

**USE OF MODERN PEDAGOGICAL TECHNOLOGIES IN TEACHING  
INFORMATICS**

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**Annotation**

This article discusses the model of interdisciplinary communication and the use of innovative technologies in the teaching of computer science in higher education and the use of the laws of interdisciplinary communication.

**Keywords:** Practical activity, pedagogical skills, mental activity, physical activity, computer technology.

Currently, the teachers of educational institutions of the continuous education system, including those of higher education institutions, face new tasks, that is, the task of improving the quality of mastering the taught subject. In this regard, different methods are used in the teaching of computer science. One of them is the use of modern information technologies. In the next decade, the use of interactive methods in the teaching of computer science was carried out in several main directions. These include the assessment of knowledge with the help of a computer, the development and development of various types of educational programs, the development of computer games related to knowledge, etc.

The development of education requires the introduction of new technologies in numerous branches of production, as well as in the sphere of social and humanitarian knowledge. Therefore, pedagogical technology is one of the urgent issues that attracted the attention of technologists in the following decades. In such lessons, students are given the opportunity to think independently, to research, to analyze the topic with a creative approach, to draw conclusions, to evaluate themselves and the group. Today, the interest and attention to the use of new pedagogical technologies in the educational process in computer technologies is increasing day by day, one of the reasons for this is that until now, in traditional education, students have been forced to acquire only ready-made knowledge. If encouraged, new educational technologies teach them to search for the acquired knowledge by themselves, to study and analyze independently, and even to draw their own conclusions. It is not wrong to say that the knowledge given to schoolchildren today is much earlier knowledge, and the students are not getting enough of it. This made the students' interest in the lesson very weak. In order for the mental and physical activity of the students to work organically, it would be appropriate if we use a new method in the form of a live mind, a practical scene. It requires the teacher to use computer technology or audios. The purpose of teaching students is not to rely only on the textbook, but to organize problems and examples, interesting tasks related to the topic to be worked on, to be broadcast to students through videos or audios. Finding solutions to tasks and interesting tasks on the subject of informatics lessons by broadcasting them to

students through audios, or mentally solving the conditions and solutions of problems by showing silent motion videos also develops children's imagination and mental growth. The scope of thinking of the students will expand a lot. For example, if we form our new method of practical knowledge, in this case, the teacher prepares a video clip or assignment from computer science, which is broadcasted to the class through audio broadcasting, and each student in the class listens, and each student answers the question. condition and solution are requested. It is no exaggeration to say that there will be a big change in students' hearing ability, mental activity, scope of thinking, speech, thinking.

The convenience of computer interactive methods in teaching computer science is the modeling of some learning situations. The purpose of using modeling programs is to ensure that materials that are difficult to visualize and visualize when using other teaching methods are understandable. With the help of modeling, information can be presented to students in the form of computer multimedia in graphic mode. Therefore, they tend to study computer science in depth and show a significant degree of independence in the educational process.

In order to get an answer to the question of what and how to teach in informatics, first of all, it is necessary to clearly define the tasks of teaching informatics at the current stage of the development of this science. These tasks are common to all general sciences. At the same time, it is necessary to analyze the specific aspects of these tasks in the teaching of informatics based on the concept of teaching informatics in the continuous education system and state educational standards.

In determining the content of computer science education, it is necessary to start from the idea that computer science is a science and, on the other hand, an educational subject. Informatics science and educational subject differ from each other primarily in terms of content and depth. After solving the issue of the size of the educational material included in the computer science subject, it is necessary to determine in what sequence it is appropriate to deliver this educational material to the students. One of the features of the computer science teaching methodology is to determine the methods and ways of acquiring the content of computer science and the scientific research methods specific to it, as well as the methods and ways of acquiring practical knowledge and skills. These include methods of studying educational material and forms of organizing educational activities based on modern pedagogical and psychological research. "Informatics" can be considered as a branch of pedagogy and computer science, engaged in research and development of educational methodical, software, organizational and technical support for teaching the educational subject.

