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# To Agree or Not to Agree: Do GSS Help or Hinder Group Consensus?\*

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## Abstract

*One intent of Group Support Systems (GSS) is to assist groups in reaching consensus, however, the pattern that emerges from previous GSS research suggests, that, if anything, GSS use inhibits consensus. In this study, we first review literature that suggests why this may be. We then present results from an experiment (40 focus groups performing a product pricing/consensus reaching task) that would at first seem counter-intuitive, given our theory and previous GSS research findings—we found higher consensus in GSS groups than in non-GSS groups. Implications for GSS research and practice are offered.*

## Introduction

One of the major tasks of groups and teams in organizations is to resolve differences among group members and attempt to reach agreement or consensus. Francis and Young (1979) describe consensus formation as; "an entire group considers a problem on a basis of reason and discussion. Each member expresses a view and a decision is made to which all can commit themselves at least in part (pp. 226-227)." Depending on the task being performed, consensus can be essential to group productivity (Leavitt, 1972; cf. Maier, 1963, Gallupe, DeSanctis and Dickson, 1988). For example, consider the decision to implement a new management initiative. If all members in the group do not agree on the initiative, it may be doomed to failure at the start, as members in the minority may attempt to subvert its implementation. As another example, there may be a need to combine a variety of opinions into one cohesive choice, perhaps in the case of offering advice to a decision-maker (McGregor, 1960; cf. Hackman and Kaplan, 1974).

Consensus has been researched by several authors in the GSS literature (e.g., Watson, DeSanctis and Poole, 1988; Gallupe and McKeen, 1990), however, it has been found that, in the main, GSS use tends to inhibit consensus formation (cf. McLeod, 1991; Benbasat and Lim, 1994). This would appear problematic, particularly if consensus or agreement is a desired end state of the meeting. If GSS use reduces a group's ability to reach consensus, then this has negative implications for using GSS for other group tasks in the organization.

Why do GSS groups appear to attain lower consensus compared to non-GSS groups, and does this apply to all group consensus tasks? In the present study, we first review literature on GSS and consensus. We believe that reduced consensus in GSS groups may not be surprising, in light of this literature. Next, we describe our research and findings. We found that GSS groups achieved greater consensus. We conclude by offering some reasons why this may have occurred—in other words, what was different about our study—and suggest implications for GSS research and practice.

## GSS and Group Consensus

GSS research has approached consensus formation from two perspectives. The first, which we call the "anti-groupthink" approach, is designed to limit the tendency for groups to coalesce on "bad" solutions. This model suggests that social interaction, left unchecked, will lead to such negative consequences as "groupthink" (Janis, 1982). In other words, this stream of research is concerned with *reducing* group consensus, at least until such time as some range of ideas have been promulgated in the group session. Consequently, GSS design has limited group social interaction through the use of computer-mediated communication and the anonymity provided by entering the one's ideas and comments without identification. (cf. Jessup, Connolly and Valacich, 1990; Connolly Jessup and Galegher, 1990; Gallupe et al., 1988).

The second GSS perspective on consensus formation, which we term the "improve structure" model suggests that interventions into the group process provided by GSS may assist group members in reaching consensus by helping them to pull together divergent perspectives into a coherent whole. Unlike the "anti-groupthink" model, the "improve structure" model has not been as heavily investigated. Sambamurthy and Poole (1992) suggest that greater levels of process structuring may enhance consensus (cf. Benbasat and Lim, 1994). Still, the so-called "level 2" GSS groups (cf. DeSanctis and Gallupe, 1987) did not achieve agreement as high as did the non-GSS groups (although consensus in level 2 GSS groups was higher than in level 1 GSS groups-cf. Sambamurthy and Poole, 1992).

