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AN ORGANIZATIONAL CULTURE PERSPECTIVE FOR THE STUDY OF GROUP SUPPORT SYSTEMS

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ABSTRACT

Most research on Group Support Systems has focused on the study of the effects of features of the technology on processes and outcomes and has conceived of groups as mere collections of individuals (DeSanctis 1993; Kling 1991). However, as GSSs are moving from laboratories to organizational settings, a better understanding of both GSSs and groups is needed (Clapper and Prasad 1993). In this sense, we propose a cultural perspective to rethink the issue of GSS appropriation in organizations. Specifically, it is proposed that the mode in which a GSS is appropriated is determined by the degree of fit between two sets of assumptions: (a) those embedded in the GSS during its design and (b) those that users have and that determine how they interact with the GSS. We rely on the organizational culture literature to analyze these two sets of assumptions and their implications for GSS appropriation, and to provide guidelines for future GSS research and design.

1. INTRODUCTION

Group Support Systems, like other information technologies, reflect certain assumptions of their designers (Kraemer and King 1988; Orlikowski 1992a; Poole and DeSanctis 1990; Winograd and Flores 1986); among them, assumptions about what meetings *ought to be* about and how decisions ought to be made. On the other hand, users of GSSs have their own set of assumptions about what meetings *are* about and how decisions *have to be* made (Schein 1992). These two sets of assumptions may not fit and, when they do not, the GSS will probably be appropriated in a manner inconsistent with its spirit or might simply be rejected.

The appropriation of technology in organizations is a function of the different actors and socio-historical contexts implicated in its *design* and *use* (Orlikowski 1992a; Orlikowski and Robey 1991). During the design of a GSS, designers' assumptions are embedded into it. For instance, it has been assumed that meetings are tools to accomplish certain tasks (e.g., make decisions) and that group decision making is a rational process. During the use of a GSS, the mode in which it is appropriated is a reflection of the fit between the group's basic assumptions and the built-in GSS design assumptions. This fit determines how particular features are appropriated, which in turn influences task execution.

GSS use and the mode of its appropriation are highly discretionary. The "user" is a group: not merely an aggregation of individuals but a social entity with its own nature. These groups not only deal with unstructured and sensitive tasks but fundamentally use these "occasions" to create and validate their social systems (Schwartzman 1989).

In this paper, we rely on the organizational culture literature which offers compelling perspectives to understand groups and how they differ and to rethink the issue of GSS appropriation in organizations.

2. BACKGROUND ON ORGANIZATIONAL CULTURE

Organizational culture has been approached in several ways (Frost et al. 1991; Martin 1992; Schein 1992; Smircich 1983). In this paper, Schein's approach is adopted because it is the most suitable to understand GSS appropriation in terms of both the group's basic assumptions and the GSS design assumptions.¹ Furthermore, Schein's work has been particularly influential in the organizational culture literature (Hatch 1993).

Schein defined the culture of a group as

a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems [1992, p. 12].

This definition of culture implies the following: First, basic assumptions constitute the *essence* of culture. Second, culture is *shared* by the group members. Third, culture is *deeply embedded* and hence *stable* in the group. Fourth, culture is *holistic*. Fifth, culture determines what is *correct* for the group. Sixth, the definition may be applied to a variety of groups, ranging from small groups to whole organizations. In this paper it is applied to small groups.

The major implication of this definition of culture for GSS design and research is that culture not only should be understood, but also is deeply embedded in the group and hence powerful in determining group dynamics. Groups should not be seen as passive entities willing to use the more “advanced information technologies.” Instead, groups are active entities that have developed their own “right” ways of “doing business” in the world.

2.1 Culture as Metaphor

As argued by Smircich, culture can be viewed as a variable (i.e., a characteristic a group *has*) or as a metaphor (i.e., a representation of what a group *is*). As a variable, culture can be regarded as a characteristic imported into a group from the society (here culture is used as synonymous with country) or as an internal characteristic of the group (here culture is an internal variable, in the same way as group size, group structure, etc.).

As a metaphor, culture is regarded as a means for representing and understanding groups. Groups are viewed not as machines, organisms, or any other traditional metaphor and they are not understood in economic or functional terms. Rather, groups are viewed as cultures and defined and understood in terms of their basic assumptions. In this paper, culture is viewed as a metaphor and not as a variable.

3. A CULTURAL MODEL OF GSS APPROPRIATION

The cultural model of GSS appropriation proposed in this paper is presented in Figure 1. In essence, this model

proposes that the fit between the group’s basic assumptions and the GSS design assumptions determines the mode in which a GSS is appropriated.

3.1 GSS Appropriation

GSS appropriation is defined as the mode in which a group uses, adapts, and reproduces the structural features of the GSS (Poole and DeSanctis 1990). The appropriation of a GSS is not automatically determined by its structural features, but by the group’s active selection of them (DeSanctis and Poole 1994). Groups may appropriate these features faithfully or unfaithfully. Faithful appropriations are consistent with the GSS design assumptions. Unfaithful appropriations are inconsistent with these assumptions. Although faithful appropriations seem to be related to positive outcomes (Poole and DeSanctis 1992), unfaithful appropriations are not necessarily “bad.” They are simply inconsistent with the spirit of the technology. The point to be appreciated, however, is that unfaithful appropriations reveal opportunities for improving the design of GSSs and suggest that traditional evaluation criteria of group performance may not be appropriate.

