

METHODS FOR STIMULATING THE CREATIVE SEARCH

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ABSTRACT

The design methods that stimulate students' creative process and contribute to the rapid generation of ideas have been studied in this article.

The aim of this report is to demonstrate the effectiveness of the methods and their application in the team student tasks.

The applied methods stimulate the creative thinking by eliminating the mental blocks. These methods are characterized by the prominent role of the visual thinking in the construction of associations. This makes them extremely important for the design process, since the designer should be able to visualize his ideas.

Key words: design methods, education of design, team work, associations

INTRODUCTION

Nowadays the consumers have increased their requirements to the products, that is why the designers have to work constantly on their improvement. The main factor in the process of product improvement or making is creativity.

We need to apply new tools and methods that go beyond appearance to navigate the increasing complexity of design practice.

Designers should have competence, various skills and creative thinking. Thus, along with the acquisition of basic knowledge in the training of future designers, the development of the ability of creative thinking has become essential. That is why the students should study the design methods, stimulating creative thinking and helping solved problems of different nature. The best ideas come from well-trained minds and are results of hard and constant creative work. Alex Osborn, the man invented the method "brainstorming" whole life believing that people can learn to think creatively.

The ability to create could be trained in the same manner as the development of other characteristics. In childhood, thanks to the

open-mindedness of children, the creative abilities are distinctive. In adults, however, they are often suppressed as a result of factors like the educational process, living environment, psychological barriers, functional fixation, stereotypes, etc. These abilities could be renewed by applying different methods and tactics.

STATEMENT

The aim of this article is to demonstrate the effectiveness of the four methods for stimulating the creative search and their application in the team student tasks. These methods are characterized by the prominent role of the visual thinking in the construction of associations. This makes them extremely important for the design process, since the designer should be able to visualize their ideas.

Experimenting with these methods has been carried out with the students from the Master degree programmes of the University of Forestry, speciality Engineering Design, subject Innovative and Strategic Design. These methods are applied to the teamwork of students by working in the creative activity

of the group, helping to improve communication and the sharing of different perspectives of each of the team members.

Methods presented in this report are based on one technique for controlling directions of thinking - association. Association is a psychological property of man to freely connect different phenomena (images, concepts, thoughts, feelings, etc.) in which the occurrence of one of them serves as an incentive to invoke another one, present in the consciousness. Conditionally, the first element can be called cause and the second one - consequence. Association can be implemented on the basis of a similarity, contrast or objective relation, verified by the human experience. It occurs uncontrollably (without participation of the consciousness) and is a reflection of real objects and phenomena in the human consciousness. To a great extent it depends on the experience, emotions and other human characteristics, as well as on the conditions at the time of its implementation. The human capabilities to generate associations are practically unlimited.

Association is a component of several design methods. Some of the most commonly used by the designer's methods that use the associative searching and heuristic properties of randomness are: 'brainstorming', 'focal objects' method, 'chain association' method and metaphorical method. These heuristic methods are distinguished by simplicity and unlimited opportunities for searching new solutions.

1. BRAINSTORMING

One of the most popular methods, using the association technique, is the "Brainstorming". There are many definitions of the term "brainstorming", but basically it is a group method of generating ideas and thoughts, connected with solving a specific question or problem. This method allows generating a

great number of thoughts and ideas for a short period of time by uniting the efforts of session participants. Its psychological justification consists of building chains of associations by eliminating any criticism and restrictions of fantasy. The number of generated ideas is more important than their credibility. The greater numbers of ideas are born, the bigger is the probability to find one or two applicable ones. Even the shocking ideas are accepted as the aim is to unleash the clogged brain areas. Each participant is required to use other people's ideas and can further develop them associatively. Any criticism is strictly prohibited. Every idea is written on a visible place for all participants. The method consists of two phases: generation of ideas and their subsequent evaluation. The second phase of the brainstorming includes an analysis of the obtained ideas, written in the protocol. This phase involves transformation of the unexpected, even fantastic ideas into real technical proposals.

The brainstorming method has several varieties like the anonymous brainstorming, didactic brainstorming, destructive-constructive brainstorming, Scribble-Say-Slap brainstorming, negative brainstorming, imaginary brainstorming, "brainstorming by sketching", "Method 635". The classical brainstorming method as well as its modifications is used in the educational process.

