

## Association for Information Systems AIS Electronic Library (AISeL)

---

ICIS 2000 Proceedings

International Conference on Information Systems  
(ICIS)

---

December 2000

# A Qualitative Analysis of Structural Emergence and Ascendant Leadership in Technological Appropriation

David Miller  
*Mississippi State University*

David Salisbury  
*Ohio University*

John Bartkowski  
*Mississippi State University*

Follow this and additional works at: <http://aisel.aisnet.org/icis2000>

---

### Recommended Citation

Miller, David; Salisbury, David; and Bartkowski, John, "A Qualitative Analysis of Structural Emergence and Ascendant Leadership in Technological Appropriation" (2000). *ICIS 2000 Proceedings*. 62.  
<http://aisel.aisnet.org/icis2000/62>

This material is brought to you by the International Conference on Information Systems (ICIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ICIS 2000 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# A QUALITATIVE ANALYSIS OF STRUCTURAL EMERGENCE AND ASCENDANT LEADERSHIP IN TECHNOLOGICAL APPROPRIATION

**David W. Miller**  
**John P. Bartkowski**  
Mississippi State University  
U.S.A.

**Wm. David Salisbury**  
Ohio University  
U.S.A.

## Abstract

*Recent scholarship on the appropriation of advanced information technology in professional settings has utilized adaptive structuration theory (AST) to move beyond voluntaristic and deterministic perspectives on workplace interaction. Our study seeks to advance the paradigm of adaptive structuration in both theoretical and empirical terms. First, we make a case for a reconceptualization of the duality of structure in AST by integrating insights from William Sewell's (1992) perspective on this important facet of structuration. Sewell suggests that structures are composed of both schemata (transposable recipes for social action) and resources (animate or inanimate objects actors use to exercise power). Second, we reveal how this reconceptualization of the duality of structure can open up new avenues for research on the appropriation of group decision support systems (GDSS) among work teams. To this end, we analyze interaction fragments—i.e., conversational and gestural exchanges—observed in a sample (N = 10) of over 60 video recorded sessions of GDSS appropriation in quasi-experimental workgroups. In five of the workgroups, the technology was introduced by a facilitator (restrictive treatment); the other five groups were introduced to the GDSS by a chauffeur (non-restrictive treatment). Preliminary results, which we will continue to pursue with an analysis of the full slate of 60 video recordings, reveal how participants transpose culturally meaningful interaction strategies—schemata—to consolidate animate and inanimate resources in the GDSS environment. We term this process “ascendant leadership” and provide rich descriptions of the ways in which such power is exercised and contested across these two different treatment contexts.*

## 1. INTRODUCTION

Adaptive structuration theory (AST) has recently been utilized to illuminate processes of technological appropriation in the workplace. AST charts a new theoretical path around theories that are, alternatively, highly individualistic or overly deterministic by invoking Giddens' notion of the “duality of structure” (DeSanctis and Poole 1994). According to Giddens, structure is composed of both “rules” (normative constraints on action) and “resources” (social objects that enable interaction). From this perspective, structure is both imposed upon social action and emergent through interaction. Despite the obvious merits of this theoretical perspective, Giddens' lofty language and theoretical abstractness pose difficulties for researchers who wish to use these otherwise rich concepts to guide empirical investigation (Sewell 1992). To their credit, expositors of AST have acted as interpreters of Giddens by defining and clarifying the relationship between his primary concepts (e.g., DeSanctis and Poole 1994; Salisbury and Stollak 1999; Wheeler and Valacich 1996). And quite notably, empirical research on technological appropriation has revealed the fruitfulness of AST when compared with more voluntaristic or deterministic paradigms (Chin et al. 1997; Poole and DeSanctis 1992; Salisbury and Stollak 1999; Wheeler and Valacich 1996).

In this study, we argue that information technology theorists and empirical researchers revisit the concept of “structure” and consider modifying their understanding of the “duality of structure” where the appropriation of GDSS technology is concerned. We begin by outlining Sewell’s clarification of Giddens’ “duality of structure”—composed of, in Sewell’s terms, as schemata and resources—and highlight the distinct advantages of this theoretical reconceptualization. Then, we proceed to apply these insights to an analysis of observed social interaction in video recorded groups (N = 10) introduced to GDSS technology. Five of these groups appropriated GDSS technology through the direction of a facilitator (restrictive groups), while the other five were offered instruction by a chauffeur (non-restrictive groups). Our qualitative analysis focuses on extra-technological interaction in these quasi-experimental social settings. In the present analysis, we pay special attention to the strategies that participants utilize to engage in, disengage from, and influence social interaction. By assessing interaction fragments that occur “around” technological appropriation in this quasi-experiment, we are able to uncover how participants transpose culturally meaningful interaction strategies (i.e., schemata) to consolidate animate and inanimate resources (i.e., power) in the GDSS environment. In the end, we maintain that AST-based studies of small-group interaction are enriched by frameworks that more clearly explicate the relationship between agency, structural emergence, and power.

