Chapter X

Patterns in Electronic Brainstorming:
The Effects of Synergy, Social Loafing, and Time on Group Idea Generation

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Abstract

Previous research has shown that some groups using electronic brainstorming generate more unique ideas than groups using nominal group brainstorming, while others do not. This study examined two factors through which group size may affect brainstorming performance: synergy and social loafing. Groups brainstormed using three techniques to manipulate synergy and two group sizes to manipulate social loafing. We found no social loafing effects. There were significant differences in
synergy, but not the ones we had theorized. Instead, we found a time effect: nominal brainstorming groups that received no synergy from the ideas of others produced more ideas than electronic groups in the first time period and fewer ideas in the last time period. We conclude that synergy from the ideas of others is only important when groups brainstorm for longer time periods and may have a harder time generating ideas. We also conclude that electronic brainstorming groups, whether in the field or in the research laboratory, should be given at least 30 minutes to work on tasks or else they will be unlikely to develop synergy.

Introduction

The idea of using brainstorming has been around for almost 50 years (Osborn, 1957). Yet traditional group brainstorming, where group members verbally share their ideas, has not been found to be a very productive idea generation technique when compared to other brainstorming techniques (Mullen, Johnson, & Salas, 1991). A controversy has surfaced recently regarding two other forms of brainstorming—nominal group brainstorming and electronic brainstorming.1 Both of these techniques have been found to be more productive than traditional verbal brainstorming but the question remains as to which one is more productive—nominal or electronic brainstorming. Some studies in the early 1990’s found that electronic groups generated more ideas than nominal groups (Dennis & Valacich, 1993; Valacich, Dennis, & Connolly, 1994) but a recent study has cast doubt on these findings and claimed that the productivity of electronic brainstorming may be an illusion (Pinsonneault et al., 1999a). This is the subject of debate, with some researchers arguing that group size plays an important role: large electronic groups outperform large nominal groups but small nominal groups outperform small electronic groups (Dennis & Valacich, 1999; Pinsonneault et al., 1999b).

The purpose of this paper is to investigate two underlying theoretical factors that may influence the relative productivity of small and large nominal and electronic brainstorming groups: synergy and social loafing. Large electronic brainstorming groups may experience more synergy (and thus produce more ideas) than small groups on a per person basis because they have more potential sources of synergy. However, these same large brainstorming groups may also experience more social loafing (and thus produce fewer ideas) than small groups on a per person basis because members are more likely to perceive their contributions to be less needed. In this paper, we attempt to separate these competing factors to better understand how group size may affect brainstorming performance.
The Wicked Relationship Between Organisations and Information Technology
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