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INCREASING STUDENTS' MASTERY LEVELS THROUGH MODERN TECHNOLOGIES

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ABOUT ARTICLE

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Abstract: This article describes the specific features of modern technologies. Modern teaching technologies have been shown to be more effective and more effective in improving student learning of physics. Teaching of physics for students of physics and astronomy on the basis of modern educational technologies, organization of educational process is shown. The main focus in teaching physics to students is the formation of a scientific way of thinking among them, the content of theoretical materials necessary to create an opportunity for independent study of physics.

INTRODUCTION

In all areas of the education system in our country, our government has entered the stage of improving the new system of continuous education, the new educational content and the use of new modern technologies, that is, the stage aimed at ensuring the quality of education.00In the process of teaching, the laws and principles of teaching, taking into account the main directions and principles of the reform of the educational system and the implementation of state and social orders before secondary special, vocational and higher educational institutions, were determined. and the scientific-methodical foundations of effective use of information technologies were developed [1].

Mastery (in pedagogy) is a pedagogical concept that means the level of completeness, depth, awareness and consistency of knowledge, skills and competences acquired by students.In the process of teaching, the laws and principles of teaching, taking into account the main directions and principles of the reform of the educational system and the implementation of state and social orders before

secondary special, vocational and higher educational institutions, were determined. and the scientific-methodical foundations of effective use of information technologies were developed [1].

Mastery (in pedagogy) is a pedagogical concept that means the level of completeness, depth, awareness and consistency of knowledge, skills and competences acquired by students. In Uzbekistan, the level and indicators of mastering are determined for students in the form of rating points and five-point (grade) based on the requirements set by the state educational standards and curricula. In higher educational institutions, mastering is determined on the scale of academic semesters. Achieving increased absorption is one of the most important tasks facing the national practice. Because the student's intellectual development and professional preparation are directly dependent on their mastery levels. In order to increase the level of mastery, it is necessary to organize the educational process according to the direction of the students, make extensive use of advanced pedagogical technologies, especially modern technologies, apply the latest achievements of science, make students active participants in the educational process, and provide them with the most modern didactic tools [2].

MATERIALS AND METHODS

Based on the experience of foreign countries, new methods are entering the education system using modern information technologies. This situation affects not only the formation of new teaching methods, but also the processes of knowledge assessment. It is known that monitoring and evaluating student knowledge is an important part of the educational process. Basically, the individual learning indicators of each student are determined. That is, the evaluation process does not involve comparing the results of different students. One of the main goals of knowledge assessment is to analyze the results of the teacher's training based on the learner's learning indicators and to make the right decision on how to organize the further training process for him [3].

The teacher's use of such online services helps to determine in a short time whether students have mastered the given theoretical knowledge and their level of understanding of the material. If the evaluation system of such technologies is analyzed and included in the evaluation system, it will further activate the participation of students in educational activities. With the help of such tools, it is possible to conduct lessons in an interesting and fun way, and to organize the assessment of students in an interactive way. In this case, computers, mobile phones and tablets do not hinder the learning process, but serve as auxiliary devices [4].

Students of many higher educational institutions organize independent learning of subjects with the help of computers. One of the main sources of organization with the help of computers is the creation of training and control programs that meet modern requirements. The computer as a modern technical tool helps equip students with the basics of theoretical knowledge, teaches them to actively

learn the learning material, to apply the acquired theoretical knowledge in practice, and serves as a convenient tool for quickly and accurately determining the level of students' mastery [5].

In recent years, a number of works have been carried out on the computerization of many elements of the educational process, that is, the implementation of teaching programs that describe the educational material, programs that demonstrate processes that are difficult to imagine, and programs that monitor student learning levels in various ways. However, not enough attention is paid to the creation and widespread use of programs intended for use in the educational process. In order to solve these issues, a computer program was created for students' independent learning and determination of mastery levels, and as a result of its use, students independently learn subjects and determine their own knowledge level [6].

The teacher's use of modern educational technologies to explain the topic, the student's involvement in the lesson creates the necessary conditions for students to master theoretical knowledge, acquire practical skills and competencies. All modern educational technologies have their own characteristics, which guarantee the improvement of students' mastery of science and are highly effective.

The student, on the other hand, should understand the essence of the subject, internal desire to acquire theoretical knowledge and practical skills and qualifications in accordance with them, 00determination of interest, be able to apply the subject in practical activities while mastering the subject, complete the tasks given on the subject in a timely manner, and use the acquired theoretical knowledge as an independent activity. should be strengthened by conducting.

Nowadays, in higher education institutions, it is one of the urgent tasks to familiarize students with the main physical phenomena, their mechanisms, laws and practical applications, and to form the necessary knowledge, skills and competence for their application [7].