## 2. THE DUALITY OF STRUCTURE RECONSIDERED

In undertaking this investigation, we revisit core insights from Giddens’ theory of structuration while integrating meaningful extensions of this paradigm as recently advanced by William Sewell (1992). Structuration theory effectively avoids the pitfalls of voluntarism and determinism by conceiving of social structure as a “duality” that simultaneously constrains and enables social action (cf. Orlikowski 1992). While Giddens conceptualizes this duality as “rules” and “resources,” Sewell contends that the term “rules” is too abstract and vague to lend insight into social interaction. Sewell instead defines the duality of structure as schemata and resources. *Schemata* are ideological frameworks that prescribe courses of appropriate action—in Sewell’s terms, “recipes for group action.” In a point of departure from Giddens, Sewell (p. 8) indicates that schemata are capable of being applied outside of the social sphere in which they were initially generated and internalized. Sewell terms this process the “transposability of schemata.” By way of example, recipes for small-group interaction in a professional encounter (e.g., the boss sits at the head of the conference table and initiates conversation) may be initially learned and accepted in family life (i.e., the placement of the father’s chair at the head of the family dinner table).

However, the transposition of schemata does not always entail a simple, unreflective replication of interaction recipes across social situations. Rather, Sewell argues that the agency of social actors is found in their ability to use social recipes creatively to challenge the status quo or to meet the demands of unfamiliar social situations. To follow the previous example, the workplace staff’s purchase of a new, circular conference table as a “gift” for their supervisor’s office could also be seen a creative effort at promoting more egalitarian interactions during important decision-making meetings.

Such examples, while introduced here merely for illustrative purposes, highlight another important feature of structuration theory—namely, the twin influence of time and space (literally, “time-space”) on social interaction (e.g., Giddens 1984, pp. 83-92). Like phenomenological and dramaturgical theories (e.g., Garfinkel 1964; Goffman 1959 1974) that preceded it, structuration theory places a premium on the “positioning” of bodies among interacting participants (“space”) and the shared history or temporality of interacting participants (“time”).

Largely consistent with Giddens framework, Sewell defines *resources* as cultural products or objects that actors with access to them can enlist “to enhance or maintain power” (p. 9). Because resources are defined as meaningful within a particular cultural context, resource-rich actors are more capable of generating, disseminating, and legitimating schemata among group members. Quite notably, Sewell calls researchers’ attention to two different types of resources—namely, animate and inanimate resources—in explicating the process of resource-accumulation (cf. Fincham 1992).

## 3. RESEARCH METHODOLOGY: DATA AND ANALYTICAL STRATEGIES

Having outlined a modified theoretical definition of the duality of structure, we now turn our attention to empirical matters. To undertake our investigation, we analyzed video recordings of 10 quasi-experimental groups that were introduced to GDSS technology through one of two formats: five groups receiving a restricted treatment in which the technology was introduced to the group by a facilitator, and the other five groups receiving an unrestricted treatment in which the technology was introduced by a chauffeur (cf. Dickson, Partridge and Lee 1994; Silver 1990; Wheeler and Valacich 1996).

Consistent with the presuppositions of structuration theory, we seek to compare the emergence of social structure—i.e., the cultivation of shared meanings through interaction patterns—among these two different types of treatment groups (restrictive/non-

restrictive). We also examine these video recordings for observational evidence of the accumulation of animate/inanimate resources during the quasi-experimental interaction processes. With this latter concern in mind, we describe the conditions under which ascendant leaders strategically accumulate resources and direct group interaction.

The unit of analysis was observation of a single role-play group decision meeting that commenced just after the group had received training in a group decision process and use of the GDSS. The observation consisted of examining the participant’s verbal and nonverbal interaction with the group, other individual participants, and the facilitator, as well as how the group participants called the GDSS into use and referred to other resources such as a meeting agenda during their interaction.

