelihood that you correctly chose the guilty suspect by circling a number on the scale below (question #6). When you are done answering the questions, please sit quietly and wait for all to finish.

---

5. Which suspect committed the crime in this murder mystery? (CIRCLE ONLY ONE NAME)

   Eddie Sullivan   Billy Prentice   Mickey Malone

6. Indicate the likelihood that you have correctly chosen the guilty suspect (circle a **number** only on the scale below).

   1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 : 9
   very unlikely   neither likely   very likely
                              nor unlikely

Appendix C

Pre-discussion, Group Discussion, and Post- Discussion Ballot

Judgmental task

Group: _____ JT   Member: _____

MURDER MYSTERY – Pre-discussion Ballot

Instructions

Please rank-order the names of the suspects from the most to the least likely to have committed the murder. Write a #1 next to the most likely suspect, a #2 next to the second most likely suspect, and #3 next to the least likely suspect. Secondly, decide the likelihood that the #1 ranked suspect committed the murder by circling a number on the scale below (question #2). When you are done reading the Mystery and answering the questions please sit quietly and wait for all to finish.

---

1. Rank in order the names of the suspects from the most to the least likely to have committed the murder.

   ___Eddie Sullivan   ___Billy Prentice   ___Mickey Malone

2. Indicate the likelihood that the #1 ranked suspect committed the murder (circle a **number** only on the scale below).

   1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 : 9
   very unlikely   neither likely   very likely
                              nor unlikely

Group: _____ JT

MURDER MYSTERY – Group discussion Ballot

Instructions

Please rank-order the names of the suspects from the most to the least likely to have committed the murder. Write a #1 next to the most likely suspect, a #2 next to the second most likely suspect, and #3 next to the least likely suspect. Secondly, decide the likelihood that the #1 ranked suspect committed the murder by circling a number on the scale below (question #4). When you are done with your discussion and have answered these questions, please send one member out to let the experimenter know.

---

3. Rank in order the names of the suspects from the most to the least likely to have committed the murder.

   ___Eddie Sullivan   ___Billy Prentice   ___Mickey Malone

4. Indicate the likelihood that the #1 ranked suspect committed the murder (circle a **number** only on the scale below).

   1   :   2   :   3   :   4   :   5   :   6   :   7   :   8   :   9
   very unlikely   neither likely   very likely
                                        nor unlikely

Group: _____ JT   Member: _____

MURDER MYSTERY – Post-discussion Ballot

5. Rank in order the names of the suspects from the most to the least likely to have committed the murder.

   ___Eddie Sullivan   ___Billy Prentice   ___Mickey Malone

6. Indicate the likelihood that the #1 ranked suspect committed the murder (circle a **number** only on the scale below).

   1   :   2   :   3   :   4   :   5   :   6   :   7   :   8   :   9
   very unlikely   neither likely   very likely
                                      nor unlikely

Appendix D

VERBAL INSTRUCTIONS – Intellective Task

MURDER MYSTERY

Verbal Instructions

Intellective Task

Step 1:
<u>Introduction</u>

Welcome to the decision-making group research. Before we begin, you can read a brief description of what you'll be asked to do in this study and sign the form if you choose to participate. Please let me know if you have any questions about the study.

<table>
<tr><td>Hand out the Consent Form</td></tr>
</table>

Step 2:

READ MYSTERY

You will read excerpts from a homicide investigation and determine individually which of the three suspects is guilty. Later in the study, you will discuss clues from the investigation with each other. Then you will be able to indicate again individually which suspect committed the crime.

You will now receive a 27-page booklet containing interviews from the homicide investigation and supporting materials. Only one of the suspects could have committed the crime, and we would like you to read over the material carefully and correctly choose the guilty suspect. Indicate your answer in the Pre-discussion Ballot by circling the name of the guilty suspect. Then circle a number from 1 to 9 indicating the likelihood that you correctly chose the guilty suspect.

After individually reading the mystery, you will be asked to discuss the information and, as a group, determine the guilty suspect. During the discussion you will not be able to look at the case material. So, please read carefully the information in the booklet so that you can remember information to share with each other. You will have up to 30 minutes to read the homicide materials and make your choices.

