Brainstorming Definition, how to use Brainstorm, Brainstorming Rules, Advantages of Brainstorming

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Abstract—**Brainstorming is an ideation method that is widely used in the design thinking process. Brainstorming can be defined as a group problem-solving technique where the members contribute ideas spontaneously. In practice, brainstorming is often synonymous with a creative and imaginative idea-generating process.**

Brainstorming may be the best-known tool for group idea generation and is widely taught in gifted and talented programs. Many empirical studies have been conducted regarding the effectiveness of brainstorming, and they have provided useful insights into the salient barriers facing groups who use this tool. Although a great deal of this literature focuses on the limitations of brainstorming, the exploratory study included in this article sheds light on approaches that can enhance the value of this tool by examining the impact of the facilitator's role within group idea generation. Finally, this article outlines recommendations for teaching, learning, and applying brainstorming.

The goal of brainstorming is to generate many ideas quickly, and "out-of-the-box" thinking can be encouraged. The ideas are then discussed, merged, and refined. The group eventually works to achieve a consensus on the final list or best approach to solve the problem.

Brainstorming aims to develop the broadest possible range of creative options, to evaluate these, and to select the best. Outcomes: Brainstorming will offer better solutions to a community issue or proposal because a wider range of options has been canvassed."Brainstorming allows people to think more freely, without fear of judgment. Brainstorming encourages open and ongoing collaboration to solve problems and generate innovative ideas.

Brainstorming allows students to think critically about ideas and solutions, form connections, and share ideas with peers. The activity allows exploring and expanding a student's ability to think critically and laterally.

Index Terms—**Introduction, Definition of Brainstorming, how to use brainstorm, Brainstorming Rules, Advantages of Brainstorming etc.**

I. INTRODUCTION

Brainstorming was introduced in 1953 by businessman and creativity theorist Alex Osborn. Already in 1938, he had invented the term "thinking up" which meant a creative idea generation process. It was initially created as a solution for the lack of shared creativity which caused subpar results in business meetings in his company BBDO.

Brainstorming was popularized in 1953 in Osborn's book "Applied Imagination". It became popular quickly and in five years, eight out of ten of the largest companies in America were using brainstorming.

Brainstorming has evolved a lot since. The subject has been researched a lot, and improvements have been done to address its shortcomings. New brainstorming techniques have been invented and the original technique has improved. It is still a widely used method in problem-solving and ideation.

Brainstorming is probably the first method that comes to your mind when thinking about generating ideas. The term is used quite loosely today, but the original goals and rules are very specific. Even though

brainstorming was introduced decades ago, the core of it remains the same.

Brainstorming is a creativity technique in which a group of people interact to suggest ideas spontaneously in response to a prompt. Stress is typically placed on the volume and variety of ideas, including ideas that may seem outlandish or "off-the-wall". Ideas are noted down during the activity, but not assessed or critiqued until later. The absence of criticism and assessment is intended to avoid inhibiting participants in their idea production. The term was popularized by advertising executive Alex Faickney Osborn in the classic work Applied Imagination (1953).

Brainstorming is a method design teams use to generate ideas to solve clearly defined design problems. In controlled conditions and a free-thinking environment, teams approach a problem by such means as "How Might We" questions. They produce a vast array of ideas and draw links between them to find potential solutions.

II. DEFINITION

Brainstorming is a structured group process used to create as many ideas as possible in as short a time as possible, e.g., one session, and to elicit both individual and group creativity. Structured Brainstorming: Everyone in the group gives an idea in rotation or passes until the next round.
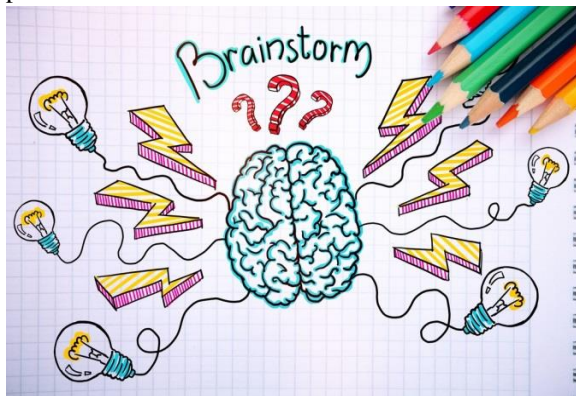
Brainstorming is an ideation method that is widely used in the design thinking process. Brainstorming can be defined as a group problem-solving technique where the members contribute ideas spontaneously. In practice, brainstorming is often synonymous with a creative and imaginative idea-generating process.

A. How to use brainstorm: -

1. Define the problem or topic you want to brainstorm

Before you start brainstorming, it is important to define the problem or topic you want to brainstorm. This will help you stay focused and generate relevant ideas.

2. Gather your participants

Brainstorming works best when the participants brainstorm together. You can brainstorm in groups of two or more but try not to include too many brainstormers to avoid groupthink. Also, make sure that there is one person leading and facilitating the brainstorming session.

