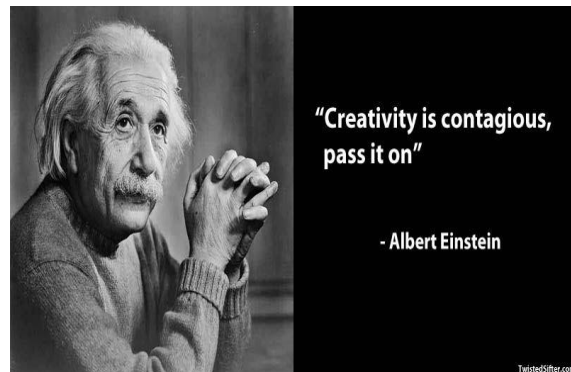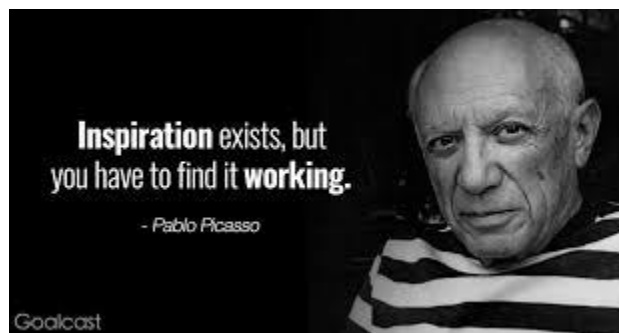# UNIT III

IDEATION

Ideation methods:

<mark>" creativity is a journey, not a magic event".</mark>
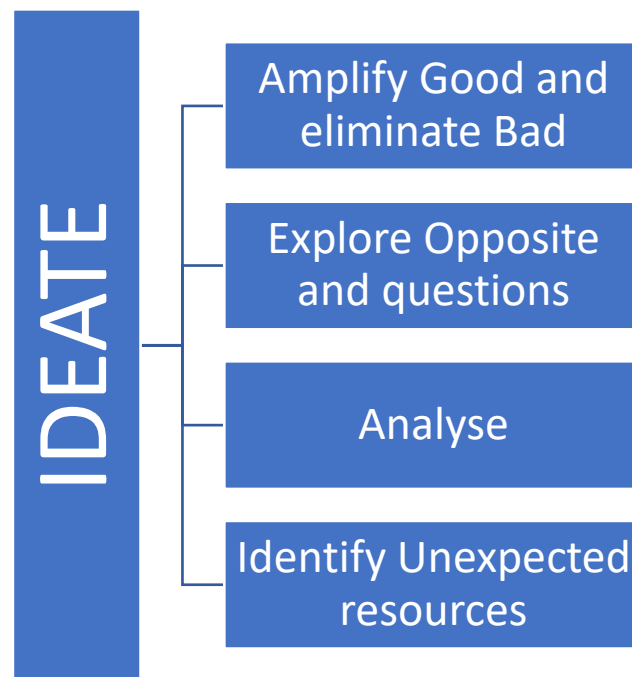

<mark>"Inspiration exists, but it has to find us working"</mark>

- In the ideate phase of the design thinking process that initial ideas for problem solving are developed.
- Ideally, Different techniques should be combined to get new in pulses for the generation of the ideas.
- Especially in this phase it is important to <mark>generate as many ideas as possible</mark> and to select one idea from them .
- In ideate phase the designer will start generating some rational concerts that seek to solve the problem by using the problem statement.
- Typically, these ideas are rough- those that it results from the brainstorming. The important thing hear is to " think outside the box" and generate and generate multiple ideas so that in the next stage draw some options for prototyping.
- The objective of the Idea generation phase is to find creative ideas that will solve the targets and challenges of users. This is the phase in which the design team's creativity and imagination should be at the top level.

- To be a good idea, it needs to be focused on the people, are how the idea fits the needs, problems, and their goals. That is why it is important to understand how the ideas gives values and the usefulness to the beautiful or feasible solution.
- This ideate phase of the design thinking processes is the most interesting and perhaps, the most rigorous as well
- In this phase designer or designers supposed to bring to the table as many ideas as possible.

