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# Participant Observation of Virtual Decision-Making Meetings: A Longitudinal Exploration

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## ABSTRACT

On-going decision-making groups have multiple communication options to choose from when conducting meetings and participating in collaborative work. Although many group support related empirical studies have been published, most emphasize: (a) one-time, ad-hoc and/or face-to-face groups; (b) inputs or quantifiable outcomes of decision-making meetings; and (c) quantitative data from surveys and easily measured variables. In virtual decision-making situations the perceptions of individual decision-makers and how these perceptions transfer to decision-making and communication behaviors has received only limited attention. To help understand virtual decision making, this project investigated an on-going decision-making group that first used audio conferencing and then video conferencing with collaboration tools. We report the initial results from this investigation and present implications for research and practice.

## Keywords

Participant observation, virtual meetings, e-meetings, decision-making, decision support systems, longitudinal research

## INTRODUCTION AND OVERVIEW

Decision-making relies upon both collaboration and communication processes enacted by people intent on sharing information, discussing issues, or solving problems. History records that people have used many different technologies to enable communication and collaboration processes for group decision-making: from the earliest records of pictographs, to Sanskrit, to the Pony Express, to experiments with telegraphs and telephones, to current video and whiteboard technologies embedded in computing software and hardware (Communication Timeline, 2001). Yet, with all the related research on human decision-making, very little research has focused directly on how specific communication technologies utilized for decision support can influence and perhaps alter the decision-making processes of on-going, distributed groups.

Communications and computing technologies have made it possible to have distributed decision-making meetings. Initially such meetings employed a narrow channel like a telephone connection and a fax machine for a synchronous meeting or a computer-based bulletin board for an asynchronous meeting. As communications bandwidth has expanded and software has improved, the possibilities for communications-driven decision support systems (DSS) have also broadened (Power, 2002).

In virtual decision-making situations, the communications-driven DSS that is used can alter the perceptions of individual decision-makers and hence may alter the decision-making and communication behaviors of participants. Very little is known however about the affective and perceptual elements of decision-makers under such distributed conditions.

To help understand virtual decision making and participant reactions in such situations, this project studies an on-going decision-making group that first used audio conferencing that provides limited support and then video conferencing with collaboration tools. Overall, we are exploring the interactions of an on-going, distributed group to better understand the effects of various communications-driven DSS on group processes, decision outcomes and member satisfaction. This research project is still at an early stage and the motivation for the study is broad and general.

The remainder of this article is organized as follows: section 2 briefly reviews relevant prior research; section 3 provides the background to the case study and methodology; section 4 provides an initial analysis of qualitative data; section 5 discusses participant reactions and identifies future research issues; and the last section is a brief summary.

## PRIOR RESEARCH

The phenomenon of distributed decision-making is studied by researchers from communications, management, and information systems. Communication researchers examine interaction patterns in both face-to-face (co-located) and distributed (virtual) situations. Management researchers examine human motivation, leadership, and team dynamics. Information Systems researchers study technology adoption patterns and decision-making behaviors of people using decision and group support systems for collaborative work. All three research streams contribute to an understanding of virtual decision-making meetings.

Knowledge from communication researchers is clustered in the sub-topic known as “computer-mediated communication” research. Two key studies using videoconferencing are relevant in this stream of research: Storck and Sproull’s (1995) study of impression formation and Walther, Slovacek, and Tidwell’s (2001) study of the effects of photographic images. Storck and Sproull (1995) present compelling evidence that videoconference participants tend to have less positive impressions of remote participants compared to those who are local participants and appear to focus on communication competence (as opposed to task competence) to form impressions while videoconferencing. Walther et al. (2001) argue that when new teams utilize photographs of members, affinity and social attraction is promoted while affinity is decreased in long-term, international groups. Interestingly, both of these studies utilized students in classes spanning a timeframe of a semester (approximately 14-15 weeks), rather than real organizational groups.

The importance of individual roles (Chandler, 2001) and leadership (Zigurs, 2003) in distributed work endeavors continue to occupy the work of management researchers. In some ways, although the newer technologies do not seem to solve age-old issues in group dynamics, the newer technologies can make the issues more apparent and visible to all. Maznevski and Chudoba’s (2000) research with global virtual teams from an actual international organization suggests that successful virtual teams adapt their communication patterns to the task at hand and cycle between distributed and co-located communication choices as necessary. More recently, a study by Majchrzak, Malhotra, Stamps, and Lipnack (2004) indicates virtual teams that judiciously use virtual collaboration episodes to synthesize diverse individual work were as productive as teams who had the advantage of frequent face-to-face interaction. Thus, evidence from actual organizational teams that can choose the type of communication technologies to be used for decision-making appears to support the importance of multiple communication channels.

