

December 1999

# Robbing Peter to Pay Paul Part II: Restrictiveness and Cohesiveness in Large Groups Using Group Support Systems

David Salisbury  
*Mississippi State University*

Matthew Stollak  
*Mississippi State University*

Joseph Peyrefitte  
*University of Houston*

Wynne Chin  
*University of Houston*

Follow this and additional works at: <http://aisel.aisnet.org/amcis1999>

---

## Recommended Citation

Salisbury, David; Stollak, Matthew; Peyrefitte, Joseph; and Chin, Wynne, "Robbing Peter to Pay Paul Part II: Restrictiveness and Cohesiveness in Large Groups Using Group Support Systems" (1999). *AMCIS 1999 Proceedings*. 125.  
<http://aisel.aisnet.org/amcis1999/125>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISEL). It has been accepted for inclusion in AMCIS 1999 Proceedings by an authorized administrator of AIS Electronic Library (AISEL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# Robbing Peter to Pay Paul Part II: Restrictiveness and Cohesiveness in *Large* Groups Using Group Support Systems

Wm. David Salisbury, Mississippi State University, dsalisbury@cobilan.msstate.edu

Matthew J. Stollak, Mississippi State University, mstollak@cobilan.msstate.edu

Joseph A. Peyrefitte, Mississippi State University, jpeyrefitte@cobilan.msstate.edu

Wynne W. Chin, University of Houston, wchin@uh.edu

## Abstract

The construct of group cohesiveness has received limited study in the GSS domain. This paper draws upon previous work that looked at GSS impacts on group cohesion in small groups (5 members) and expands the investigation to the realm of large groups (over 20 members). We compare and contrast the findings in this study with a previous study of GSS restrictiveness and group cohesion done by Salisbury, Reeves, Chin, Bell and Gopal (1997) in the small group context. Findings indicate that the restrictiveness treatment does influence group cohesiveness, and that the effects are generally the same in large groups as in small groups.

## Introduction

Group Support Systems (GSS) offer a computer-based intervention intended to help groups structure their interaction and process information more effectively (DeSanctis and Gallupe, 1987; Nunamaker, Dennis, Valacich, Vogel, and George, 1993, Jessup and Valacich, 1993). Because the premise on which GSS have typically been developed is that groups are unable to properly manage the information necessary to reach quality decisions, imposed structure and information processing have been key elements in GSS design (Clapper and Prasad, 1993). These do appear in general to enhance group performance. However, research outcomes from this rational/performance approach have been less clear when interaction outcomes such as group consensus are considered (Dennis and Gallupe, 1993).

Salisbury, Reeves, Chin, Bell and Gopal (1997) investigated the social aspects of a GSS intervention on small group work by addressing the important social interaction construct of group cohesiveness. They demonstrated that while GSS may be viewed as a means to structure interaction among group participants, restrictiveness (greater imposed structure) may also have the undesired effect of suppressing group formation, which in turn has a negative influence on group cohesiveness. This study extends this previous work on GSS restrictiveness and group cohesiveness to the larger group context. We first discuss the importance of group cohesiveness and the effects GSS has on it. We then review the literature regarding GSS impacts in large versus small groups. We then present the results of a

laboratory experiment in which one set of groups was provided with a restrictive (Silver, 1990; Wheeler and Valacich, 1996, Wheeler, Mennecke and Scudder, 1993) GSS structure (greater imposed structure), and the other set of groups were provided with a non-restrictive treatment (less imposed structure). The effect of more or less restrictive GSS structure on group cohesiveness is assessed in this large (greater than 20 members) group context, and the results are compared to the previous work.

## Importance of Cohesiveness

Group cohesiveness has been an active part of research in almost every domain of psychology that deals with group behavior (Chin, Salisbury, Pearson and Stollak, 1999). Cohesiveness is often viewed as a mediator of group formation, maintenance, and productivity (Chin et al., 1999). Perceived cohesiveness encompasses an individual's sense of *belonging* to a particular group and his or her feelings of *morale* associated with membership in the group (cf. Bollen and Hoyle, 1991). Thus, perceived cohesiveness reflects an individual's appraisal of his or her relationship to the group. Such perceptions by individuals relative to their group could be linked to group formation, maintenance, or even productivity in some situations.