IDEATE
- Amplify Good and eliminate Bad
- Explore Opposite and questions
- Analyse
- Identify Unexpected resources

- The term "ideate" is just a fancy way of saying that designer want to come up with ideas, and there is no shortage of ways to accomplish that.
- When designers talking about the ideate stage, i.e it is the point in the design process where designers come up with a large volume of ideas to find and implement the most creative one.
- The purpose of the ideate stage is to push for the widest range of ideas that can be implemented in later stages.
- The ideate stage is important because it is when a design team moves from understanding and defining consumer/user/client/customer problems to coming up with solutions for those needs.
- Without the ideate stage the problem remains just the problem.
- Ideating allows a design team to consider creative ways to address the needs of the user have highlights in the empathize stage and more clearly outlines in the Define stage

- In this process, design thinkers also resort to use of boards, sticky notes, sketching, chart papers, mind maps etc
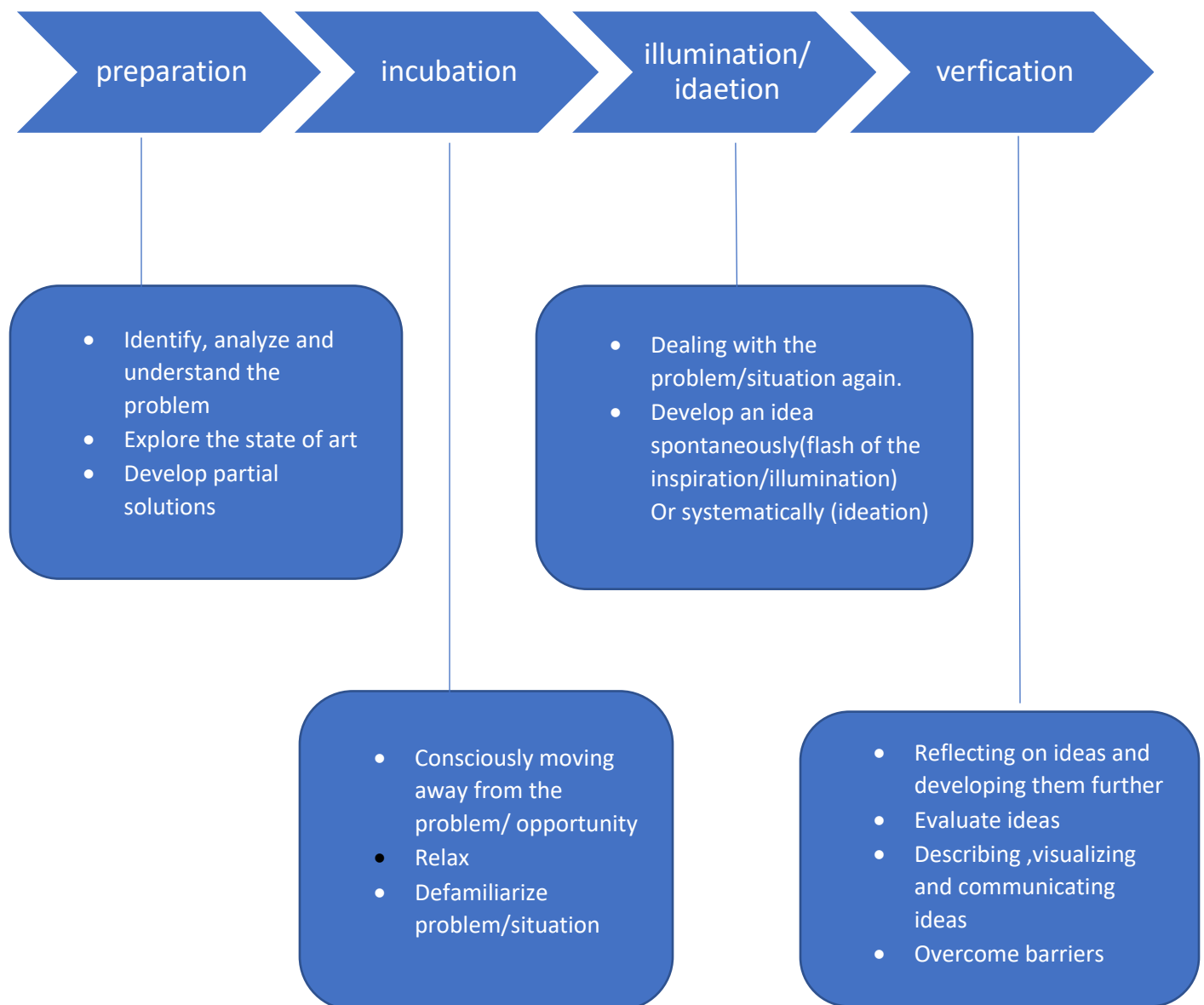
The creative process and creative principles:

- creativity means thinking something new, whereas innovation means implementing something new.
- In this respect creativity is an integral part of every innovation project, regardless of whether it is aimed at it a new product, service, process, social/ organizational change, or business model
- Creativity is not an event but can rather be understood as a Process. The design thinking approach takes up this creative process
- Creativity is the ability to come up with ideas that are new, surprising, and valuable
- To get such ideas, we need a way of looking at problems or situations from a fresh perspective that suggests unorthodox solutions (which may look unsettling at first) which is called Creative Thinking

+

The creative process source: according to Walla's (1926)

preparation	incubation	illumination/ idaetion	verfication

preparation
- Identify, analyze and understand the problem
- Explore the state of art
- Develop partial solutions

illumination/ idaetion
- Dealing with the problem/situation again.
- Develop an idea spontaneously(flash of the inspiration/illumination) Or systematically (ideation)

incubation
- Consciously moving away from the problem/ opportunity
- Relax
- Defamiliarize problem/situation

verfication
- Reflecting on ideas and developing them further
- Evaluate ideas
- Describing ,visualizing and communicating ideas
- Overcome barriers

Creative principles:

1. **Principle of decomposition:**
   The problem, the task, the process steps, or the product/service to be redesigned is broken down into its components and then these compounds are varied/ combined a new

2. **Principle of association**:
   By Association one understands the linking of ideas, information, perceptions, and emotions. In the sense of a free Association, brainstorming or brain writing are to be mentioned. The Walt Disney method and 6-thinking hats - technique can be understood as structured associations.

3. **Principle of analogy and confrontation**:
   Technology and confrontation are targeted changes of perspective and are based on the confirmation with the different areas.

4. **Principle of abstraction and imagination**:
   The basic principle of abstraction and imagination, the problem is solved on a higher or illusionary level.

5. **Challenge common wisdom and industry conventions:**
   Nothing is to be accepted as given ask questions why this is so, why this is not so, why this should be so not to be so and why this can also be different

6. **Do mental exercise**:
   Demand a new number of new ideas from yourself. Under pressure and try to develop new ideas from one or more problems per day

7. **Change your habits:**
   Do something completely different: Changing habits and conventions is a success factor specially for radical innovation

8. **Do experiment:**
   The trial under the approach is already given rise to countless innovation ideas

9. **Do networking**:
   Search or promote Exchange with others example people from other disciplines, cultures, business areas, departments are extra partners.