> **Introduce the Leader**

In your group, Member #1 has been assigned as the leader. He / She is a student in COM340, the leadership and group communication course. So, this student has the most expertise on leadership than anybody else in the group. Once the group is ready for discussion, the leader will be responsible for facilitating communication between members and recording the group choices.

> **Give the participants their set of information from the mystery and their Pre-discussion Ballot according to their group and member number coded at the top.**

Please read the homicide investigation very carefully. Remember that you will have only 30 minutes to read it. When you are done, please sit quietly and

wait for the other group members to finish. If you have any questions about what to do, please let me know. Are there any questions now?

Step 3:
GROUP DISCUSSION

We would like you to discuss the mystery and determine as a group who is the guilty suspect. You will have 30 minutes for the discussion. The leader is responsible for completing the group discussion ballot and giving it to the experimenter. The leader will also be accountable for the performance of the group.

We will be videotaping your group discussion so we know all the information you discussed, and how you reached your decision. Please do not touch the video equipment at any time. If you finish before the 30 minutes time limit, come out and let me know that you are done.

Any questions?

> **Collect the homicide material. Give the leader the Group Ballot.**
>
> **Start the camcorder and record the group number on the screen before leaving the room.**

Step 4:

<u>POST-DISCUSSION</u>

You will now have the opportunity to again privately indicate which suspect you personally think is guilty. You are free to choose a different candidate from the one you choose before discussion, if indeed your preference has changed. Indicate your answer on the Post-discussion ballot by circling the name of the guilty suspect. Then, circle a number from 1 to 9 indicating the likelihood that you correctly chose the guilty suspect.

> **Hand out Post-discussion Ballot according to the group and member number and wait for completion.**

We have a final questionnaire that asks for some general impressions of you, other members and the task. Please read the instructions to the post-discussion questionnaire very carefully and let me know if you have any questions of how to complete it. You will be placing your responses to these questions on a scanner sheet instead of the questionnaire itself. All ratings are made on a scale from 1 to 9. However, you will notice that the scantron sheets range from 1 to 10. So, please ignore the TEN option on your on your scantron for all questions. Please sit quietly after you complete this questionnaire.

> **Hand out Post-Discussion Questionnaire and scantron (with group and member coded on it).**

Step 5:

<u>DEBRIEFING</u>

I will like to thank you very much for participating in this study. Your contribution has been very helpful. In order for future participants to help us in our investigation, it's important that they are not aware of the details of the experiment, such as information about any of the suspects in the mystery or the questionnaires. If someone asks you what you did in this experiment, you can just say that you discussed a mystery in groups.

The information sheet that will be given to you is to keep, and describes in greater detail what this experiment is investigating. The information sheet identifies 1) a research reference if you want to read about the topic of study and 2) how to contact the researcher if you want to further discuss the study. If you are interested in receiving the final results in the mail, you can write your name and e-mail on this sheet and you will receive full information about the purpose of the study and the results sometime next term.

Thank you very much.

> **Give the participants and information sheet and a green credit sheet. Place a paper on the table for the participant to write the respective e-mail.**

Appendix E

VERBAL INSTRUCTIONS – Judgmental Task

MURDER MYSTERY

Verbal Instructions

Judgmental Task

Step 1:

<u>Introduction</u>

Welcome to the decision-making group research. Before we begin, you can read a brief description of what you'll be asked to do in this study and sign the form if you choose to participate. Please let me know if you have any questions about the study.

<div style="border: 1px solid black; padding: 10px; text-align: center;">

Hand out the Consent Form

</div>

Step 2:

READ MYSTERY

You will read excerpts from a homicide investigation and determine individually the likelihood of guilt of each suspect. Later in the study, you will discuss clues from the investigation with each other. Then you will be able to again individually rank the suspects in order of likely guilt.

You will now receive a 27-page booklet containing interviews from the homicide investigation and supporting materials. The detectives in this case do not have sufficient evidence to charge anybody for the homicide, so we are asking you to use the available evidence and rank the suspects in order of who seems more likely to have committed the crime. Indicate your rank order by placing a #1 beside the suspect most likely to have committed the crime, a #2 next to the second most likely suspect, and #3 next to the least likely suspect. Then circle a number from 1 to 9 indicating the likelihood that the suspect you ranked as #1 actually committed the murder.