In our republic, the necessary conditions are being created for the young generation to acquire skills such as planning their activities, being able to find the information necessary to solve a given problem, being able to build a mathematical model of an example or problem being solved, and being able to effectively use new technologies. The form and style of teaching should be aimed at developing the thinking and creative abilities of young students. The difficult part of the matter is that, on the one hand, it is to develop the student's thinking and creative abilities, and on the other hand, to give them knowledge about the world of modern computers in an interesting and harmonious way. It is known that demonstration is important in the teaching of informatics and natural sciences in general secondary schools. Especially in chemistry, although it is more dangerous to actually perform the explosion process (as a result

of the introduction into the reaction), it is safe and convenient to show it through multimedia. Also, showing other chemical processes and the process of solving many physical problems expands the students' imagination. In physical problems, it is possible to demonstrate the phenomenon of the photoeffect, the boiling process of water, and many similar phenomena through programming. There are many textual problems in mathematics. Concepts presented in the text are shown in two images through animations. The givens are expressed, a mathematical model is created by setting the condition. These processes are automatically displayed on the screen. Movements appear in connection with the setting of the problem presented in the text. On the basis of the constructed mathematical model, an unknown number is determined, its solution (and actions accordingly) is shown and a solution is found.

If computer science is taught with the help of digital technologies, the following will be achieved:

- ✓ using the possibilities of the electronic study guide, the opportunity to fully explain the subject to the students increases;
- ✓ their knowledge, skills and qualifications increase;
- ✓ moving images and animations play an important role in expanding students' imaginations;
- ✓ more time is allocated to practical work, i.e. solving examples and problems, giving real life examples, conducting question-and-answer sessions among students;
- ✓ students' ability to think creatively is formed;
- ✓ students get a positive lesson from the lesson, their interest in the lesson increases;
- ✓ gives students opportunities to develop imagination, logical thinking, learn computer terms and practical methods of programming.

The use of modern and information technologies in the education system, the formation and development of independent thinking and knowledge acquisition skills of our children is one of the urgent tasks facing the representatives of the education sector. Among all educational subjects, modern didactic games have a great role in the thorough and effective mastering of computer science. Pupils' understanding of the content of the given topics, assimilation of concepts and information reflected in it is carried out with the help of teaching methods. In order for all of this to be at the level of demand, the use of modern didactic-game technologies in computer science education today has a good effect.

Computer science is the study of computing, automation, and information.[1] Computer science spans theoretical disciplines (such as algorithms, computational theory, information theory, and automation) to applied disciplines (including hardware and software design and implementation). Computer science is generally considered a field of academic study and is distinct from computer programming.

Main areas of computer science:

Expression for church numbers in lambda calculus.

Programming language theory.

Plot of the quick sort algorithm.

Computational complexity theory.

An example of computer animation produced using motion capture.

Artificial intelligence.

Semi-additive scheme.

Computer architecture.

Algorithms and data structures are central to computer science. Computational theory refers to abstract models of computation and general classes of problems that can be solved using them. The fields of cryptography and computer security include the study of secure communication and the prevention of security vulnerabilities. Computer graphics and computational geometry focus on creating images. Programming language theory deals with different ways of describing computational processes, and database theory deals with the management of data stores. Human-computer interaction studies the interfaces through which humans and computers interact, and software engineering focuses on the design and principles behind software development. Fields such as operating systems, networks, and embedded systems study the principles and design behind complex systems.[1] Computer architecture describes the structure of computer components and computer controlled hardware. Artificial intelligence and machine learning aim to synthesize the goal-directed processes in humans and animals such as problem solving, decision making, adaptation to the environment, planning and learning. Within artificial intelligence, computer vision focuses on understanding and processing image and video data, while natural language processing focuses on understanding and processing text and linguistic information.

The main task of computer science is to determine what can be automated and what cannot be automated. The Turing Award is generally recognized as the highest distinction in computer science.

Teaching and learning are two components of education. The most popular indicators of good education are the amount of student learning and innovative teaching methods in computer science.