## GSS Effects on Cohesiveness

Salisbury, et al. (1997) noted that while GSS do favorably influence decision outcomes, they also appear to detract from the ability of small groups to form the norms that may lead to cohesiveness. With respect to cohesiveness, the most prominent feature of GSS may be the capacity of computer supported meeting processes to reduce information available to individual group members that may be necessary for the formation of group norms. Indeed, one of the earliest assertions of the importance of GSS technology is that it could be designed in such a way as to reduce conformity to social psychological pressures of the group, which can lead to "groupthink" (Janis, 1982; cf. Miranda, 1994), e.g. by providing anonymity (Dennis, George, Jessup, Nunamaker and Vogel, 1988). Since social interaction is suggested to favorably influence cohesiveness (Collins, 1992), limiting it may lead to the opposite effect.

We also expect this to be the case in the large group context. While GSS effects have been investigated extensively in smaller groups (usually less than 10 members), the influence of GSS has not been as heavily investigated in the large group context. This may be due, in part, to the difficulty of gathering large experimental groups. Still, in the studies that have been performed, the general trend that emerges suggests that GSS influences are more pronounced as group size increases. For example, it appears that, the larger the group, the more GSS can favorably impact such outcomes as decision quality, and participant satisfaction (cf. Dennis and Gallupe, 1993). What is not clear from previous studies is whether this relationship will occur with respect to a social interaction construct like cohesiveness, and whether it will be more pronounced with larger group sizes.

### Hypotheses

As discussed, creating group cohesiveness can be viewed as a social process. As a social process, we conjecture that cohesiveness is negatively affected by the provision of a more restrictive GSS. Salisbury et al (1997) provided empirical support for this in their study of small groups. For the large group context, there is reason to believe that it may be more difficult for groups to become cohesive in the first place. As a practical matter, it is difficult for larger groups to have a sense of cohesiveness than smaller groups. Due to the large size, close social interaction among all members becomes difficult (Bollen and Hoyle, 1990), and at the extreme (e.g., community level), it may require long periods of time before a sense of cohesion is felt by community members. Thus, as the group size increases, this ability to form "groupness" may be reduced (cf. Carron and Spink, 1995). If the variation in group cohesiveness is minimized due to size, the impact on cohesiveness of a more restrictive GSS may likewise be minimized. As a consequence, we would expect that cohesiveness in large groups should be less than it would be in small groups, hence the impacts studied by Salisbury et al. (1997) in small groups may be lessened in larger groups. Nevertheless, using the findings from the small group context as a starting point, we suggest the same hypotheses.

#### **H1: Perceived cohesiveness will be greater in non-restrictive GSS groups than in restrictive GSS groups.**

In addition to viewing cohesion as a global construct, Bollen and Hoyle (1990) suggest that it may be comprised of two constructs, belonging and morale. Chin et al. (1996) present evidence that the sub-dimensions of belonging and morale are indeed separate constructs. Consequently, we have decided to generate hypotheses about these as well, described by Hypothesis 2:

#### **H2a: Perceived morale will be greater in non-restrictive GSS groups than in restrictive GSS groups.**

#### **H2b: Perceived belonging will be greater in non-restrictive GSS groups than in restrictive GSS groups.**

### Method

To test the effect of restrictiveness on cohesiveness, belonging and morale in a large group context, a laboratory experiment was performed. One-half of the groups received a restrictive treatment, in which the facilitator led the groups through an on-screen agenda, limiting the range of options for using the system. The other groups received a non-restrictive treatment in which they were allowed to use (or not use) the GSS in any manner they wished (actually, since there were 13 groups, 7 received the restrictiveness treatment, while 6 did not). The GSS used was *VisionQuest*, a product of Collaborative Technologies Corporation (that has since been acquired by Ventana). *VisionQuest* tools used included *Brainwriting*, *Voting*, *Ranking*, and *Rating*. Group participants were seated around a table with a PC available to each participant. Both sets of groups were trained in using the GSS. The task was the "School of Business Policy Task" (Wheeler and Mennecke, 1992), a *hidden profile* (Stasser, 1992) task, in which each group member is made aware of only a portion of the task information, requiring the group to work together to reach a solution.