After individually reading the mystery, you will be asked to discuss the information and, as a group, rank the suspects in order of their likelihood of committing the crime. During the discussion, you will not be able to look at the case material. So, please read carefully the information in the booklet so that you can remember information to share with each other. You will have up to 30 minutes to read the homicide materials and make your choices.

> **Introduce the Leader**

In your group, Member #1 has been assigned as the leader. He / She is a student in COM340, the leadership and group communication course. So, this student has the most expertise in leadership than anybody else in the group. Once the group is ready for discussion, the leader will be responsible for facilitating communication between members and recording the group choices.

> **Give the participants their set of information from the mystery and their Pre-discussion Ballot according to their group and member number coded at the top.**

Please read the homicide investigation <u>very carefully</u>. Remember that you will have only 30 minutes to read it. When you are done, please sit quietly and wait for the other group members to finish. If you have any questions about what to do, please let me know. Are there any questions now?

Step 3:

<u>GROUP DISCUSSION</u>

We would like you to discuss the mystery and, as a group, rank the suspects according to whom the group thinks is the most to the least likely to have committed the crime. You will have 30 minutes for the discussion. The leader is responsible for completing the group discussion ballot and giving it to the experimenter. The leader will also be accountable for the performance of the group.

We will be videotaping your group discussion so we know the information you discussed, and how you reached your decision. Please do not touch the video equipment at any time. If you finish before the 30 minutes time limit, come out and let me know that you are done.

Any questions?

Collect the homicide material. Give the leader the Group Ballot.

Start the camcorder and record the group number on the screen before leaving the room.

Step 4:

POST-DISCUSSION

You will now have the opportunity to again privately rank the suspects in order of likely guilt of committing the crime. You are free to rank the suspects differently from the rankings before discussion, if indeed your preference has changed. Indicate your answer on the Post-discussion ballot by placing ranks (#1, #2, and #3) next to the suspects' names. Then, circle a number from 1 to 9 indicating the likelihood that your #1 ranked suspect is the guilty one.

Hand out Post-discussion Ballot according to the group and member number and wait for completion.

We have a final questionnaire that asks for some general impressions of you, other members and the task. Please read the instructions to the post-discussion questionnaire very carefully and let me know if you have any questions of how to complete it. You will be placing your responses to these questions on a scanner sheet instead of the questionnaire itself. All ratings are made on a scale from 1 to 9. However, you will notice that the scantron sheets range from 1 to 10. So, please ignore the TEN option on your on your scantron for all questions. Please sit quietly after you complete this questionnaire.

Hand out Post-Discussion Questionnaire and scantron (with group and member coded on it).

Step 5:

DEBRIEFING

I will like to thank you very much for participating in this study. Your contribution has been very helpful. In order for future participants to help us in our investigation, it's important that they are not aware of the details of the experiment, such as information about any of the suspects in the mystery or the questionnaires. If someone asks you what you did in this experiment, you can just say that you discussed a mystery in groups.

The information sheet that will be given to you is to keep, and describes in greater detail what this experiment is investigating. The information sheet identifies 1) a research reference if you want to read about the topic of study and 2) how to contact the researcher if you want to further discuss the study. If you are interested in receiving the final results in the mail, you can write your name and e-mail on this sheet and you will receive full information about the purpose of the study and the results sometime next term.

Thank you very much.

Give the participants and information sheet and a green credit sheet. Place a paper on the table for the participant to write the respective e-mail.

Appendix F

Post- Discussion Questionnaire

Murder Mystery – Post Discussion Questionnaire

INSTRUCTIONS

This questionnaire contains questions regarding your perceptions of group members and yourself. For the following questionnaire items, choose a number from the scale below that indicates your degree of agreement with each statement.

1 : 2 : 3 : 4 : 5 : 6 : 7 : 8 : 9
Strongly   neither agree   strongly
disagree   nor disagree   agree

Mark your response by filling in the circle containing your chosen rating next to the appropriate item number. For all questions, <u>you will be marking answers on your scanner sheets and **not** on this questionnaire. NOTE: PLEASE IGNORE OPTION TEN (10) ON EACH QUESTION IN YOUR SCANTRON SHEET.</u> The items in this part start with item number 1 and finish with item 67. When you have finished answering all the items, please sit quietly and wait for further instructions. If you have any instructions of what to do please ask the experimenter.

