

SYNCHRONIC ANALYSIS AND AST: UNDERSTANDING HOW TECHNICAL AND SOCIAL STRUCTURES ARE APPROPRIATED IN AN ELECTRONIC MEETING

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Extended Abstract Submission to the Special Issue of JAIS
in Honor of the Scholarship of Gerry DeSanctis

Primary Citation:

DeSanctis, G., & Poole, M. (1994). Capturing the complexity in advanced technology use: Adaptive structuration theory. *Organization Science*, 5(2), 121-147.

INTRODUCTION

Since DeSanctis and Poole's original writings, Adaptive Structuration Theory (AST) has been often cited in information systems literature for its power in explaining innovative appropriations of advanced information technologies (AIT). The theory has also been cited in efforts to provide an explanation for appropriations of AIT that may be seen as contrary to the intent of their designers. However, while there have been several articles that have made use of the general concepts of the theory, there have been few attempts specifically to test the tenets of the theoretical perspective as proposed by DeSanctis and Poole.

In the 1994 article in which DeSanctis and Poole operationalized AST, they reported the results from a diachronic analysis wherein they identified discrete moves actors made to appropriate structures of advanced information technologies defined as *appropriation moves*. They built a categorization scheme for those moves that they suggested would be useful in further studies of appropriation for categorizing types of appropriation moves and linking such moves to their structural sources (group contexts). The scheme serves as a guide for researchers examining AIT appropriations. With this seminal article, DeSanctis and Poole (1994) also issued a call to move this research forward into synchronic analyses that examine appropriation moves in context and are concerned with events existing in a limited time period.

This study is just such an analysis. We report on a synchronic analysis of interaction events among participants in a group decision task working within a group support systems (GSS) environment. Small decision groups composed of four or five members each were exposed to one of two technological appropriation settings, one in which the degree of imposed structure was high (restrictive treatment), and the other in which there was less imposed structure (non-restrictive treatment). Subsequently, we performed an analysis of the similarities and differences between how these groups appropriated GSS technology focusing specifically on how appropriation moves by group members are related to the distinct group contexts (restrictive versus non-restrictive treatments).

METHODOLOGY

To this end, we analyzed interaction fragments—clusters of conversational and gestural exchanges—observed in forty-eight video recorded sessions of GSS appropriation in quasi-experimental workgroups. In half of the sessions, a facilitator directed each workgroup through a decision task utilizing the GSS technology (restrictive or high imposed structure treatment). The remaining groups are left to choose to use (or not use) the GSS with the assistance of a chauffeur (non-restrictive or low imposed structure treatment).

The sessions were single-meeting decision task sessions in which all groups were presented with the same problem scenario to resolve. The problem scenario is a version of *The School of Business Policy Task*, a hidden-profile (Stasser, 1992) task in which each group member is made aware of only a portion of the task information (Wheeler and Mennecke, 1992). The participants were all undergraduate business school students being exposed to group decision making techniques and GSS technology for the first time.

We examined and report the appropriation moves that occurred over the course of these sessions by conducting an analysis of the participants as they worked on the task. We observed

and made notations of how actors constructed and gave meaning to their actions in concrete social situations. We used the nine-category DeSanctis and Poole (1994) typology of appropriation moves, as well as their six-category typology of sources of structure, to categorize and organize the notations of appropriation moves thus providing the structure through which the data were analyzed.

OBSERVATIONS and DISCUSSION

Several key findings emerge. First, the original typologies of appropriation moves and sources of structure suggested by DeSanctis and Poole (1994) do provide a valid scheme for identifying and classifying clusters of appropriation moves. Second, clear patterns surface regarding the influence of group structure on participants' appropriation of GSS technologies, such that the structural environment (i.e., the treatment) strongly influences the number and types of appropriation moves. However, the variations in the patterns that surface indicate that the structural environment is not sufficient to determine the patterns of appropriation moves that develop over the course of the meeting. Even within a high imposed structure environment (restrictive treatment) participants will appropriate (or attempt to appropriate) structures of the GSS in patterns not in keeping with an ideal type group process.

We use an ideal type (Münch, 1987; Weber, 2001) decision task session to facilitate comparison of group activities. The ideal type group does not represent any of the groups in this study; nor does it represent an aggregation or amalgamation of the groups in this study. Rather, the ideal type represents a standard group meeting process that exists in the mind of the observer and serves as a point of comparison of the real groups. Primarily, the ideal type meeting is characterized by the group members proceeding on the task in a manner that is consistent with their training in group decision techniques and GSS technologies, resulting in a meeting process that is characterized by its strict adherence to the agenda and attendant GSS tools.

The design of the restrictive treatment resulted in group decision meetings that were very similar to that of the ideal-typical group. There were, however, notable instances in which a member or members of a group deviated, or attempted to deviate, from the prescribed treatment design. In each case, the facilitator intervened, ordering the group to accomplish all of the activities as he directed.

The predominant characteristic of the non-restrictive treatment groups was a notable lack of similarity to the ideal-typical group. The decision process was marked by confusion and uncertainty of how to manage the meeting process. Though all groups eventually chose to utilize the GSS, some considered a process not using the system. Once using the GSS, the non-restrictive treatment groups tended to attempt following the agenda and utilizing the proper GSS tools. However, they generally displayed uncertainty or confusion resulting in difficulty managing the decision task process. It was only in rare instances that a group was able to gain greater control of the meeting process once they had lost control. There were some non-restrictive treatment groups that did adhere closely to the ideal type. Consequently, these groups were quite similar to the ideal-typical group. There was far less confusion and uncertainty displayed or expressed by the members of these groups.

CONCLUSION

The many sessions, all with homogeneous groups in terms of participant experience, setting, task, and prevailing process structure, has provided a rich environment in which to observe how groups appropriate structures differently in contrasting structural contexts. The quasi-experimental design of the sessions does, however create an unrealistic group decision environment. Nevertheless, valuable insights can be drawn from the observations this kind of study design affords. Observations conducted in this study revealed patterns of technology-supported group decision-making processes that are both similar and different between groups within each treatment group, and similar and different across treatment groups. Understanding the patterns that exist between groups and how otherwise similar groups diverge from a typical pattern provides useful insights into decision group appropriation behaviors. All of these patterns can be analyzed and considered by GSS meeting facilitators, decision group participants and researchers. The different patterns of appropriation that have been observed support the tenets of AST. While the structures of AIT such as GSS available to the participants affect the structural patterns of group meetings, the variations in patterns of appropriation show that users will utilize, or attempt to utilize, the structures of those technologies to influence group structures.

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