Much information systems research has focused on the differences experienced by decision-making groups with technology-support and is commonly referred to as group decision support systems research. Although the vast majority of this research centers on experiments with one-time and limited-term student groups (Dennis, Nunamaker, & Vogel, 1990-91; Fjermestad & Hiltz, 1998-99), a recent review highlights studies of group support system use in actual organizations (Fjermestad & Hiltz, 2000). Studies of longitudinal meetings of group members (Chidambaram & Jones, 1993), the rating biases evident in electronic meetings (Weisband & Atwater, 1999), and the diversity inherent in culturally diverse groups (Rutkowski, Vogel, Bemelmans, & van genuchten, 2002) are relevant to this study. More recently, studies investigating the usefulness of coordination protocols (Malhotra, Majchrzak, Carman, & Lott, 2001) and the influence of cohesion in virtual teams (Huang, Carte, & Chidambaram, 2004) raise the importance of internal group structures for virtual collaboration and decision-making.

The existing research about distributed decision-making has not been explained in a unifying theory and very little has been reported about the affective and perceptual elements of individual decision-makers under such distributed conditions. This exploratory, qualitative research study seeks to collect and organize perceptual data and generate testable hypotheses for future research.

## BACKGROUND AND METHODOLOGY

This section summarizes the context of the study and the methodology for conducting the investigation. The decision-making group includes four permanent executive board members of a newly-formed, regional, professional organization serving the needs of members located in twelve states. The four members included a president, at-large director, secretary, and treasurer. At various times a fifth member (membership/publicity director) has participated. Executive board members are located in four different states in the Midwest United States and have not met face-to-face as a group. During the study, decision-making meetings also included ad-hoc communication episodes with three individuals responsible for the inaugural conference of this newly-formed professional organization. The timeframe of the investigation spans roughly four months, including recruitment of executive board members for the regional professional association. The authors are participants in the study.

Initially, potential executive board members were contacted via email and phone by the initiator of the regional, professional organization. Once the core group of executive board members was recruited, the group turned to a basic audio conferencing

system with a pre-planned agenda provided by the president and intermittent emails among members that were sent between meetings. The audio conferencing technology permitted up to five participants, thus it met the group's communication needs for an initial period of about two months. Following this initial two month period, the group decided to conduct a virtual decision-making meeting that included additional decision-makers involved in the upcoming inaugural conference of the professional organization. At this point, the audio conferencing solution could no longer meet the communication needs of this group due to limitations on the number of participants.

Concurrent with the inception of this group, the treasurer had the opportunity to pilot test a video conferencing collaboration tool. The video conferencing tool operates with client software on an individual's computer and connects to a server to provide a collaboration channel. Client software provides audio, video, chat, and a shared workspace for each virtual meeting participant. At the time of the study, the hosting university held a license for twenty concurrent usage seats for the video conferencing server, thus this meeting venue was a promising solution for the expanding communication needs of the decision-making group. Executive board members were introduced to the video conferencing technology solution by the treasurer, and an initial meeting was held to evaluate its possibility as a solution for future meetings of the group. Technology capabilities were NOT the same for each team member. Based upon the results from this initial meeting, a decision was made to use this collaboration tool for subsequent meetings of the group.

Spradley in his book on Participant Observation (1980) prescribes methods for conducting ethnographic research. The data for our study is derived from an initial set of observations and notes, in the tradition of ethnographic research methods. Our inquiry about the impact of a specific communications-driven DSS on decision behavior and decision-making meetings is just beginning. Four members of the board responded to an initial set of ten questions following the first video conference (at the time of this analysis, the group has had 2 videoconferences). Participants completed the responses independently and did not reference any of the other participant responses. The questionnaire was emailed to participants.

As indicated in the article title, the authors are active participants on the board and our responses are part of the data and analysis.

## **INITIAL RESULTS**

Results are presented in the context of the structured questions asked of the participants. Due to space considerations, the questions and responses have been edited for length and we concentrate on only 4 of the 10 questions. The four questions emphasize perceptions of individual decision-makers in the two differing technology environments.

### **What did you like and dislike about the audio conferencing?**

All respondents were reasonably satisfied with the audio conferencing, citing such positive elements as "simplicity, ease of use, and audio quality of the phone" and one's "ability to be part of the ....decision-making even if we could not all get together in the same physical location". Concerns raised included: "the meetings seemed impersonal" and "the awkward part is the turn-taking and it gets tough the more people we add".