3.2 Basic Assumptions

As argued by Schein (1992), basic assumptions are those that

we neither confront nor debate and hence are extremely difficult to change...[these assumptions define] for us what to pay attention to, what things mean, how to react emotionally to what is going on, and *what actions to take in various kinds of situations* [p. 22; emphasis added]. They are not only “our” assumptions, but by virtue of our history of success, they must be right and good [p. 12].

This definition implies that groups’ actions (for instance, the mode in which groups appropriate a GSS) are reflections of these basic assumptions. Because the human mind needs cognitive stability and any challenge to a *basic assumption* will release anxiety and defensiveness² (Schein 1992), in this paper we argue that if the assumptions embedded in the GSS don’t fit with the group’s basic assumptions, then the basic assumptions will prevail and consequently the GSS will be appropriated unfaithfully or not at all. If, on the other hand, there is a fit between these two sets of assumptions, then the GSS will be appropriated faithfully.

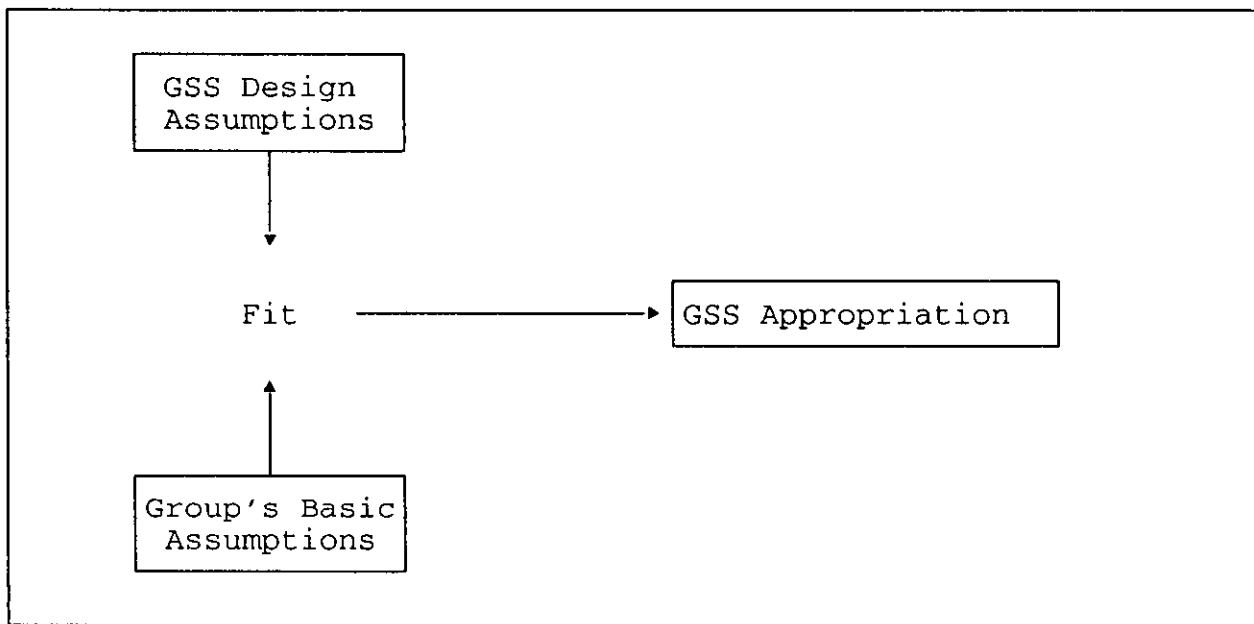


Figure 1. Cultural Model of GSS Appropriation

Five of Schein's six dimensions of basic assumptions are particularly helpful to understand both the group's basic assumptions and the assumptions embedded in the GSS. These dimensions correspond to assumptions about the nature of human nature, human activity, reality and truth, human relationships, and time. These dimensions, although useful for analytic purposes, are closely related to each other because of the holistic nature of culture.

With respect to the GSS design assumptions, in this paper, we focused on those that are common to most current GSSs and concentrate on same time/same place GSSs (cf., Johansen [1992] for a discussion of the time/place matrix of business needs and technology solutions), because most current GSS research has mainly focused on them (Jessup and Valacich 1993).

In the rest of this section, the implications for GSSs of each of the dimensions of basic assumptions are discussed, correspondent propositions about GSS appropriation are established, and empirical evidence drawn from the literature supporting most of the propositions is provided.