2. METHOD „635“

The method „635“ is a further developed version of the 'brainstorming' and is applicable to design tasks. The author of the method – Rohrbach has foreseen the typical for the designer imaginative thinking and has provided the possibility to record ideas in the form, patented by him, with words and sketches. By applying this method, involving an optimal number of 6 participants, three in-

initial ideas are produced, which are further associatively developed 5 times each from 5 different points of view. For this reason, the method is called 635.

The work begins with formation of the groups and making them familiar with the task conditions. Each participant is given a form where he should write down his name and ideas in the form of sketches (fig. 1a). In this way all ideas are recorded by the person who invented them. Each participant receives a form where he should write down his name

and three ideas. After 5 minutes the forms are exchanged in a clockwise direction and are handed to the next participant in the group, who uses them as an inspiration for his own ideas. The requirement is that each participant should become familiar with the ideas of the previous one and develop them. The development of the idea should be entirely associative. After the specified time for creation of ideas, the forms are displayed for group discussion.

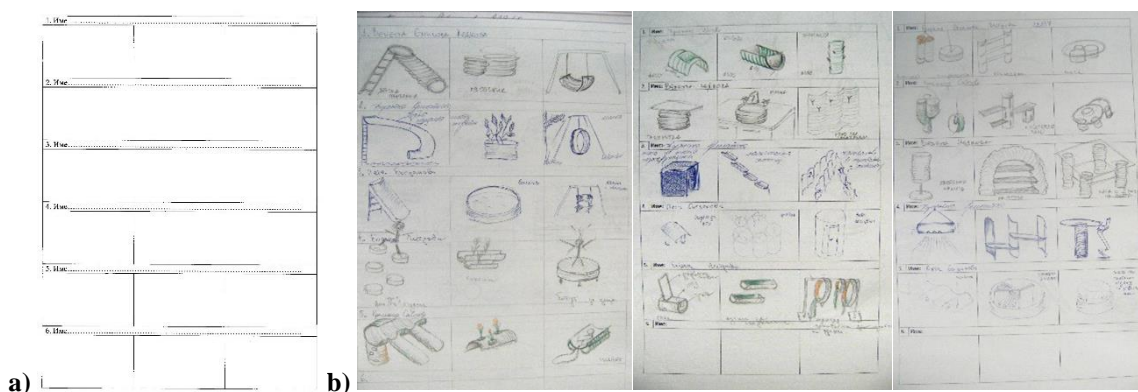


Figure 1: Method “635”: a) Form, used for realization of method; b) Some results of experiment the method

The result is the generation of many ideas that speak of the effectiveness of the method (fig.1 b). The participants work quickly, inspired by one another.

3. BRAINSTORMING THROUGH SKETCHING

Another version of the ‘brainstorming’ method is ‘brainstorming through sketching’. The aim of the method is to generate as many as possible ideas for a short period of time. The process is conducted in a group. The group of participants is arranged around a table. Each participant sketches his ideas on a sheet of paper – minimum 3 ideas for 5 minutes (each one on a separate sheet of paper). The ready sketches are collected in a pile in front of the participant who invented them. Once finished, he should forward each

sketch to the person, sitting on his right. The participants take the sketches and supplement them, make annotation or use them to stimulate the creation of their own new idea. Then they submit the changed original sketch and/or the new sketch to their neighbour. The trainer should actively encourage the movement of sketches to avoid their accumulation between some participants. After expiring the time for completing the exercise (20–30 minutes) or depleting the energy of participants, the sketches are collected and sorted by categories. After that an evaluation and selection of the most suitable for further development sketches is being carried out.

Similar to this method in terms of procedure and means of implementation are the methods “Idea by cards”, “Boards with

cards”, “Small pieces of paper” method, Crawford Slip method.

4. METHOD OF FOCAL OBJECT

Another very effective method is the “Method of focal objects”. It is a method for searching new ideas by synthesizing (attributing) properties and characteristics of random objects to the initial object. It is used in the modification of existing devices and objects as well as for training of imagination. The aim of the method is improvement of the object by selecting a large amount of its original modifications with unexpected properties.

This method is distinguished by simplicity and unlimited opportunities for searching new solutions. Associative searching and heuristic properties of randomness are used for its implementation. It takes great imagination and skills to use the language of speaking. This method is particularly useful when searching new shapes of the designed object (item).

