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PREPARATION FOR GROUP BRAINSTORMING IN DESIGN

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ABSTRACT

If you consciously take advantage of your natural thinking processes by gathering your brain's energies into a "storm," you can transform these energies into written words or diagrams that will lead to lively, vibrant writing. Below you will find a brief discussion of what brainstorming is, why you might brainstorm, and suggestions for how you might brainstorm.Whether you are starting with too much information or not enough, brainstorming can help you to put a new writing task in motion or revive a project that hasn't reached completion. Let's take a look at each case:

When you've got nothing: You might need a storm to approach when you feel "blank" about the topic, devoid of inspiration, full of anxiety about the topic, or just too tired to craft an orderly outline. In this case, brainstorming stirs up the dust, whips some air into our stilled pools of thought, and gets the breeze of inspiration moving again. When you've got too much:

There are times when you have too much chaos in your brain and need to bring in some conscious order. In this case, brainstorming forces the mental chaos and random thoughts to rain out onto the page, giving you some concrete words or schemas that you can then arrange according to their logical relations.

Key words: design, brainstorming, preparation

1. INTRODUCTION

Throughout the early stages of your project, your team will have to answer several "what", "why", and "how" questions. One of the best ways to do this is to brainstorm. The following information is provided by the Studio to aid you in this endeavor. Brainstorming Rules: Collect as many ideas as possible from all participants with no criticisms or judgments made while ideas are being generated.

All ideas are welcome no matter how silly or far out they seem. Be creative. The more ideas the better because at this point you don't know what might work. Absolutely no discussion takes place during the brainstorming activity.

Talking about the ideas will take place after brainstorming is complete. Do not criticize or judge. Don't even groan, frown, or laugh. All ideas are equally valid at this point.Do build on others' ideas. Do write all ideas on a flipchart or board so the whole group can easily see them. Set a time limit (i.e., 30 minutes) for the brainstorming.

What follows are great ideas on how to brainstorm-ideas from professional writers, novice writers, people who would rather avoid writing, and people who spend a lot of time brainstorming about…well, how to brainstorm.

Try out several of these options and challenge yourself to vary the techniques you rely on; some techniques might suit a particular writer, academic discipline, or assignment better than others. If the technique you try first doesn't seem to help you, move right along and try some others.

When you freewrite, you let your thoughts flow as they will, putting pen to paper and writing down whatever comes into your mind. You don't judge the quality of what you write and you don't worry about style or any surface-level issues, like spelling, grammar, or punctuation. If you can't think of what to say, you write that down-really. The advantage of this technique is that you free up your internal critic and allow yourself to write things you might not write if you were being too self-conscious.

2. THE CRUCIAL POINT

When you freewrite you can set a time limit ("I'll write for 15 minutes!") and even use a kitchen timer or alarm clock or you can set a space limit ("I'll write until I fill four full notebook pages, no matter what tries to interrupt me!") and just write until you reach that goal. You might do this on the computer or on paper, and you can even try it with your eyes shut or the monitor off, which encourages speed and freedom of thought.

The crucial point is that you keep on writing even if you believe you are saying nothing. Word must follow word, no matter the relevance. Your freewriting might even look like this:

"This paper is supposed to be on the politics of tobacco production but even though I went to all the lectures and read the book I can't think of what to say and I've felt this way for four minutes now and I have 11 minutes left and I wonder if I'll keep thinking nothing during every minute but I'm not sure if it matters that I am babbling and I don't know what else to say about this topic and it is rainy today and I never noticed the number of cracks in that wall before and those cracks remind me of the walls in my grandfather's study and he smoked and he farmed and I wonder why he didn't farm tobacco..."

When you're done with your set number of minutes or have reached your page goal, read back over the text. Yes, there will be a lot of filler and unusable thoughts but there also will be little gems, discoveries, and insights. When you find these gems, highlight them or cut and paste them into your draft or onto an "ideas" sheet so you can use them in your paper. Even if you don't find any diamonds in there, you will have either quieted some of the noisy chaos or greased the writing gears so that you can now face the assigned paper topic.

