



PRINCIPLES OF ORGANIZING HIGHER MATHEMATICS LESSONS BY GROUPS

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Article history:	Abstract:
Received: 20 th December 2022 Accepted: 24 th January 2023 Published: 26 th February 2023	Group work is one of the most effective methods of the educational system. This article discusses the method of teaching in large and small groups in higher mathematics classes
Keywords: modern education, working in small group method, matrix theory, higher mathematics, advantage and disadvantage.	

INTRODUCTION

Deep reforms in the field of education, positive changes in the education system abroad, the desire to approach world educational standards, the creation of textbooks and programs of a new generation, a more compact and interesting organization of lessons, the scale of reform in education, the improvement of the content of education, state decisions, linking education with life, increasing the effectiveness of training, comprehensive for a rapidly developing society requires education harmoniously developed generation. Therefore, it is advisable to organize training sessions using modern pedagogical technologies.

MATERIALS AND METHODS

As you know, modern pedagogical technologies serve as an important incentive to increase the attitude of students to the lesson and their enthusiasm for learning. An important educational value of the use of such technologies is that they reveal hidden abilities and talents in the student and bring up a confident approach to their capabilities. The use of interactive teaching methods in the practice of higher education helps the student not only to study the scientific concepts and laws studied in each subject, but also to identify the reasons that lead to this. Modern pedagogical technologies [1-6] play an important role in the formation of the scientific worldview of the student, in the presentation of himself, in the ability to freely choose the right decision independently in difficult situations.

RESULTS AND ENQUIRIES

It can be said that higher mathematics teaches students to master the characteristics of purposefulness, concentration, ability and imagination, moral qualities of the individual (purposefulness, purposefulness, creativity, independence, responsibility, diligence, discipline and critical thinking); develops his point of view and beliefs, as well as evidence-based defense skills. The object of the study of the science of higher mathematics is the spatial forms of things in matter and the quantitative relations between them. In the process of establishing a quantitative relationship between these forms of mathematics, scientific methods of research are used as a tool. Observations show that in most cases, the teacher in the lesson works alone, and the students remain observers. This type of training does not increase the intellectual thinking of students, does not increase their activity, suppresses their creative activity in the educational process. The main goal of pedagogical technologies in teaching is to put the student in the center of the educational process, to develop independent and creative activity, to become an active participant in the lesson, to remove students from simple memorization and automatic repetition of educational material. In this article, we will give some feedback on the "Method of working in small groups", which is one of the interactive teaching methods.

"Method of working in small groups" is a creative work in the classroom aimed at studying educational material or performing a given task by dividing students into small groups in order to activate them. When using this method in higher mathematics classes in higher education institutions, the student has the right to work in small groups, actively participate in the lesson, play a leading role, learn from each other and appreciate different points of view.

The "small group method" is most effective in practical application. We emphasize that when using this method, the teacher has the opportunity to save more time than other interactive methods. Because the teacher is able to involve all the students of the group in the topic at the same time, increase their activity and evaluate. The structure of the "Methods of work in small groups" is explained below on the example of teaching the subject "Matrices and operations on them" in higher mathematics:

First, the topic is revealed: the concepts of the matrix and its order are defined. The concepts of a square matrix, a unit matrix, a diagonal matrix, a symmetric matrix are explained. Addition, subtraction and multiplication of matrices by numbers are determined. Lists the main properties associated with the actions you entered. Their content is explained in the examples. To determine the level of assimilation of the topic by students and fill the gaps in them, small groups of students are formed. At the same time, depending on the number of students, it can be divided into 3-5 small groups. For example, in a group of 32 students, you can form 4 small groups of 8 people each. When selecting members of small groups, it is important to take into account the talents of students. Equally powerful tasks, pre-formed for each subgroup, are then presented to the groups.

Assignment for group 1: For the matrix, give an example for matrix B, which has a multiplicative value of $A * B$, and

$$A = \begin{pmatrix} 2 & 3 & 5 \\ 0 & 1 & 6 \end{pmatrix} * B$$

find the matrix A

Task for group 2: For the matrix, give an example for matrix B, which has a multiplicative value of $A * B$, and find the

$$A = \begin{pmatrix} 3 & 0 \\ 2 & 1 \\ 5 & 4 \end{pmatrix} * B$$

matrix A

Appropriate instructions will be given and sent to all groups. The time of execution of tasks is set. At the end of the assignments, group presentations are discussed, analyzed, and evaluated. In order to determine the product of matrices, students must, firstly, know the conditions of their order, and secondly, be able to apply formulas for finding the calculation of matrices.

It is advisable to provide students with elements of scientific news and research results related to matrices, after the process of consolidating their knowledge on the topic. For example, providing information about the types of averages for positively defined matrices, linear substitutions and relations between matrices, the problem of generalizing the properties of positive numbers into positively defined matrices and generalizing the corresponding properties for numerical matrices leads to the development of students' interests in the subject "Mathematics" [7-17].

Now let's talk about the advantages of the "small group method". First, it contributes to a better assimilation of the educational material. Secondly, it leads to the development of communication skills in students. Thirdly, it provides an opportunity to save time by working with several students at the same time and assessing them. Fourth, there is an active participation of a small group. Finally, there will be opportunities for self-assessment and cross-group assessment.

CONNECTION

In addition to the advantages of the method of working in small groups, there are also disadvantages. In small groups, strong students are also more likely to receive low grades due to weak students. The ability to observe all students while observing group activities is low. There may be negative competition between groups. Mutual conflict can arise at the expense of students who do not show activity within the group. But these shortcomings can be partially overcome by evenly distributing gifted students with leadership qualities into small groups.

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