NON-STANDARD TEST FORMS IN THE PROCESS OF EVALUATING STUDENTS' KNOWLEDGE

Ashurova Dilfuza Nabiyevna*; Shokirova Durdona Shukhrat kizi; Toshtemirova Kamola Ergashevna*****

*Docent,
Doctor Of Philosophy,
 Navoi State Pedagogical Institute,
UZBEKISTAN

**Master,
Navoi State Pedagogical Institute,
UZBEKISTAN

***Teacher,
Navoi State Pedagogical Institute,
UZBEKISTAN
Email id: dilfuz_2007@mail.ru

DOI: 10.5958/2249-7137.2022.00875.8

ABSTRACT

This article describes effective methods of applying Bloom's taxonomy to the educational process. Also, several components included in the didactic supplement of the Innovative software-didactic complex (ISDM) are analyzed. In particular, the importance of non-standard test tasks in determining how much knowledge, skills students have acquired during the training is discussed.

KEYWORDS: *Data Processing, Bloom's Taxonomy, Non-Standard Problems, Comparison, Classification, Generalization, Analysis, Innovative Software-Didactic Complex, Knowledge Learning Goal, Understanding Learning Goal, Knowledge Application Learning Goal , The Learning Goal Of Analysis, The Learning Goal Of Synthesizing Knowledge, The Learning Goal Of Drawing Conclusions.*

INTRODUCTION

The educational process requires constant monitoring of the achieved results and the elimination of errors and deficiencies identified during the monitoring process.

According to its content, knowledge control means determining the results of educational activities, comparing them with the requirements of the program, and making a conclusion. In other words, it is a comparison between the target and the result. The control of the student's knowledge not only identifies a certain part of the educational material, but also helps to determine the success he has achieved, as well as the shortcomings he has made, identifying the shallowly mastered educational material and correcting the deficiency in time. All of these, in turn, play an important role in forming and strengthening the student's cognitive abilities and in the effective implementation of independent activities in the educational process of subjects.

It is known that one of the main innovative components of the *innovative software-didactic complex* (ISDM) is a set of test tasks that determine the quality of mastered knowledge in the subject [1].

It was noted in [2] that it is an important task to determine how much knowledge, qualifications and skills students have acquired in several components of the ISDM didactic supplement. Controlling the level of knowledge and skills of the student is one of the main links of education.

Teachers who use the test method in their careers realize that creating and implementing tests is not a simple task. Creating an appropriate and effective test for subjects requires a lot of work, skill and creativity from the teacher. When it comes to test control, as the educational paradigm changes and updates, the educational goals also change, and it is natural that the test tasks also change directly [4].

Non-standard tests prepared by subjects are of great importance in monitoring whether students have achieved the educational goal, and in determining the level of their assimilation of information on a specific subject. In non-standard tests, the student will have to identify objects on the subject, give them a description, process data, express his opinion, explain the essence of a certain process, object or event.

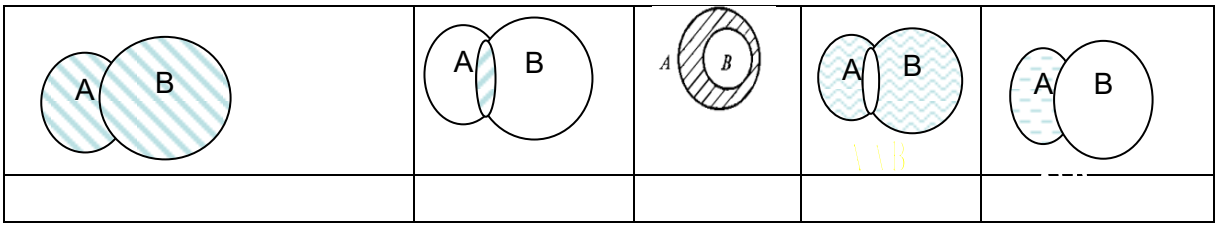
These ideas cannot be implemented with a standard study and test task, for which it is recommended to use the following *non-standard* multiple-choice tests. The use of non-standard tests is primarily aimed at students' independent thinking, creative approach, the ability to process the information learned in the subject, the ability to express one's opinion, the ability to explain the essence of a certain process, object or event, the nature of this process, object or event. forms and develops positive qualities, such as the ability to distinguish one's own character. At the same time, the creation of non-standard test tasks forms and develops creativity in the teacher, leads to work on oneself, a critical attitude to one's own work, and helps to identify talented students.