Answer questions 1- 14 about <u>MEMBER 1.</u> If you are member 1, indicate the perceptions about yourself.

1. Member 1 was competent when working on the mystery task.
2. Member 1 was knowledgeable about the homicide investigation
3. Member 1 was a credible source of information about the homicide investigation.
4. Member 1 made valuable contributions to discussion.
5. Member 1 felt confident about which suspect was guilty.
6. Member 1 facilitated communication in the group.
7. Member 1 asked for the contributions of other members.
8. Member 1 encouraged other members to give their opinions.
9. Member 1 took into consideration other members' opinions.
10. Member 1 was the person responsible for completing the discussion ballot.
11. Member 1 is responsible for the group's performance.
12. Member 1 is knowledgeable about group communication
13. Member 1 was the leader in the group.
14. Member 1 participated a lot in the discussion.

1 :	2 :	3 :	4 :	5 :	6 :	7 :	8 :	9
Strongly disagree				neither agree nor disagree				strongly agree

Answer questions 15-28 about <u>MEMBER 2.</u> If you are member 2, indicate the perceptions about yourself.

15. Member 2 was competent when working on the mystery task.

16. Member 2 was knowledgeable about the homicide investigation

17. Member 2 was a credible source of information about the homicide investigation.

18. Member 2 made valuable contributions to discussion.

19. Member 2 felt confident about which suspect was guilty.

20. Member 2 facilitated communication in the group.

21. Member 2 asked for the contributions of other members.

22. Member 2 encouraged other members to give their opinions.

23. Member 2 took into consideration other members' opinions.

24. Member 2 was the person responsible for completing the discussion ballot.

25. Member 2 is responsible for the group's performance.

26. Member 2 is knowledgeable about group communication.

27. Member 2 was the leader in the group.

28. Member 2 participated a lot in the discussion.

Answer questions 29- 42 about <u>MEMBER 3.</u> If you are member 3, indicate the perceptions about yourself.

29. Member 3 was competent when working on the mystery task.

30. Member 3 was knowledgeable about the homicide investigation

31. Member 3 was a credible source of information about the homicide investigation.

32. Member 3 made valuable contributions to discussion.

33. Member 3 felt confident about which suspect was guilty.

34. Member 3 facilitated communication in the group.

35. Member 3 asked for the contributions of other members.

36. Member 3 encouraged other members to give their opinions.

37. Member 3 took into consideration other members' opinions.

38. Member 3 was the person responsible for completing the discussion ballot.

39. Member 3 is responsible for the group's performance.

40. Member 3 is knowledgeable about group communication.

1	:	2	:	3	:	4	:	5	:	6	:	7	:	8	:	9
Strongly disagree								neither agree nor disagree								strongly agree

41. Member 3 was the leader in the group.

42. Member 3 participated a lot in discussion.

Answer questions 43-47 about MEMBER 1. IF YOU ARE MEMBER 1 SKIP THESE QUESTIONS.

37. Member 1 shared important information with the group.

38. Member 1 shared accurate information about the homicide investigation.

39. I respect Member 1.

40. I felt comfortable talking to Member 1.

41. Member 1 influenced my preference for the guilty suspect.

Answer questions 48-52 about MEMBER 2. IF YOU ARE MEMBER 2 SKIP THESE QUESTIONS.

42. Member 2 shared important information with the group.

43. Member 2 shared accurate information about the homicide investigation.

44. I respect Member 2.

45. I felt comfortable talking to Member 2.

46. Member 2 influenced my preference for the guilty suspect.

Answer questions 53-57 about MEMBER 3. IF YOU ARE MEMBER 3 SKIP THESE QUESTIONS.