3. GENERAL PRINCIPLES OF BRAINSTORMING

Although the detailed procedures used in applying the 'brainstorming' technique tend to vary in line with the special needs of the user, in almost all applications the following general rules apply when using the techniques.

Rule 1. Considerably more ideas will be produced if critical judgment is entirely eliminated during the idea production process.

Because education and experience have trained most people to think judicially (i.e. critically) rather than imaginatively, the flow of ideas they are capable of producing is impeded because they apply their critical evaluative faculties too soon. They are more concerned with assessing the value of individual ideas than with creating a large number of alternative ideas. By deferring judgment during the idea-producing process, however, alternative ideas can be produced for a longer period, and therefore, a considerably larger number of ideas are available for evaluation at the end of the ideation period.

Rule 2. Group ideation can add to an individual's idea output.

Usually a person's experience of joint thinking is gained from his attendance at the traditional kind of conference or lecture, where original ideas are neither asked for nor encouraged.

The principal value of group brainstorming lies in the fact that a brainstorming session, when properly conducted, can produce far more good ideas than a conventional conference - and in much less time. A striking example of this can be instanced by a brainstorming session held by the American Cyanamid Company which produced 92 ideas in a single 15 minute session - more than 6 ideas per minute, and an average of over 8 ideas per person attending the session.

Group brainstorming procedures call for individual ideation both before and after each session. Since a combination of these two methods of approach to 'brainstorming' usually produces maximum results, an alternation between group ideation and individual ideation is recommended as the best means of obtaining really effective results.

Rule 3. The more ideas that can be created, the better the overall results.

Characteristic of brainstorming is the fact that by driving for a few more ideas, you get far more. Ideas create still more ideas. First you get 30 and you want to get 60. Then when you get 60 you want to get 75. Probably seven of those last 15 ideas are first rate, and would never have been conceived had the quantity of ideas required been, say, limited to only 30. The more suggestions produced during a brainstorming session, the greater the chances of producing first-class ideas.

The size of a brainstorming group depends upon the extent and type of organisation it is to serve. Ideally, the group should consist of a Chairman, a Recorder (otherwise known as the 'idea collector'), six regular 'core' members and about six guests. Certain qualification requirements govern the selection of a group's members, namely :

1. Group Chairman. The Group Chairman, or Leader, should be trained in advance of his function. Preferably he should have taken a course in creative thinking and have participated, as a group member, in various brainstorming sessions. He should NOT be a senior member of the organisation's management.
2. Recorder. The only contribution required of the Recorder is that he or she be able to record all ideas quickly and reliably, and without interruption of the ideation proceedings. Often a tape-recorder can be used effectively for this function.
3. 'Core' Members. As the 'core' members are the group's pace-setters, they must be people who have repeatedly demonstrated their ability to produce original ideas or suggestions.
4. Guests. The guests should be invited from various departments of either the organisation or its associate concerns. A different group of guests should be invited for each brainstorming session. This rotation helps to spread a creative spirit throughout an organisation, and prevents the development of a rigid pattern of thinking, such as would occur if the same guests were invited to each and every session. Often it is helpful to include among the chosen guests at least one, or possibly two, people who know nothing at all about the problem under discussion. People without experience in a particular field bring a new, often valuable viewpoint to the problem.
5. Pre-conditioning. Since guests who have never before participated in brainstorming sessions are unfamiliar with the various creative techniques involved, a relatively thorough orientation is recommended. Ideally, this should be accomplished in a 30 minute briefing lecture which covers the basic principles of ideation as well as brainstorming procedures.
6. Attendance of Top Management. Experience indicates that brainstorming sessions tend to be less productive when a high-ranking member of the organisation's management is present. They tend by facial expression, or otherwise, to induce an inferiority complex on the part of the remaining members of the group, and thus discourage 'free-wheeling '.
7. Size of Group. Although larger sized groups have been used for brainstorming sessions, experience indicates that the optimum size of a group is about a dozen.

