

DIDACTIC FEATURES OF THE METHODS USED IN TECHNICAL CREATIVITY

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Abstract

In this article of three articles, some considerations are mentioned about the didactic features of the methods used in technical creativity.

Keywords: Technical creativity, didactics, interactive method, brainstorming, methodology.

Introduction

People face issues of creativity at every step, but they do not always seek to do them in a creative way. In particular, the problem of organizing students' creative activities in lessons and extracurricular activities, which are the main forms of education organization, has not yet found its full solution. Although certain solutions have been proposed to solve this problem during extracurricular activities, the problem of organizing students' creative activities during classroom activities has not been sufficiently researched.

In short, creativity can be defined as finding a simple solution to a seemingly complex problem. Usually, it is called a smart solution or an invention. This idea can be explained on the example of technical creativity, which has a more material form.

As the current stage of human development is related to the development of modern technologies in all areas, raising a mature generation that has thoroughly mastered the ways of creativity is one of the most important tasks of the education system of our republic. The main solution to this problem is to organize the work of general secondary schools in accordance with the purpose.

The strategy of preparing students for creative activities relies on the following main methods:
- always draw students' attention to the universality of the method used to solve the problem. As a result of this, students get used to applying the method used in the lesson in relation to a certain situation to new events and looking for new laws and solutions;

- it is necessary to teach students creative methods not as the goal of the lesson, but as a new way, an opportunity aimed at more effectively solving the task set in the lesson. The tasks aimed at finding a solution to the problem provide for the analysis of the structure of the studied system and its processes;

- new ideas that students draw their own conclusions are the main "product" of creativity classes. However, finding a new solution to a problem should not be the last stage of creativity. It is necessary to raise creativity from the level of "imagination" to the practical level, that students learn to "bring their ideas to the end", that is, acquire certain skills related to testing, justifying and implementing a new solution. creates the basis;

- an important aspect of creating creativity is related to the collection, analysis and interpretation of information, without which any method of creativity loses its significance. In



forming the initial skills of working with information in students, it is possible to widely use the methods of involving them in collecting, sorting and systematizing pictures and photographs of their interests, popular scientific articles, brands, etc.;

- a very important issue of training in educational institutions, which goes beyond the lessons and extracurricular activities in terms of scope, is the training of personal creativity qualities. Usually, when talking about great scientists and inventors, students try to avoid the temptation of saying, "Only great scholars have achieved such high achievements, and we are ordinary people." One of the important ways to overcome this concept is to familiarize students with the biographies of famous creative people with different life paths, in which all aspects of the person's life are described truthfully. should be done.

These methods of organizing creative activities can be effectively applied to students of different ages, only for this it is required to have appropriate programs and a systematic set of training manuals. Therefore, as the next urgent task, it is necessary to solve the issue of creating an educational-methodical complex that serves the effective implementation of the methods presented in the article.

With the appearance of the first technical devices and simple mechanisms, humanity tries to solve technical tasks of various difficulty and importance. Humanity tries to create new equipment and machines, to increase its productivity and to increase the useful work coefficient, in order to satisfy its growing needs and ease its labor. The need that arose in industrial production is one of the important factors that serve to accelerate the development of technology. This idea can be applied to technical creativity as well.

In the 40s of our century, the need for active methods of researching technical solutions will increase. The lack of methods in this regard had a negative impact on the development of nuclear energy, rocket engineering, and improvement of electronic computing machines. During this period, as a result of conducting research in various directions, the following cases were identified:

- first of all, the fact that even geniuses cannot solve complex problems by themselves, the need for a collective method of creativity was based on this;
- secondly, taking into account the shortness of the time allocated to the development of technical solutions, scientific research should be continuously carried out together with the development of new ideas;
- thirdly, to determine the ways to distinguish the valid and effective ones from the many existing ideas.

"Trial and error" methods. To learn to create, you need to know its abilities. In earlier times, that is, in the period of armaments, only one method of "Act and error" was used to engage in inventiveness. They make many mistakes in their work processes when solving technical issues, and try to minimize these mistakes. When solving various technical problems, inventors use "trial and error" methods. Its essence is that when solving technical problems, the inventor uses all the available options and chooses one that meets the requirements.

"Brainstorming" method. According to scientists, creative activity is based on specific laws, which creates the basis for finding adequate methods of solving creative problems. These methods are divided into 2 groups. The first group includes "Brainstorming", "Synectics, morphological analysis" methods, which are based on the mechanisms of associative thoughts



and unexpected solutions. These methods are very easy to use, but are not tied to the nature of the object being used. The second group includes "Algorithm for solving inventive problems", "Functional-cost analysis" methods and others. The use of these methods is very complicated, but it is aimed at revealing the essence of the object. The following rules have been developed for the use of the "Brainstorming" method:

Up to 12-25 people should participate in solving problems using the "Brainstorming" method. Half of them give ideas, and the other half analyze them. People with strong fantasy and abstract thinking are included in the group of idea generators. Analytical and critical thinkers are selected for the expert group. The "Brainstorming" session is led by a qualified and experienced employee.

1. Generators give their maximum number of ideas to find a solution to the given problem. The statement of given ideas is recorded on tape recorders. Experts choose the best among them.
2. "Session" can last up to 30-50 minutes, depending on the difficulty of solving the problem.
3. It is necessary to establish mutual respect and free attitude among the employees participating in the "Brainstorming" session.
4. If the session ends without results, it is necessary to change its participants. It is appropriate to reconsider the setting of the issue.

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