47. Member 3 shared important information with the group.

48. Member 3 shared accurate information about the homicide investigation.

49. I respect Member 3.

50. I felt comfortable talking to Member 3.

51. Member 3 influenced my preference for the guilty suspect.

CONTINUE

67

1	:	2	:	3	:	4	:	5	:	6	:	7	:	8	:	9
Strongly disagree								neither agree nor disagree								strongly agree

All members should answer the following questions

58. I cared about performing well on the homicide investigation.

59. The murder mystery study was an interesting experience.

60. I enjoyed working on the homicide investigation.

61. The information I had was sufficient to determine who was the guilty suspect.

62. I was given enough information to find a solution to the mystery.

63. The mystery was solvable.

Finally, please answer the following questions about yourself:

64. I have held leadership positions. (Use 1-9 scale from above)

65. I often hold leadership positions in groups. (Use 1-9 scale from above)

66. I have taken a leadership course.

   A.   Yes   B. No

67. Indicate your year in school:

   A.   Freshmen

   B.   Sophomore

   C.   Junior

   D.   Senior

- Indicate your age in the part of the scantron that is marked with **SECTION.** Please code your age starting with **0** in the first column, then the numbers indicating your age. For example, if your age is 21, code it as follows:

- Indicate your sex in the box in the scantron that is marked with **SEX**, by filling in F (Female) or M (Male) circle.

Appendix G

Information Sheet

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INFORMATION SHEET: Murder Mystery

In the world today, many important decisions are entrusted to groups. During the process of decision-making, group members come together to exchange information concerning the best possible decision. The diversity of knowledge, experience, and points of view that each member brings can benefit the group decision. If members effectively communicate their unique knowledge, the group may reach a better decision compared to that of a single member. Therefore, groups are assumed to be better decision-makers than individuals because group members have access to and can communicate unique information from various expertise domains.

The purpose of this study is to examine how groups process information when they come together to make decisions. The study will identify the kind of information that members choose to discuss. Do they communicate information that other members already know or that others don't know? And how do the different members of a group use this information? We expect this research to help understand the way groups process information when they are making decisions.

Thank you for participating in this experiment. If you have any further questions about this study, feel free to contact Isabel Botero (Office: 445 Communication Arts Building; phone: 355-5162).

Research Reference:

Wittenbaum, G.M., & Stasser, G. (1996). Management of information in small groups. In J.L. Nye & A. M. Brower (Eds.), What's social about social cognition? Social cognition research in small groups (pp. 3 – 28). Thousand Oaks, CA: Sage.

Appendix H

Coding Instructions

INSTRUCTIONS FOR CODING

MURDER MYSTERY 2000

General Instructions

This coding system is designed to preserve the temporal order of discussion. Not all the utterances from the participants' discussion of the murder mystery will be coded; the pertinent pieces of information will be coded such that when one member mentions an important piece of information from the mystery, the information is coded on the first line of the coding sheet. When the next, or the same, member mentions another important piece of information, that information is coded on the second line, and so on. Each speaker's utterance is coded for the speaker, action of the speaker, and piece of information that is being mentioned (if any). Three columns are included in the coding sheet: SPEAKER, ACTION and INFO.

Determining Discussion Time and Group Number

Code the tapes using a VCR that keeps track of the time elapsed. Set the counter to zero when the group discussion begins and note the time the group finishes discussion about the mystery rather than when the experimenter stops the tape for that group. Record the discussion time in minutes and seconds (i.e., 15:39, meaning fifteen minutes and 39 seconds) at the top of the coding sheet. Groups were given 30 minutes for discussion.

At the beginning of each discussion, an identification number is given to every group. Please identify each group at the top of the coding sheet.

Example

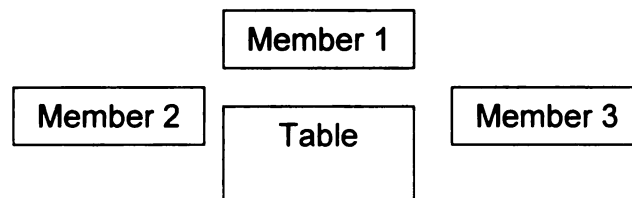Group Number _01_   CI _IB_   Discussion Time _15:15_

SPEAKER	ACTION	INFO

Note: On each coding sheet, each coder should identify herself in the place

marked with CI (Coder's Initials) by putting the first and last initials of their

names.

