

A Sumbiosis Think Piece

Brainstorming – Questioning the Assumptions

INTRODUCTION

Brainstorming is generally recognized as the most effective method to generate ideas.

A comprehensive review of the scientific literature, which was published in *The Journal of Problem Solving*ⁱ, shows that features and assumptions of the traditional brainstorming approach need to be partly reconsidered.

HISTORY

Alex Osborn first described the brainstorming method in a book written in 1953. Osborn was an advertising firm executive who wanted to help teams generate creative solutions to everyday problemsⁱⁱ. In the first edition of his book, he contended that idea generation in teams is far superior to individual brainstorming. In later editions (1957, 1963), he suggested that the key to the effectiveness of group brainstorming is adherence to the following rules:

- Idea quantity is the goal (the more ideas, the better).
- Criticism must be ruled out (immediate evaluation of ideas is forbidden).
- Freewheeling is valuable (the wilder the idea the better).
- Combination and improvement are sought (refine and combine ideas in novel ways).

RESEARCH FINDINGS

In the meantime, numerous studies have shown that group brainstorming is generally less effective than individual efforts in terms of both quantity and quality – i.e.: letting individuals write down ideas alone and then pulling all their ideas together, generates at the end more and/or better ideas!

Scientists have found several reasons that explain this somewhat surprising finding:

1. Evaluation apprehension

This apprehension essentially results from people's concern of being negatively judged by others. Although according to the second above-mentioned rule, group members are admonished not to criticize each other during the idea generation phase, they may still feel that they are being evaluated.

2. Motivation losses because of social loafing, free-riding and the "sucker" effect

Social loafing occurs when group members feel that no one can find out how much they personally contributed, and thus they may not work as hard as they otherwise would.

Similarly, free riding is a form of motivation loss that results when group members feel that their individual efforts are not crucial to the group product. For example, if in a group of four people three of them are very creative, the fourth one can reap the benefit

of good performance without putting in a lot of effort in generating and/or announcing his or her own ideas. Furthermore, if the other three realize that their colleague is free riding on their effort, they can also lose motivation (sucker effect).

3. Social comparison

Individuals tend to match their performance to that of other group members. Thus, if low-productivity prevails early in a brainstorming session, this low level will carry on over time and a group's idea generation potential will not materialize.

4. Production blocking

Group members need to take turns speaking during a typical face-to-face brainstorming session. While the group session is in progress, each individual needs to perform three things simultaneously: (a) pay attention to the current speaker to foster cognitive stimulation, (b) keep the idea he or she would like to contribute in memory, and (c) monitor the discussion to find the appropriate time to intervene and announce his or her idea. Performing these cognitive tasks simultaneously can lead to forgetting the original idea that the person wanted to contribute and, more important, make it difficult to generate additional new ideas during this time.

5. Fixation on previously stated ideas

During a group brainstorming session, participants are constantly exposed to other's ideas, which can serve as anchors that may prevent subsequent creative idea generation. Exposure to the ideas of others does indeed not always produce a positive, stimulating effect, but can sometimes narrow the scope of the idea generation process.

SECURING PRODUCTIVITY OF GROUP BRAINSTORMING

A) Overcoming production blocking, evaluation apprehension and/or social loafing: brainwriting

Experiments have shown that individuals working alone generated a greater number of ideas when receiving a list of stimulus ideas. Reading the list exposed these individuals to other's ideas, while production blocking did not occur.

Based on this finding, one solution for securing the productivity of group brainstorming is to eliminate the distracting effect that results from the need to wait for a turn to contribute one's own ideas. The simplest way to achieve this is asking the members of a brainstorming group to write down their ideas on little cards and bring those on a pin wall (brainwriting technique). Electronic brainstorming sessions have been suggested as another way of achieving the same result.

These approaches also have the advantage of reducing or even eliminating the evaluation apprehension factor.

A particular form of brainwriting technique allows reducing the social loafing factor (but not the evaluation apprehension one). Participants receive pens of different colors. They write down their ideas on cards and give them to their neighbor in a round-robin fashion. In parallel, they read and pay attention to the ideas written on the cards they receive from their other neighbor before adding their own additional ideas.

B) Overcoming fixation: breaks

Taking brief breaks during a brainstorming session can help overcome fixation effects, or mental blocks that result from exposure to examples.

Experiments confirm that such breaks help improve both idea quantity and idea quality (as measured by variety). They also show that breaks help to avoid the natural decreasing productivity rate that occurs over time during brainstorming sessions.

C) Facilitation

The effect of the factors that tend to decrease the effectiveness of group brainstorming can be reduced or avoided by asking a person to facilitate the brainstorming session - i.e.:

- making sure that team members stick to the four brainstorming rules suggested by Osborn;
- encouraging quiet members to participate;
- making sure that participants stay focused on the brainstorming task and avoid off-topic discussions.

Experiments have shown that the presence of a facilitator at least helps groups to generate a greater quantity of ideas. It remains unknown however, whether facilitators also have an effect on the quality of the ideas generated.

D) Additional support

Even in the absence of a facilitator, giving ambitious quantity goals to and providing tips (e.g. do not tell stories or explain ideas) or even training members of brainstorming groups, helps increase productivity of the idea generation process.

ⁱ Olga Goldenberg and Jennifer Wiley, *Quality, Conformity and Conflict: Questioning the Assumptions of Osborn's Brainstorming Technique*, The Journal of Problem Solving, volume 3, number 2 (Winter 2011)

ⁱⁱ Alex F. Osborn, *Applied Imagination: Principles and Procedures of Creative Thinking*, Scribners, 1953