Developmental Differences Between Distributed and Face-to-Face Groups in Electronically Supported Meeting Environments: An Exploratory Investigation

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Abstract.

This longitudinal pilot study compared the developmental patterns of groups in three types of electronically supported meeting modes: face-to-face, dispersed-synchronous, and dispersed-asynchronous. The modes differed primarily in interactivity, channel capacity, and synchronicity. Comparisons were made along several behavioral and socio-technical dimensions which influence the group development process. Face-to-face groups tended to exhibit more effective leadership and coordination competence over time as compared to the distributed groups. However, along several other group process dimensions such as cohesiveness and equality of participation, dispersed groups did not differ from their face-to-face counterparts. Moreover, groups in all three modes performed equally well in terms of the quality of outputs. These results suggest that electronically distributed work groups—with adequate time and training—can become cohesive and perform effectively in the long run.

1. Introduction

The modern organization is expanding globally while flattening structurally, as layers of middle management disappear from many firms (Cash et al. 1992, p. 183). Emerging organizational designs will necessitate communication in new directions and through new channels within and between teams of workers. Workteams of tomorrow will be varied and flexible and engage primarily in “intellectual teamwork”; these teams will consist of “people working together over substantial periods of time to create information-intensive products” (Galegher and Kraut 1990, p. 65). Further, as Johansen (1990) argues, management will need to support these changing workteams with new and flexible technologies.

The convergence of these conditions assures management researchers and practitioners that dispersed groups will become more prevalent as the primary work units responsible for organizational and job design, decision making, project development, and other activities previously considered part of management’s purview. Electronic communication and meeting technologies, herein referred to as electronic meeting systems (EMS)—
especially those supporting distributed collaboration—can, given the right set of circumstances, facilitate team processes and improve group performance in organizations (Johansen 1990).

This preliminary study attempts to extend existing research, as called for by several researchers (e.g., Siegel et al. 1986), by investigating the impact of an EMS on various group processes. Among the many factors that EMS researchers have studied are (a) outcome variables such as time, performance, and quality relative to decision reached, number of alternatives generated, satisfaction with decision or performance, etc. (e.g., Chidambaram and Bostrom 1992; Hiltz and Johnson 1990; Jarvenpaa et al. 1988; Zigurs et al. 1990); (b) decision process characteristics such as consensus (e.g., Poole et al. 1988; Siegel et al. 1986) and equality of participation (e.g., Connolly et al. 1990; Hiltz et al. 1986; Lewis 1987; Siegel et al. 1986); (c) communication processes such as categorization or quantitative analysis of communicative interacts (e.g., Hiltz et al. 1986; Rice and Love 1987); and (d) perceptions of communication effectiveness (Walther and Burgoon 1992). The present study focuses specifically on factors related to group development processes.

In the next section we present a general overview of the problem and outline the perspective of this article. We define the issues relevant to the process of group development in electronic meetings and describe the theoretical foundations of our approach. Section 3 briefly reviews the research relevant to this study, while section 4 presents our research design and hypotheses. Finally, we examine the results of the study and conclude with a discussion of its implications for both practitioners and researchers.

2. Research framework

This study employs an inputs-process-outputs perspective to examine group interactions. Such an approach assumes that individual perceptions of both communication and cohesion factors serve simultaneously as indicators and determinants of group development processes. The model used in this study is represented graphically in Figure 1.

According to this model, differences in various characteristics of the meeting mode, (inputs) coupled with the influence of boundary variables such as duration of the interaction (time), will result in corresponding differences in the way meeting participants behave and perceive such interactions (processes). Differences in processes and perceptions will determine the performance of groups along a variety of measures (outputs).

2.1. Inputs

2.1.1. Meeting mode. The meeting mode refers to the general environment in which groups perform their tasks. The three modes represented here, i.e., face-to-face, dispersed-synchronous, and dispersed-asynchronous all occur in typical organizational settings. The meeting modality incorporates several characteristics.

Technology support. In this study all modes were supported by the same EMS. Thus, rather than measure differences between EMSs, we examine differences between meeting environments of which the EMS is an integral part.