3. Assign a recorder

The recorder is responsible for noting down all the ideas that are brainstormed during the session. People with great organizational skills are always the best choice. Having someone as a recorder helps in staying focused and on time.

4. Set a time limit

This is especially important when brainstorming with a large group. Otherwise, people will tend to go off-topic and the brainstorming session will take too much time.

5. Set ground rules

Brainstorming rules are meant to make brainstorming sessions efficient. Hence, brainstorming rules are not meant to restrict brainstorming. They should inspire brainstormers to think freely while giving the chance for everyone to share their ideas.

6. Start brainstorming

Now it's time to brainstorm! This involves coming up with as many ideas as possible, no matter how crazy or unrealistic they may seem.

Start brainstorming with a warm-up activity that allows participants to get in touch and interact more easily. A good way to start brainstorming is by asking open-ended questions to generate ideas. For example, the first question could be: "What are different ways we could improve our customer service?" This will get the brainstorming process started and people will begin to offer ideas.

Make sure the recorder writes down every idea that is brainstormed, no matter how far-fetched they may seem.

7. Group and build on brainstorming ideas.

Once you have brainstormed a list of ideas, it is important to group them and build on them. This will help you to develop a better understanding of the topic and find patterns in the ideas. Allowing other

participants to brainstorm on top of previous ideas will help to develop the ideas further and could lead to some very innovative solutions.

8. Evaluate brainstorming ideas

Evaluating brainstorming ideas is a critical step in the brainstorming process. This is where you determine whether the ideas are feasible

- ideas are worth exploring further
- ideas meet the objectives of the brainstorming session

8. Vote for the best brainstorming ideas

Once all the ideas have been brainstormed, it's time to vote on the best ones. Ask everyone to vote for ideas they think are the most effective and viable. The best ideas will then be turned into a plan of action.

9. End brainstorming

Make sure to end brainstorming sessions on time. This will allow participants to reflect on what they've brainstormed and prepare for the next session. Brainstorming can be a tiring process so it's important to also have breaks in between.

10. Document and review brainstorming results

Documenting brainstorming results is a great way to ensure that everyone understands the ideas that were generated, and it can also help to track progress on specific projects.

Reviewing brainstorming results helps to ensure that the best ideas are selected and that an action plan is made on the results of brainstorming.

B. Brainstorming Rules: -

We have learned the benefits of brainstorming by now, but to utilize the full potential of this tool, you must know the rules. Often brainstorming sessions do not reach their objectives, because brainstorming rules and best practices are not followed.

Osborn defined 4 principles of brainstorming. Their goal is to release free idea creation and add creativity.

C. Four rules of brainstorming are:

1. Quantity produces quality.

Focus first on creating lots of ideas. The more diverse ideas there are, the better the chances are for some game-changing ones. There are also more ideas you can choose from when you're starting to work with them. The quality will come when the ideas are further developed.

Commonly, the first ideas are the most obvious ones. When you go for quantity, you get beyond those common ideas and broaden your horizons.

2. Separate ideation and evaluation.

Avoid criticism and blocking ideas. In ideation, the focus must be on creating an open atmosphere for bouncing ideas without the fear of being judged. Critique is part of the process, but it should be separated from brainstorming.

Surprisingly, a recent article suggests that in a cooperative atmosphere criticism might boost creativity. However, we suggest you avoid criticism generally.

3. Encourage wild ideas.

Unusual ideas are welcomed in brainstorming. Wild ideas help the participants to start thinking outside the box

Obvious ideas don't often spark the best results, start thinking bigger!

4. Build on created ideas.

Ideas often trigger other ideas. It is advisable to use others' ideas in generating new ones. Improve and combine the ideas of others and develop them further.

D. Advantages of Brainstorming: -

- Using a different approach can break the monotony of problem-solving and provide a fresh perspective on the situation.
- Brainstorming is an effective approach to generating diverse ideas that can lead to a comprehensive solution.
- Brainstorming is commonly used as a teaching method for students because it promotes self-learning and enhances comprehension.
- It can be advantageous for enhancing teamwork and generating collective ideas.
- Brainstorming can be a useful tool for generating ideas and finding solutions in situations such as list-building or resolving a deadlock by gathering input from a group.
- Brainstorming is a flexible process that can be done by individuals from various fields without any technical limitations because there are no strict rules.

III. CONCLUSION

Brainstorming is a collaborative method of generating ideas in a group setting, involving diverse people sharing ideas freely to produce a large quantity of options. It follows a structured approach with techniques to enhance creativity, such as mind mapping, and aims to unlock creative potential to

solve complex problems. Brainstorming is a good way to gather ideas in a short time. The methods of brainstorming are simple and easy to understand, there are no high material costs and communication within the team is improved. It is a very effective tool to increase creativity and develop new innovations. You just need to pay attention to the plan and rules to make it successful.

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