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Developing Techniques for Managing Information Overload in Meetings

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Introduction and Research Questions

A fundamental process in a meeting is the merging or integration of individual ideas and viewpoints. This stems from two inherent processes: first, that of the generation of alternative, or even conflicting, ideas or definitions; second that of the convergence of these alternative ideas or definitions. These two processes are referred to as the 'divergence-convergence' cycle [Pendergast 1995] [Weisband, 1995]. The convergence portion of this cycle tends to be difficult and requires a high degree of skill on the part of the facilitator but yet is an important and even pivotal point in the meeting. In this paper we will refer to this 'divergence-convergence' cycle as information overload.

The main objective of this research is to extend our theoretical understanding of the information overload problem that occurs during a meeting. Specifically, our understanding will be grounded in: 1) determining what factors contribute to information overload, and 2) what techniques, processes, and tools meeting facilitators use to help manage the information overload problem. This research has implications for developing facilitator techniques to manage divergence and convergence in meetings as well as providing directions for the development of GSS tools for managing divergence and convergence.

Information overload has a profound impact on the use of Electronic Meeting Systems (EMS), EMS' utilize computers and enhance business meetings by allowing individuals to work simultaneously and in parallel during meetings, and have been shown to improve productivity [Nunamaker, 1989][Valacich 1994]. One software tool that has been found to be very productive is that of Electronic BrainStorming (EBS), brainstorming facilitates the idea generation stage within a meeting. The organization of ideas from a brainstorming session is a difficult process and is made even more difficult by the large numbers of ideas that can be generated in an EBS session [Chen 1995].

Facilitation is a mechanism groups use for managing meetings in both GSS and non-GSS environments [Niederman, 1996] [Bostrom, 1992]. Facilitating involves applying expertise to the preparation, conduct, and follow-up of meetings [Keltner, 1989] by

processing information regarding the task, participant interactions, and anticipated problems and opportunities faced by a group during a meeting [Bostrom, 1992].

A meeting facilitator can influence the success of a meeting through the use of processes and techniques that influence the generation and organization of ideas. The facilitator processes information regarding the task, participant interactions, and anticipated problems and opportunities faced by a group during a meeting [Bostrom 1992]. Past research in the EMS area has focused on the role of the facilitator and major issues, concerns and techniques in facilitating meetings [Anson, 1995][Beranek, 1993][Clawson, 1993][Hirokawa, 1989] [Niederman 1996]. The current research is an extension of this and proposes to develop a model for managing information overload.

One theory which supports this research is Integrative Complexity Theory (ICT) [Suedfeld 1992]. ICT is an interactive cognitive theory which explains how an individual processes information, but does not address what information is processed. ICT also addresses external factors as well as internal factors, which leads to our research questions:

1) What characteristics of the meeting and the group contribute to increased information overload.

External factors include characteristics of the group, task and type of electronic support used; all of which may affect the level of complexity of the information to be processed. Previous research has indicated that characteristics of the group and task can have an effect on the meeting process [McGrath, 1984][Niederman 1996]. This research will identify those characteristics which may indicate increased information overload.

2) What facilitator techniques and processes can be used to manage and aid in the management of information overload.

Internal factors are those factors which allow participants to consider multiple perspectives, and then to make conceptual linkages between those perspectives. Effective facilitation is at the core of group approaches to problem solving, planning and decision making [Kayser 1990] and facilitation has been shown to improve group processes and cohesion [Bostrom 1992]. In addition, the extent and quality of training and the facilitator's abilities influence the effectiveness of their facilitation efforts. A greater understanding of the techniques and processes used in managing information overload should assist in formulating training procedures for facilitators as well as assist EMS designers in the building of electronic tools to enhance and aid the process.

Background

There are currently two methods by which information overload can be managed within an EMS environment. The first has been through the use of software[Chen 1995][Pendergast 1995]. These implementations have shown some success in this endeavor. However, they have several drawbacks: 1) they tend to diminish the

opportunity for a verbal discussion of ideas by encouraging participants to immediately judge an idea, 2) they combine idea generation and organization on an individual basis rather than on a group basis, thereby reducing the synergistic effect of the group, and 3) they tend to decrease the number of ideas generated, but research has shown that participant performance is increased through an increase of the number of ideas [Valacich 1994].

The second method for mitigating this problem is the use of specific facilitation techniques during the course of the meeting to manage idea generation and organization. However little if any previous research exists on how this process can be handled. This research attempts to gain an understanding of this process by gaining first-hand knowledge of the process from expert facilitators. This knowledge will not only allow a deeper understanding of this process and contribute to Integrative Complexity Theory, but also help develop a framework for managing the process and provide direction for the development of software tools as well.

Methodology

Interpretive research methods will be used to study the phenomenon at hand. There are several reasons that point to the use of these techniques. First, there has been a general shift from technical to organizational issues in the study of Information Systems research, 2) interpretive methods allow the researcher to study problems in real life settings as opposed to contrived settings, 3) interpretive research is often the only way to glean knowledge in an area which is new or not accessible to quantitative research [Klein 1996]. An interpretive in-depth case study method will be used which will involve in-depth interviews with a range of facilitators, utilizing primary sources.

