



INNOVATIVE TOOLS FOR EVALUATING STUDENTS' KNOWLEDGE AND SKILLS IN MATHEMATICS LESSONS

¹Ummatova Mahbuba Akhmedovna

Senior teacher of KSPI,

²Madrahimova Mahfuza Akhmedovna

Teacher of KSPI,

³Imomaliyeva Mohidil Azamjonovna

Master's student of KSPI,

⁴Ibrahimova Hurriyatkhon Islamjonovna

Master's student of KSPI.

<https://www.doi.org/10.5281/zenodo.7875831>

ARTICLE INFO

Received: 19th April 2023

Accepted: 27th April 2023

Online: 28th April 2023

KEY WORDS

ABSTRACT

In our country, mathematics has been identified as one of the priority areas of science development in 2020. In order to further improve the system of teaching mathematics at all stages of education, support the effective work of pedagogues, expand the scope and increase the practical importance of scientific research, and strengthen relations with the international community Decision PQ-4708 of May "On measures to improve the quality of education in the field of mathematics and develop scientific research" was adopted. This, in turn, increased the responsibility of mathematics teachers in their pedagogical activities.

President of the Republic of Uzbekistan Sh. M. Mirziyoyev's address to the Parliament dated December 15, 2020, he proposed naming 2023 as the "Year of Human Dignity and Quality Education". The second priority in 2023 is aimed at improving the quality of education in schools.

Therefore, the task of educating the young generation as an educated, aspiring, independent-thinking person who is in tune with the spirit of the times has become a priority task. Solving this issue depends to a large extent on the wide and perfect use of new pedagogical technologies and modern information technologies in the field of education.

It is difficult to ensure the development of the country without mastering the most modern sciences, which are of interest to the world civilization. This creates the need to clearly imagine our future, to strengthen the social and spiritual foundation of our society. Therefore, the most important task at the moment is to educate the young generation in the spirit of noble feelings such as the prosperity of the country, the peace of the country, and the well-being of the people, to bring up perfect people with high qualities, armed with noble ideas, and to train highly educated and competitive personnel in accordance with world standards. .

Fair and accurate assessment of students' knowledge in the educational process is one of the important processes. In the fair assessment of students' knowledge, it is necessary to organize such control that this control should cover all the knowledge of the module, that is, in



order to receive a positive assessment from this control, they should have learned all the knowledge of the module.

Information and communication technologies help us in creating and conducting such types of control. We give an example of non-standard test tasks used to control and evaluate the level of achievement of the educational goal of knowledge of students. It is appropriate to determine the level of mastery of information and information on a specific topic when monitoring whether students have achieved the educational goal of knowledge. For this purpose, the student must identify the objects on the subject, describe them, process the data, express his opinion, explain the essence of a certain process, object or event, distinguish the specific features of this process, object or event. will have to show. These ideas cannot be implemented with a standard educational and test task, it is recommended to use the following non-standard tests with pictures and multiple answers to determine the level of achievement of the educational goal of knowledge.

Such test tasks allow to control and evaluate not only the acquired knowledge of the students, but also the ability to identify the familiar and unique features of the object and its parts.

We provide examples of non-standard test tasks used to monitor and evaluate the level of achievement of the educational goal of students' understanding. Comprehension is central to learning objectives. In order for students to achieve this educational goal, it is necessary to find a solution to the problems being studied on the topic, to understand their importance, and to distinguish the main idea.

In order to determine, control and evaluate the level of achievement of this educational goal, students are required to summarize the ideas in the educational material, process the main idea, give examples, express their opinion and defend it. As mentioned above, these levels cannot be determined by means of standard training and test tasks, it is recommended to determine them only by means of multiple-choice non-standard test tasks.

We provide examples of non-standard test tasks used to control and evaluate the level of achievement of the educational goal of students' practical application of knowledge.

Unity of theory and practice occupies an important place in the principles of organizing the educational process, taking into account this, it is necessary to create an opportunity to apply the theoretical knowledge acquired by students from educational goals to practice. For this purpose, the teacher should take into account that the students will use the acquired theoretical knowledge in a new unexpected situation when creating educational tasks. In the process of completing these tasks, students are required to process, adapt, design, model, retell the educational material.

