Chapter 10

Experience with Self-Guiding Group Support Systems for Creative Problem Solving Tasks

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ABSTRACT

Many teams and groups use brainstorming to improve their creativity. Brainstorming can be supported with Group Support Systems (GSS). However, GSS are most successful when offered in combination with facilitation or at least training. Unfortunately, facilitation or training will impose a barrier to use such systems. In this chapter the use of a GSS for a multi-step creative problem solving task was evaluated. The groups using this GSS got no training, had no GSS experience and got no support, other than a 1 page log-in instruction. With this limited instruction and no training all participating groups handed in a report with the results of their brainstorm, using the tool. This chapter will report the process, the way it is embedded in the tool, and the results of our exploratory questionnaire among the participants.

INTRODUCTION

Creativity is a critical competence in organizations. Organizations need to improve their services and products continuously in order to remain competitive. To foster creativity, it is important that people in organizations collaborate, as creative solutions often are the result of multiple perspectives and interdisciplinary problem solving. Frost and Sullivan surveyed 946 decisions makers globally, using a collaboration index, and found that collabora-
tion is a key driver of performance in organizations, its impact is twice the impact of strategic orientation, and five times the impact of market and technological turbulence (Frost & Sullivan, 2007). Given the importance of collaboration and creativity it is important to develop and support these competences in organizations.

A well known technique for creativity is brainstorming. Brainstorming is a method in which a group collectively shares ideas to resolve a problem. Originally brainstorming was developed as a face to face group process, where participants share ideas and write them on a flipchart. Osborn (1953) set four key rules to further stimulate creativity: (1) don’t criticize, (2) freewheel, (3) combine and improve, and 4) the wilder the better. These rules are intended to prevent the individual participant from withholding specific ideas for fear of being chastised by other group members. To further support creativity, electronic brainstorming with GSS has been introduced. GSS enable parallel input which increases the efficiency of a collaborative creativity or brainstorming. Furthermore, they offer tools to reduce information overload and, through anonymity of participants, dominance and fear of contributing is diminished (Nunamaker, Briggs, Mittleman, Vogel, & Balthazard, 1997). Santanen et al (Santanen & Vreede, 2004) found that using GSS, the need for some of Osborn’s rules is reduced, for instance, the rule ‘don’t criticize.’ Since GSS are anonymous, the negative (blocking) effects of criticizing are reduced, and critique can even motivate participants to sharpen their ideas in this context (Santanen & Vreede, 2004). Further, creativity can be stimulated giving the group directions and triggering different perspectives (Knoll & Horton, 2010).

GSS therefore could potentially help organizations to increase their creative capacities. However, collaboration is also challenging, and the use of GSS requires additional procedural support from experts such as facilitators, trainers or at least technical assistants (Dennis & Wixom, 2001; Kolfschoten, Niederman, Vreede, & Briggs, 2008; Nunamaker, et al., 1997). This creates a significant barrier to sustainably implement collaboration support in organizations (Briggs, Vreede, & Nunamaker, 2003). We therefore looked for a way to guide groups through a brainstorming process without the need for procedural support. This resulted in the development of a GSS that does not require any additional support. In this chapter we will discuss the role and purpose of collaboration support, and its challenges. Next we will present the tool developed, called TeamSupport. Finally we will present an experiment with the tool to evaluate its role in creativity, and the extent to which the tool is self-guiding, enabling its use without additional support.

BACKGROUND

Collaboration support can in some circumstances enable groups to accomplish their goals more efficient and effective (Fjermestad & Hiltz, 2001; Vreede, Vogel, Kolfschoten, & Wien, 2003b). Collaboration support technology offers mostly tools to collect and combine input from participants in activities such as brainstorming and voting (Nunamaker, et al., 1997). However, collaboration support is often used in combination with training or facilitation, which poses an additional barrier to its use and implementation.

While collaboration support such as GSS has proven to increase efficiency and effectiveness of groups, it is challenging to implement such collaboration support in organizations (Vreede & Briggs, 2005; Vreede & Bruijn, 1999; Vreede, Davison, & Briggs, 2003a; Vreede, et al., 2003b). Lab and field studies in collaboration support show conflicting results (Fjermestad & Hiltz, 1999, 2001; Santanen, 2005) with respect to the effectiveness and efficiency of GSS. Research has indicated that collaboration support often depends on a single champion, and when this person leaves the facilities are abandoned (Munkvold & Anson, 2001). Further the training of a facilitator...