
Brainstorming: a creative problem-solving method^{*}

Abstract

Creativity and the generation of new ideas are no longer the sole preserve of a few eccentric companies, but a daily necessity for all businesses and organizations around the world. The question is, how can managers introduce a creative way of thinking into an organization or a team of employees? Where should they start and how should they proceed?

Brainstorming, brainwriting and mind mapping are good starting points. They can help to unlock quickly and easily the hidden creative powers that all human beings possess. They not only help people to step outside the norm and generate innovative ideas, but also create an atmosphere that is highly productive and enjoyable.

In the present chapter, the principles and benefits of these main creative methods are discussed. Readers are given clear suggestions as to when, where and how to start using examples from daily practice; they are shown how to lead and manage a brainstorming session, how to avoid making common mistakes, how to analyse and implement results and how to create an organizational culture in which new ideas can flourish. In the final section of the chapter, brief descriptions of brainwriting and mind mapping are given.

What is brainstorming?

Brainstorming as a technique was first introduced by Alex Osborne in the 1930s. It is a method used in groups in order to support creative problem-solving, the generation of new ideas and greater acceptance of proposed solutions.

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How it works

The brainstorming technique is based on the capacity of the human brain to make associations. For example, when a person sees or hears the word “fun”, the brain automatically searches for word associations and produces suggestions such as cinema, theatre or concert, or terms such as humour, friends, relaxation, free time, sun, sea and so on.

Although the capacity of one person is somewhat limited, the production of words increases enormously if there are more people working together. The reason for this is that the word associations thought of by others makes the brain of each person work faster and search in much wider areas than it would without such stimulus. The theory of associations is the first principle of brainstorming.

It is already well known that the brain works best when the left and right hemispheres work together. This state comes about when people are relaxed, calm, happy and feel that they are in an atmosphere of trust and support. Unfortunately, our work life is seldom like this: stress, the large number of tasks to be carried out and busy schedules are the enemies of relaxation. Therefore, the second principal precondition of brainstorming is that it should be carried out in a relaxed atmosphere in order to support the creative attitude of people and get the best out of them.

Organizing a brainstorming session

As in any session or meeting, there are certain rules that need to be followed in order to ensure that a brainstorming session produces good results. The session can be divided into three phases: a preparation phase, the brain-storing session, and evaluation and implementation of the results.

The preparation phase

- In the preparation phase, the following questions should be answered:
- What is the purpose of the brainstorming session and what is the topic?
- How many people and which people should be involved?
- When and where will the session take place?

What is the purpose of the brainstorming session and what is the topic?

The key to good results is correct topic definition. Often, the topic chosen for the brainstorming session limits the outcome by suggesting one of the possible solutions to the problem.

For example, the question “How can we expand the space available for production?” produces a very different result from the formulation “How can we gain the space we need for our work?” In the first case, the only solution expected is buying or renting new premises, whereas in the second case, it could be found that a good cleaning policy, new storage systems or faster processing resolve the problem.

Tip for topic preparation:

Thought should be given to what will be different and how the change will be evident after the implementation of the solution, when the problem is solved. The objectives should not be confused with the means (for example, “How to make a better advertisement” (focusing on advertising as a means) should not be confused with “How to increase company profits” (which is the real objective of an advertisement).

How many people and which people should be involved

Any brainstorming session will be richer in ideas if it is attended by people who are not directly involved in the problem. Sometimes, it can be the secretary, the office manager, the marketing or production manager, line employees, even a customer or student who brings the most valuable idea. A fresh approach can produce very different word associations from those which have been discussed in the group many times before.

A good number of participants for a brainstorming session is between 6 and 12 people. Of course, a smaller group can be equally productive, but the flow of ideas will probably be slower. However, working with bigger groups is more difficult, time-consuming and requires more effort to write down all the ideas produced.

When and where will the session take place?

At first glance, this is a simple question, but in reality the environment, room layout and timing play a more important role than we think by influencing the atmosphere and working style of the session and therefore the results.

While smaller brainstorming sessions can take place on the premises, when solving an important issue such as the company strategy for the coming years, it is wise to escape the normal routine and hold the meeting at a nice hotel nearby or outside the city. A new and unknown environment stimulates different thinking and the ideas generated will have a different value from those influenced by the company environment.

The best arrangement for the room is a “U” shape. This means that the chairs are arranged in a half circle around the room and a flip chart is placed in the middle, within view of all the participants. Everybody should see the flip chart. Tables may be provided, but are not necessary; people may sit or stand as they choose, but should be comfortable.

The room should be calm, well ventilated and well lit. Different colours aid brain activity. At the beginning of the session, all telephones should be switched off and staff should be asked not to interrupt the session.

Brainstorming sessions can be held at practically any time of day, except after lunch, when brain activity decreases due to biorhythms. It is likely that sessions held between 10 and 11 a.m., when brain activity is highest, and evening sessions are the most productive.

The brainstorming session should not exceed 20-30 minutes, but the time required will depend also on the management of the meeting and the other items on the agenda.