Determining the Speaker

It is necessary to determine whether the speaker is Member 1, Member 2

or Member 3. Member 1 will always be located in the CENTER of the video

screen, Member 2 is located on the LEFT side of the screen, and Member 3 is

located on the RIGHT side of the screen.

Location of Members in the Video Screen

```
                    ┌────────────┐
                    │  Member 1  │
                    └────────────┘
┌────────────┐   ┌────────────┐   ┌────────────┐
│  Member 2  │   │            │   │  Member 3  │
└────────────┘   │   Table    │   └────────────┘
                 │            │
                 └────────────┘
```

To code for the speaker, write "1" in the speaker column if the speaker is

Member 1. Write "2" in the speaker column if the speaker is Member 2. And,

write "3" in the speaker column if it is member 3.

SPEAKER	ACTION	INFO
2		
1		
2		
3		

Determining the Type of Action

The only action being coded is mentioning information. There are 3 types of actions regarding mentioning information. They are:

01. Correct information/ Correct attribution

02. Correct information/ Incorrect attribution

03. Incorrect Information

- Correct information/ correct attribution: This includes recall of specific pieces of information from the murder mystery that is attributed to the correct suspect. A correctly recalled piece of information is one in which the essential meaning of the original statement is retained. Therefore, the exact wording is not necessary for an item to be correctly recalled. In addition to retaining the original meaning, the recalled statement must be attributed to the correct suspect. So, if a member recalls information about Eddie Sullivan, it should be correctly attributed to him. Either the speaker should make it clear that a certain piece of information is about a suspect, or it should be clear from the context that the speaker knows the correct suspect.

In the case that the name of a suspect is not explicitly mentioned, the coder should assume that the member knows which suspect he is referring to. Assume that members know the correct suspect unless they indicate otherwise.

Examples:

- "Eddie Sullivan had a hearing problem".

- "Billy's fingerprints were found on the crowbar".

- "Mickey Malone argued with Guion on the phone Saturday morning".

- Correct information/ incorrect attribution: It includes correct recall of specific pieces of information from the murder mystery that are attributed to the **incorrect** suspect. A correctly recalled piece of information is one in which the essential meaning of the original statement is retained. Therefore, the exact wording is not necessary for an item to be correctly recalled. Although the utterance retains the original meaning of the information, the recalled statement is **not** attributed to the correct suspect. Utterances should be coded on this category if an item of information recalled from the booklet is attributed to the wrong suspect. Also use this category if a speaker recalls an item of information and does not know the suspect to attribute it to. Correctly recalled information should be included in this category only if it is obvious that the speaker misattributed the information to the incorrect suspect or the speaker does not know the correct suspect.

Examples:

- "Eddie Sullivan argued with Guion on the phone Saturday morning".

- "Billy had a hearing problem".

- "Mickey Malone fingerprints were found on the crowbar".

- "One guy had a gambling problem, but I can't remember who".

- Incorrect Information: It includes incorrect recall of specific pieces of information from the murder mystery or the mention of information that is completely fabricated (information that was not mentioned in the in the murder mystery booklets). An incorrectly recall piece of information is one in which the speaker misinterprets or misremembers the essential meaning of the original statement from the murder mystery booklet or "makes-up" information that never appeared in the booklets. Utterances should be coded in this category if an item is incorrectly recall or is not included in the information given.

  Examples:

  - "Eddie Sullivan was working in the carport"

  - "Billy comes from a large family"

  - "One of the suspects likes to play golf".

HOW TO CODE IT

For the coding process, all the three columns should be filled in any given row.

- First, indicate the speaker in the "SPEAKER" column by writing "1", "2" or "3" according to the member who spoke.

- Second, indicate the appropriate action code in the "ACTION" column by writing one of the following codes:

01   Correct information/ Correct attribution

02   Correct information/ Incorrect attribution

03   Incorrect Information

- Third, indicate the piece of information that was mentioned in the "INFO" column by writing in the appropriate information code (see information code sheet).

The table below indicates how the following examples can be coded.

1. "Eddie Sullivan had a hearing problem".

2. "Billy had a hearing problem".