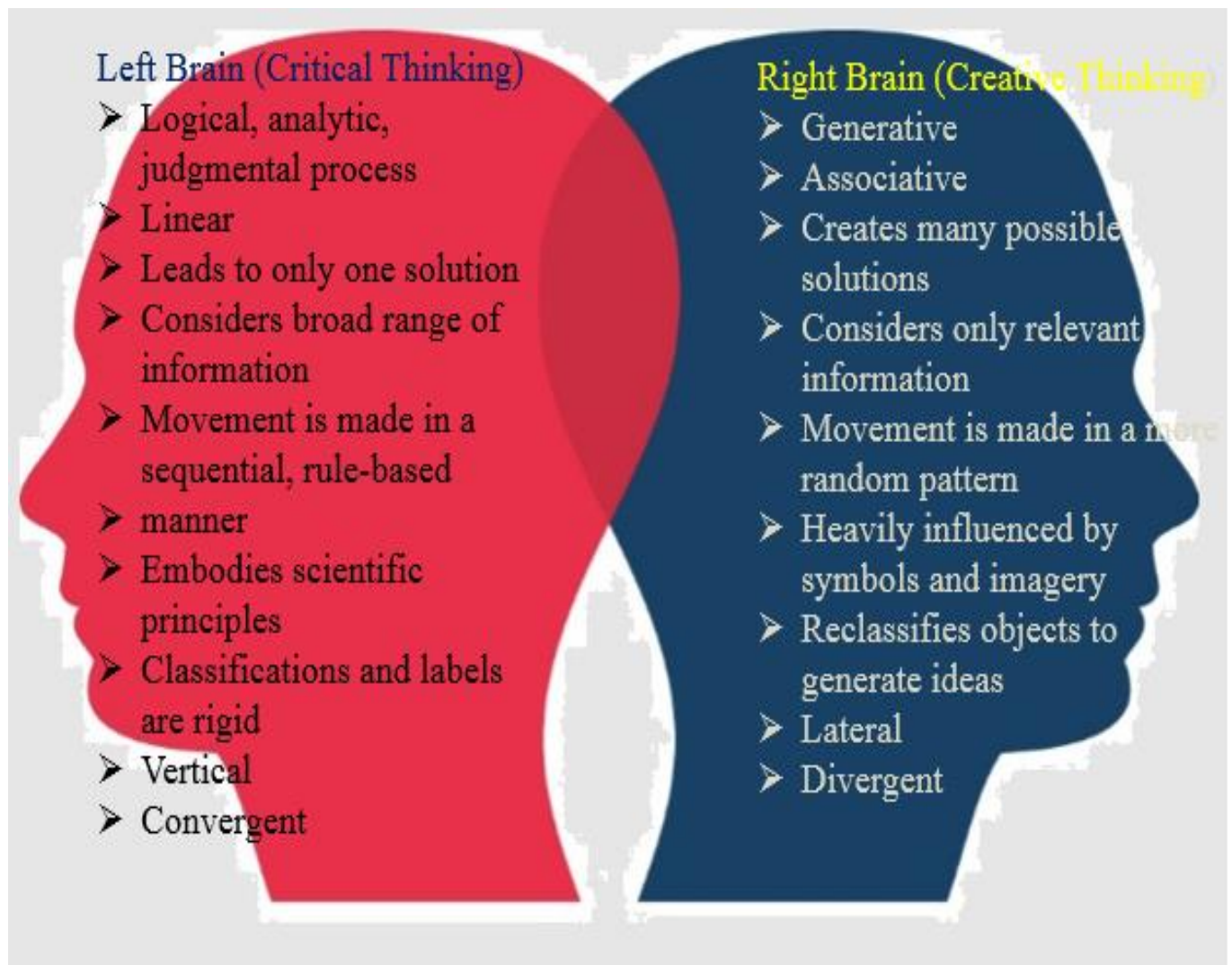10. **Overcome the barriers to creativity:**
    One of the essential success factors the creative process is overcoming the numerous and where did creative blockades.
    Examples of create to blockades are the following
    - Creativity disturbing environment
    - Stress
    - Lack of recognition/ no reward for creative work
    - Two rigid or strict institutional controls
    - Fear of change, risk aversion
    - Perfectionism, search for the right things
    - Pure logical thinking
    - Self-satisfaction with what has been achieved so far

Brain dominance theory:

➢ Gives relationship between right brain and left brain

➢ Left brain handles information in analytical, rational, logical, sequential way.

➢ Right brain function by recognize relationships, observing information in intuitive way.

