

The use of Modern Educational Technologies in Teaching Physics

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ABSTRACT: Today it is especially important to develop the cognitive activity of students, to form an interest in the process of cognition, in ways of searching, assimilation, processing and application of information, which would allow students to be the subject of learning, easily navigate in today's rapidly changing world.

KEYWORD: overall picture, psychophysical characteristics, mental energy.

Over the past decades, there has been a gradual decline in the interest of students in the subjects of the natural cycle.

Such a phenomenon in the context of the scientific and technological revolution and the expanding process of informatization of society seems paradoxical. Some (60.2% of 100 students surveyed) refer to the fact that they will not need these subjects in the future. Others (5.3% of respondents) believe that the lessons study issues already known to them from books, magazines, and television broadcasts. Still others (34.5%) complain about the complexity of the subjects, they do not see much point in forcing themselves to learn the wording and puzzle over the tasks. It is often suggested that these are rather special subjects that are not needed by one hundred percent of the population, and therefore they should be studied at a school of choice.

Examination of the current state of the physics course shows:

- Weak ideological, technical and humanitarian direction (it does not promotes thinking, moral and aesthetic education, the formation of a dialectical approach to the world);
- Clearly insufficient orientation to the vitally important issues, especially on issues of environmental education;
- lack of motivation (not familiar with the overall picture, students often do not understand why we study certain private matters; in addition, many of the concepts are beginning to emerge and it's too late, without taking into account the age of the interests of students);
- The lack of an approach that takes into account the interests and abilities of students (as a result, for some, the physics course is too difficult, and for others, on the contrary, boring and uninteresting).

In order to increase the effectiveness of teaching physics, I regularly use modern educational technologies in my lessons: health savings, information and communication, problem-based learning,

the development of critical thinking, the use of research methods in teaching and gaming technologies.

In the practice of teaching physics, I use reproductive, problem-based, heuristic and research methods in various forms, for example, in the form of group learning, independent acquisition of knowledge by students, lectures, conversations, discussions, stories, practical classes, non-traditional lessons, extracurricular activities, project research activities of students on the subject. I make extensive use of visual aids, tables, and technical training tools.

The effectiveness of education and training of students depends on health. Health is an important factor of working capacity and harmonious development of the adolescent organism. Of course, much depends on the initial state of health of the student, but the correct organization of educational activities is no less important.

Therefore, I pay a lot of attention to health-saving technologies in physics lessons.

Physics is a fundamental science, since other sciences (biology, astronomy, and chemistry) describe only some systems that obey the laws of physics. The main tools and methods used by modern medicine (electron and proton microscopes, X-ray diffraction analysis, electromyography, labeled atoms) are borrowed from physics. The connection of physics with other sciences makes it possible to make the promotion of a healthy lifestyle understandable for students, accessible, visual and reasoned.

When studying resonance, facts illustrating the dangerous influence of low sound frequencies (for example, in rock music, so popular among teenagers) on the functioning of internal organs are very useful.

In the lesson on various types of electromagnetic radiation, I include questions related to the effects of electromagnetic waves on living organisms.

I call the external motivation of the students' activities in the lesson through the system of evaluation of learning outcomes, praise, support, and a competitive moment. At the same time, the internal motivation of students is stimulated: the desire to learn more, the joy of activity, interest in the material being studied. In order to avoid subjectivity when evaluating student work, I use a rating system of assessment: self-assessment; assessment of a friend, a neighbor on the desk; correctional assessment; joint assessment of the teacher and the student. Thus, the emotional stress load of students is excluded when evaluating its results, and various psychophysical characteristics of children are taken into account.

I contribute to the creation of a favorable psychological climate in the classroom by creating a friendly atmosphere in the classroom, paying attention to each statement, a positive reaction to the student's desire to express his point of view, tactful correction of mistakes made, encouragement to independent thinking or a small historical digression. At the same time, on the one hand, the task of preventing fatigue of students is solved, on the other hand, there is an additional incentive to reveal the creative possibilities of each child. In an environment of psychological comfort and emotional elation, the working capacity of the group increases markedly, which ultimately leads to better assimilation of knowledge, and, as a result, to higher results. The charge of positive emotions received by students and the teacher himself determines the positive impact of the college on health.

During the lessons I use multimedia presentations, digital educational resources "Open Physics", "Live Physics" and other discs with training programs, which allows me to present the educational material competently and in an accessible way. Many of my students who have a computer at home

use training programs to perform creative homework, the results of which are presented in class. This allows me to conduct individual work with students, expand their educational environment.

The use of gaming technologies in teaching physics allows me to:

- conduct lessons in an unconventional form;
- To reveal the creative abilities of students;
- To take a differentiated approach to the assessment of students' academic competencies;
- develop students' communication skills;
- To ensure a free exchange of opinions;
- take into account the age-related psychological characteristics of students;
- organize the learning process in the form of a competition;
- facilitate the solution of educational tasks;
- involve all students in the learning process;
- To feel the significance of the result by each student individually;
- Practically consolidate the acquired knowledge;
- To contribute to the formation of the motivational sphere of students;
- broaden your horizons;
- To form skills of joint activity.

I implement gaming technologies in the form of group work.

When developing and conducting lessons with game elements, I take into account and use the life experience of students, interdisciplinary connections with ecology, mathematics, astronomy, housing, history.

Thus, the use of modern educational technologies in physics lessons significantly increases the efficiency of the educational process, makes the learning process more interesting, and promotes the development of cognitive motivation and intellectual abilities of students.

The main thing that is emphasized is interactivity in the educational process. Students, regardless of age, perceive the material better when they are actively involved in the learning process. Involving students in the study of the subject from different angles gives them the opportunity to feel at the center of the events being studied. Then they begin to exert more mental energy, and the phenomenon being studied is fixed in memory with a more extensive understanding of the essence of this phenomenon.

Problem-based learning is a type of developmental learning that combines systematic independent search activity of students with their assimilation of ready-made conclusions of science, and the system of methods is built taking into account goal-setting the process of interaction between teaching and learning is focused on the formation of cognitive activity of students, stable motives of learning, thinking and creative abilities during the assimilation of scientific concepts and methods of activity determined by the system of problem situations.

The basis of the pedagogical technology of TSIT (the Theory of solving inventive tasks) is the formation of strong thinking among students, the upbringing of a creative personality prepared to

solve complex problems in various fields of activity. TSIT originated in technology, but in addition to technical systems, there are and others - scientific, artistic, social, etc. at the same time, the development of all systems is subject to similar patterns, so the basic ideas and principles of TSIT can be extended to solve various problems. The process of solving an inventive problem can be considered as the identification, analysis and resolution of some contradiction during the application of the algorithm for solving inventive problems (ASIP) and come to an ideal final result (IFR). ASIP allows you to move from a vague and vague initial situation to a schematic model of the problem, analysis - to find the causes of the contradiction. Possession of methods for solving inventive tasks allows students to invent, self-actualize, overcome stereotypes of thinking, and develop skills to work with non-trivial ideas.

The complex application of elements of pedagogical technologies in various variations in physics lessons contributes to a more effective organization of the educational process, activation of cognitive activity, implementation of competent teacher behavior.

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