The subjects in the present study were 309 undergraduate subjects (participating in groups ranging in size from 23 to 26) drawn from an introductory MIS class at a western Canadian university comprised mainly of third year students. Groups were balanced on gender (162 males and 147 females overall) such that no group included more than 60 per cent of one gender, (cf. Kanter, 1977). The mean age of the subjects was 21.11 (s.d. = 3.26) with work experience of 15.80 months (s.d. = 27.21) and GPA of 2.92 (s.d. = 0.40). The mean number of previous exposures to GSS was 0.26 (s.d. = 1.04). The median number of subjects per group was 24 (mean 23.77, s.d. 1.79). The sessions were run during the middle portion of the semester, and the groups were meeting for the first time. The total session time was about three hours, with 1 hour and 10 minutes of this time devoted to task performance.

The dependent constructs were group cohesiveness (H1), belonging (H2a) and morale (H2b). The scales used to capture these constructs were developed by Chin et al. (1999; the scale items are available on-line at <http://dave.cbi.msstate.edu/research/cohesion.html>) and applied in small group work. These scales have demonstrated favorable psychometric properties in previous research.

## Findings

For cohesiveness, the scores on the six-item Chin et al. (1999) scale were summed for each individual to create an aggregated perceived cohesiveness score for each participant. A similar procedure was performed for belonging and morale, using the relevant items. Before proceeding with the analysis, we decided to assess the variance between treatments, using Levine's test (cf. Norusis, 1998). We found that the variances were similar

for both the global cohesiveness construct ( $p=0.075$ ) and for belonging ( $p=0.157$ ), but not for morale ( $p=0.024$ ). Due to the unequal variances, we decided to employ a t-test. Since the variances were not different for the global cohesiveness construct and for belonging, the t-test we use assumes equal variances. In the case of the morale construct with unequal variances, we made appropriate adjustments (which explains the d.f. for the morale t-test). Our findings are summarized in Table 1.

**Table 1—Hypotheses and findings**

Hypothesis	Mean (Restrictive)	Mean (Non-Restrictive)	Assumed Variance	t	d.f	p	Supported?
H1 cohesion	24.971	26.775	equal	1.972	307	.049	Yes
H2 morale	12.064	12.891	unequal	1.727	263.91	.085	No
H3 belonging	12.906	13.884	equal	2.047	307	.042	Yes

## Discussion and Conclusion

Based on the overall cohesion scale, the present study suggests that a more restrictive structure does tend to inhibit group cohesiveness. Restrictiveness also appears to inhibit feelings of belonging as well. With respect to morale, however, it would appear that there is no significant difference between large GSS groups and large non-GSS groups. Contrasting these findings with Salisbury et al. (1997), we obtain a similar finding on the global cohesiveness construct (greater for small non-restrictive groups). But reverse results in detecting significant effects occurred with respect to belonging and morale. For belonging, a small but non-significant difference between treatments for small groups in the Salisbury et al. (1997) study becomes a small but significant difference in our large group study. For morale, significant difference between treatments for small groups becomes a non-significant difference in our large group study. These results may not be surprising since intuitively we can imagine it is more important for an individual to develop an appraisal of his or her sense of belonging prior to a sense of morale. In other words, in large groups, among the first things one considers is whether a workable structure can be put in place whereupon each member can provide an effective contribution. For smaller groups, socio-emotional aspects such as morale may be more salient since the effort of coordinating the teamwork becomes less of an issue. We had noted earlier that we expected the impact of restrictiveness to lessen with larger group size with the possibility that at our experimental size of 20-25 member, the effect may not even exist. Yet the belonging results suggest that members did interact. While the mean difference is not large, groups of 20-25 people can interact

and did perceive a greater degree of belonging within a three hour session.

In summary, it is suggested that a restrictive structure makes the intent of the GSS intervention more explicit, and hence restrictive-treatment groups perceived no need to interact with one another in order to resolve how to proceed (since this was made clear by the agenda). This, in turn, has the effect of lowering an individual members' appraisal of belonging and overall cohesiveness. On the other hand, this reduced interaction may be desirable in order to enhance task performance by letting participants "get down to work". Yet, it is unclear what the potential detrimental effect of a lower level of social interaction such as cohesion may have. For example, long-term commitment to work or quality of implementation of the group's decision may be lessened. It is clear that further work (in particular with "live" groups) is required to tease out the effects of GSS restrictiveness, especially on multidimensional constructs such as group cohesiveness and its relationship to other performance measures.

**References available on request from the first author.**