By observing each of these interactions, we sought to identify the interplay between schemata, resources, and ascendant leadership in the GDSS environment. We next describe the setting for the group interaction.

#### 4. ANALYSIS METHOD

Our methodology is consistent with the principles of ethnomethodological (Garfinkle 1964) and dramaturgical analyses (Goffman 1959) of observation of micro-social interaction. Ethnomethodology (Garfinkel 1964; Heritage 1984) is a qualitative research approach that examines how actors construct and give meaning to their actions in concrete social situations (Denzin and Lincoln 1998). Dramaturgical analysis observes the social actor’s presentation of self (Goffman 1959), i.e., an individual’s effort to create specific impressions in the minds of others. In our study, we carried out remote observation of participants by studying video recordings of the decision meeting sessions. Such observation is advantageous in that the observers do not manipulate or stimulate the participants (Adler and Adler 1994); i.e., it is a noninterventionist method. Ethnomethodology allows the researcher to unobtrusively observe and make in-depth analyses of participant interactions in a specific context (i.e., completing a task as a social group). The video recordings used in this study provide the researcher a rich contextual venue in which to observe the interplay of schemata, resources, and ascendant leadership through group interaction.

#### 5. SETTING

We utilized video recordings of quasi-experimental work groups at a Western Canadian university where group participants performed a decision-making task using a GDSS and a provided decision-making method. Participants, who were third-year business students, took part in the experimental sessions in order to meet a course requirement in an introductory course in Management Information Systems. Participants were randomly assigned to groups, except for an effort to balance gender such that no group included more than 60% of one gender, consistent with the recommendations made by Kanter (1977).

The physical environment was the same for all groups. The group participants were seated around a table in a horseshoe configuration with the facilitator seated at one end. Figure 1 depicts the physical setting, with the participant seating positions identified by participant letter (e.g., A, B, C, D, E).

The task was the Canadian 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; cf. Salisbury 1997). Each position around the table was assigned the same task role for each session. Table 1 describes the participant case roles.

**Table 1. Case Participant Roles**

Participant	Role
A	Associate Dean of the Commerce Faculty
B	Commerce Student Council President
C	University Alumni Association Vice President
D	Chairperson, Commerce Faculty Association
E	University Vice President for Undergraduate Instruction