The rules of brainstorming

For best results, the following rules for brainstorming sessions should be observed:

- (a) No criticism or judgement. Other people's ideas or our own ideas should not be criticized however foolish or outlandish they may seem. Judgement stops the creative process, causes tensions in the group and arrests the generation of ideas;
- (b) During brainstorming participants are completely free to express themselves. They are not bound by their company position or by their boss or colleagues; nothing is unwanted and nothing is wrong;
- (c) The quantity and not the quality of ideas is what matters. The world's most creative people suggest that it is not that each of their ideas is bright, clear and new, but that some of their many ideas are very good. In a 20-minute session, it is normally possible to produce between 120 and 150 ideas;
- (d) All ideas are recorded on the flip chart. When a page of the flip chart is full, it is posted on the wall so that all participants can see it and a new page is started. The ideas produced for the second page may even be the same or similar. In this way, the participants are not forced to register all the ideas and can create more freely. However, the formulations may be condensed in order to maintain the pace of the session;
- (e) The results are evaluated after a lapse of time. In order to ensure that no idea is promoted or eliminated prior to proper consideration, the results are evaluated several days later, the following day, or, at a minimum, after several hours have elapsed.

Leading a brainstorming session

A well-managed brainstorming session involves several steps, as follows:

- (a) At the beginning of the session, the moderator should explain the objectives of the session and describe the chosen topic. All participants should switch off their mobile phones;
- (b) The moderator should explain the rules of the brainstorming session and hang them on the wall. If the participants are already familiar with them, it is enough to make sure that all the participants know them well;
- (c) To warm up a group, a humorous topic can be used, such as "What else can you do with a saucepan?" After several minutes of brainstorming, when the atmosphere is relaxed, the predefined topic can be introduced;
- (d) All suggestions, however outlandish, are recorded on the flip chart. The participants should be patient and check that all their ideas are written down;
- (e) The moderator may help the participants with generating ideas. He or she can also try to unlock hidden ideas by asking "What else?", "What next?" and by making comments such as "very good", "thank you", and so forth, but should not influence the participants by asking questions supporting any of the areas of the results;
- (f) At the end of the session, the moderator should thank the participants for their active approach and make sure that they know how the results will be evaluated and used.

Evaluation phase

The evaluation of the results of the session should be deferred for several days, overnight or at least for several hours. During that time, the brain recovers and has

time to calm down, reflect or produce new word associations and solutions. Those can be added to the list prior to the evaluation. The ideas are then grouped according to the topics and formal evaluative methods can be used.

Another approach that can be used to evaluate the results is a method using coloured stickers. For example, 10-20 stickers can be distributed among the evaluators and they can be asked to affix them next to the ideas on the flip chart. The more they like an idea, the more points they can give it by affixing stickers. They can give all the points to one solution or distribute them among more of them, as they wish. In this way, the preferences of the group can be seen and priorities among the results can be identified. For example, the results of the session aimed at how to improve the recognition of a shoe trademark may be those given below:

<input type="checkbox"/> Contact a professional advertisement agency	25 points
<input type="checkbox"/> Carry out market research	22 points
<input type="checkbox"/> Improve the client database	18 points
<input type="checkbox"/> Organize a competition for journalists	12 points

Examination of the results should reveal a strategy to be followed, as well as a point of departure.

Common mistakes to avoid

Moderators or managers should be aware of problems that may arise when working with brainstorming. They include:

- (a) Participants have a negative attitude. Participants may feel negatively towards the manager of the session, towards the topic itself, towards the idea of brainstorming or they may not believe that a solution is possible at all. In that case, the moderator or manager should discuss these problems with the participants in advance;
- (b) Judgements are made during the session. If participants express negatively about the ideas, such as “it cannot work in our company”, “it would be too costly”, “there are not enough resources for that”, and so forth, the moderator or manager should explain that such judgements interrupt the flow of ideas and should tell the participants that he or she will return to their comments at the evaluation phase;
- (c) Too many brainstorming sessions have been held previously. The participants may be reluctant to participate because they have been asked to contribute to too many brainstorming sessions. The moderator or manager should ascertain the reasons for the reluctant participation, but is likely to find that earlier results were not properly evaluated and implemented, which alienated previous participants. At the beginning or end of any session it should be made clear who is responsible for evaluating the results, that it will be done and that people will be informed of the results.

What are the benefits of brainstorming?

The benefits of a well-organized brainstorming session are numerous. They include:

- (a) Solutions can be found rapidly and economically;
- (b) Results and ways of problem-solving that are new and unexpected;

- (c) A wider picture of the problem or issue can be obtained;
- (d) The atmosphere within the team is more open;
- (e) The team shares responsibility for the problem;
- (f) Responsibility for the outcome is shared;
- (g) The implementation process is facilitated by the fact that staff shared in the decision-making process.

What issues can be solved by brainstorming?