3.2.1 Assumptions About the Nature of Human Nature

These are shared assumptions about what it means to be human; what kinds of behavior are considered appropriate

and what are not and therefore grounds for ejection from the group (Schein 1992). Some groups assume that people are rational (Argyris 1971). In fact, a design assumption in most GSSs is that humans are logical and convergent thinkers but with limited information processing capabilities (Clapper and Prasad 1993; Rao and Jarvenpaa 1991). Humans are also seen as intolerant of ambiguity and it is assumed that they need structure and support (e.g., facilitators, roles, rules, and procedures) to communicate with each other (Bostrom, Anson, and Clawson 1993).

Nevertheless, other groups conceive of humans as social (intuitive and emotional) beings (Argyris 1971; Mumby and Putnam 1992). People are viewed as complex beings with multiple needs, motives, values, and emotions, and sensitive to group norms (Eisenberg and Goodall 1993). People may even enjoy ambiguity and the manipulation of others (Argyris 1971).

This suggests

P1: The higher the degree of fit between the GSS assumptions and the group's basic assumptions in terms of their human nature orientation, the greater the likelihood that the GSS will be appropriated faithfully. Conversely, the lower the degree of their fit, the greater the likelihood that the GSS will be appropriated unfaithfully, or not at all.

3.2.2 Assumptions About the Nature of Human Activity

These are shared assumptions about the appropriate way for humans to act in relation to their environment (Schein 1992). Some groups are “doing” oriented. In fact, a design assumption in most GSSs is that groups ought to focus on the task and productivity. In this sense, meetings are viewed not only as tools but fundamentally as ineffective tools that must be improved in order to gain task efficiency and effectiveness (e.g., DeSanctis and Gallupe 1987; Huber 1984). Thus, typical outcome-variables measured by GSS researchers include decision quality, decision time, post-meeting consensus, number of ideas generated, etc. GSS research has also been concerned with processes, but only with those directly related to the task. Thus, typical process-variables studied include participation, degree of structure, type of facilitation, etc. (Dennis et al. 1988; Dennis and Gallupe 1993).

Nevertheless, other groups are “being” oriented. They focus on the processes and their development. For them, meetings are more than mere means to deal with specific tasks. Meetings provide groups with occasions for the creation and recreation of their identities; for executing standard and many times symbolic operating procedures; for distributing glory or blame; and for socialization (March and Olsen 1976; Schwartzman 1989). Meetings give the *appearance* that tasks are done effectively and efficiently, when they *actually* provide the occasion to do those other things (Schwartzman 1989).

This suggests

P2: The higher the degree of fit between the GSS assumptions and the group's basic assumptions in terms of their human activity orientation, the greater the likelihood that the GSS will be appropriated faithfully. Conversely, the lower the degree of their fit, the greater the likelihood that the GSS will be appropriated unfaithfully, or not at all.

Illustration: The faithful appropriation of a GSS by the “technical core” of the Tucson Office of the Indian Health Service (George, Nunamaker, and Valacich 1992) supports this proposition. This group can be characterized as a “doing” oriented culture. In fact, the adoption of the GSS in this division was not accidental because other “methods to improve the productivity of meetings had been considered locally before” (p. 193). This reveals a prevailing concern with task efficiency and effectiveness in that culture.

On the other hand, DeSanctis et al. (1993) reported the case of a team at Texaco (referred to as Team 1 by the authors)

that was more “being” oriented and that appropriated a GSS unfaithfully. The GSS

served as a forum members used to show their competence with computers....A related norm was control of [the GSS] by experts and the leader. This reinforced the leader's position in the group and enabled him to demonstrate his competence [p. 18].

3.2.3 Assumptions About the Nature of Reality and Truth

These are shared assumptions that define what is real and what is not and how “truth” is ultimately determined (Schein 1992). In the case of group work, these refer to the assumptions made by groups about how they have to accomplish their tasks (e.g., make decisions).

Some groups make decisions following a rational process. In fact, a design assumption in most GSSs is that decisions ought to be made following a rational process; that is, following certain well defined steps such as definition of the problem, generation of alternatives, evaluation of alternatives, and selection of the “best” choice (Clapper and Prasad 1993; DeSanctis and Gallupe 1987; Kraemer and King 1988). GSSs are expected to reduce “process losses” due to incomplete task analysis and incomplete use of information, and to increase “process gains” by promoting more objective evaluation and by providing more process structure (Nunamaker et al. 1991).

Nevertheless, other groups make decisions in different ways. Particularly influential in the organizational literature is the political model. According to this model, decisions *result* from the bargaining and compromising of the participants, who are assumed to behave according to their own interests (Allison 1971; Argyris 1971; Kling 1980; Pettigrew 1972; Pfeffer 1981). Group members, then, are not engaged in a rational process toward the achievement of a common goal, but in one characterized by the struggle of conflicting interests and in which there will be winners and losers.

This suggests

P3: The higher the degree of fit between the GSS assumptions and the group's basic assumptions in terms of their decision making orientation, the greater the likelihood that the GSS will be appropriated faithfully. Conversely, the lower the degree of their fit, the greater the likelihood that the GSS will be appropriated unfaithfully, or not at all.