Non-standard test tasks used to control and evaluate the level of achievement of the educational goal of students' knowledge of Bloom's taxonomy

These test tasks allow to control and evaluate not only the acquired knowledge of the students,

Example. Identify operations on sets using Euler-Venn diagrams and put the appropriate number under each diagram in the table.

1) union of sets; 2) intersection of sets; 3) difference of sets; 4) symmetric difference of sets; 5) complementary set



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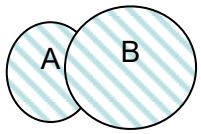
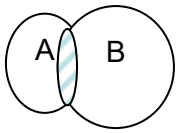
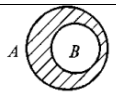
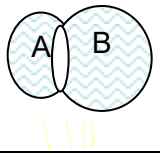
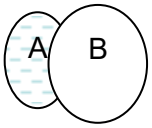
				
1	2	5	4	3

II. Non-standardized test items used to monitor and assess students' achievement of learning objectives related to Bloom's Taxonomy understanding

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.

Example. Match the sets with the correct definition.

1	Limited set	A	A set that is not considered a set of specific parts of any set
2	Unlimited set	B	A set with no elements
3	Empty set	C	A set with a finite number of elements
4	Universal set	D	A set with an infinite number of elements

Answer:	1-	2 -	3 -	4 -

Answer.

1	Limited set	A	A set that is not considered a set of specific parts of any set
2	Unlimited set	B	A set with no elements
3	Empty set	C	A set with a finite number of elements
4	Universal set	D	A set with an infinite number of elements

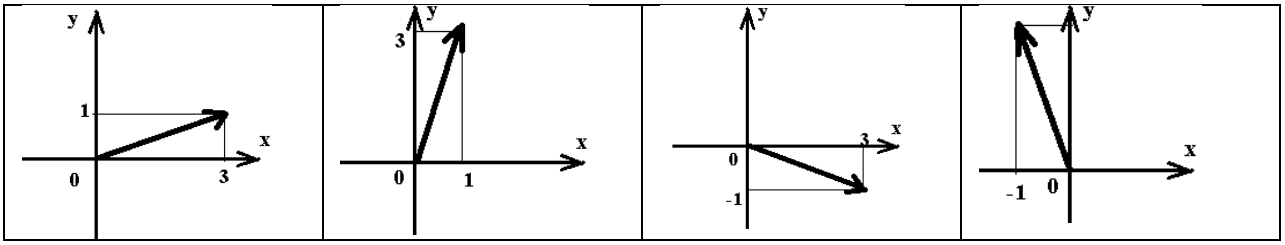
Answer:	1-C	2 -D	3 - B	• A

III. Non-standard test tasks used to control and evaluate the level of achievement of the educational goal of applying knowledge of Bloom's taxonomy to students