Data Collection

The data collection phase has been completed. In this phase three researchers conducted individual, in-depth, semi-structured interviews, either in person or over the phone, with 37 professional meeting facilitators. The interviews consisted of both standard open-ended questions and closed-ended questions which covered education and training backgrounds in both technology and group process, as well as work experiences, perceptions and factors of success, difficulties in facilitating and group characteristics. Most of the interviews ranged from 60-90 minutes, although the shortest lasted only 40 minutes and the longest took over two hours. The interviews were tape-recorded and later transcribed along with interview notes and general observations. See Niederman and Beranek [Niederman 1996][Beranek 1992] for a detailed description of the data collection process.

Data Analysis

Initial data analysis was performed in two steps. First, each author extracted one or more issues or points from each comment and grouped like issues for each question into classes. Second, the authors discussed each comment, issue, and class until consensus

was reached regarding: 1) the issues represented, and 2) placement of issues into classes. In addition, issue an on-going frequency of similar responses was calculated. The development of these classes represents a high-level analysis of the data. This model of high level classes was then presented to, discussed and validated with three experienced meeting facilitators.

The full transcripts and field notes will be content-analyzed and coded according to the classes developed in phase one. These classes are: 1) facilitator's measurement of meeting success, 2) difficulties in facilitating meetings, 3) factors of meeting success, 4) factors of meeting failure, 5) ways in which EMS contribute to meeting success, 6) ways in which EMS inhibits meeting success, 7) facilitator skills vital to successful meeting facilitation.

Projected Results

Contributions of the research will be theoretical as well as applicative. It is expected that this micro-level textual data analysis will add to our current understanding of the Integrative Complexity Theory, to our current understanding of information overload management techniques and result in an emergent framework for techniques to manage information overload. This framework will be of help in the development of training strategies for facilitators. It is also anticipated that this will provide a knowledgeable foundation for the development of software tools that may further help manage the process.

References:

Anson, R., R.P. Bostrom and B. Wynne, "An Experiment Assessing Group Support System and facilitator Effects on Meeting Outcomes," *Management Science*, 1995. 50(5).

Beranek, P.M., C.M. Beise and F.Niederman, "Facilitation and Group Support Systems," Hawaiian International Conference on Systems Sciences, Proceedings, Maui, HI, Jan 4-9, 1992.

Bostrom, R.P., Anson, R., & Clawson, V. "Group facilitation and group support systems" in Jessup, L. & Valacich, J., Eds., *Groups Support Systems: New Perspectives*. Van Nostrand Reinhold., 1992

Chen, H., P.Hsu, R. Orwig, L. Hoopes and J.F. Nunamaker, "Automatic Concept Classification of Text from Electronic Meetings, *Communications of the ACM*, Oct. 1995.

Clawson, V.K. and R.P. Bostrom, "The Facilitative Role in Computer Supported Environments," Published in *Proceedings of SIGCPR conference*, April, 1993, St. Louis, Missouri.

Hirokawa, R.Y. and D.S. Gouran, "Facilitation of Group Communication," *Management Communication Quarterly*, 1989, 3(1).

Kayser, T.A., Mining Group Gold, El Segundo, CA. Serif Publishing, 1990.

Keltner, J. R. (1989) "Facilitation: Catalyst for Group Problem Solving." *Communication Quarterly*, 3:1, August, 8-32.

Klein, H.K. and M.D. Myers, "The Quality of Interpretive Research in Information Systems," Working Paper Series, Binghamton University , 1-96, (1996).

McGrath, J.E., *Groups: Interaction and Performance*, Prentice-Hall, Englewood Cliffs, NJ 07632, 1984.

Niederman, F., C.M. Beise, P.M. Beranek, "Facilitation of Computer-Supported Distributed Group Meetings: Possible, Feasible, or Critical?," *Management Information Systems Quarterly*, forthcoming.

Nunamaker, J., D. Vogel, A. Heminger, B. Martz, R. Grohowski and C. McGoff, "Experiences at IBM with group support systems: A field study," *Decision Support Systems*, 5(2), 183-196, 1989.

Pendergast, M., S.C. Hayne, "Alleviating Convergence Problems in Group Support Systems: The Shared Context Approach," University of Arizona, MIS dept., 1995.

Street, W.R., "Brainstorming by individuals, coaching and interacting groups," *Journal of Applied Psychology*, 59(4), 1974.

Suedfeld, P., Tetlock, P.E. and Streufert, S., "Conceptual/integrative Complexity," in C.P. Smith (ed) *Motivation and Personality: Handbook of Thematic Content Analysis*, New York: Cambridge University press, 1992.

Valacich, J.S. Dennis, Alan R. Connolly, Terry, "Idea Generation in Computer-Based Groups: A New Ending to an Old Story," *Organizational Behavior and Human Decision Processes*, pp. 448-467, 1994.

Weisband, S.P., "Moving from Divergence to Convergence in Electronic Groups: Implications for Coordination in Collaborative Work," *Proceedings of Americas Conference on Information Systems*, Pittsburgh, PA August 1995.