УДК: 17

Yusupov A.R.
Candidate of Technical Sciences, Associate Professor,
Fergana Polytechnic Institute. Uzbekistan.Fergana

METHODS OF HEURISTIC STRATEGIES KNOWLEDGE

Abstract: the article is devoted to explaining the methods of heuristics. Heuristic methods for solving non-standard problems are effective algorithms that allow you to rationalize various aspects of search activity. These methods are based on the activation of human creative activity and the development of his creative abilities based on intuitive procedures of activity, fantasy, analogies, etc.

Keywords: heuristics, intuitivism, method, solution

Introduction

Heuristics is considered a young developing science, its basic concepts are currently insufficiently defined. This is especially true for the concept of "heuristic method" [1].

Materials and methods*:*

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies..

These methods are based on the activation of human creative activity and the development of his creative abilities based on intuitive procedures of activity, fantasy, analogies, etc. [2].

By the heuristic method, most researchers understand a way to solve a problem with a certain efficiency, but insufficient reliability. Heuristic methods for solving non-standard problems are effective algorithms that allow you to rationalize various aspects of search activity.

Results and discussion:

1) The "brainstorming" method

The term "brainstorming" or "brainstorming" was proposed by the American scientist A. F. Osborn. When two types of people, creative and critical, come together in controversial discussions, they destroy each other. With this in mind, Osborne recommended separating the processes of generating ideas and discussing them. The first group, having received the task, is only engaged in the formation and promotion of ideas, even if the idea is in fantastic forms. The second group mobilizes to analyze the ideas presented.

2) The team method of finding original ideas

The collective method of searching for original ideas is based on the following psychological and pedagogical patterns and principles: creative cooperation in the process of solving problems, encouraging imagination and unexpected associations, supporting the birth of original ideas, relying on a democratic style. ; to believe in each other's creative powers and abilities so that all participants are on an equal footing; using a suitable combination of intuition and logic [2].

3) The method of heuristic questions

It is advisable to use the method of heuristic questions to collect additional information in terms of sorting available data in the process of solving a problematic situation or creative task. Heuristic questions serve as an additional incentive, serve to form a new strategy and tactics for solving a creative task. It is recommended to ask and search for answers to the following seven key (heuristic) questions in order to gather enough information about any event: Who? Which one? Why? Where? With what? How? When? [3].

4) The method of multidimensional matrices

The main idea of the multidimensional matrix method is reflected in solving creative problems as follows. Since each innovation is a different combination of known elements (devices, processes, ideas, etc.) or a combination of the known and the unknown, the multidimensional matrix method allows you to do this purposefully and systematically, rather than by trial and error.

5) The method of free associations

When forming associations, unusual connections are noted between the components of the problem, and elements of the surrounding world, as well as components of the creative experience of people involved in solving the problem. In the process of the birth of new associative connections, creative ideas for solving the problem arise.

6) Inversion method

The inversion method is based on the laws and corresponding principles of dualism, dialectical integrity and optimal use of opposite approaches of creative thinking: analysis and synthesis, logical and intuitive, static and dynamic, internal and external aspects of the object. If the final solution is not reached, a through-grid is used, and so on.

7) The empathy method (personal analogy style)

The method is based on the process of empathy, the researcher identifies himself with the object and subject of observation, "lives" in the image of the invention, as if giving him his personal feelings, emotions, the ability to see, hear, think, etc.

8) The synectical method

At the initial stages of the synectics method, the process of learning "creative mechanisms" takes place, some of which are recommended to be developed in the learning process. The part is called "drive mechanisms". They include direct, personal, and symbolic analogies. To begin the discussion with the analysis of certain signs, which serves to clarify the essence and naturally leads to a situation of problem statement.

9) The method of organized strategies

One of the main psychological obstacles in solving creative tasks is observational inertia, that is, it is difficult for a decision-maker to abandon the usual ways to which he is accustomed and find a new approach and new directions in finding the idea of a solution. Even if we have chosen the right direction (strategy), there remains a risk that we have not missed something important, perhaps an original strategy or idea.

10) Delphi Method

The method involves conducting multi-stage questionnaires, in which the results of the questionnaire are presented to experts working separately from each other. Experts are given questions and undocumented forms of answers, for example, numerical values of parameters. Experts will be notified of the results of the first round of survey processing, where the position of each expert will be indicated. The expert discusses how much the estimate deviates from the average value.

11) The decision tree method

The decision tree method is used in situations where the results of one decision affect future decisions. This method allows you to systematize and visualize, the problem is visualized in the form of a tree. The branches of the tree indicate elections, the further classification of branches reflects the possible results of actions, each of which is assigned a certain probability of occurrence. An important aspect of this method is that "decision trees" and "expectation trees" are considered together and interchangeably.

12) The script method.

The essence of the method: the possible scenarios of the development of a problem situation analyzed by experts are recorded for a specific time, then discussed by experts, and the data is quantified using the model.

13) The SWOT analysis method.

The method involves identifying the strengths and weaknesses of the internal environment (organization), as well as identifying opportunities and threats of the external environment. Analyzing the relationships between these parameters creates an opportunity for decision-making.

14) The collective notebook method

Employees participating in the discussion of the problem, at the specified time, contribute ideas and suggestions for solving the problem, record them in a collective notebook and improve them. The leader chooses the best of the opinions and attitudes received and makes a decision [4].

15) The personal notebook method.

Ideas for solving a problem that arise at any time are recorded in a personal notebook. The leader chooses the best ideas and makes decisions based on them.

Conclusion:

The above-mentioned methods are not exhaustive, we can name many more heuristic methods inherent in various inventors and discoverers [4], which today provide us with opportunities for selection and decision-making [3] in conditions of uncertainty of the object of being, science and management [5].

References:

1. Юсупов А.Р. Эвристические стратегии интеллектуального образования. "Экономика и социум" №11(102) 2022. www.iupr.ru.

2. Юсупов А., Сирожиддинов Х. Рекомендации по оптимизации математического и иного моделирования строительных конструкций, зданий и сооружений. Международная научная и научно-техническая конференция: «Инновации в строительстве, сейсмическая безопасность зданий и сооружений». Республика Узбекистан, г. Наманган, 15-17 декабря 2022 года. E-mail: pgsnauka@gmail.com; https://t.me/nammqi_xalqaro_konf_2022

3. Юсупов А.Р. Альтернативные стратегии самостоятельного образования студентов. "Экономика и социум" №12(103) 2022. www.iupr.ru.

4. Юсупов А.Р. Усиление елезобетонного перекрытия. "Экономика и социум" №12(103) 2022. www.iupr.ru.

5. https://ru.wikipedia.org/wiki/ Хронология изобретений человечества