

A GDSS Design that Supports Anonymous Communication for the Convergent Process

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Keywords: GDSS, anonymity, privacy, groupthink, convergent process

Abstract. Implementing anonymous communication is regarded as one of the most effective ways to improve group decision-making. A prime example is that of electronic brainstorming. However, most of the successful supporting frameworks of anonymous communication are designed for the divergence phase in a decision process where participants are actively exploring options or novel ideas. Very few designs have been presented for the convergence phase that follows, wherein participants discuss and seek a conclusion or an answer. It seems to be assumed that anonymity may eliminate various tools of persuasion, which would consequently increase difficulty in coordinating discussion. Any difficulties or benefits of supporting anonymous communication should be, to some extent, dependent on the system design. As such, according to this speaker's research experiences, establishing a web-based GDSS that supports anonymous communication for the convergent process would be a feasible endeavor.

1. Introduction

This keynote lecture concerns IT-based communication systems, or group decision support systems, through which people can engage in discussion with calm minds and generate rational conclusions. To facilitate this open-minded and free discussion, my systems guarantee user anonymity. Further, by ameliorating the communication environment of decision makers, their conclusions shall be improved, albeit through indirect intervention. Therefore, in this presentation, I will introduce an experimental system design to this effect based on a synthesis of computer science and sociology.

In the field of sociology, where I also encountered theories related to psychology and economics, I was influenced by Irving L. Janis' theory of Groupthink ([1]), Social Choice theory by Amartya Sen ([2]), and Salutogenesis by Aaron Antonovsky ([3]). All of these complex theories relate to the research behind group decision support systems or GDSSs. However, to establish the context behind this approach, I shall focus on examining Janis' Groupthink.

2. Groupthink

Janis was a 20th century American psychologist who carefully reviewed large scale failures in foreign policy decision-making processes and found a cohesive mode of thinking that is characteristic of those decision-making bodies. He termed this mode of thinking as "groupthink" and termed the opposite mode, which is replaced by groupthink, as "independent critical thinking." Groupthink is a term to refer to "a mode of thinking that people engage in when they are deeply

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on Mechanical, Electrical and Medical Intelligent System 2018
Keynote**

involved in a cohesive in-group, when the members' strivings for unanimity override their motivation to realistically appraise alternative courses of action."

According to Janis, policy makers comprising an amiable group find it relatively easy to authorize even dehumanizing solutions such as large-scale bombings. Included in the list of eight symptoms of groupthink there are, for example, items stating: "Self-censorship of deviations from the apparent group consensus," or "Direct pressure on any member who expresses strong arguments against any of the group's stereotypes, illusions, or commitments."

By abandoning independent critical thinking, the quality of decision making becomes ever more likely to deteriorate and this is groupthink's fatal flaw. This risk is not limited to governmental policy-making processes but is omnipresent throughout society. Consider the construction of a new nuclear power plant or installation of a new school system. Both supporters and opponents become prone to evaluating unanimity in members more than to a realistic appraisal of alternative courses of action. Groupthink can also influence broader conflicts between the majority and the minority or among various ethnic groups and can cause strained relations to deteriorate further.

3. GDSS to Cope with Groupthink

Informality in human interaction and group insulation are among the major causes of groupthink. Regarding personality or informality in interaction, Janis states, "the more amiability and esprit de corps among the members of a policy-making in-group, the greater is the danger that independent critical thinking will be replaced by groupthink." As for group insulation, or the closed nature of a group, he declares that "the more insulated a cohesive group of executives becomes, the greater are the chances that its policy decisions will be products of groupthink."

The characteristics of "personality" and "group insulation," however, seem to be restrained when certain types of computer mediated communication, or CMC, are employed compared with face to face, or FTF, communication. For example, when people use a bulletin board system or BBS, an instance of CMC, its non-verbal typing-based input method appears to facilitate more formal or impersonal communication. Systems in which anonymity is permitted have the merit of freeing participants from the emotional constraints of age, gender, position, and human relationships, allowing them to express themselves in accordance with their beliefs. Moreover, interactions on a BBS are essentially open to a broader audience. This open nature provides the very antithesis of group insulation. If we successfully harness the "impersonality" and "openness" of CMC and enforce the conventional decision-making process, the result might prove fruitful.

However, how can such a decision support system be properly implemented? The lack of social cues in CMC is often mentioned as a cause of problematic bipolarization in a society. The predicament is that "Anonymity may lead to emotion-based irresponsible remarks." How then is a peaceful, cooperative discourse achievable? The feasibility of establishing such a framework hinges on a system suitably designed to cope with this problem.

4. An Experimental System Design

In this context, I propose to introduce a unique group decision support system design. Throughout this lecture, I will provide an example of GDSS design, which my colleague and I have previously presented ([4]). Implementation of the decision support system that guarantees users anonymity also relates to the issues faced in designing various data protection techniques that are gaining attention these days. To make this point clear, I would like to discuss recent achievements in my research of privacy-enhanced data collection system ([5], [6]). The target system in the research is comprised of both a framework that analyzes input data to reveal elements that can cause an information leakage

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and also a mechanism to correct such flaws through modification of the questionnaire design in the database.

Acknowledgements

This study was supported by grants from the Telecommunications Advancement Foundation and Gunma University.

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