

Effectiveness of electronic group brainstorming



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The objective of this paper was to conduct an experiment and report the results of the efforts to compare the effectiveness of group electronic brainstorming versus individual electronic brainstorming to address difficult, real-world challenges (Thornburg et al. , 2009). Many such studies have been conducted over the years to determine if group brainstorming is more effective than individual brainstorming and the conclusion is that individual brainstorming creates more and better quality ideas. However, there are not many studies examining larger work groups, 30 or more, with diversity among skill and knowledge levels in an industrial setting.

This article aims to determine the best way to leverage EBBS (electronic brainstorming) methods within the setting of a national laboratory to evaluate performance within four industrially relevant areas. Because of the ever-increasing use of technology in the workplace, it is imperative that managers understand group dynamics to aid in solving industrially relevant issues and how to apply the right technology to the situation. The group of individuals conducting this research declares that electronic brainstorming has been proposed to reduce the negative effects of group brainstorming and help control costs.

Electronic brainstorming should allow for shorter meetings, an increase in participation regardless of the participant's location, a reduction in costs, and provide for better documentation. The experimental goals of this paper were as follows: 1. Measure idea quality as well as quantity 2. Examine larger work groups, up to 30 members 3. Solve a " real-world Issue" 4. Determine how time and scheduling Interact with EBBS Participants In this study were

randomly assigned to a group (one group of 39 and another group of 30) and were given Instructions to log Into a website and Input their

Ideas at least once a day for 4 successive days. The availability of the website was not restricted to Just working hours, thus participants could enter Ideas either when working or at home, so whenever an Idea came to them, they had the opportunity to log Into the website and input their Information. The nominal group participants only were able to see their own answers. The group-condition participants could see their by the rest of the group. The questions the participants were asked to respond to was a problem from the company president which contrasted two models of how organizations relate to their employees.

The two questions were as follows: 1. How do employees establish an identity for themselves in relation to their work environment, I. E. , how do they define their " we", and 2. How to create the appropriate balance between the role of management and the sense of empowerment of employees (Thornburg et al. , 2009). The results were generated and responses were evaluated based on originality, feasibility, and effectiveness. The results showed that nominal was superior to group brainstorming in at least some industrial contexts (Thornburg et al. , 2009).

In the nominal group responses, both average and maximum idea quality were considerably better than the group condition responses. The analysis proved that the nominal participants produced more good ideas than group participants; however there was not a major difference in the total number of ideas produced. This research proved to this group that large electronic

groups are not inevitably the best option for solving industry related issues. If idea quality is the goal of the group, this issue can better be solved by collecting electronic individual responses rather than organizing an electronic group.

Furthermore, the individual approach has the potential for cost savings. The second article reviewed was entitled " Social Influence Processes in Computer Brainstorming" by Paul B. Pulls, Timothy S. Larry, Vicky L. Putnam, Karen L. Elegant, and Evelyn J. Roland, Department of Psychology, University of Texas at Arlington. This article was produced in March of 1996. This research project assumes the same findings of the first paper reviewed, that large group brainstorming is not always the best option for generating new ideas, and takes it one step further to study the social influences in effect during the brainstorming process.

The first paper proved that individual group brainstorming was the superior process for electronic brainstorming and this paper is investigating what elements lead to the productivity loss that occurs between individual brainstorming and group brainstorming. The article claims that there are several social interaction factors that can be attributed to the productivity loss such as social interaction anxiety, social loafing, and blocking. Additionally, it is stated that there is no real motivation to be a high performer and individuals will match their performance to the lower performers.

The purpose of this research project was to provide further evidence for the social influence model within the context of electronic or computer-based

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brainstorming (Pulls et al. , 1996). For this study, participants were assembled into groups of 4 and were asked to generate ideas using personal computers. There were four different group conditions used. In the first condition, the participants generated ideas individually, with no comparison feedback or fertilization.

In the second condition, the participants publicly announced the number of ideas they created in 5 minute increments (comparison). In the third condition, as they typed their ideas, the individuals would voice their ideas (fertilization). And finally, in the fourth condition, participants verbalized their ideas as they typed and announced the number of ideas they generated every 5 minutes, therefore combining both the comparison and were the number of ideas generated and perceptions of individual performance (Pulls et al. , 1996).

Additionally, this study examined the independent role of revitalization and social comparison processes in both the generation of ideas and the perception of performance in computer-based brainstorming groups (Pulls et al. , 1996). There were 136 participants in this study who were randomly assigned to one of the four experimental conditions and broken into groups of 4. All participants were contributing in a large room at the same time, except in the no fertilization- comparison condition, where those individuals participated alone in another room.