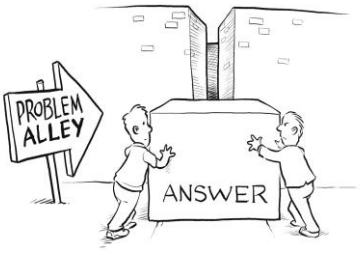➢ Best creativity is achieved with good communication between these two.
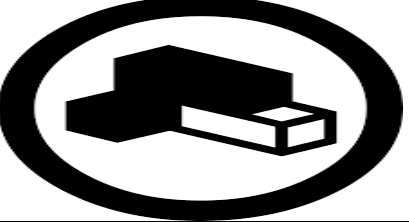
Left Brain (Critical Thinking)
➢ Logical, analytic, judgmental process
➢ Linear
➢ Leads to only one solution
➢ Considers broad range of information
➢ Movement is made in a sequential, rule-based
➢ manner
➢ Embodies scientific principles
➢ Classifications and labels are rigid
➢ Vertical
➢ Convergent

Right Brain (Creative Thinking)
➢ Generative
➢ Associative
➢ Creates many possible solutions
➢ Considers only relevant information
➢ Movement is made in a more random pattern
➢ Heavily influenced by symbols and imagery
➢ Reclassifies objects to generate ideas
➢ Lateral
➢ Divergent

Steps to enhance creative thinking:

- ➢ Develop a creative attitude
- ➢ Unlock your imagination
- ➢ Be persistent
- ➢ Develop an open mind
- ➢ Suspend your judgment
- ➢ Set problem boundaries

Barriers to creative thinking (mental block):

J.L. ADAM's Mental Blocks:

1	Perpetual Block	- Stereotyping - Information overload - Limiting problem unnecessarily - Fixation - Provision of cues	
2	Emotional Block	- Fear of risk taking - Unease with chaos - Unwilling to incubate - motivation	
3	Cultural Block	- Setting too formal - Often strong resistance to change - Overlay analytical thinking	
4	Intellectual Block	- Poor choice of problem-solving language - Memory block - Insufficient knowledge	
5	Environment Block	- Physical environment - Criticism	

Creativity techniques:

- Creative techniques divided into intuitive creative methods and systematic analytical methods
- The intuitive- creative techniques try mostly in a group to simulate spontaneous ideas, associations, and analogies to overcome blockades of thought in a rather free design
- The principles of decomposition and abstraction are increasing the applied to systematic analytical techniques.
- It should be noted that not every creativity technique is a suitable for every question and for every team.
- Creativity is ultimately very individual, everyone has their own idea, experience habits, preferences as well as strengths and weaknesses
- In this respect one should experiment with his creativity techniques

Ideating at Apple might include a variety of brainstorming methods to think of creative ideas for new headphones

Creativity Techniques:

Institutive creative techniques	Systematic -analytical techniques
• Brainstorming	• Osborn Checklist (SCAMPER)
• Brain Writing	• Mind Mapping
• Random Word Techniques	• Synectic
• Semantic intuition/ the perfect prefix	• Bionics
• Forced Relationship	• Morphological box/sequential morphology's/Attribute Listing
• Provocation Technique	• HIT
• Walt-Disney Method	• Lotus Blossom
• Six Thinking Hats	• TRIZ
• Delphi Method	• SIT

Brainstorming

Brainstorming is, so to speak, the mother of all creativity techniques (linguistically from:" using the brain to storm the problem). Ideas about a question a solution to a problem should be Express spontaneously in a group

- ❖ It is a group activity technique
- ❖ It is designed to generate lots of ideas for solution of a problem.
- ❖ It is a commonly used tool by academicians, researchers, and business teams
- ❖ The Value of brainstorming is not the ideas generated; it is the shared value/evaluation context created. The experience of brainstorming creates a group of people with a shared perspective, and an understand of each other's communication styles, who are then capable of providing a useful and powerful critique of future work on the topic.

Rules of brainstorming:

- No criticism: Each criticism a rating is postponed to a subsequent face the so-called killer phrases must be strictly prohibited. In this way it should be prevented that the flow of ideas is interpreted, or participants are blocked. Comment also forbidden
- No copyright: The ideas of others can and should be taken up, changed, and further developed
- Free expansion of ideas: The participant should give free rein to their imagination so that new and original ideas can be found. You are the craziest ideas are welcome

- **Quantity over quality**: As many as possible should be produced in a short back. This rule insurance the spontaneity of the ideas presented.
  So, these rules should be written on the flip chart and visible to everyone doing the brainstorming session

Tips for how to brainstorm:

- ❖ Take sufficient time to clarify define the problem or question in advance
- ❖ The problem should be challenging to motivate
- ❖ The question should be focus and not too abstract (what not too specific or even imply a solution)
- ❖ it should be customer- oriented question that is actively formulated
- ❖ The question can also be communicated in advance with the invitation and is asked to already think about possible solution Idea as a kind of homework
- ❖ The group size should lie between two and almost 12 persons Ideally 5 to 8
- ❖ In case of heterogeneous group of participants who do not know yet know each other well, so organizer should insert a warmup phase before hand
- ❖ Always structure a creativity workshop with Fixed time phases. This means that brainstorming sessions must be limited in time
- ❖ Use "yes" and instead of "yes, But.... In the introduction
- ❖ Number of Ideas
- ❖ Build on ideas of others and jump from Idea to Idea
- ❖ Only one speak
- ❖ always encourage the active participation of all the participants. The person should be informed at a fixed time what has become their idea

Few tips on how to guarantee you destroy a brainstorming session

- The boss talks first and sets the goal and the requirements
- The contributions should be given in a sequence
- Only experts can submit ideas
- No silly ideas are allowed
- Everything is written down

Trigger-Questions for brainstorming

1. How might we...? Technique:

This is a similar questioning technique to the user story

How could we (how might we) _____(product service offer)

For (persona)_____ develop/ offer/ create under the following conditions_____ (problems, legal regulations, environmental conditions changes)

2. Yes and- technique:

It must Not be started to comment with "yes, but".... But it only with "Yes, and.". This should support the ideas put forward by others in the sense of constructive feedback and further develop them.

3. What- if- technique:

With the question" what if we..."(what-if) is to be put into another person/ company) when finding a solution

4. Why- how laddering approach:

The questions why and how are asking alternately. With why questions the reason for the problem should be summarized and recapitulated with the subsequent how question. With how you get detailed answers

Variants of brainstorming

1. Step by step brainstorming:

After a first printing session, the most interesting idea is used as a starting point for another brainstorming session. This allows you to find ideas from a general solution to a special one

2. Anonymous brainstorming:

The idea written by the participant in block letters on a card called brain cards. A moderator read the anonymous ideas aloud and, on this basis, they are brainstorm further or ideas are clustered and evaluate

3. Visual brainstorming/ brain painting:

Recorded graphically with paper and pencil (or digitally). Discrete sketch like images in the form of spontaneous scribbles, which do not have to be perfect, these can be abstract later

4. Blindstorming:

The brainstorming takes place using face mask or in a complete darkness so the participants or not distracted by visual stimuli or gestures /mimics of other participants

5. brain Walking:

The spontaneous ideas for the participants are written on white board or posters distributed throughout the room.

6. Speed storming:

Participants exchange questions in pairs for a few minutes and then change chairs to talk to another person's

7. Stop and go brainstorming:

The brainstorming session is deliberated interrupted at a fixed time and filled with the passes are other techniques in the meantime. alternatively, phases of Idea generation can be altered with the phases of valuation

8. Body storming/ role storming:

During the brainstorming session the participants to take on a certain role and Associate/ formulate their contributions/ ideas from the point of view. The roles can be specific customers/ user who have been characterized by the persona technique.

9. Brain station:

Groups of participants work on different questions at different stations (rooms without separate work areas) using brainstorming. The participants change stations after fixed period

10. E-Brainstorming:

Ideas are communicated electronically via chat/ instant messaging systems so that people can participate at different locations

11.Reverse Brainstorming:

There is also talked of reverse brainstorming and only negative aspects are sought. Here the different aspects of the question and problem can be considered. What is currently bad about the situation? Why can't the problem be solved? What should go wrong?

12. Headstand method:

The question is completely reversible also speaks of the headstand method. How can we make X worse? Make it as complicated as possible? Increase in price? To discourage customers as much as possible? in the next step all ideas can be turned back into positive

Brainstorming Techniques:

1.Freewrıtıng:

- Write down whatever comes into mind.
- Do not judge the quality of writing
- Do not worry about style, spelling, grammar, or punctuation.
- When you have finished your writing and have reached your goal,read back over the text,decide the solution.

