

INNOVATIVE APPROACH AND INTERACTIVE METHODS IN TEACHING PHYSICS AND ASTRONOMY: MAIN ADVANTAGES

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Abstract: The article discusses interactive methods and their application in the latest technologies in teaching physics and astronomy, and also discusses the main advantages associated with the educational process.

Key words: interactive methods, information and communication technologies, technological process, informatization of society, informatization of education.

Introduction

An innovative approach to teaching and interactive methods primarily manifest themselves in the minds of the teacher in the form of a generalized project of activity in a certain direction.

Each approach changes with the development of individual science and technology, production technology. Currently, the true reason for the change in methods is associated with the increasing pace of complex mechanization and automation of the content and nature of labor of workers of many professions in production processes.

In this regard, there is a need to speed up the educational process (students cannot master the complex content of education), to use an approach and methodological methods that allow them to purposefully develop skills, activity and initiative [3].

The choice of teaching methods depends on various conditions. This is explained by issues of education and upbringing, the content of educational material absorbed by students, their age and characteristics, material and technical base, etc. In training it is necessary to use different methods, but their target orientation must be taken into account. No method can be basic and universal. At the same time, it is inappropriate to use methods that have not been sufficiently tested in practice.

When choosing teaching methods, it is advisable to consider the following situations:

- Mastering by future specialists the skills and culture of high professional excellence, high labor productivity in production, this should help instill in them a positive and creative attitude towards work;
- It is necessary to build the educational process on the basis of students production activities;
- The task of the selected methods is to develop the activity, mental and creative abilities of students, the development of advanced productive qualities in them;
- Teaching methods should be so diverse that when combined, it is possible to teach students how to plan a technological process and control their own work;
- It is important to ensure the compatibility of production methods with an operationally complex system and the successful development by students of individual techniques and operations, as well as the combination of these methods and operations into complex work;
- Methods help students develop skills and abilities independently and effectively perform all tasks characteristic of a particular profession;
- methods always establish a living connection between industrial education and the study of the scientific foundations of production; must implement the general principles of industrial education and didactics during the educational process [1].

The main task of modern education is not just to give the student fundamental knowledge, but to provide him with all the necessary conditions for further social adaptation, and to develop a tendency towards self-education.

The modern educational system is characterized by:

- Short training time
- Large amount of information received
- Serious requirements for the level of knowledge, skills and abilities of the student or student

One of the main tasks for a current teacher is to make the learning process interesting for students, dynamic and modern. And interactive technologies have come to the aid of teachers in this regard [2].

Information and communication technologies (ICT) are gradually penetrating all areas of education. This is facilitated by the global informatization of society, the dissemination of the latest computer equipment and modern software in schools and

universities, and the creation of state and international programs aimed at informatization of education.

Currently, most teachers in Uzbekistan are aware of the need to study and master modern IT, which can be used in the classroom (teleconferences, e-mail, e-books, multimedia, etc.). The organizational forms of the educational process are changing, the amount of independent work of students is increasing, the number of practical and laboratory classes that are of a research nature is increasing, and classes outside the classroom are becoming widespread [4]. The emergence of information technologies in the educational process also entails a significant change in the usual functions of the teacher, who, like his students, now plays new roles for himself: researcher, organizer, consultant.

Interactivity (in the context of an information system) is the ability of an information and communication system to respond differently to any user actions in active mode. IT is a prerequisite for the functioning of a highly effective teaching model, the main goal of which is the active involvement of each student in the educational and research processes.

The use of the latest technologies in teaching increases visibility and facilitates the perception of the material. This has a beneficial effect on student motivation and the overall effectiveness of the educational process.

Currently, an increasing number of educational institutions are equipping their auditoriums and classrooms with interactive whiteboards. Using them during a lesson gives students the opportunity to see realistic 2-D and 3-D models of objects of study, observe their changes and manipulate them simply by touching the board with their hands. This technology makes it possible to implement the principles of developmental education in practice [4].

Using an interactive whiteboard, the teacher can interact with students online throughout the lesson.

Advantages of interactive teaching methods:

- learning becomes individual, taking into account the personality characteristics, interests and needs of each student;
- it becomes possible to succinctly and concisely present any amount of educational information;

- visual perception improves several times, the process of mastering educational material is significantly simplified;
- The cognitive activity of students is activated, they gain theoretical knowledge and practical skills.

Conclusion

Relatively new to the Republic of Uzbekistan are digital laboratories, which include sensors, analyzers and special software for physics and astronomy lessons[5-6]. Today, many teachers agree that the use of interactive teaching methods in universities is not only advisable, but also necessary.

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