Today, significant work is being done in Uzbekistan to improve the quality and effectiveness of education. Being able to use scientific achievements, new methods and advanced innovative technologies in the process of teaching physics; the use of new pedagogical technologies and advanced foreign experiences in educational activities in the field of physics; analyze, optimize, and creatively approach training to achieve higher levels; it is necessary to have skills such as rewarding the positive situations observed during training and eliminating the negative ones.

If during the physics class a virtual presentation appears on the 3D screen explaining the topic of electromagnetism step by step, such a presentation will never be forgotten by the student and can be deeply mastered. Physics is the scientific study of various phenomena and events in relation to the world around us through diagrams and pictures [8]

RESULTS AND DISCUSSION

In the higher education system related to the teaching of physics, teaching is based on modern educational technologies with a scientific description, modern teaching, creation of learning methods, the use of modern information technologies and tools in the educational process, especially in conducting laboratory-practical lessons, also improves the quality of specialist training. is of great importance in the increase.

One of the main goals of the modern education system is to organize the integration of the educational process in connection with science and production. Any positive innovative methods used in the educational process are a set of recommendations for organizing and conducting the educational process. Modern technology aimed at developing and perfecting the educational process in any direction, as in physics, is a set that renews the teacher's professional activity and guarantees the final result in education [9].

In teaching physics to students in the higher education system, it is necessary to make extensive use of didactic methods of modern educational technologies in order for students to master some topics more easily. The methods of planning and organizing such educational technologies must be in line with the subject-oriented educational technology model and technological maps.

Every physics teacher should make proper use of the computer curriculum when planning his physics lecture, because computers can be used in any lesson. Therefore, it is necessary to know when and how to use the computer in order to plan it and achieve a positive result.

With the use of computer software, computer lectures are more effective than regular lectures. This ensures that the curriculum is completed on time.

In our experience, the use of computer programs in the teaching of courses on physics and short fields of physics, conducting activities in the form of animation should not only create convenience for the teacher and the student, but also have a good effect on the understanding of the mechanisms and stages of physical processes. Taking this into account, it was determined that the organization of the mechanisms of physical processes, the stages of their occurrence in computer animation, will be a visual, interesting and well-remembering activity for students.

It was found that the mechanisms of physical processes, their demonstration in lectures, practical and especially experimental classes and conducting these cases based on computer technologies are among the factors that increase the effectiveness of imparting knowledge to listeners and students and creating skills related to the basics of science during the teaching process. Examples of programs that enable modeling of physical processes include: MatCad, MatLab, Maple, Crocodile Physics, PhET, Electronics Workbench and other software packages.

Crocodile Physics software environment is a program that allows you to model physical processes and create and observe experiments related to mechanics, electrical circuits, optics and

wave phenomena branches of physics. This program provides an opportunity to observe physical phenomena, conduct experiments and model processes of various levels of complexity.

Carrying out and observing experiments that are difficult to conduct in ground conditions provides an opportunity to calculate the value of the physical quantities involved in the experiment with very good accuracy. It is possible to create a graphical connection between the physical quantity involved in a physical phenomenon and other physical quantities, save the created models and print them on paper.

For students studying physics and astronomy, the Crocodile Technology program can be used to study electrical engineering elements and electrical circuits in a deeper study of the "Electrical" part of physics. The program is an electronic designer that allows you to simulate the process of assembling electrical circuits on the monitor screen, as in a real experiment, to measure electrical quantities with a multimeter (3-dimensional), ammeter and voltmeter [10].

Many processes and their results are represented by sound effects. All this allows the student to see his own mistakes, learn to identify the causes of unsuccessful experiments, and develop skills for analyzing electrical circuits before performing experiments on real devices. This program teaches the user to be curious, to think creatively, to analyze the results of work, regardless of his profession.

The capabilities of the program are very wide, and it can be widely used in practical training (problem solving), especially in performing virtual laboratory work.

CONCLUSION

Therefore, the use of information technologies in the manifestation of physical phenomena gives good results. The use of modern technologies is the most convenient tool and effective method for expanding students' imaginations and improving their knowledge.

In conclusion, it can be said that, as a result of using the above mentioned programs during lectures, it is possible to demonstrate the necessary information to students in a short period of time. This is characterized by the ability of students to think freely, to express their personal views without hesitation, and to create mutual closeness among students in learning learning materials. This situation serves as an important factor in improving educational efficiency.

In the teaching of physics to students in the field of physics and astronomy, without repeating the topics taught in schools, academic lyceums and vocational colleges, relevant lessons in lecture, practical and laboratory sessions using modern computer technologies are suitable for the topics taught in direct connection with the physical concepts necessary in the process of teaching specialized subjects. If organized, it would be appropriate from my point of view [11].

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