Illustration: The experience at IBM with a GSS (Nunamaker et al. 1989) provides support for this proposition: "problem solving" groups appropriated the technology faithfully and achieved high levels of efficiency, effectiveness, and satisfaction with processes and outcomes. Small groups at IBM are project and problem solving oriented (Peters and Waterman 1982).

Applegate (1991), on the other hand, reported a case in which a group confronted a "highly political" situation and rejected the use of a GSS:

At one point, [the leader] jumped up and demanded to know who had made a certain comment. None of the group members acknowledged ownership....Although scheduled for follow-up sessions, the group never returned to finish the planning process [p. 32].

3.2.4 Assumptions About the Nature of Human Relationships

These are shared assumptions that define the right way for people to relate to each other and to their tasks (Schein 1992). Two aspects of these basic assumptions are discussed in this paper.

First, cultures vary in terms of their orientation toward individualism or collectivism (Schein 1992; Hofstede 1980). Some groups are "collectivistic." In fact, a design assumption in most GSSs is that group members ought to work cooperatively toward the achievement of common goals. GSSs are designed assuming that the user is a collaborative work group (Johansen 1992) and that group members are willing to or at least ought to share information (Clapper and Prasad 1993; DeSanctis and Gallupe 1987; Huber 1984). Thus, post-meeting consensus, an indicator of cooperative work, has been viewed as a desired outcome and measure of success (e.g., Dennis et al. 1988; Dickson, Lee-Partridge, and Robinson 1993).

Nevertheless, other groups are "individualistic." In these cultures, the view of group work as people working cooperatively is not sufficiently rich to understand the actual use and impacts of GSSs (Kling 1991). In individualistic cultures, there are limited incentives to work cooperatively and information is usually seen as a commodity and source of power (Pettigrew 1972; Pfeffer 1981; Schein 1992). Furthermore, because it is the individual performance what is rewarded and punished, people prioritize their own interests, which are not necessarily consistent with those of the group.

This suggests

P4a: The higher the degree of fit between the GSS assumptions and the group's basic assumptions in terms of their orientation toward individualism/collectivism, the greater the likelihood that the GSS will be appropriated faithfully. Conversely, the lower the degree of their fit, the greater the likelihood that the GSS will be appropriated unfaithfully, or not at all.

Illustration: The faithful appropriation of a GSS by most groups at the Manhattan District Office of the IRS supports this proposition (DeSanctis et al. 1991). Within the philosophy of quality improvement, the IRS groups can be characterized as collectivistic because of their emphasis on cooperation, participative decision making, and communication (p. 24).

On the other hand, in a consulting firm, a groupware was used as an individual productivity tool (Orlikowski 1992b):

The pyramidal structure and the hierarchical "up or out" career path promote and reinforce an individualistic culture among consultants....In such a competitive culture, there are few norms around cooperating or sharing knowledge with peers....Senior consultants and managers within this office feel little incentive to share their ideas for fear that they may lose status, power, and distinctive competence [p. 367].

However, in the same firm, the groupware was faithfully appropriated by the technologists: "Not being subject to the competitive culture...the technologists appear to have been able to use the technology to conduct their work" (p. 367).

Second, cultures also vary in terms of their power distance orientation (Hofstede 1980). In fact, a GSS design assumption is that group members ought to participate equally, thus eliminating any power distance among them. GSSs promote democratic environments (DeSanctis and Poole 1994). Thus, it has been assumed that certain characteristics of human communication (e.g., dominance of discussion by one or more members; influence of high-status members; lack of acknowledgement of the ideas of low-status members; low tolerance of minority or controversial opinions) are problems (Clapper and Prasad 1993; DeSanctis and Gallupe 1987; Rao and Jarvenpaa 1991). To overcome these problems, GSSs often offer anonymous input and electronic communication.

Nevertheless, other groups are not "democratic." For them, meetings are very important vehicles for the reading as well as validation of social relations. Meetings provide an occasion for exercising power and status relationships,

especially when there are few other ways to negotiate and/or determine one's social status and social ranking (March and Olsen 1976; Schwartzman 1989).

This suggests

P4b: The higher the degree of fit between the GSS assumptions and the group's basic assumptions in terms of their power distance orientation, the greater the likelihood that the GSS will be appropriated faithfully. Conversely, the lower the degree of their fit, the greater the likelihood that the GSS will be appropriated unfaithfully, or not at all.

Illustration: At the Manhattan District Office of the IRS, decision making is by consensus, "the central concept of democracy" (DeSanctis et al. 1991, pp. 23, 26). As mentioned above, most of the groups appropriated the GSS faithfully and it facilitated "full participation" (DeSanctis et al. 1991, p. 33).

On the other hand, Teams 1 and 2 at Texaco were "non democratic" and appropriated a GSS unfaithfully. The "distribution of the appropriation was not even among team members" (DeSanctis et al. 1993, p. 16) and the system "was not used to facilitate high participation or consensus" (DeSanctis et al. 1993, p. 17). Team 2's leader exercised an autocratic style in meetings and used the GSS to "reinforce his influence, to display his ideas, and to control the direction and temper of the meeting" (DeSanctis et al. 1993, p. 20). Furthermore, "more often than not, the leader's point of view ended up as the group decision" (DeSanctis et al. 1993, p. 21).

