

USE OF SOME INTERACTIVE METHODS IN TEACHING MATHEMATICS

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Annotation: This article reveals the role and essence of interactive methods in modern education. In addition, the use of interactive methods in mathematics lessons is highlighted.

Key words: interactive, mathematics, higher education, jigsaw, quadratic form, field, advantage, disadvantage.

It is well known to us that nowadays it is difficult to imagine the modern educational process without information technologies and interactive methods. One of the most popular ways to keep students fully focused on the lesson and to maximize their learning in 80 minutes is to use several interesting and interactive methods in the lesson based on the level of the group of students.

In this article, we list the modern methods that can be used in teaching "Mathematics" in higher education institutions, their method of application, advantages and disadvantages.

[1] the article first gives a brief information about the theory of matrices. The relevance of problem-based learning in teaching mathematics in higher education institutions was also discussed. Examples of solving problems using the elements of matrix theory are given. In the first problem, the problem of solving a matrix equation is presented as a solution of a system of linear equations. In the second problem, the problem of determining the order of the determinant corresponding to the matrix and the sign of the expression using the given expression was analyzed.

[2] the article lists guidelines for studying advanced foreign experiences in the concept of development of the higher education system of Uzbekistan until 2030 and applying them in the conditions of higher education institutions of the Republic. The issue of organizing lectures, practical and independent training sessions in higher education institutions of developed countries is analyzed and their role in the effective organization of training sessions is shown. Based on foreign experience, several methodological recommendations for improving the quality of education have been developed.

The article [3] provides feedback on the use of the "Methodology of working in small groups", which is one of the interactive methods of modern education, in the teaching of higher mathematics in higher educational institutions. The structure and application of this method is described in the example of teaching the topic "Matrixes and operations on them". Also, the scientific novelty of matrix theory is considered, it is shown that it can be used to justify the relevance of this topic for other sciences. Advantages and disadvantages of using the method are also discussed.

The article [4] contains some methodical recommendations on the effective organization of educational activities in mathematics. The use of some interactive methods in the teaching of the topic "Spectrum and resolvent of a linear operator" of functional analysis has been studied.

The article [5] analyzes the role of interactive methods in teaching the topic "Linear integral equations" of functional analysis. First, linear integral equations and their solution methods are briefly described. Feedback on how to choose methods for solving linear integral equations is given. Problems related to linear integral equations that can be solved by the method of reducing to an algebraic equation are presented. At the beginning of the training session, innovative methods used to determine the level of students' mastery of the subject and to repeat the subject were discussed.

The article [6] contains methodological recommendations for teaching the section "Functions with bounded change", which is one of the important sections of Mathematical Analysis, Functional Analysis and Selected Chapters of Mathematical Analysis. Information about functions with bounded variation and complete variation, and the main properties of the calculation of complete

variation are described. A number of interactive methods that allow students to determine the level of mastery of the subject and feedback on their use are given.

The article [7] describes the method of studying the model operator suitable for a three-particle system by describing it in the form of a tensor sum of two Friedrichs models. The main concepts and methods of functional analysis are used in this.

[8] in the article, a statistical analysis of the effectiveness of independent learning of students based on digital educational technologies is carried out. In this case, the pedagogical research process was carried out in accordance with K. Pearson's χ^2 criteria.

The article [9] discusses the possibilities of using innovative technologies in the organization of the distance education process in higher education institutions. In addition, the results of scientific research conducted by Uzbek and foreign scientists on the effective organization of distance and traditional education have been comparatively analyzed.

The article [10] describes the definition of the limit of a function, a brief description of the topic, and how some interactive methods can be used in teaching this topic.

The article [11] first presents the structure and origin of the Cantor set, then explains the role, importance and application of interactive methods in teaching this subject.

The article [12] describes methods of passing the topic using modern methods and working examples on this topic in teaching the topic of unknown inequalities, which is a type of inequalities.

The article [13] analyzes several methods of calculating totals and the method of working examples in these methods.

First, we will consider the application of the "Ajurli arra" method to the "Square form" topic. This method is carried out in the following steps:

1. DIVIDING THE ASSIGNMENT: The assignment and text materials are cut into several main parts (or topics).

For example, we can divide the topic "Quadratic form" into several main parts, i.e., plans, in the form of "Canonical view of the quadratic form", "Making substitutions on the quadratic form", "Positive quadratic form", etc.

2. PRIMARY GROUPS: The members of each group will receive a selected topic and become experts.

Suppose there are 30 students in our group and they are divided into 3 small groups. Students from each group choose the options written on the topic, and students with a similar topic go to the board at once.

3. EXPERT GROUPS: students who have assignments related to a topic, join an expert group to discuss the topic and master the plan to teach others.

When students with similar topics come to the blackboard, they discuss their topics, unite into one group, and share what they know and enrich it with examples.

4. PRIMARY GROUPS: Students return to their primary groups and teach what they have learned in expert groups.

After a complete analysis of the topic, the students return to their primary group.

NOTE: "Ajurli arra" image clarification is necessary to manage some recommendations.

1. When the educational process is approached in this way, it becomes possible for students to work together and absorb a large amount of information in a short time.

2. If it is necessary to produce monitoring information for students by carrying out this or that activity with the help of practical or lecture classes, it will be an effective and efficient way to replace the lecture.

3. The teacher prepares an informative package designed for each student to prepare students for the lesson on complex topics. It should contain materials from textbooks, newspapers, magazines, and articles in an additional format.

4. Each student participated in two groups in one program: they joined the "risk own house" (primary) group, and then joined the "expert" group and studied the training capacity independently. In order to quickly organize an expert group, it is better to have students write a part of the topic on the same colored paper from the cards, or to color some part of the paper with colored pencils.

5. Each group can have 5 to 7 students (depending on the number of students). Each student must determine who is in "home" and where to meet again.

6. The teacher offers students a benefit to the group on the basis of "colorful" tasks, and they become experts on certain topics. For example, "reds" can be found in the educational process, and "blues" can be found in another direction of educational support. Each expert group should have at least 3 students.

7. Leaflets with information on the topic will be distributed to the groups. Each group should receive a set of different materials and read them, discuss them, and be an expert on this information. Students should have enough time to become "experts" on the learning materials. For this, if the material is complex and large, perhaps a full lesson is required.

8. Pupils are given assignments:

- carefully study and discuss the information on the sheet;
- ask each other and make sure that each of you understands the study materials;
- pay attention to the important learning process of the material, taking into account the need to teach your "home" group.

9. Ask the students to return to their "homes". Each one gives information to his "home" group. Undoubtedly, there must be one student from the expert groups in the "home" group. The student should take responsibility for teaching the material he/she has learned to the students of his/her group. This process may take another hour depending on the need to master the learning material.

10. After the students have learned information from each other, the teacher can conduct a pre-planned activity.

The advantage of this method is that the student plays the role of a teacher at the same time, learns how to manage a group, how to be responsible in the lesson, how to isolate the main part of the topic in the lesson and study it in depth.

But this method has advantages as well as disadvantages. The disadvantage of the "Jigsaw" method is that if the student does not master the topic according to the card, the class time of the group will be wasted.

In addition, this topic can be used to make the lesson interesting and understandable using several interactive methods, such as Brainstorming, working in small groups, Mathematical Lotto, 6x6x6 and so on.

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