OVERVIEW OF CREATIVITY METHODS

Summary

Creativity techniques are methods that encourage creative actions, whether in the arts or sciences. They focus on a variety of aspects of creativity, including techniques for idea generation and divergent thinking, methods of re-framing problems, changes in the affective environment and so on. They can be used as part of problem solving, artistic expression, or therapy.

Creativity techniques can be categorized, and that classification is analysed below. Each category contains some example. Some creativity techniques are interesting for science and technology (e.g. TRIZ, Brainstorming, etc.) and these techniques are described in the main part of essay.

Key words: Creativity methods; Creativity techniques; Aleatoricism; Improvisation; Problem solving techniques; TRIZ; Creative solving problem process; Lateral thinking process; Six Thinking Hats; Brainstorming; Brainwriting;

1. Introduction

Creativity is a phenomenon whereby something new and in some way valuable is created (such as an idea, a joke, a literary work, painting or musical composition, a solution, an invention etc). A creative person does things that have never been done before. [1]

In a summary of scientific research into creativity, Michael Mumford suggested: "Over the course of the last decade, however, we seem to have reached a general agreement that creativity involves the production of novel, useful products". [2] Creativity can also be defined "as the process of producing something that is both original and worthwhile" or "characterized by originality and expressiveness and imaginative". [3]

Some techniques require groups of two or more people while other techniques can be accomplished alone. These methods include word games, written exercises and different types of improvisation, or algorithms for approaching problems. Aleatory techniques exploiting randomness are also common.

There are three connected (and partially overlapping) areas of human activity related to any kind of development:

- Creativity
- Problem solving
- Design

According to James M. Higgins, creativity is the process of generating something new that has value. [1]
Problem solving is the process required when we seek some kind of a resolution, such as removal of a drawback or achievement of a specific enhancement or improvement. Problem solving usually includes creativity as a part of the process.

Design activity is necessary when we are dealing with any kind of a project. The design process can include problem solving and, if necessary, creativity. [4]

Studying the natural creative process, psychologists defined it as the trial-and-error method and have identified the phenomenon of psychological inertia. Hence, breaking psychological inertia and various techniques for stimulating creativity became the main target, along with the development of various procedures and processes. In summary, these efforts were aimed at the following:

- Unleashing natural creativity, eliminating mental blocks
- Stimulation and mobilization of resources helpful for generating ideas by a group or individual
- Knowledge-based support, including various analytical steps to organize, restructure and exploit available knowledge and experience and, eventually, utilize specially-developed and structured external knowledge (innovation knowledge base).

2. Classification of creative techniques [5]

Depending on the methods and means utilized, creative techniques can be categorized as follows:

2.1 Conditioning/motivating/organizing techniques

The techniques, procedures and/or special conditions and means belonging to this group help create an environment that facilitates the removal of various mental blocks, unleashes natural creativity, etc.

Examples: Napoleon technique, listening to music

Other techniques from this group merely suggest the use of various helpful tools such as notebooks, stickers, boards, flip charts, etc.

2.2 Randomization

Since psychological inertia usually keeps an individual “inside the box” of his/her paradigms/perceptions/assumptions, forcing an individual to make more random attempts to solve a difficult problem were found to be very helpful. Randomization makes the search more chaotic.

Example: Brainstorming

2.3 Focusing techniques

Many people have difficulty with random idea generation when no guidelines or focusing steps or subjects are offered. Special focusing techniques are used to help an individual focus on one issue at a time and avoid frustration. Focusing elements (steps) may be presented with or without any particular order (random focusing).

Example: Attribute listing

2.4 Systems

A system contains a set of focusing or random steps to be followed in a specific order.

Example: QFD
2.5 Pointed techniques

These techniques offer single or multi-step recommendations following a pre-determined, promising direction. This direction may be identified as useful based on intuition, experience or documented knowledge.

*Examples: Problem reversal (single step), ARIZ (multi-step process targeting the ideal solution)*

2.6 Evolutionary directed techniques

These techniques offer directions according to fundamental patterns of evolution.

*Example: Utilization of the TRIZ Patterns/Lines of Technological Evolution*

2.7 Innovation knowledge-base techniques

These techniques utilize structured knowledge derived from the past human innovation experience.

*Example: Contradiction Table and 40 Innovation*

3. Characteristics of creativity techniques

3.1 Aleatory techniques

Aleatoricism is the incorporation of chance (random elements) into the process of creation, especially the creation of art or media. Aleatoricism is commonly found in music, art, and literature, particularly in poetry. In short, aleatoricism is a way to introduce new thoughts or ideas into a creative process.

3.2 Improvisation

Improvisation is a creative process which can be spoken, written, or composed without prior preparation. Improvisation, also called extemporization, can lead to the discovery of new ways to act, new patterns of thought and practices, or new structures. Improvisation is used in the creation of music, theatre, and other various forms. Many artists also use improvisational techniques to help their creative flow.