The method of the focal objects includes the following procedures: 1) the object (prototype, FO) which is a subject of improvement is removed from the task and the aim is specified. (A keyword, including the problem, is determined (focused). If the problem consists of searching new focuses (properties) of the technical object, the focus can be on its name; 2) three or four random objects (nouns) are selected (they can be found by using a magazine, a book, etc.). It is recommended to use nouns which are not directly connected with the designed object; 3) several characteristics of each of the randomly selected objects (nouns) are written as adjectives. It is recommended to use characteristics from different areas: techniques, poetry, fantasy; 4) the listed characteristics (adjectives) are transferred on the prototype (focal object) – new combinations are obtained; 5) the new combinations are developed through free associations. All interesting solutions are marked; 6) a selection and evaluation of the most effective new ideas in terms of realization. New tasks for development of the new object modifications.

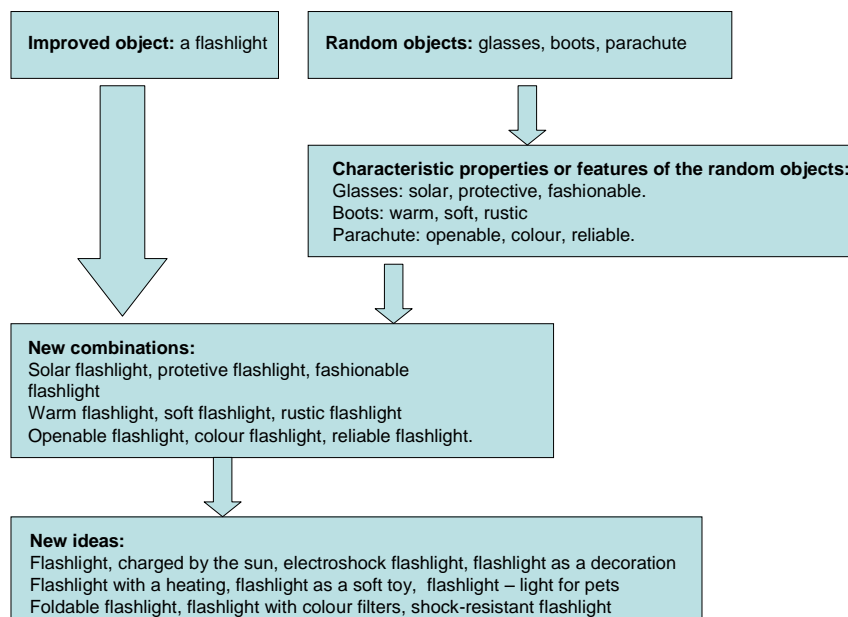


Figure 2: An example of using the Method of Focal Objects

The method is based on the establishment of associations for each connection of the focal object with a random word, which is a part of speech (noun, adjective and a verb). It is also useful as a means for training the imagination.

Results from application of the method are a big list of ideas and suggestions for modification of the object.

Positive aspects: relatively simple to use; unlimited possibilities for different new approaches to the problem; unusual ideas; versatility of the method.

Disadvantages: not suitable for solving complex tasks; lack of strict selection and criteria for evaluation of the obtained ideas.

This method has several varieties. For example, verbs can be suggested instead of adjectives of the random objects. Other methods, which are some kind of development of the "Method of focal objects", are the methods "Chain of associations" and "Metaphorical method". The procedure in these two methods is more complicated which makes them relatively difficult to use in the students' tasks.

CONCLUSIONS

The above described methods help to quickly and efficiently generate a large number of ideas for a limited period of time by using the group potential. They consist of two phases: generation of ideas and their subsequent assessment.

The creative process in those methods is expressed by sketching a series of visual ideas for a short period of time. Within the set time the participants visualise their ideas through many sketches without specifying the dimensions and texture. The rapid visualisation of ideas helps to facilitate their understanding and modification and at the same time stimulates new ideas. The aim is, by

sketching, to describe the most characteristic features of the designed product.

The aim of the methods, discussed in this report, is to stimulate thinking, eliminate the psychological barriers and push on the capabilities, support the generation of new ideas by organizing, restructuring and using the existing knowledge and experience in a group. They collaborate in the creative activity of the group, helping to improve communication and the sharing of different perspectives of each of the team members.

The application of team methods in the design process is of great importance for the achievement of better results. It has been recognized that addressing the problem from different angles often leads to striking solutions. Direct interaction with other people causes our thinking to change its direction, relying on the assumption that in a group, people will not have the same to a certain problem, and the natural diversity of individuals will make the group more productive.

The methods are not models of creativity; they just prepare and stimulate it. Otherwise there is a danger for the progressive ideas and solutions to remain undetected or simply missed.

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