



Synchronicity and Group Ability to Autonomously Cluster Brainstorming Ideas

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ABSTRACT

This article presents an exploratory examination of the impact of synchronicity and quantity of brainstorming ideas on the ability of a group to autonomously cluster brainstorming ideas. Groups were tasked with clustering brainstorming ideas through the use of a group support system (GSS) tool. The tool allowed each participant to create and modify categories to which individual brainstorming ideas could be aligned. No explicit means of coordination were available; each participant worked autonomously to cluster the brainstorming ideas. The results indicated that the groups working synchronously displayed improved performance and satisfaction ratings. Likewise, groups categorizing the smallest quantity of brainstorming ideas performed better than the larger quantities.

Keywords: Collaborative Support Systems, Computer-Mediated Communication, Distributed Decision-Making Systems, Distributed Information Systems, Distributed Work Arrangements

INTRODUCTION

The information economy has altered the business dynamic by creating a need for individuals to collaborate. Organizations seek to leverage the skills, abilities, and experience of a variety of people to address a given problem, opportunity, or decision-making scenario (Galegher & Kraut, 1990). This pooling of intellectual assets provides many advantages as the individuals are able to share and consume increased informa-

tion, generate potential solutions, and review the effects of those decisions (Phillips & Phillips, 1993). The goal of group work is to harness the skills and abilities of the group to arrive at a "better" decision than would have been possible without group work (Martz, Vogel, & Nunamaker, 1992).

Significant research has been conducted into the use and efficacy of group support systems (GSSs) in various group contexts. These GSSs provide groups with the process structure and information technology necessary to execute collaborative group tasks (Sprague & Carlson, 1982). These collaborative tasks

DOI: 10.4018/jec.2009062605

include such things as identifying creative solutions and examining process modeling alternatives.

Work in a GSS environment utilizes one or more patterns of collaboration in the workflow (Briggs, Kolfshoten, & de Vreede, 2006). For example, a group working to develop solutions to a problem would first use the “generate” pattern to brainstorm solutions to a problem. The goal of this stage is the move the group from a state of having fewer solutions or ideas to having a more filled-out solution space. The next step of the workflow typically entails activities that refine, consolidate, and synthesize the various ideas into topics or threads. Significant research has been conducted on how to improve the productivity of brainstorming groups. However, not much research to date has addressed the issue of converging from many ideas down to several key ideas that are worthy of further consideration by the group (Briggs, de Vreede, & Nunamaker, 2003). This convergence process presents difficulties that oftentimes an expert facilitator addresses and guides the group through. However, these difficulties are exacerbated when an expert facilitator is not available or the group moves from a synchronous, proximal setting to one that is distributed and potentially asynchronous.

Two key constraints exist with current GSS implementations. First, an expert facilitator is often required to develop the collaborative workflow and guide the group through the process. Oftentimes, an expert facilitator is not available. Second, GSS is typically associated with synchronous work that is often proximal. Current GSS tools and workflows are often not well equipped to handle asynchronous, distributed work. Additionally, the tools are often not accommodating of groups that are not guided by a facilitator.

A new GSS framework, participant-driven GSS (PD-GSS), has been proposed to address these two constraints (Helquist, Kruse, & Adkins, 2006; Helquist, Santanen, & Kruse, 2007). The goal of this new framework is to empower the participants of the group to work in a distributed, autonomous manner to further

the work of the group as a whole. The PD-GSS participants execute the various collaborative tasks, and the system consolidates the tasks and the efforts to move the group through the overall workflow.

One of the key assumptions of this framework is that the group members can function without a facilitator to consolidate brainstorming ideas into clusters or buckets. This research seeks to examine the ability of group members to work in an uncoordinated, autonomous manner to consolidate brainstorming ideas into categories. The overarching aim of this research is to start researching the abilities of group members to work autonomously toward a collaborative group effort. Specifically, this article investigates the impact of synchronicity and quantity of brainstorming ideas on groups working to cluster brainstorming ideas, without explicit coordination measures in places.

This research is organized as follows. The next section presents more of the PD-GSS framework, including the motivation for this new approach. The research questions are discussed, followed by a discussion of the methodology and experimental design. The results are discussed, limitations identified, and implications for GSS and future research presented.

PARTICIPANT-DRIVEN GROUP SUPPORT SYSTEM

The goal of the PD-GSS framework is to leverage the skills and abilities of each group member to further the collaborative work of the group as a whole. It is through each individual participant’s actions and contributions that the group can complete the collaborative work.

There are two main thrusts behind the PD-GSS framework. First, PD-GSS seeks to improve the ability of a group to collaborate in a distributed, asynchronous manner. This ability also leads to the ability to collaborate with larger groups. Second, PD-GSS seeks to improve the collaborative process by mitigating the dependence on an expert facilitator.

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