In most instances, GSS use involves *facilitation* (Nunamaker, Briggs, Mittleman, 1996). When *facilitated* GSS are employed, a facilitator directs the group members with respect to the tools that should be used, and in what sequence (Dickson, Partridge and Robinson, 1993). Alternatively, the GSS use may be *chauffeured*, where a facilitator assists the group, but only as pertains to the operation of the GSS software (cf. Dickson et al., 1993). Finally, groups may be provided with *user-driven* GSS, where the group uses the tools as it sees fit, without any assistance from a facilitator. Of these three facilitation categories, the first type, fully-facilitated GSS, is the most restrictive (cf. Wheeler and Valacich, 1996). At the same time, this kind of facilitation offers the greatest level of assistance to group members, and are thus is the most consistent with the "improve structure" model of GSS use.

Still, given that GSS design has focused on the negative aspects of group formation, it would appear that consensus is generally lower in GSS groups because of the design of the GSS itself. Consensus formation is a social-psychological process, reached in group interaction (cf. Collins, 1992). Most GSS, by design, are intended to limit or inhibit the social interaction that leads to, among other things, group consensus. Most facilitated GSS require users to communicate in predefined and controlled ways that reduce the free-flowing exchange among group members that fosters consensus formation (cf. Dickson et al., 1993).

Previous GSS research supports this contention. In Gallupe et al., (1988), individuals in groups without computer support expressed higher levels of agreement with the final solution put forward by their groups. Sambamurthy and Poole (1992), Sambamurthy and DeSanctis (1989), and George, Easton, Nunamaker and Northcraft (1990) confirm the same general point. Meta-analytical studies also offer support for these findings (McLeod, 1992; Benbasat and Lim, 1994). Still, the Benbasat and Lim study does suggest that a higher degree of GSS structure (e.g. GSS Level 2 over GSS Level 1-c.f. DeSanctis and Gallupe, 1987) may enable GSS to enhance group agreement.

From the review above, we would expect that GSS groups would achieve less consensus or agreement than non-GSS groups on a group decision task. Consequently, Hypothesis 1 is stated as follows:

**H1: GSS groups will perceive lower agreement than non-GSS groups.**

Still, we believe that GSS groups may perceive their method to be more efficient than the non-GSS groups, in that it would allow the more rapid tallying of voting results, for example. Consequently, Hypothesis 2 is stated as follows:

**H2: GSS groups will evaluate their method of reaching consensus more favorably than non-GSS groups.**

## Research Method

The method used in the present study was a field experiment, in which 191 undergraduate students were asked to participate in groups of five in 40 focus group sessions where they evaluated the attributes of two frankfurters. Groups were balanced by gender, with no more than 60% of one gender (cf. Kanter, 1977). The groups were comprised of 100 males and 91 females, 4 vegetarians and 187 non-vegetarians. 170 of the subjects had never used a GSS before, while 21 had. The average subject was 20.15 years old (s.d. =

1.29), had 9.72 months of work experience (s.d. = 10.34), and an academic average of 75.82 (out of 100, s.d. 5.20).

Two experienced facilitators were employed in the sessions; one male and one female. They each facilitated exactly one-half of the groups in each treatment condition. A statistical analysis of the data revealed no facilitator-based differences.

Two treatment conditions were provided. In the first treatment condition, the groups used a manual process with flip charts, and in the other, they used *GroupSystems*®. *The procedures followed (save the technology support provided) were the same for both treatments-the groups were provided with a series of price points from which they drew as they worked toward consensus on the price for each product (the product presentation order was randomized to eliminate order effects), and they voted in rounds until they reached agreement on price. In the non-GSS treatment, this was facilitated using flip charts, while the GSS groups used the Ranking tool from GroupSystems®. The consensus reaching sessions lasted about 45 minutes.*

After completing the consensus task, subjects were provided with questionnaires that assessed perceived agreement on price. When presented with the statement "The group's level of agreement in the consensus task was:...", subjects responded on semantic differential scales (Osgood, Succi and Tannenbaum, 1957) with adjective pairs from the *potency* dimension. Specifically, the pairs were *strong / weak, insignificant / significant, small / large, high / low*. Seven-point scales were employed. *Evaluative* adjective pairs (*good / bad, foolish / wise, positive / negative, beneficial / harmful, likable / dislikable, worthless / valuable*) were used to capture the overall evaluation of method ("Overall, using this method to reach focus group consensus was"...) again using 7-point scales. Data were captured at the individual level.