3.2.5 Assumptions About the Nature of Time

These are basic assumptions that define the basic time orientation of the group (Schein 1992). Some groups are "monochronic" (Hall 1969). In fact, a design assumption in most GSSs is that time can be compartmentalized. Time is seen in a linear way. Electronic agendas, rules, and procedures all form part of the GSS vocabulary and reflect the assumption that things have to be done in an orderly fashion and one at a time. Time has also been assumed to be a resource that can be distributed and spent, but that should not be wasted. Time is seen as objective and measurable with precision by clock time (Bucciarelli 1988). It is, then, assumed that tasks are clearly specified and sequentially accomplished and have clear beginnings and ends.

Nevertheless, other groups are "polychronic"; that is, they tend to do several things at a time. In these groups, people place less value on temporal order, tend to accept events as they arise, and engage in multiple activities simultaneously (Barley 1988). Time is not objective, but socially constructed (Dubinskas 1988), and is not measured, but experienced (Bucciarelli 1988). Attention is given to several tasks, and various "steps" within each task, at the same time. Tasks don't have clear beginnings and ends.

This suggests

P5: The higher the degree of fit between the GSS assumptions and the group's basic assumptions in terms of their time orientation, the greater the likelihood that the GSS will be appropriated faithfully. Conversely, the lower the degree of their fit, the greater the likelihood that the GSS will be appropriated unfaithfully, or not at all.

Illustration: The faithful appropriation of a GSS by the strategic planning group at Burr-Brown supports this proposition (Dennis et al. 1990). This group can be seen as monochronic: they set an agenda and precisely specified the activities to be held in each of the three days of planning. Furthermore, they had three pre-planning meetings in which those activities were programmed.

Texaco's Team 2, on the other hand, exemplifies a more polychronic group that appropriated a GSS unfaithfully. Team 2 was "very informal." Before the introduction of the GSS, they had not done much planning, but with the system,

the team leader noted that he had to do more planning for meetings...and so saw it as more of a burden....Over time, the team used [the GSS] less frequently....The pressure for planning also clashed with the group's relaxed approach toward meetings [DeSanctis et al. 1993, p. 22].

4. DISCUSSION

The sets of basic assumptions and GSS design assumptions presented in the previous section are summarized in Table 1. We have argued that GSSs will more likely be appropriated faithfully when the GSS design assumptions fit with the group's basic assumptions, and unfaithfully or not at all when these two set of assumptions don't fit. This section discusses the implications of this argument for GSS research and design.

Table 1. Basic Cultural Assumptions and GSS Assumptions

Basic Cultural Assumption About the Nature of:	GSS Assumption/ Alternative Assumption	Rationale
1. Human Nature	Rational Man Social Being	Humans are rational and logical but with limited information processing capabilities Humans are intuitive, emotional, and motivated by their needs and interests
2. Human Activity	Doing oriented Being oriented	The purpose of the groups is to accomplish tasks effectively and efficiently Groups use meetings as occasions for exercising power and status and for socialization
3. Reality and Truth	High-analytic Low-analytic	Decision making is a rational process Decision making is a political process
4a. Human Relationships	Collectivism Individualism	Group members work cooperatively toward the achievement of common goals Group members prioritize their own interests, which may not be consistent with the group's
4b. Human Relationships	Lower power distance Higher power distance	Groups are democratic Power and status determine relationships
5. Time	Monochronic Polychronic	Time is linear (things are done one at a time) and is an objective resource Several things are done simultaneously and time is socially constructed, experienced

Before proceeding, two caveats should be noted. First, as every metaphor, the cultural metaphor for conceptualizing groups has limitations. Although culture can explain a significant amount of what goes on in a group, it does not explain everything. Behavior is always determined both by the cultural predisposition and by the situational contingencies that arise from the immediate external environment (Schein 1992). As suggested by the small group research and GSS literatures, perhaps the most important of these contingencies are the characteristics of the task that a group confronts (Dennis et al. 1988; DeSanctis and Gallupe 1987; McGrath 1984; Poole, Seibold, and McPhee 1985). However, the effects of task characteristics on GSS appropriation are culture dependent. For instance, they have a clearer role in "doing" oriented than in "being" oriented

cultures. The cultural perspective, thus, could help us understand apparently inconsistent findings such as those reported by DeSanctis et al. (1993). These authors concluded that

task-technology fit does not determine or moderate effectiveness. When fit is bad groups can redefine their tasks to fit the system, and when fit is good teams may use the technology in ways that undermine effectiveness [p. 26].

Undoubtedly, more conceptual and empirical works are still needed to better understand the effects of task on GSS appropriation in organizational (cultural) settings.