### **What did you like and dislike about the video conferencing?**

Respondents varied in their perceptions of the first video conferencing meeting, as one participant noted "video was very good" while another participant in the same meeting indicated "I was surprised at how much additional brainwork was necessary to keep everything moving along smoothly, at how distracting the features and video feed of myself proved to be, and at how little I felt was gained with the slow video coupled with relatively poor audio". Other participants believed there was positive value in the addition of video to the meeting, noting "I liked seeing the people in our group" and "I liked the instantaneous links with everyone".

### **How would you compare the meeting with video conferencing to our last audio conferencing meeting?**

In general, participants thought the video conference was better than the audio conference. There were some reservations. For example, a respondent noted "The prior phone conference was better facilitated and more efficient. The comparison probably is not fair, however, as we spent most of last meeting trying out the novel system." Another respondent concluded "The video was much superior, because we could (sort of) see who wanted to talk, and also had easy access to shared workspace." A third respondent noted "Once everyone got past technology difficulties, this seemed better than the audio conference alone. I liked the visual reference of the pictures, it made me feel more connected and a part of the meeting." The fourth respondent noted "The video conference was less organized and we engaged in more socializing. In retrospect the

videoconference was fun. .... The length of the meeting was similar to prior meetings about 1 hour, but it was probably not as productive given our unfamiliarity with the technology.”

**Is one type of conferencing always superior or inferior to the other? If not, explain based upon your experience.**

This question asks for a broad conclusion from participants based upon limited experience with the video conferencing technology. At this point in the study, participant perceptions regarding value of the video conferencing are mixed. The group has agreed to hold additional video conferences and all members are upgrading to a recently released new version of the client software. One person stated “For decisions based purely on interpersonal communication, I would have to say the phone seems superior. I got very little value from the additional communication cues offered by slow video.” Another indicated “Given how easy the video is, I don’t see any reason not to use it for group meetings. The audio is fine for just two people.” A third respondent concluded our “main task of conference planning seems to work better with a more wholistic type of collaboration tool/conferencing choice.” Finally, our last respondent stated “Based upon my experiences, I think that a video conference will always be superior, but the audio conferencing is adequate for many tasks.”

## **DISCUSSION AND FUTURE RESEARCH ISSUES**

As we become more familiar with the video conferencing technology, the novelty of the technology should become less of a confounding factor and members may learn new behaviors for participating in meetings conducted using a communications-driven DSS.

The reaction questions used in this study are somewhat vague and open-ended. This was intentional to let respondents express their feelings. As participant observers, it is enlightening to read the diverse reactions to the shared experience. Why did X feel the meeting was impersonal? What could have changed that perception? We plan to analyze the additional questions, gather more feedback, take notes during sessions and record some sessions for subsequent structured analysis. An end goal of this project may be a descriptive case study or practice-oriented narrative. What research questions and potential hypotheses are of immediate interest?

First, what process skills are needed to facilitate a multi-point video conference when other collaboration tools are available like a whiteboard, public and private chat, and application sharing? It seems the more complex a communication-driven DSS, the greater the need for an experienced team leader to have satisfied participants.

Second, how much of the initial perceptual reaction is a function of technology differences among participants and how much is a function of individual differences, experiences and preferences? Technology differences did not seem to account for differences in perceptions, based on our initial analysis, but this is clearly a testable proposition.

Third, there are many situations requiring communications solutions for regular meetings, and many options or choices in communication solutions. How will perceptions and expectations change among participants if audio conferencing is used subsequent to video conferencing and vice-versa? The participants may have some difficulty choosing to use audio conferencing or email even if those media would be more appropriate when the videoconferencing is readily available.

Fourth, as others join the decision-making meetings their reactions will shape our perceptions as well. How will others react when they join a virtual meeting of an established group? To date, negative influences have not been apparent, but the “cost” to join as a casual participant is much greater in a virtual meeting conducted using sophisticated communications-driven decision support with videoconferencing than other communication solutions.

## **SUMMARY**

This study investigated initial perceptions of participants in an on-going decision-making group that first used audio conferencing and then video conferencing to hold meetings. Participant responses to structured questions demonstrate differences and similarities in perceptions of task and social interactions. Video conferencing with collaboration tools seems to provide enhanced satisfaction, but successful use of the technology requires more experience and training. The prediction of group members is that repeated use of the technology will lead to new behaviors and improved decision-making outcomes. The observation process is ongoing. In general, we are optimistic that using a sophisticated communications-driven DSS can enhance and facilitate shared decision making in our group. Over an extended period of time others can help evaluate the outcomes from our shared decisions.

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