## Results

While the data were captured at the individual level, differences in between group means meant that the data should be analyzed at the group level (cf. Hoyle and Crawford, 1994). Accordingly, the individual scores for agreement were aggregated and summed to create a single measure for each group. 40 groups (20 GSS and 20 non-GSS) were used in the analysis, which was performed using one-way ANOVA.

For agreement, the GSS group mean was 21.230, and the non-GSS group mean was 18.938. This difference was statistically significant at  $\alpha=0.05$  ( $F=4.610$ ,  $p=0.038$ , 39 d.f.). This was a counter-intuitive finding, viewed in light of our theory and previous GSS research. Hypothesis 1 was thus not supported.

Findings for the overall method assessment were as we anticipated. The GSS group summed score was higher in the GSS groups than in the non-GSS groups. The GSS group mean was 31.435, and the non-GSS group mean was 28.393. This difference was statistically significant at  $\alpha=0.05$  ( $F=5.132$ ,  $p=0.029$ , 39 d.f.), which supports Hypothesis 2. The hypotheses and findings are depicted in Table 1.

| <b>Table 1-Hypotheses and findings</b>  |              |       |     |       |   |
|---|--------------|-------|-----|-------|---|
| H1: GSS groups will perceive lower agreement than non-GSS groups.                                   |              |       |     |       |   |
| GSS Mean  | Non-GSS Mean | F     | d.f | p     | Supported?  |
| 21.230  | 18.938       | 4.610 | 39  | 0.038 | No, significant finding in the opposite direction |
| H2: GSS groups will evaluate their method of reaching consensus more favorably than non-GSS groups. |              |       |     |       |   |
| GSS Mean  | Non-GSS Mean | F     | d.f | p     | Supported?  |
| 31.435  | 28.393       | 5.132 | 39  | 0.029 | Yes. Significant finding as anticipated           |

## Discussion and Conclusion

We have identified three likely explanations for our finding. First, it is possible that the nature of the task we used made it more likely that GSS could enhance agreement. Wheeler and Mennecke (1993) suggest that the task used may have a substantial interaction with the GSS in their joint influence on meeting outcomes (cf. Gallupe et al., 1988). The task we used required no specific expertise, and it is possible that the group participants perceived that other participants in their groups were on equal footing in this respect. Consequently, a technology which would dampen the ability of group members to demonstrate their individual expertise was not problematic, and the true advantages of GSS (ability to rapidly tabulate votes and to provide structure) would manifest itself (cf. George, Easton, Nunamaker and Northcraft, 1990, Watson, 1987).

Another possible explanation for our findings is that we presented the goal of the task as reaching consensus. All of the other studies we reviewed for this paper may have had reaching consensus as a tertiary goal, but not as the primary goal. Because of this, the groups may have viewed voting with the GSS in a different light than groups in other studies.

Finally, given the ad-hoc nature of the task and of the groups, it is possible that the groups did not perceive task relevance. Schachter (1951) demonstrated that groups working on a task that is relevant to them will be more likely to enforce a group norm. If the task were not perceived to be relevant, it is possible that our groups would not have noticed that the GSS had suppressed the means to enforce a group norm. Hence, again, the GSS advantages (e.g. provision of structure) for a consensus task would have shone through, not encumbered by its disadvantages (e.g. suppression of group norm formation).

Previous GSS research has tended to find lower consensus in GSS groups, likely because the systems themselves are designed to reduce consensus. Still, we believe that the enhanced structure provided by a facilitated GSS can enhance consensus, given the appropriate situation. This research suggests that one such situation may arise when the group's difficulties are based in mechanics rather than interaction.

References available on request from the first author.