Second, following Schein, we have assumed that cultures have structural stability. Therefore, it has been assumed that the basic assumptions are not altered by the group's interaction with the technology. Nevertheless, the technology might in effect change certain basic assumptions over time (Schein 1992; Hatch 1993).

4.1 Implications for GSS Research

Contrary to the belief that the mere availability of GSS leads to its use (Huber, Valacich, and Jessup 1993), we have argued that the appropriation of the technology is better understood as a function of the assumptions brought by the different actors implicated in its design and use. The first implication is straightforward: less "techno-centric" (DeSanctis 1993) and more organizational and emergent approaches (Markus and Robey 1988) are needed to understand GSS appropriation in organizations.

Second, the focus on assumptions has the potential for providing a more complete picture of GSS appropriation. Future research should focus on these and other assumptions and not only on the structural features of the GSSs. After all, structural features are no more than reflections of the assumptions embedded in the technology.

Third, more fundamental characterizations of groups, other than group size and style of leadership, are needed because groups are social entities and not mere collections of individuals. The cultural perspective adopted in this paper provides a powerful method for understanding groups.

Fourth, the search for efficiency and effectiveness gains with the technology should not be the only force that drives GSS research. Different groups give different meanings to the technology and certain outcome and process variables make sense only in certain group settings. This implies that different and more creative ways to assess the role of GSSs in organizations should be devised.

Fifth, the role of contingencies such as task, facilitator, technology champion, etc. should also be studied within the cultural perspective.

Sixth, researchers should also investigate how the appropriation of a GSS reinforces or alters the basic assumptions of a group.

Finally, research methodologies other than laboratory experiments and field studies should also be used. For example, ethnography and clinical research (used by some organizational researchers) are appropriate to uncover basic assumptions and understand GSS appropriation in different

group settings. The focus should be not only on behavior, but also on cognition, meaning and assumptions.

4.2 Implications for GSS Design

As argued by Kraemer and King (1988), GSS design efforts have had a "supply-push" orientation as opposed to a "demand-pull" one: "The designers of [GSSs] usually develop technological aids that they presume will be needed by decision makers" (p. 130). This paper has addressed this need for a "demand-pull" orientation by arguing that groups can be understood in terms of their basic assumptions. Furthermore, Schein's dimensions of basic assumptions have been helpful to understand not only the group's basic assumptions but also the assumptions embedded in the GSSs. Table 1 summarizes both current GSS design assumptions and alternative assumptions in each dimension.

Although presented as dichotomies for the sake of simplicity (they actually are extremes of their respective continua), these alternative assumptions should also be seen as potential bases for future GSS designs. After evaluating these different assumptions, correspondent structural features might be designed.

For instance, if we assume that humans are motivated by their personal interests and that decision making is a political process, then, instead of trying to change these assumptions, the technology might alternatively try to facilitate bargaining. In this case, the possibility of speeding up negotiations might be more beneficial for the organization than rigid rules and procedures. The correspondent structural feature should provide privacy and confidentiality rather than openness.

5. CONCLUSIONS

The organizational culture literature offers significant insights to understand the issue of GSS appropriation in organizations. GSSs are not value-free technologies. Rather, they are embedded with a set of assumptions made by their designers. These are assumptions about the nature of human nature, human activity, reality and truth, human relationships, and time. At the same time, groups have their own sets of correspondent basic assumptions. In this paper, we have argued that the fit between these two sets of assumptions determines how a GSS is appropriated.

We have not argued that current GSS design assumptions are "right" or "wrong," but that while they are consistent with the assumptions of some groups, they are not consistent with those of other groups. We have assumed that

GSSs will more likely add value to organizational processes, if they are designed in such a way that they could be appropriated faithfully. In this way, groups could take full advantage of the features of the GSSs.

Current GSS research has implicitly assumed that organizational culture change is necessary to gain benefits. In this paper, we have proposed that because basic assumptions are strongly and often unconsciously held by group members and the use of GSSs is highly discretionary, a more promising strategy is to rethink how the technology can fit the group and not vice versa. We have offered guidelines in this direction.