The participants were asked to generate ideas on the pros and cons of having an extra thumb on each hand. At the end of the session, the participants were also asked to complete a questionnaire which asked them

questions about their perception of their performance during the brainstorming session. This individual performance information was evaluated by the research team as well. The results of this study proved that by using the social comparison information, it increased the performance of the students generating ideas on the computer, meaning that giving the performance statistics of others can help increase the performance of the group.

However in contrast, in the condition where the artisans verbalized their ideas, this reduced the level of performance over the groups who did not voice their ideas. This is consistent with the idea that production blocking is a core reason for production loss of brainstorming groups, because the blocking occurs when the individuals in the group share ideas. Consequently, sometimes the performance comparison information can be helpful, but the fertilization of ideas most likely increases social anxiety and production blocking which will reduce the benefit of the comparison information.

The more favorable individual performance perceptions were in the social comparison and fertilization condition groups. In summary, the findings of this study show that the perception of the participants in an interactive group is that they are more productive if they announce their ideas as they are generated during the group brainstorming process. In other words, typing ideas as they are being voiced during the group brainstorming process may be beneficial if oral interaction is preferred.

Additionally, voicing ideas can help stimulate the individual thinking process and can create more confident linings about individual performance.

However, the actual performance of the group may be hindered when participants verbalize their ideas due to blocking and anxiety. Social comparison may increase the overall number of ideas produced, but fertilization of ideas may hinder the number of ideas produced. One of the reasons why I chose this topic was that within my team at BBC, collaboration is highly recommended and expected.

Brainstorming sessions are a regular occurrence and used frequently to generate new ideas in facilitation techniques, training material development, presentation techniques, and special reject deliverables. So I determined that additional research on brainstorming would be interesting and beneficial to me to apply ideas to my working environment. The first paper I reviewed discussed the use of two different types of electronic brainstorming and which version was best for the brainstorming process.

I have read personality differences, and being more introverted versus extroverted, idea generation is not a one-size-fits-all process. Using an individual electronic process can help those that are more introverted to give them time to think about ideas and write down ideas as they come to them, instead of putting them on the spot and asking them to generate ideas immediately and in a large group setting. I have personally not used the electronic method with regularity in a business setting.

More often than not, we usually schedule a meeting and gain participation by having everyone together in one room and throw ideas around. I do feel that I can build off of others' ideas easily in this type of setting, but I am more extroverted, so I tend to verbalize my thoughts easily and am energized by

hearing others' thoughts. I was surprised at the outcome of the first study where the nominal group generated more quality ideas than the group-condition participants, which supports the concepts from our Organizational Behavior textbook, in chapter 9.

I personally am stimulated by other's ideas and it helps me think more creatively if I can see or hear what others are thinking about the brainstorming topic, because as noted in the second paper, voicing ideas can be stimulating. I can see where individuals who are more introverted may be intimidated by the fertilization and comparison techniques as used in the second study. I also like the idea of having a standard website or shared electronic document to capture ideas when brainstorming is needed, as used in the first study.

In my work environment, the most beneficial format would most likely be the group-condition because we tend to build off of each other's ideas. We are a very interactive group, so the oral interaction, or visual interaction, would work well in our environment. I have experienced productivity blocking in brainstorming sessions previously where your brain has a tendency to get stuck on one thought or idea and you have a hard time getting past that particular idea.

However, again, probably because I am more extroverted, and am energized by conversation, I feel that I am eventually able to work through the brainstorming process and not get stuck in the blocking circle. Sometimes to get past the blocking, it just helps to build off of someone else's idea, instead of coming up with your own original idea. The second paper discussed that

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another reason for productivity loss was because there is no real motivation to be a high performer and individuals will match their performance to the lower performers.

That's not accurate in my case because I am also a very competitive individual. Even though there is no tangible reward for submitting as many ideas as possible, due to my competitive nature I would still try to submit as many ideas as possible so that I can be proud of my accomplishment. I would also perceive that my performance was better in the case that I was providing as many or more ideas as my colleagues, rather than submitting fewer ideas. In summary, I found both articles to be extremely beneficial on the topic of electronic brainstorming.

I learned about new ways to brainstorm electronically and that there are many benefits, however with the social aspect, an organization needs to take into consideration the potential areas for productivity loss. Each organization should determine the best way to use electronic brainstorming for their environment based on their culture. Even though as the textbook states in chapter 9 that electronic meetings tend to lead to decreased group technology continues to increase in popularity and it will be interesting to see how BBC decides to harness this technology to continue to generate quality ideas for the true of healthcare.