However, there is a significant correlation between students' perceptions of the "amount learned" in the course and their perceptions of the instructor and the course as a whole. In addition, despite the important role teachers play in our society, they often face challenges and uncomfortable situations at work. Understanding the different teaching methods available is one strategy to help overcome these challenges. Although you don't have to stick to one method, you can understand which approaches and teaching philosophies are most effective in a particular classroom environment. This blog is about simple innovative teaching methods in computer science. Innovative teaching strategies in computer science.[2] When we talk about computer science in the classroom, we mean teaching students how to use and understand technology, primarily, but not exclusively, computers. With 34 states setting computer science standards, computer science teachers are in high demand. Use pedagogical strategies to help teach computer science and evaluate free curricula, resources, and implications for such teaching. Create lesson plans and other materials to implement a fair and accessible computing program in your classrooms. With a few advanced teaching strategies, teachers can get the most out of their students while keeping the learning process fun. We'll talk about some easy teaching strategies you can use in your classroom to make lessons fun: Boost creativity and make learning computer science fun. It's a proven strategy to identify and support the creativity of every young learner. First, teachers should teach creativity in computer science. The teacher

should develop ideas to stimulate students' unique thinking. Encourage different points of view and give them a chance to experiment with the topic. Computer science is about technology and creativity.

Brainstorming method in computer science. The brainstorming process is used to generate many ideas that can be used to solve a particular problem. They need a lot of time to plan in order to be successful in the end. In brainstorming sessions, students' voices can blend in with the group's voice. To solve problems, students use brainstorming, which promotes creative thinking and helps develop higher-order thinking skills. All students are encouraged to offer their ideas during brainstorming, no matter how silly it may seem to others. It helps students to think creatively. Project-based learning. A project-based learning approach is a powerful and engaging teaching strategy. In project-based learning, students work together, use technology, develop problem-solving skills, and find solutions to problems. This teaching strategy appeals to many teachers because it serves a variety of purposes. Students are more engaged and learn better with project-based learning. This allows students to use technology, improving the learning experience for all involved. In addition, project-based learning connects students with the local community and the outside world. Flipping classrooms as a teaching method. With this method, teachers are relegated to the role of resource providers, and students are tasked with gathering insights and knowledge. This methodology turns students into active participants in the learning process. Students are encouraged to build knowledge using various technological tools, fill in the gaps in their understanding, and draw conclusions independently when necessary. Teaching through cloud computing .Using. technology in the classroom allows teachers to experiment with modern teaching strategies.

The goal is to find ways to interest our youth in learning. Young people are eager for new technology. Our task is to provide them with innovative technologies. Teachers pay attention to these issues and promote new didactic games and new innovative teaching methods and methods in the teaching of computer science. An example of this is the created multimedia electronic complex, demonstration methods.

In this method, it is not possible for the teacher to broadcast all the topics covered in the textbook, because it can lead to indifference among the students. It is purposeful to use two of the most interesting and complex issues from the topic to be discussed. In the formation of students' ability to remember, the presentation of a scene from informatics forms both physical and mental activity. This causes the students to participate intellectually in the lesson. In this case, our method in the form of practical action comes in handy. This method of ours is useful not only in computer science, but also in reading, natural sciences, and the sciences of the world around us. If we use this method in middle class computer science, the condition of a task is read by the teacher, and the heroes of the task are taken from the class and shown to the students who are sitting on the stage of the classroom doing the condition and solution of the task live. will be shown. In this, the students who participate and observe the solutions of the task appear in their imaginations. In the daily lesson, the teacher makes all the students in the class both mentally and physically, taking turns to attend the students who did not participate. If we divide the time of these methods in the lesson, the teacher should allocate 10-15 minutes of his 45-minute time to one methodological task in the first and second use. In our next lessons,

cooperation between the teacher and students will appear, the time allocation will be 5-10 minutes, and the skills of activity in the lesson will be formed.

In short, the above points are aimed at providing students with new types of knowledge in easy, quick and effective lessons based on the process of development of students, not only relying on the topics of the informatics textbook taught in the middle class. The teacher's curiosity and pedagogical skills play a very important role in this. If the goal of each lesson is aimed at imparting new knowledge to secondary school students, all didactic methods are subordinated to it.

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