

ADVANTAGES OF USING INNOVATIVE PEDAGOGICAL METHODS IN COMPUTER SCIENCE AND INFORMATION TECHNOLOGY TRAINING

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Abstract: The thesis emphasizes the effectiveness of innovative pedagogical methods in teaching computer science and their role in providing students with more practical experience. It also discusses the need to use modern technologies and pedagogical approaches to increase the global competitiveness of the education system. This work provides recommendations for further improving teaching methods in computer science and information technologies and emphasizes the importance of introducing innovations in the field of pedagogy into the education system.

Keywords: innovative pedagogical methods, computer, modern, information, technology, security, program, proposal, computer science and information technologies.

INTRODUCTION

Modern computer science education aims to provide students with knowledge in programming, system analysis, computer architecture, artificial intelligence, databases and many other areas, as well as to develop their logical thinking and problem-solving skills. At the same time, the constant development of information technologies requires innovations in teaching methods. Thus, teachers must constantly update their knowledge, be ready to use new pedagogical methods. Modern teaching methods increase the activity of students, develop their self-learning abilities and help to conduct lessons more effectively. Through these methods, students not only acquire technical skills, but also delve deeper into their learning processes and have the opportunity to apply their knowledge in practice. The main priority of modern methods in computer science and information technology is that they help students understand knowledge not only theoretically, but also practically. These changes in education also serve to increase the global competitiveness of the education system. Providing students with knowledge of computer science and information technology in the digital age will not only help students succeed in their current education, but also in their future professional lives. At the same time, innovations in teaching methods, while teaching students to use modern technologies, also develop skills such as creative thinking, teamwork and problem solving. This article analyzes modern teaching methods used in computer science and information technology, discusses in detail their priority in education and how they affect students.

RESEARCH METHODOLOGY

Modern teaching methods to improve the effectiveness of teaching in the field of informatics and information technologies allow teachers to ensure the active participation of students and make the learning process more interesting and effective. The following modern methods are widely used in education and provide students with the opportunity to apply knowledge not only theoretically, but also in practice.

1. Interactive Teaching Methods

Interactive teaching methods encourage students to actively participate. In this method, the teacher presents himself not only as a provider of information, but also as a person who encourages students to learn through discussion, exchange of ideas and teamwork. In computer science, interactive teaching methods give very effective results in teaching programming, creating systems and explaining algorithms.

For example, students can be divided into groups and write a computer program to solve real problems. Such a methodological approach not only helps to consolidate knowledge, but also encourages students to work in groups, learn from each other and suggest new ideas.

Advantages:

- Increases students' interest, because they actively participate in the lesson.
- Teaches students to think independently and work in groups.
- Develops students' practical skills, for example, writing code, analyzing algorithms and solving problems.

2. Gamification

Gamification is a method of introducing game elements into the learning process. This method is very useful for increasing student motivation and making lessons interesting. Gamification in computer science, for example, involves teaching coding, algorithms, and mathematical problems in the form of games. When teaching programming, students can be involved in games such as a "coding challenge" or a "hackathon". This not only interests students, but also creates an opportunity to test and apply their knowledge in practice. Also, through games, students notice changes and development, which increases their motivation to learn.

Advantages:

- Provides students with fun and playful education.
- Encourages students to participate more actively by turning their knowledge into a game.
- Provides students with the opportunity to test their knowledge.

3. Blended Learning

Blended learning is a combination of online and traditional teaching methods, where students take some lessons online and some lessons in the traditional (offline) way. This method can be effectively used in teaching computer science and information technology lessons. For example, students learn programming lessons and theoretical knowledge on online platforms, and in lessons they reinforce this

knowledge through practical exercises. Students can also study the material in their own homes, and during the lesson they discuss complex questions with the teacher.

Advantages:

- Students have the opportunity to learn the material in their own time and at their own pace.
- Online platforms provide students with more resources and exercises.
- The blended learning approach develops students' independent work skills.

4. Flipped Classroom

In the flipped classroom method, students study the material themselves before coming to class, discuss the material learned in class, and apply it in practice. In computer science, the use of the flipped classroom method is an effective way to teach students programming. For example, students come to class after learning the basic concepts of algorithms and programming languages online. In class, they test the learned knowledge using practical exercises. This method develops students' self-management and application of their knowledge skills.

Advantages:

- Students study the material in advance, and during the class they are engaged in practical exercises.
- During the class, students test and further consolidate their knowledge.
- Allows the teacher to tailor the learning to the needs of the students.

5. Contextual Learning

The contextual learning method provides students with the skills and knowledge to solve real-world problems. Using this method in computer science helps students not only learn the basics of programming, but also develop the skills needed to solve real-world technical problems. For example, students will be required to write a program to solve a given real-world problem. This develops students' ability to analyze problems, create algorithms, and develop software solutions.

Advantages:

Gives students the opportunity to solve real-world problems.

- Teaches students to think more creatively and logically.
- Enables students to apply theoretical knowledge in practice.

The Advantages of Modern Teaching Methods in Education

Modern teaching methods in computer science and information technology provide students with not only interesting, but also effective and practical ways to acquire new knowledge. With the help of these methods, students learn not only theoretical knowledge, but also how to apply it in practice. They learn not only as passive listeners, but also as active participants in the learning process. All this makes education more interactive, interesting and effective.

Modern methods improve the quality of the education system and develop students' skills in independent thinking and creative solutions. At the same time, they create the opportunity for students to learn knowledge in their own time and at their own pace. Each of them can choose a suitable and effective method to improve their knowledge.

CONCLUSION

Modern teaching methods help to increase student activity, develop independent and team work skills. Methods such as interactive teaching, gamification, blended learning, flipped classroom create opportunities for students to learn not only theoretical knowledge, but also practical skills. These methods develop analytical and creative thinking skills necessary for students to solve scientific and technical problems. Also, these methods create opportunities for teachers to organize lessons in a more effective, interesting and motivating way for students. Modern teaching methods provide new approaches and the opportunity to organize a changing pedagogical environment not only for students, but also for teachers. Teachers will have the opportunity to update their knowledge and pedagogical experience by using new methods, as well as provide students with more effective education. This process serves to renew the education system and increase its global competitiveness. Modern information technologies and their application in education provide students with more resources and opportunities. Students have the opportunity to learn independently using online resources, test their knowledge on various platforms, and apply the acquired knowledge in real life. To deepen students' knowledge, teachers should support their independent learning and the development of practical skills by using methods such as blended learning or flipped classroom. At the same time, the development of education in computer science and information technology depends not only on methodologies, but also on the resources and technological infrastructure available in this field. The education system should create the necessary infrastructure for the introduction of modern technologies and provide students with all the tools necessary to provide quality education. In particular, computers, Internet networks, educational platforms, and other resources can facilitate students' learning of computer science. Modern teaching methods are of great importance in developing students' digital and technical skills, as well as in increasing their creative thinking and problem-solving abilities. In today's education system, students are not only given knowledge based on methods related to informatics and information technologies, but they also prepare themselves to solve future problems. Deepening students' knowledge in these areas and improving education through modern pedagogical methods, in turn, contributes to the digital development of society. Thus, methods of teaching informatics and information technologies serve to form the skills necessary for successful and efficient work not only in today's education system, but also in the future. Giving students the opportunity to apply their knowledge in practice during the educational process and educating them using modern teaching methods remains the main key to success in a digital society.

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