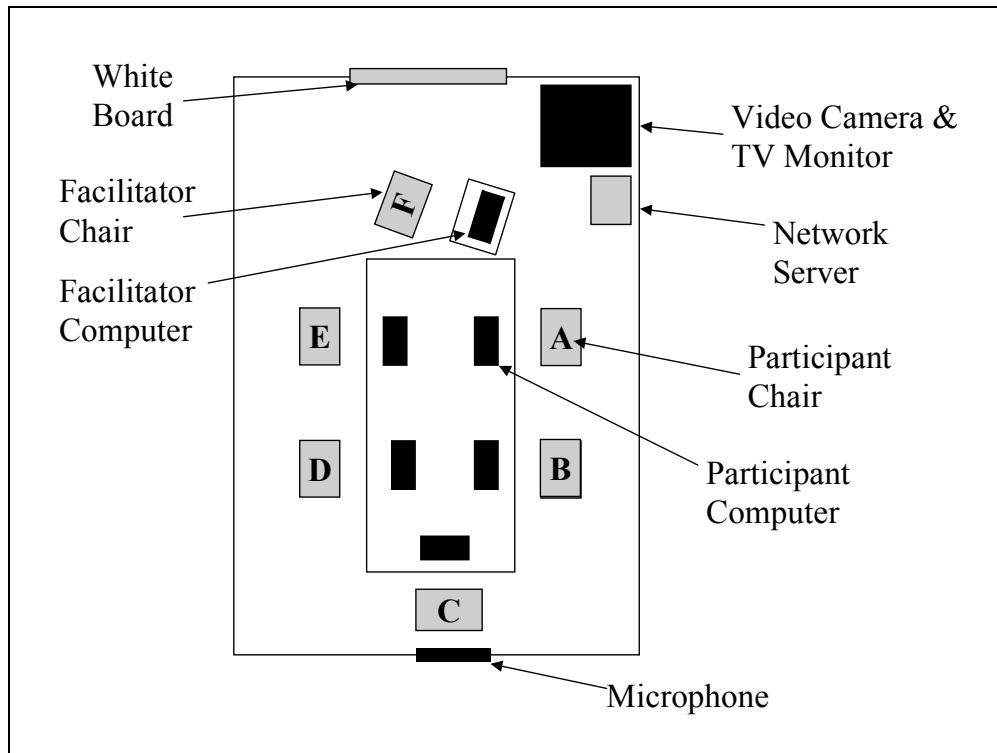


Figure 1. Meeting Room Layout

Prior to completing the task, the participants were trained in the decision-making method and GDSS technology. Practice tasks were performed, first with the decision-making method (for this method, see Wheeler et al. 1993, p. 511) independent of the GDSS, followed by the GDSS tools independent of the decision-making method. Each GDSS tool was demonstrated for roughly an equal length of time. See Table 2 for complete session procedures.

Table 2. Detailed Session Procedures

Phase	Time
Introduction, Consent forms, Pre-session Questionnaire	15 minutes
Training in the decision-making method	20 minutes
Training with the GDSS tools	20 minutes
Reading the case role and completing the pre-task questions	10-15 minutes
Break	5 minutes
<b>*Introduce roles, start task</b>	5 minutes
<b>*Perform decision-making task</b>	70 minutes
<b>*Fill out solution memo</b>	5 minutes
Fill out post-session questionnaires	25 minutes
Wrap-up	5 minutes
Total	up to 190 minutes

\*Our analysis reports on the interaction during these portions of the sessions.

## 6. PRELIMINARY FINDINGS

Consistent with our perspective drawn from Giddens (1984) and Sewell (1992), we viewed the interaction of group participants in the GDSS sessions by observing how they simultaneously enlist schemata and resources to assert leadership within their respective groups. The following vignettes describe a sample of the phenomena we observed.

*Physical Proximity.* One schema that participants transposed from outside the meeting session is the belief that physical proximity to the legitimate authority will enable one to draw from that power and shut others off from it, much as children will attempt to get the exclusive attention of a parent by positioning themselves closer to the parent. During this interaction sample (taken from a restrictive group) Participant **E** stood up at his chair and continued to stand at his workstation as he participated in the group discussion. Participant **E** often leaned forward over the table, placing his body directly between Participant **D** (who emerged as his chief rival for leadership), and the facilitator. By standing, Participant **E** placed himself physically above all other members. He also placed himself between his principal rival, Participant **D**, and the main source of legitimate authority, the facilitator.

*Artifacts Present in the Session.* The following exchange (taken from a non-restrictive group) is also instructive; in the absence of the facilitator's leadership, one participant appeared to call upon an artifact present in the room (the GDSS) to establish leadership.

- A: *Okay, what does everybody think the problem is?*  
C: *[towards A] Shouldn't we go ahead—*  
A: *Use the computer?*  
C: *Use the computer, and everybody enter their problems as they see them?*  
A: *Sure.*  
C: *[towards the group] Get everybody's perspective.*

From the above exchange, it appears that the first power struggle in this session was immediate and conclusive. Participant **A** attempted to grasp power first, but **C** took a position that apparently had greater legitimacy to the other participants by suggesting the use of the GDSS. Once it was clear to **C** that he had indeed ascended to leadership, at least for the moment, he began addressing the entire group as the recognized leader.

*Treatment Influences.* It appears that the treatment condition activated different resources and schemata. In both treatments, the first response at the start of the decision-making session was for the group to defer to the meeting facilitator. It would seem that group participants called on a schema indicating that the authority figure present should be leader by default, and indeed group members seemed confused and tentative when the facilitator did not assert this role (e.g., in the non-restrictive groups). As participants realized this particular schema was not applicable to their session, they began casting about for other resources. In the restrictive treatment, the facilitator was the *de facto* leader of the group, by dint of his position of legitimate authority in the session. Those attempting to assert leadership would do so by associating themselves with the facilitator, or by physically interspersing themselves between other participants and the facilitator.

## 7. CURRENT STATUS AND FUTURE DIRECTION OF THE PROJECT

Presently, all sessions in the study have been completed and video-recorded and are being analyzed. For the conference, we will have analyzed over 60 group interactions (including the 10 that have already been completed) and will present our findings from these analyses, building on the insights that have already been derived from this data set. We will also specify the theoretical and practical implications of our research at the conference.