3. "Eddies sister was fired from Mr. Guion's office"

4. "Eddie's daughter was the bookkeeper for Mickey Malone"

5. "Eddie said that he went to the door at 7am, after he found the body"

6. "Mickey Malone argued with Guion on the phone Saturday morning".

7. "Eddie lives with the Guions' "

8. "They found Mickey Malone's Fingerprints on the wallet".

9. "Malone was feeling sick on Saturday morning"

10. "Billy said he saw the crowbar from the shed".

11. "Billy's fingerprints were found on the crowbar".

Group Number __01__   CI __IB__   Discussion Time __15:15__

SPEAKER	ACTION	INFO
1	01	12
3	02	12
2	03	81

SPEAKER	ACTION	INFO
3	03	22
2	03	78
1	01	52
1	03	22
2	03	22
3	02	84
2	03	42
2	01	34

NOTE: If the correctly recalled information is "echoed" by another member (i.e., one person states a piece of information and the other group member immediately repeats it), it is coded **only once**. However, if the information is brought up once, and the brought up later (after discussion about another topic), code it twice. Utterances that incorrectly recall information or attribute correctly recalled information to the wrong candidate are coded, and if a person immediately corrects the speaker, this is coded too.

INFORMATION CODE SHEET

- Eddie Sullivan

Code	Piece of Information
11	Sue S's (Eddie's Daughter) argument with Mr. Guion.
12	Hearing Problem
13	Marion (deceased's wife) did not see Eddie's truck in the carport at 6:40.
14	Eddie habitually locks up tools.
15	Eddie knew that Guion (deceased) always left around 6:30
16	Left his crowbar out for several hours.

- Billy Prentice

Code	Piece of Information
31	Had problems with money because of gambling.
32	No wallet on the body. It was later found without money near the mall.
33	Eddie reported hearing his loud car around 7.
34	Fingerprints on crowbar.
35	Lied about being at Guion's Saturday morning.
36	Tire tracks made Saturday morning matched Billy's
41	Marion confirmed borrowing money. Billy borrowed money from the Guion's.
42	Billy's story about moving the crowbar.
43	Car that dropped the wallet was quiet.

- Mickey Malone

Code	Piece of Information
51	Business argument with Guion
52	Argued with Guion on the phone Saturday morning
53	Given the time he left home, he would have arrived at Guion's about 6:40
54	Wallet found near the route that Mickey would have taken from Guion's to the golf course.
55	Mr. Guion said he was going to ruin Malones' business. Information from the note Guion wrote to Malone
56	Guion's continued refusal to accept Mickey's offer.
61	Arrived at the golf place at 7:00.
62	Car dropped wallet at 7:00.
63	Waitress confirmed stop for coffee.

Other Information

Code	Piece of Information
71	Guion died between 6:30 and 7:00
72	Struck with crowbar; death due to fall
73	Marion heard noise and vehicle leave at 6:40
74	Marion woke up around 9 and did aerobics from 9:30 to 10.
75	Guion liked by customers and employees
76	Mr. Guions' truck was in the carport.
77	Eddie arrived at 6:00; saw light in study
78	Eddie reported finding Guion's body at 10:30 am
79	Eddie parked truck in carport
80	Eddie was working in the barn, 200-300 yards away from the house
81	Sue Sullivan quit job at Guions
82	Eddie's crowbar found in bushes.
83	ES stamped on crowbar
84	Billy felt ill Saturday morning, and arrived late at Guion's at 8 am
85	Billy did not cut grass on Saturday morning
86	Rained Friday night
87	Billy was always early to cut the grass
88	Billy had a ball game at noon.
89	Billy said he wouldn't hurt Mr. Guion
90	Billy ran when he saw Mr. Guions' body
91	Billy almost hit Eddie's truck when he was rushing out.
92	Mickey and Mr. Guion were friends and business colleagues for a long time
93	Mickey Malone said he was having coffee at 6:30. He said he had 2 cups

Code	Piece of Information
94	Malone's wife called Marion Guion; heard about Guion's death on the radio
95	Mickey and Spouse visited Marion on Sunday
96	Mickey was selling bad parts to Mr. Guion. Last 2 months
97	Information from the House Map
98	Information from the Area map
21	Other information that doesn't have a code
22	Fabricated information

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