4. A DESIGN PROBLEM

A design problem on the other hand is a real-life problem with many solutions, some of which meet the problem requirements better, some worse, and where the process of discovering the solutions is not mechanistic.Boolean logic commands, such as union, difference, and intersection, aid in forming new shapes. With boundary definitions, 2D surfaces are swept through space to trace out volumes.
Most systems offer several types of sweeps to help create a variety of shapes. Parametric methods depend on the sequence of operations used to construct the design. The software maintains a history of changes in specific parameters. The point of capturing this history is to keep track of operations that depend on each other, so that, whenever it is told to change a specific dimension, the system can update all operations referenced to that dimension
Some problems might appear not to need 'design' as a solution can be cobbled together without much thought. This is true enough - if the solution can be based on direct experience. However we shall soon come to realise that without experience such a thoughtless solution usually comes to grief sooner or later - the more involved the problem and the more folk affected by the solution, the more likely is the solution going to fall in a heap. Any old solution will not do-we must strive for the optimumsolution.
We expect that the design process, if properly carried out, will show a high probability of disclosing a solution which is optimum or close-to-optimum, if indeed a unique optimum exists.
The prime aim of this chapter is to develop a structured approach to design - an approach which will promote confidence in effectively solving real life problems. We shall focus on problems involving engineering hardware - particularly for Design and Build (D&B) Competitions - however the approach is perfectly general and applicable to problems arising from a marketing sortie or a labour wrangle for example. The approach is thus very relevant to managers and the like - not just to 'hardware designers'. Brainstorming is a tool used to gather information or generate ideas. In a brainstorming session, participants offer as many ideas about a particular issue as they can think of, as quickly as they can. What distinguishes brainstorming from other group discussions is there is no give and take, that is, ideas are put out and not actually discussed, just listed. Because ideas are not challenged, brainstorming promotes openness and creativity. Because ideas are not discussed, it allows a group to generate a lot of thoughts in a very short time.

5. CONCLUSIONS

How To Conduct A Brainstorming Session

The main roles for the facilitator in a brainstorming session are: to get it started, to document ideas, and to enforce the ground rules. Otherwise, there is very little direct involvement of the facilitator during brainstorming.

How To Get Brainstorming Started

Explain the process to participants before you start. To ensure that the brainstorming stays on track, start with a brief explanation of the process, a clear question to be responded to, and a few ground rules, for example:"Let's set some ground rules for brainstorming: Think of as many ideas as you can.No debate, discussion or evaluation of ideas. All ideas have value, however unusual they might seem."

How To Get Diverse Ideas

Encourage participants to toss out ideas spontaneously; ask them not to edit their thoughts. Reassure them that all ideas are welcome, none is too insignificant or too unusual to bring up. Sometimes very substantial or practical ideas emerge from seemingly trivial or unrealistic ideas.

How To Get Many Ideas

Ask for and encourage participants to offer a lot of ideas. When people are free to give their imaginations a wide range, useful ideas eventually result. Quantity often breeds quality. Restate ideas as they come forward and continually encourage many ideas. Say: "One idea is 'more computer equipment'; o.k., let's get as many ideasas we can on the flip chart.""So far we have, 'mailings', 'teacher training', and 'joint education/business leadership workshops'; what are some other ideas to change the relationship between schools and businesses?"

How To Get Ideas Fast

Do not allow evaluation, debate, or discussion of any ideas brought up. If people judge, challenge, or even expand on ideas, two things can happen:
(1) participants may become reluctant to speak spontaneously, and
(2) the development of ideas will end and a discussion will begin. All commentary should be ruled out so the process can move quickly and remain true brainstorming.

How To Record Ideas

Write participants' thoughts on a flipchart. It is important not to interpret or change people's ideas; it might cause a meaning to be lost or discourage further participation by inadvertently giving people the impression their ideas are not valued. Review the recorded ideas quickly for the group if brainstorming slows down; this helps to help generate new ideas.

How To Manage The Time For A Brainstorming Session

Set a specific time limit of no more than five minutes or set an approximate time limit, for example, a few minutes. Tell participants when the brainstorming starts and finishes. Stop the group when the time is reached or, if an exact time has not been set, stop when ideas start to come more slowly. If participants aren't finished when the time limit has been reached, extend the brainstorming for one minute at a time as long as ideas continue to come in quick succession. An alternative technique that can be used in brainstorming is the "round robin" technique which is similar to polling the group.

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