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7. REFERENCES

- Allison, G. T. *Essence of Decision*. Boston: Little, Brown and Company, 1971.
- Applegate, L. M. "Technology Support for Cooperative Work: A Framework for Studying Introduction and Assimilation in Organizations." *Journal of Organizational Computing*, Volume 1, 1991, pp. 11-39.
- Argyris, C. "Management Information Systems: The Challenge to Rationality and Emotionality." *Management Science*, Volume 17, Number 6, 1971, pp. B275-B292.
- Barley, S. R. "On Technology, Time, and Social Order: Technically Induced Change in the Temporal Organization of Radiological Work." In F. A. Dubinkas (Editor), *Making Time: Ethnographies of High-Technology Organizations*. Philadelphia: Temple University Press, 1988, pp. 123-169.
- Bostrom, R. P.; Anson, R.; and Clawson, V. K. "Group Facilitation and Group Support Systems." In L. M. Jessup and J. S. Valacich (Editors), *Group Support Systems: New Perspective*. New York: Macmillan, 1993, pp. 146-168.
- Bucciarelli, L. L. "Engineering Design Process." In F. A. Dubinkas (Editor), *Making Time: Ethnographies of High-Technology Organizations*. Philadelphia: Temple University Press, 1988, pp. 92-122.
- Clapper, D., and Prasad, P. "The Rationalization of the Organizational Meeting: Implications of Group Support Systems for Power, Symbolism, and Face-Work." In J. I. DeGross, R. P. Bostrom, and D. Robey (Editors), *Proceedings of the Fourteenth International Conference on Information Systems*, Orlando, Florida, 1993, pp. 321-329.
- Dennis, A. R., and Gallupe, R. B. "A History of Group Support Systems Empirical Research: Lessons Learned and Future Directions." In L. M. Jessup and J. S. Valacich (Editors), *Group Support Systems: New Perspective*. New York: Macmillan, 1993, pp. 59-77.
- Dennis, A. R.; George, J. F.; Jessup, L. M.; Nunamaker, J. F., Jr.; and Vogel, D. R. "Information Technology to Support Electronic Meetings." *MIS Quarterly*, Volume 12, 1988, pp. 591-624.
- Dennis, A. R.; Heminger, A. R.; Nunamaker, J. F., Jr.; and Vogel, D. R. "Bringing Automated Support to Large Groups: The Burr-Brown Experience." *Information and Management*, Volume 18, 1990, pp. 111-121.
- DeSanctis, G. L. "Shifting Foundations in Group Support System Research." In L. M. Jessup and J. S. Valacich (Editors), *Group Support Systems: New Perspective*. New York: Macmillan, 1993, pp. 97-111.
- DeSanctis, G. L., and Gallupe, R. B. "A Foundation for the Study of Group Decision Support Systems." *Management Science*, Volume 33, Number 5, 1987, pp. 589-609.
- DeSanctis, G. L., and Poole, M. S. "Capturing the Complexity in Advanced Technology Use: Adaptive Structuration Theory." *Organization Science*, Volume 5, Number 2, 1994, pp. 121-147.
- DeSanctis, G.; Poole, M. S.; Desharnais, G.; and Lewis, H. "Using Computing to Facilitate the Quality Improvement Process: The IRS-Minnesota Project." *Interfaces*, Volume 21, Number 6, 1991, pp. 23-36.
- DeSanctis, G. L.; Poole, M. S.; Dickson, G. W.; and Jackson, B. M. "Interpretive Analysis of Team Use of Group Technologies." *Journal of Organizational Computing*, Volume 3, Number 1, 1993, pp. 1-29.
- Dickson, G. W.; Lee-Partridge, J. E.; and Robinson, L. "Exploring Modes of Facilitative Support for GDSS Technology." *MIS Quarterly*, Volume 17, Number 2, 1993, pp. 173-194.