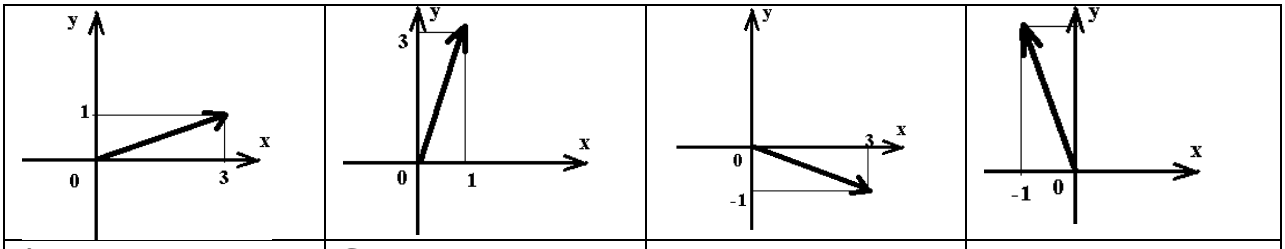
Determining the level of achievement of the educational goal of applying the acquired theoretical knowledge of students to practice by means of standard educational and test tasks does not give the intended result. Therefore, it is recommended to use the multiple-choice, tabular non-standard test tasks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

Example. Put the complex numbers corresponding to the images in the table:

A) $(3+i)$ B) $(3-i)$ C) $(1+3i)$ D) $(-1+3i)$



Answer.



A	C	B	D

IV. Non-standardized test items used to monitor and evaluate students' achievement of learning objectives related to Bloom's Taxonomy 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 an object into parts, compare, divide into parts, distinguish and compare their specific features. 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.

Example. Which of the following statements is correct?

A. Types of binary relation: injective, bijective, surjective.

B. If the relation *xRx* holds for any element *x* of the set A, then the relation R is a reflexive relation.

C. Any positive rational number represents the length of a segment.

D. For a natural number to be divided by 9, it is necessary and sufficient to divide this number by 3.

E. The relation "a immediately follows" defined on the set of natural numbers is a one-place algebraic operation.

F. There are 4 main ways to prove theorems.

G. 5 is a prime and complex number.

Answer: B, C, E, F.

V. Non-standard test items used to monitor and evaluate students' achievement of the educational goal of synthesizing knowledge of Bloom's taxonomy

Synthesis of knowledge is an important part of educational goals. The main essence of the learning goal of synthesis is to embody the main ideas of the content of the course or topic by students, to divide them into groups according to the specific characteristics of processes and

objects, or to generalize and reconstruct 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.

Example. Determine the sequence of steps for solving the system of linear equations (SLE) by the Gaussian method.

1. Determinants are derived from SLE.

2. In SLE, an equation with an arbitrary first coefficient equal to 1 is selected.

3. It is a derived determinant.

4. Using the chosen equation, the 1st unknown in the other equations is eliminated.

5. In the next step, using equation 2, unknown 2 in other equations is eliminated.

6. Determinantning 2 tartibli minorlari xisoblanadi.

7. This process, when the elimination of unknowns in the equations reaches a certain step, it is determined that they are either triangular or trapezoidal.

8. Minors are multiplied and added with the answer of the found determinant.

9. If the SLE takes the form of a triangle, it has a unique solution, and if it takes the form of a trapezoid, it is determined that it has infinitely many solutions.

Answer. 2, 4, 5, 7, 9

VI. Non-standard test tasks used to control and evaluate the level of achievement of students' learning goals related to 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 the opinion, support or deny it using critical thinking skills.

In this process, the use of non-standard multiple-choice test tasks is highly effective.

Example. If any of the following statements are true, put the words "yes" and "no" if they are false.

A. Elemental permutations do not change the color of the matrix.

B. The property of commutativity is relevant in the multiplication of matrices.

C. The set of all even natural numbers is a finite set.

D. The horizontal rows of matrix elements are called its rows, and the vertical rows are called its columns.

E. The set of odd permutations is not a group because the unit permutation is not odd.

F. As a result of one transposition, the even-oddness of the permutation does not change.

G. Odd substitutions are again even substitutions.

Answer:

A	B	C	D	E	F	G

Answer.

A	B	C	D	E	F	G
yes	no	no	yes	yes	no	yes

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

Such forms of the above-mentioned test tasks do not lose their diversity and are used to control knowledge and test self-acquired knowledge in science.

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