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TEACHING OF PHYSICS IN GENERAL SECONDARY SCHOOLS

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ABSTRACT

This article aims to achieve effective results in a short period of time in modern education as opposed to traditional education. In this case, in the teaching of physics, the volume of lesson hours is quantitatively measured in accordance with the student's ability to know. For this purpose, the use of innovative technologies, the improvement of the quality of physics classes in secondary schools, the increase of students' interest in the lesson, the formation of creative research and independent work, and the formation of cooperative work skills are discussed.

KEYWORDS

non-traditional lesson, innovative technology, motivation, cognitive activity, management activity, exhibition tools.

Introduction

Today's modern world encourages to look at every detail in the field of education with a modern eye. In addition, one of the current issues is to teach students in a way that incorporates modern innovative technologies in addition to their educational methodology. This article describes in detail the importance of physics in the world community and the use of innovative technologies in teaching this science to students. To teach students to read, to help students acquire knowledge independently, and to achieve a positive result in the classroom, the ability to understand and apply modern pedagogical technologies in combination with various methods requires skill from the pedagogue. The structure of the educational process consists of three parts

- motivation;
- cognitive activity;
- management activities.

If these three components work together, it is possible to achieve a result in pedagogical technology. Trainings conducted on the basis of pedagogical technology satisfy the desire of students to express their relationship to important life achievements and problems, and provide them with an opportunity to think and justify their point of view. The main basis of pedagogical technology depends on the

technologies chosen by the teacher and the student to achieve a guaranteed result in a systematic, cooperative manner based on a clear sequence. The main features of pedagogical technology are design, implementation and guaranteed result. Tasks such as developing a lesson plan, creating technological maps, purposeful implementation and achieving results are consistently performed by the teacher. The role and importance of innovative methods in the application of pedagogical technologies is great. The main goal of interactive methods is to encourage students to take active action, to attract them to the lesson, to teach them to work cooperatively.

In our republic, all links of the educational system are provided with new scientific literature. They are introducing innovations in their activities based on the demands placed on teachers. In the process of educating the young generation, along with the use of science, technology and advanced experiences, modern pedagogical technologies are effectively used. This process increases the responsibility of teachers. What is pedagogical technology? How and where can we use it effectively? In order to answer such questions, we must first study the teaching process, the teacher's and student's activities in it. The lesson is a cooperative, effective work of the teacher and the student. Positive organization of the lesson, effective use of time, correct choice of lesson goals, ability to use methods in their place, establishing cooperation with students and creating a positive-emotional atmosphere in the classroom is the teacher's responsibility. is the main activity.

This article aims to solve the following problems presented in the national curriculum of general secondary education.

Inadequate development of educational methodological support of physics (teacher's book, multimedia applications, didactic materials, etc.);

Taking into account the age and psychological characteristics of students, reconsidering the sequence of teaching and the level of complexity of subjects and subjects;

Despite the fact that physics is an experimental science, little attention is paid to the material and technical support of the physics room;

Failure to develop the methodology of using modern pedagogical technologies in teaching physics and astronomy;

Lack of attention to interdisciplinary communication and practical approach in general education subjects in providing education to students on an international scale based on the requirements of the STEAM time;

Failure to develop a form and method of training that meets the requirements of the international assessment program (PISA, TIMSS) aimed at forming students' critical, logical thinking and practical skills;