- Dubinskas, F. A. "Cultural Constructions: The Many Faces of Time." In F. A. Dubinskas (Editor), *Making Time: Ethnographies of High-Technology Organizations*. Philadelphia: Temple University Press, 1988, pp. 3-38.
- Eisenberg, E. M., and Goodall, H. L. *Organizational Communication: Balancing Creativity and Constraint*. New York: St. Martin's Press, 1993.
- Frost, P. J.; Moore, L. F.; Louis, M. R.; Lundberg, C. C.; and Martin, J. *Reframing Organizational Culture*. Newbury Park, California: Sage Publications, Inc., 1991.
- George, J. F.; Nunamaker, J. F., Jr.; and Valacich, J. S. "Electronic Meeting Systems as Innovation." *Information and Management*, Volume 22, 1992, pp. 187-195.
- Hall, E. T. *The Hidden Dimension*. New York: Anchor Press, 1969.
- Hatch, M. J. "The Dynamics of Organizational Culture." *Academy of Management Review*, Volume 18, Number 4, 1993, pp. 657-693.
- Hofstede, G. *Culture's Consequences*. Newbury Park, California: Sage Publications, Inc., 1980.
- Huber, G. P. "Issues in the Design of Group Decision Support Systems." *MIS Quarterly*, Volume 8, Number 3, 1984, pp. 195-204.
- Huber, G. P.; Valacich, J. S.; and Jessup, L. M. "A Theory of the Effects of Group Support Systems on an Organization's Nature and Decisions." In L. M. Jessup and J. S. Valacich (Editors), *Group Support Systems: New Perspective*. New York: Macmillan, 1993, pp. 255-269.
- Jessup, L. M., and Valacich, J. S. "On the Study of Group Support Systems: An Introduction to Group Support System Research and Development." In L. M. Jessup and J. S. Valacich (Editors), *Group Support Systems: New Perspective*. New York: Macmillan, 1993, pp. 3-7.
- Johansen, R. "An Introduction to Computer-Augmented Teamwork." In R. P. Bostrom, R. T. Watson, and S. T. Kinney (Editors), *Computer-Augmented Teamwork: A Guided Tour*. New York: Van Nostrand Reinhold, 1992, pp. 5-15.
- Kling, R. "Cooperation, Coordination and Control in Computer-Supported Work." *Communications of the ACM*, Volume 34, Number 12, 1991, pp. 83-88.
- Kling, R. "Social Analysis of Computing: Theoretical Perspectives in Recent Empirical Research." *Computing Surveys*, Volume 12, Number 1, 1980, pp. 61-100.
- Kraemer, K. L., and King, J. L. "Computer-Based Systems for Cooperative Work and Group Decision Making." *ACM Computing Surveys*, Volume 20, Number 2, 1988, pp. 115-146.
- March, J. G., and Olsen, J. P. *Ambiguity and Choice in Organizations*. Bergen, Norway, 1976.
- Markus, M. L. and Robey, D. "Information Technology and Organizational Change: Causal Structure in Theory and Research." *Management Science*, Volume 34, Number 5, 1988, pp. 583-598.
- Martin, J. *Cultures in Organizations: Three Perspectives*. New York: Oxford University Press, 1992.
- McGrath, J. E. *Groups: Interaction and Performance*. Englewood Cliffs, New Jersey: Prentice-Hall, 1984.
- Mumby, D. K., and Putnam, L. L. "The Politics of Emotion: A Feminist Reading of Bounded Rationality." *Academy of Management Review*, Volume 17, Number 3, 1992, pp. 465-486.
- Nunamaker, J. F., Jr.; Dennis, A. R.; Valacich, J. S.; Vogel, D. R.; and George, J. F. "Electronic Meeting Systems to Support Group Work." *Communications of the ACM*, Volume 34, Number 7, 1991, pp. 40-61.
- Nunamaker, J.; Vogel, D.; Heminger, A.; Martz, B.; Grohowski, R.; and McGoff, C. "Experiences at IBM with Group Support Systems: A Field Study." *Decision Support Systems*, Volume 5, 1989, pp. 183-196.
- Orlikowski, W. J. "The Duality of Technology: Rethinking the Concept of Technology in Organizations." *Organization Science*, Volume 3, Number 3, 1992a, pp. 398-427.
- Orlikowski, W. J. "Learning From Notes: Organizational Issues in Groupware Implementation." *Proceedings of the ACM 1992 Conference on Computer-Supported Cooperative Work*, 1992b, pp. 362-369.
- Orlikowski, W. J., and Robey, D. "Information Technology and the Structuring of Organizations." *Information Systems Research*, Volume 2, Number 2, 1991, pp. 143-169.
- Peters, T. J., and Waterman, R. H., Jr. *In Search of Excellence: Lessons from America's Best-Run Companies*. New York: Harper & Row, Publishers, 1982.
- Pettigrew, A. M. "Information Control as a Power Resource." *Sociology*, Volume 6, Number 2, 1972, pp. 187-294.

Pfeffer, J. *Power in Organizations*. New York: Harper Business, 1981.

Poole, M. S., and DeSanctis, G. L. "Microlevel Structuration in Computer-Supported Group Decision Making." *Human Communication Research*, Volume 19, Number 1, 1992, pp. 5-49.

Poole, M. S., and DeSanctis, G. L. "Understanding the Use of Group Decision Support Systems: The Theory of Adaptive Structuration." In J. Fulk and C. Steinfield (Editors), *Organizations and Communication Technology*. Newbury Park, California: Sage Publications, Inc., 1990.

Poole, M. S.; Seibold, D. R.; and McPhee, R. D. "Group Decision-Making as a Structural Process." *Quarterly Journal of Speech*, Volume 7, Number 1, 1985, pp. 74-102.

Rao, V. S., and Jarvenpaa, S. L. "Computer Support of Groups: Theory-based Models for GDSS Research." *Management Science*, Volume 37, Number 10, 1991, pp. 1347-1362.

Schein, E. H. *Organizational Culture and Leadership*, Second Edition. San Francisco: Jossey-Bass, Inc., 1992.

Schwartzman, H. B. *The Meeting: Gatherings in Organizations and Communities*. New York: Plenum Press, 1989.

Smircich, L. "Concepts of Culture and Organizational Analysis." *Administrative Science Quarterly*, Volume 28, 1983, pp. 339-358.

Winograd, T., and Flores, F. *Understanding Computers and Cognition*. Reading, Massachusetts: Addison-Wesley Publishing Company, Inc., 1986.

ENDNOTES

1. Schein's approach focuses on basic assumptions. Others focus on "surface" levels of culture: artifacts (e.g., stories, rituals, ceremonies, norms), beliefs, or values. It is not that these levels aren't important, but that, as Schein says, they are manifestations of the more fundamental basic assumptions.
2. Norms and beliefs are relatively easy to change and, hence, not very stable. In fact, we can adapt to and learn new norms and beliefs. Values are more difficult to change, and the taken-for-granted and usually unconscious basic assumptions (the focus in this paper) are even more difficult to change and, hence, more stable (Schein, 1992). This doesn't mean that these assumptions will never change, but that in the short-term, in which the group will "evaluate" the convenience of the GSS, they probably won't.