2. Nomınal Group Technıque:

- Participants are asked to write their ideas anonymously.Then the moderator collects the ideas and each is voted on by the group.
- The best idea is chosen

3. Group Passıng Technıque:

- Each person in a circular group writes down one idea,and then passes the piece of paper to the next person in a clockwise direction,who adds some thoughts.

- This continues until everybody gets his or her original piece of paper back.By this time,participants will have examined each idea in detail

4. Individual Brainstorming:

   - It typically includes such techniques as free writing, free speaking, word association,and drawing a mind map . Individual brainstorming is useful method in creative wiriting

5. Question Brainstorming:

   - This process involves brainstorming the questions,rather than trying to come up with immediate answers and short term solutions
   - Six Key Questions
     - ❖ Who?
     - ❖ What?
     - ❖ When?
     - ❖ Where?
     - ❖ How?
     - ❖ Why?

Methods and tools of idea Generation Techniques:

- Brainstorming
- Brain Dump
- Reverse Brainstorming
- Benchmarking Technique
- Prioritization Technique
- Value Proposition Canvas

• Brainstorming	Brainstorming is listing creative ideas spontaneously without too much thinking about their quality
• Brain Dump	If the participants are hesitant to share their ideas in front of other people, then brain dump technique is used. Instead of telling their ideas, brainstorming participants individually write down their ideas on stick notes
• Reverse Brainstorming	If participants have difficulty generating creative ideas, design thinking teams can apply the reverse brain storming technique. It aims to approach the problem in a reversed way
• Benchmarking Technique	Design Thinking teams should focus designing not only functional and usable solutions but also desirable solution. Whether it is a product, service, space, or an art piece, desirability is the "Gotta Have it Impact" That an object has on the person who confronts it.
• Prioritization Technique	It is not possible to convert all the ideas into prototypes and test their effectiveness in solving the design challenge. Therefore, brainstorming session, Design Thinking teams should organize assessment sessions and apply convergent Thinking to prioritize and select which solution ideas to prototype with prioritization technique.

Idea Generation Skills:

The effective of brainstorming sessions largely depend on the design thinking teams creativity and its ability to improvise and think out of box.
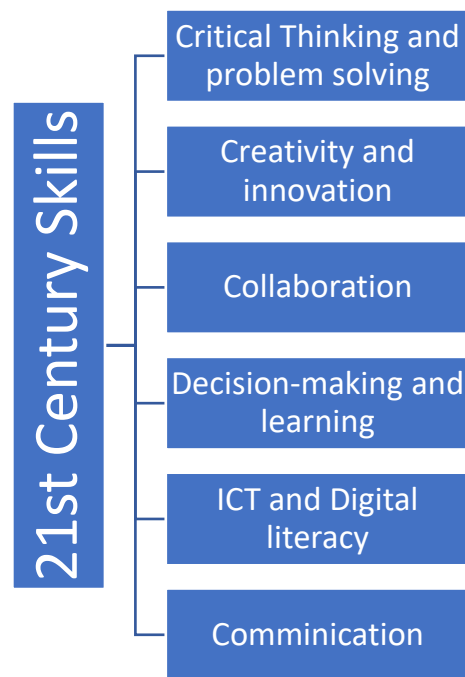
- Improvisation:
  Improvisation is the act of generating creative solutions for problems on the fly without a lot of upfront preparation.
  Improvisation skills can be best be improved by being involved in artful thinking activities, such as creative drama.
- Thinking out of Box.
  To generate creative ideas during brainstorming sessions, design Thinking teams should be able to think OUT OF BOX
  As Albert Einstein Said, "The problems that exist in the world now cannot be solve by the level of thinking that created them"

21st Century Skills

- Critical Thinking and problem solving
- Creativity and innovation
- Collaboration
- Decision-making and learning
- ICT and Digital literacy
- Commination

Advantages of Brainstorming:
- Many Ideas can be generated in a short time
- Requires few material Resources
- The results can be used immediately of for possible use in other projects.

Disadvantages of Brainstorming:
- Requires an experienced and sensitive Facilitator who understands the social psychology of small groups
- Requires a dedication to quantity rather than quality

- Shy people can have difficult in participating
- May not be appropriate for some business or international cultures.