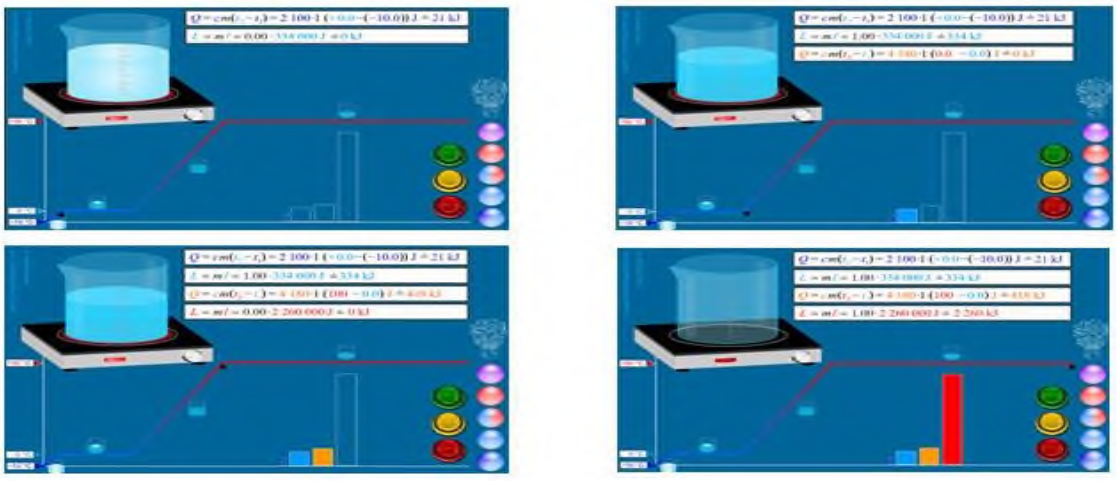
The fact that the quality of pedagogues in the field of physics in existing higher education institutions does not meet the requirements of today requires a fundamental revision of their teaching and the training of competent personnel in accordance with the requirements of the time.

Physics is taught in schools from the 7th grade. Taking into account the introduction of physical science to natural sciences, the following topics are included in the 6th grade Natural Science textbook (Chapter 10) called Motion and force, i.e. types of motion, force, simple mechanisms, human locomotor system, practical training: Balancing the lever, Pressure in liquids and gases, Pressure in the life of living organisms, Practical exercise, Pressure in liquids, Converging vessels, Location of liquids in converging vessels, Why ships do not sink? and Topics such as conditions of buoyancy of bodies are covered.

In the 7th grade, 17 hours are devoted to information about mechanical motion in Chapter I, which includes the following topics: the role of Central Asian scientists in the development of physics, physicists who created a scientific school in Uzbekistan in the field of physics, Physical quantities. International System of Units (SI), Research Methods in Physics, Scalar and Vector Quantities, Problem Solving, Mechanical Motion, Basic Concepts of Kinematics, Velocity and Path in Rectilinear Motion, Problem Solving, Uneven Motion, Laboratory Work. Topics such as determining the average speed of non-uniform motion, solving problems, circular motion and solving problems are covered. Chapter II Power in nature. 15 hours are allocated to energy and includes the following topics: Mass and its units, Density and its units, Laboratory work: Determining the density of bodies of different shapes, Interaction of bodies. Topics like Force, Pressure and its units, Solving problems, Transmission of pressure in liquids and gases, Fluid pressure at rest, Solving problems, Atmospheric pressure, Mechanical work, Types of mechanical energy, Solving problems, Mechanical power and its units and Solving problems are covered. In this textbook, thermal phenomena have started without fully completing the mechanics section of Physics. Animation slides can be used using these software tools in order to convey these topics to students and create ideas about the topic and increase their interest in physics.

First of all, the teacher must be competent in teaching physics. Thermodynamic work, amount of heat, heat exchange processes, specific heat of combustion, the 1st law of thermodynamics and its application to isoprocesses, irreversibility of heat processes, the second law of thermodynamics, and the comparison of their heat amounts when liquids with different temperatures are mixed. It is natural to cause difficulties. However, the teacher should make the lesson understandable and simple to the students with new pedagogical technologies, non-traditional teaching methods, and achieve formation of the process in their minds. For example, through the use of information media, through visual aids, in which the attention of students is fully achieved, and modern interactive methods can also be used. By dividing into groups and trying to get points using the brainstorming method, students become interested and dive into the lesson, and the task set before the teacher is considered accomplished.

For example, since the understanding of thermal processes, i.e. the heating, boiling and evaporation of water, depends only on the ability of students to imagine, by creating imagination in students, for example, through visual aids at the end, the task set before the student and the teacher will be effectively implemented.



The use of modern innovative technologies in the process of teaching not only the department of thermodynamics, but also the science of physics encourages students to think independently and increases interest in learning the subject.

Computer training is more effective than regular training. Using computer programs in the teaching of physics, conducting animated exercises makes the teacher and the listener comfortable and has a good effect in understanding the mechanisms and stages of physical processes. The mechanisms of physical processes, their demonstration in lectures, practical and especially experimental classes, and conducting these cases based on computer technologies are factors that increase the effectiveness of imparting knowledge to students and creating skills related to the basics of science during the teaching process.

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