Determining the level of achievement of the educational goal of applying the acquired theoretical knowledge of students to practice by means of standard educational and test tasks does not give the intended result. Therefore, it is recommended to use the multiple-choice, tabular non-standard test tasks given below. For example,

1. Write the concepts of residuals and comparisons on the right side of the table.
 - 1) division
 - 2) remainder



- 3) discount
- 4) divisor
- 5) limit
- 6) divisor
- 7) module
- 8) class

Mathematical concepts	Answer numbers
residual division	
comparisons	

Answer:

Mathematical concepts	Answer numbers
residual division	1,2,4,6
comparisons	3,5,7,8

A sample of non-standard test tasks used to monitor and evaluate the level of achievement of students' learning objectives related to analysis

Analysis plays an important role in the acquisition of knowledge, in order to achieve the educational goal of analysis, students need to divide information or objects into parts, compare them, divide them into parts, distinguish their characteristics, compare them. It is recommended to use the following multiple-choice non-standard tests to determine, control and evaluate the level of achievement of this educational goal.

We give an example of non-standard test tasks used to monitor and evaluate students' achievement of the learning goal of knowledge synthesis.

Synthesis of knowledge is an important part of educational goals. The main essence of the learning goal of synthesis is the embodiment of the main ideas of the content of the course or topic by the students, dividing them into groups according to the specific characteristics of processes and objects, or summarizing and reconstructing them. It is not possible to control and evaluate these mental operations, which must be performed by students, by means of standard educational and test tasks. Therefore, it is recommended to use the multiple-choice non-standard tests given below.

For example,

2. Find the sequence of determination of numerical functions.

- 1. 1 is added to the powers of radical multipliers
- 2. Levels of radical multipliers are determined
- 3. Numbers with 1 added to the powers of radical multipliers are multiplied
- 4. The number is divided by itself
- 5. The given number is divided into prime multipliers

Answer: 5,2,1,3

We provide examples of non-standard test tasks used to monitor and evaluate the level of achievement of the educational goal of making conclusions.

Making a conclusion within the learning objectives has the function of finalizing and forming a system. Making a conclusion is the main essence of the learning goal to make a conclusion about the course or topic studied by the students. In this process, students are required to evaluate the information in the educational content, express an opinion against,



support or deny the opinion using critical thinking skills. In this process, the use of non-standard multiple-choice test tasks is high. it works.

In the educational process, the identification of educational goals according to Bloom's taxonomy, the use of non-standard test tasks in monitoring and evaluating the level of achievement of educational goals by students, ensures the accuracy and comprehensiveness of control.

References:

1. Федюкин В.К. Основы квалиметрии. - М.: Изд-во «ФИЛИНЪ», 2004.
2. Ummatova, Mahbuba Axmedovna, and Olimaxon Oxunjonovna Rahmonova. "ELEMENTAR MATEMATIKADA ANTISIMMETRIK KO 'PHADLAR." INTERNATIONAL CONFERENCE DEDICATED TO THE ROLE AND IMPORTANCE OF INNOVATIVE EDUCATION IN THE 21ST CENTURY. Vol. 1. No. 10. 2022.
3. Axmedovna, Ummatova Mahbuba, and Ilhomjonova Shahnozaxon Ilhomjonovna. "TALIMDA BIOLOGIYA VA MATEMATIKA FANLARINING OZARO ALOQASI HAQIDA." BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMYIY JURNALI 2.12 (2022): 816-817.
4. Ummatova, Mahbuba Axmedovna, and Abdurahim Tursunboyevich Mamatqulov. "AL-XORAZMIY ASARLARINING AMALIY AHAMIYATI HAQIDA." INTERNATIONAL CONFERENCE DEDICATED TO THE ROLE AND IMPORTANCE OF INNOVATIVE EDUCATION IN THE 21ST CENTURY. Vol. 1. No. 10. 2022.
5. Ahmedovna, Ummatova Mahbuba, and Esonov Munavvarjon Mukimjonovich. "METHODOLOGY OF PERFORMING PRACTICAL INDEPENDENT WORK." Open Access Repository 8.12 (2022): 171-176.
6. Nosirovich, Nosirov Sobirzhon, and Ummatova Makhbuba Ahmedovna. "AUTOMORPHISM OF NUMERICAL SYSTEMS." Open Access Repository 8.12 (2022): 197-201.
7. Ummatova, M. A. "DIDACTICAL AND PRACTICAL FUNCTIONS OF MATH CLASS." Galaxy International Interdisciplinary Research Journal 10.12 (2022): 259-262.
8. Ахмедовна, Умматова Махбуба. "РОЛЬ ЗАДАЧ ТЕОРИИ ЧИСЕЛ ПРИ ПОВЫШЕНИИ МАТЕМАТИЧЕСКИХ ЗНАНИЙ УЧАЩИХСЯ." Ученый XXI века 1-2 (2017).
9. Умматова, М., Г. Ахмедова, and О. Махмудова. "Практическая направленность в обучении математике." Теория и практика современных гуманитарных и естественных наук. 2014.
10. Ummatova, M., and M. Yakubjanova. "About the history of complex numbers."