3.3 Problem solving

In problem-solving contexts, the random-word creativity technique is perhaps the simplest method. A person confronted with a problem is presented with a randomly generated word, in the hopes of a solution arising from any associations between the word and the problem. A random image, sound, or article can be used instead of a random word as a kind of creativity goad or provocation.

There are many tools and methodologies to support creativity[6]:

- TRIZ (theory which are derived from tools such as ARIZ or TRIZ contradiction matrix)
- Creative Problem Solving Process (CPS) (complex strategy, also known as Osborn-Parnes-process)
- Lateral thinking process, of Edward de Bono
- Six Thinking Hats, of Edward de Bono
- Method Herrmann - right brain / left brain
- Brainstorming and Brainwriting
- Think outside the box
- Business war games, for the resolution of competitive problems
3.3.1 TRIZ

Theory is developed on a foundation of extensive research covering hundreds of thousands of inventions across many different fields to produce a theory which defines generalisable patterns in the nature of inventive solutions and the distinguishing characteristics of the problems that these inventions have overcome.

TRIZ presents a systematic approach for analysing the kind of challenging problems where inventiveness is needed and provides a range of strategies and tools for finding inventive solutions. One of the earliest findings of the massive research on which the theory is based is that the vast majority of problems that require inventive solutions typically reflect a need to overcome a dilemma or a trade-off between two contradictory elements. The central purpose of TRIZ-based analysis is to systematically apply the strategies and tools to find superior solutions that overcome the need for a compromise or trade-off between the two elements.

![TRIZ process for creative problem solving](image)

3.3.2 Creative solving problem process

To qualify as creative problem-solving, the solution must solve the stated problem in a novel way, and the solution must be reached independently.

Creative problem-solving usually begins with defining the problem. This may lead to a simple non-creative solution, or to finding a "textbook solution". The creative problem-solving process may also lead to the discovery of prior art and of creative solutions by others. The process, in these cases, may then be abandoned, if the discovered solution is "good enough".
3.3.3 Lateral thinking

Lateral thinking is solving problems through an indirect and creative approach, using reasoning that is not immediately obvious and involving ideas that may not be obtainable by using only traditional step-by-step logic. The term was coined in 1967 by Edward de Bono. Critical thinking is primarily concerned with judging the true value of statements and seeking errors. Lateral thinking is more concerned with the movement value of statements and ideas. A person uses lateral thinking to move from one known idea to creating new ideas.

3.3.4 Six Thinking Hats

Six Thinking Hats is a book by Edward de Bono which describes a tool for group discussion and individual thinking involving six colored hats. "Six Thinking Hats” and the associated idea parallel thinking provide a means for groups to plan thinking processes in a detailed and cohesive way, and in doing so to think together more effectively.

In 2005, the tool found some use in the United Kingdom innovation sector, where it was offered by some facilitation companies and had been trialled within the United Kingdom's civil service.

3.3.5 Brainstorming and Brainwriting

Brainstorming is a group or individual creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its member(s). The term was popularized by Alex Faickney Osborn in the 1953 book Applied Imagination. Osborn claimed that brainstorming was more effective than individuals working alone in generating ideas, although more recent research has questioned this conclusion. Today, the term is used as a catch all for all group ideation sessions.

6-3-5 Brainwriting (or 635 Method, Method 635) is a group structured brainwriting technique aimed at aiding innovation processes by stimulating creativity developed by Bernd Rohrbach who originally published it in a German sales magazine, the Absatzwirtschaft, in 1968.

In brief, it consists of 6 participants supervised by a moderator who are required to write down 3 ideas on a specific worksheet within 5 minutes, this is also the etymology of the methodology's name. The outcome after 6 rounds, during which participants swap their worksheets passing them on to the team member sitting at their right, is 108 ideas generated in 30 minutes. The technique is applied in various sectors but mainly in business, marketing, design, writing as well as everyday real life situations.

4. Conclusion

Creativity is something that many look beyond and don’t even think of as something of importance in the world of business, or in the nature of the success you build for yourself. Creativity is one of the greatest qualities any of us can be blessed with, yet many never allow their true creativity to be expressed.

What creativity method is the best? We don’t know. Each of us thinking different and have different problems. Creativity methods can help us to find:

- the best solution for some problem,
- some new products
- great ideas

In the end, quality creative result of the team creativity methods, depend of the people creativity in the team.
REFERENCES


Device which impressed me:

When I was so young, my family bought a new TV. That was a first TV with remote controller in our house. I could not believe, how is possible to control TV with that device. After that, none technical device cannot be amazing for me. If it’s possible to control TV without hardware connections, everything is possible.

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