

Mild Positive Affect and Computer Mediated Group Decision Making

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ABSTRACT

My dissertation research aims at developing a deeper theoretical understanding of the effect of mild positive affect on information sharing and decision making in teams engaged in computer mediated distributed knowledge work. Distributed teams often do not effectively share the unique information each individual team member possesses. This is problematic since teams are formed on the assumption that each member's unique contribution will lead to a better decision than any one individual would make alone. Through a series of experiments where distributed teams use either synchronous or asynchronous technology to solve a 'hidden profile' task, I examine the mechanisms through which different methods of inducing mild positive affect in team members may facilitate the sharing of unique information leading to improved decision quality. This research has the potential to improve our understanding of how positive affect may influence decision making and spread from the individual to the team in a computer mediated context.

Categories and Subject Descriptors

H.5.3 [Information interfaces and Presentation]: Group and organizational interfaces – computer-supported cooperative work.

General Terms

Design, Human Factors, Theory.

Keywords

Distributed teams, positive affect, information sharing, decision making, hidden profile.

1. RESEARCH MOTIVATION

Advances in collaboration technologies and computer networks have enabled work and research to be conducted from a distance [2]. Despite these advances, distributed teams still face various obstacles in sharing information [9, 10]. An approach to ameliorating some of these obstacles may be to take into consideration cognitive and social dimensions of information

sharing and decision making.

Research in organizational behavior has found that affect or emotion influences how individuals share information. Mild positive affect has been found to promote cognitive flexibility and open thinking, improving information processing and decision making [6]. Such findings have the potential to greatly inform the design of technological systems for sharing information.

A significant amount of research in the affective computing literature has focused on systems for sensing, recognizing, and responding to different affective states [11]. However, these systems are not practical for organizational settings because of difficulty in implementation and invasiveness. Another approach, and one that has received comparatively little attention in affective computing, is inducing affect rather than detecting it. My dissertation research thus uses different affect induction methods to improve information sharing and decision making in distributed teams.

2. KEY AREAS OF INQUIRY

The fundamental question my dissertation seeks to answer is whether mild positive affect leads to improved information sharing and decision making in computer mediated teams. In order to address this question, I will review findings from the 'hidden profile' literature, a robust experimental paradigm for analyzing information processing and decision making in teams [12]. In the hidden profile, the complete set of information required to arrive at the correct decision is partially distributed among team members. Different members possess different pieces of information, and only through complete pooling of individual members' unique information can the team arrive at the correct decision. Hidden profile tasks are very relevant in the context of distributed teams as these teams are formed on the premise that team members possess unique information and sharing such information will lead to optimal decisions. The central discovery in hidden profile research is that team members tend to exchange and discuss a disproportionate amount of common information rather than the unique information each member holds [15].

Positive affect may influence the socio-emotional and cognitive factors that lead to sub-optimal decisions in 'hidden profile' tasks. Research has shown that, as long as the task is meaningful, interesting or important to the decision maker, mild positive affect leads to processing that is careful and thorough, as well as flexible and open [6]. Frederickson's 'broaden and build' theory provides further support for this. Her theory argues that distinct positive emotions such as joy permits more flexible cognitive processes by enabling a wider variety of thoughts that come to mind [3]. Thus,

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through active generation and consideration of new information, teams in positive affect should reach higher quality decisions.

My dissertation extrapolates findings from studies on face-to-face individuals to derive hypotheses for a distributed team setting. Using the concept of 'Group Mood' [4], I argue that just as individuals experience positive affect, so may the team. Recent theories of computer mediated communication (CMC) provide explanations regarding how affect may spread from one team member to another through 'Emotional Contagion' [5]. The Social Information Processing theory argues that with time, users are able to employ the verbal cues present in CMC to convey relational information that is normally conveyed through non verbal cues in face-to-face contexts [14]. Thompson and Nadler propose that electronic actors "non-consciously imitate not only the linguistic structure of each other's messages (e.g., message length, informational context, grammar), but also the social-emotional connotations of the other's message (e.g., tone, directness) and perhaps even the rate at which the message is attended to (in terms of reply lag time)" [13]. Thus emotional contagion could occur through text based communication technologies used by distributed teams.

3. METHODOLOGY AND WORK IN PROGRESS

My dissertation will employ the following three studies.

3.1 Study I – Induction through success feedback

In the first study, teams consisting of three individuals geographically isolated from each other but communicating through synchronous technology (instant messenger) were randomly assigned to one of two conditions, a positive affect condition and a neutral condition. Teams solved the 'Murder Mystery' task developed by Stasser and colleagues [12]. A success feedback induction used in a study of medical students [7] was used to induce mild positive affect. Data analysis for this experiment is currently underway.

3.2 Study II – Induction through the user interface

Larson et al. manipulated typographical quality on a tablet PC and found that good typography elevated mood compared to poor typography [8]. This study will use a similar induction by manipulating the quality of the user interface. In the experimental condition, groups will use asynchronous technology (an online discussion board) designed based on web design principles that emphasize aesthetics. Groups in the control condition will communicate through a 'neutral' interface.

3.3 Study III – Induction through interaction

Emotions are mediated through cultural and social contexts [3]. This study will operationalize this 'affect as interaction' perspective. Three person groups will solve the 'Murder Mystery' task by communicating through synchronous technology (instant messenger). The experimental condition will have a confederate who will be trained to write positive messages, while in the control condition the confederate will write neutral messages.

4. EXPECTED CONTRIBUTION

This research extends theories about the effect of positive affect on information sharing and decision making to a mediated group context, a relatively unexplored area in affective computing and computer supported cooperative work (CSCW) research. Through experiments using both synchronous and asynchronous technology, this research may provide additional understanding regarding information exchange since time and communication medium are all known to impact distributed teams.

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