## 8. EXPECTED IMPLICATIONS FROM COMPLETED RESEARCH

The paper will stress the various tactics that participants use to manage social encounters: role utilization versus role abandonment, self-focused versus group-focused interaction strategies, as well as tactics of engagement, disengagement, and influence that emerge throughout the quasi-experiments. Throughout, we analyze how the technology is appropriated and, at times, circumvented by such interaction strategies. In so doing, this research will provide significant theoretical and methodological contributions to AST and greater insight into the impact of social interventionist technology such as GDSS on social structuration.

## References

- Adler, P. A., and Adler, P. "Observational Techniques," in *Handbook of Qualitative Research*, N. K. Denzin and Y. S. Lincoln (eds.), Thousand Oaks, CA: Sage Publications, 1994.
- Chin, W. W., Gopal, A., and Salisbury, W. D. "Advancing the Theory of Adaptive Structuration: The Development of an Instrument to Measure Faithfulness of Appropriation of an Electronic Meeting System," *Information Systems Research* (8:4), 1997, pp. 342-367.
- Denzin, N. K., and Lincoln, Y. S. (eds.). *Strategies of Qualitative Inquiry*, Thousand Oaks, CA: Sage Publications, 1998.
- DeSanctis, G., and Poole, M. S. "Capturing the Complexity of Advanced Technology Use: Adaptive Structuration Theory," *Organization Science* (5:2), 1994, pp. 121-147.
- Dickson, G. W., Lee-Partridge, J-E., and Robinson, L. H. "Exploring Modes of Facilitative Support for GDSS Technology," *MIS Quarterly* (17:2), 1993, pp. 173-194.
- Fincham, R. "Perspectives on Power: Processual, Institutional and 'Internal' Forms of Organizational Power," *Journal of Management Studies* (29:6), 1992, pp. 741-759.
- Garfinkel, H. "Studies of the Routine Grounds of Everyday Activities," *Social Problems* (11:3), 1964, pp. 225-250.
- Giddens, A. *The Constitution of Society*, Los Angeles: University of California Press, 1984
- Goffman, E. *Frame Analysis*, New York: Harper and Row, 1974.
- Goffman, E. *The Presentation of Self in Everyday Life*, New York: Doubleday, 1959.
- Heritage, J. "Ethnomethodology," in A. Giddens and J. Turner (eds.), *Sociological Theory Today*, Stanford, CA: Stanford University Press, 1984, pp. 247-271.
- Kanter, R. M. "Some Effects of Proportions on Group Life: Skewed Sex Ratios and Responses to Token Women," *American Journal of Sociology* (82:5), 1977, pp. 965-990.
- Orlikowski, W. J. "The Duality of Technology: Rethinking the Concept of Technology in Organizations," *Organization Science*, (3:3), 1992, pp. 398-427.
- Poole, M. S., and DeSanctis, G., "Microlevel Structuration in Computer-Supported Group Decision Making," *Human Communication Research* (19:1), , 1992, pp. 5-49.
- Salisbury, W. D., "Canadian Version—*School of Business Policy Task*," On-line at <http://research1.bus.indiana.edu/isworld/tasks.nsf>, 1997.
- Salisbury, W. D., and Stollak, M. J. "Process Restricted AST: An Assessment of Group Support Systems Appropriation and Meeting Outcomes Using Participant Perceptions." in *Proceedings of the Twentieth International Conference on Information Systems*, P. De and J. I. DeGross (eds.), Charlotte, NC, December 12-15, 1999, pp. 29-39.
- Sewell, W. H. "A Theory of Structure: Duality, Agency and Transformation," *American Journal of Sociology* (98:1), 1992, pp. 1-29.
- Silver, M. S. "Decision Support Systems: Directed and Nondirected Change," *Information Systems Research* (1:1), 1990, pp. 47-70.
- Stasser, G. "Pooling of Unshared Information During Group Discussions," in *Group Process and Productivity*, S. Worchel, W. Wood, and J. A. Simpson (eds.), Newbury Park, CA: Sage Publications, 1992.
- Wheeler, B. C., and Mennecke, B. M., "The School of Business Policy Task Manual," Working Paper 92-524, Indiana University, 1992.
- Wheeler, B. C., Mennecke, B. M., and Scudder, J. N. "Restrictive Group Support Systems as a Source of Process Structure for High and Low Procedural Order Groups," *Small Group Research* (24:4), 1993, pp. 504-522.
- Wheeler, B. C., and Valacich, J. S. "Facilitation, GSS, and Training as Sources of Process Restrictiveness and Guidance for Structured Group Decision Making: An Empirical Assessment," *Information Systems Research* (7:4), 1996, pp. 429-450.