The topics that interest most companies or organizations relate to improving processes, the organization of the company or organization, communication, customer and employee relations, strategy, products, quality and any other outputs of the company. The following recent topics have arisen with different groups:

- (a) How can we improve the time management of our group?
- (b) How can we promote our products better?
- (c) What can the vision of our company be for the next five years?
- (d) How can we find out what our customers want?
- (e) How can we improve cooperation between production and marketing?
- (f) How can we enhance cooperation between account managers and the creative department (for example, in an advertising company)?
- (g) What new products can we introduce to our customers two years from now?
- (h) What can we do to make our sales and marketing department more efficient?

Brainstorming can also be used as an introduction or warm-up exercise in a training session. Possible questions could be as follows:

- (a) When (or under what circumstances) does company communication work well?
- (b) When (or under what circumstances) are our customers satisfied with the company?
- (c) How can we prevent stress or how can we cope with pressure better?

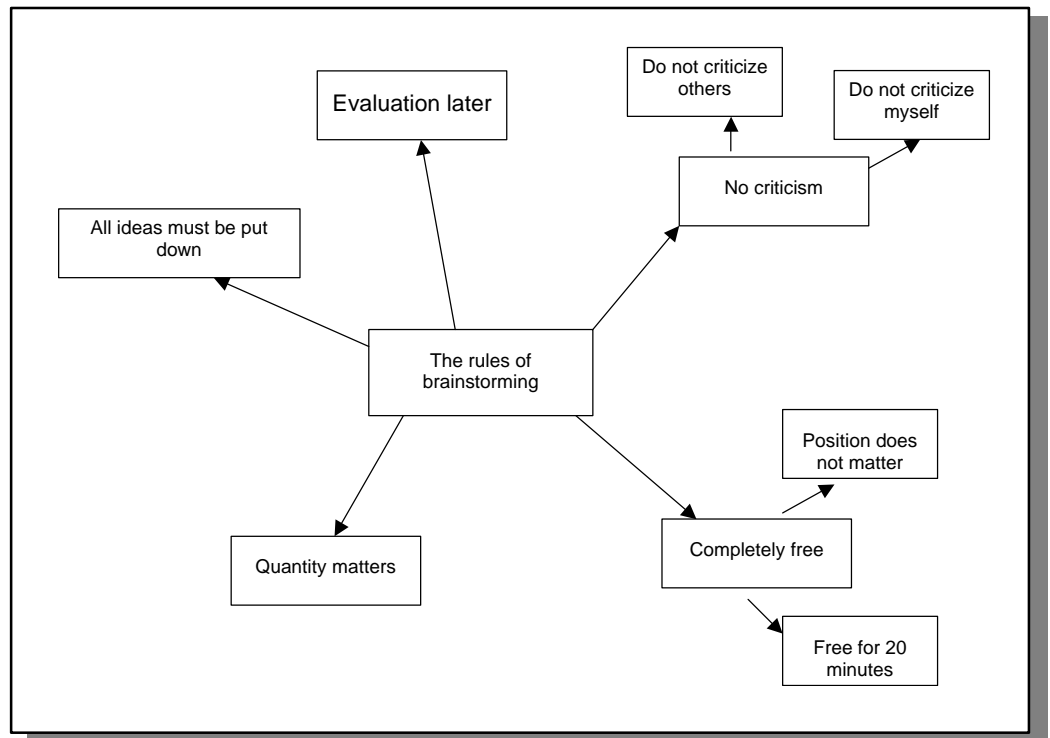
Additional creative methods

Two other similar creative methods deserve mention here: brainwriting and mind mapping. Brainwriting is similar to brainstorming. The only difference is that the participants are given a set of coloured sheets of paper (between 5 and 20) and the ideas are first written down, one idea per sheet. The sheets are then attached to a flip chart or posted on the wall, organized in the best possible way. Typical patterns can thus be seen very quickly and the number of repetitions of the same idea indicates the preferences of the group.

An alternative is the generation of individual ideas by simply writing all ideas on a sheet of paper. This method can be used as a preparation for a presentation, a meeting with a client or problem-solving.

Using the mind mapping systems further enhances the brainwriting method. The slogan that we want to examine is written in the middle of a clean A4 sheet of paper: "The rules of the brainstorming" (see figure). As our brain works we can generate ideas in different branches and a tree slowly grows. Using this method, it is possible to grasp rapidly the logic of things, their connections and priorities. The human brain works in a holistic manner, which is the easiest way for it to work. This method is useful for any kind of human activity, including making a daily schedule, holiday planning and managing quality.

Figure
Example of a simple mind map: the rules of brainstorming



Summary

Techniques such as brainstorming, brainwriting and mind mapping can offer companies and organizations new ways of encouraging staff to think creatively in order to solve problems and improve company operations. Staff welcome the opportunity to contribute their ideas and find brainstorming sessions fun and productive. Once these techniques have been adopted, it is hard for staff and managers to imagine how the company used to function adequately without them. It takes courage to experiment with the new, but the potential rewards are manifold: better results, faster generation of new ideas, the introduction of an element of fun to the work routine and a better working environment.

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