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INTEGRATION OF INFORMATION TECHNOLOGY AND DEVELOPMENT OF STUDENTS' CRITICAL THINKING

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Abstract
This article analyzes the role of information technology in developing students' critical thinking skills. As digital technologies become increasingly important in modern education, it is essential for students to acquire the ability to think independently, analyze problems, and develop alternative solutions. The article explores the impact of information technologies on the learning process, their influence on students' cognitive development, and their contribution to enhancing critical thinking. Additionally, modern approaches and methods related to this topic are discussed.

Keywords: Information technologies, critical thinking, digital education, interactive teaching, problem thinking, innovative methods, educational process, modern pedagogy, data analysis, creative thinking, digital literacy, analytical thinking, artificial intelligence, online educational platforms, digital resources.

Introduction

In the modern world, information technology (IT) has deeply penetrated all aspects of human life, which is also causing major changes in the field of education. Today, the use of information technology is gaining importance in increasing the efficiency of the educational process, developing students' thinking skills, and preparing them for modern professions. In particular, the role of information technology in the formation and development of critical thinking is incomparable. Critical thinking is not just the ability to accept information, but also the ability to analyze it, approach it with skepticism, justify it and draw independent conclusions. In today's fast-paced information exchange, students are forced to work with many sources. However, assessing the accuracy and reliability of information, identifying false or manipulative information are important skills. Therefore, developing students' critical thinking skills through the use of information technologies in the modern educational process is an urgent issue.

Today, online learning platforms, artificial intelligence, virtual and augmented reality technologies, digital resources and interactive teaching methods are widely used in the education system. These technologies make the process of learning for students not only convenient and interesting, but also effective. With the help of information technologies, students learn to develop different approaches to problem situations, find alternative solutions and draw conclusions through logical thinking.

Also, with the help of information technologies, the transparency of the educational process increases, students have the opportunity to learn independently, and their logical thinking

develops. Educational institutions are strengthening students' critical thinking skills by using various interactive tools, such as Problem-Based Learning, Project-Based Learning, and Gamification. This article examines the theoretical and practical aspects of developing students' critical thinking skills through the use of information technologies. It also analyzes the role of modern technologies in the educational process, their advantages and methods of application.

LITERATURE REVIEW AND METHODOLOGY

Research on the development of students' critical thinking skills through the use of information technologies has been increasing significantly in recent years. International and local studies show that the development of a digital learning environment is an important factor in strengthening students' thinking, increasing their ability to analyze information, and forming a culture of mutual discussion. The issue of developing critical thinking has been widely covered in the scientific research of leading educators and scientists around the world. For example, the theory of critical thinking developed by J. Dewey (1910) is one of the important foundations of the modern education system. According to it, it is necessary to use interactive methods to form students' abilities to think independently, analyze problems, and make informed decisions.

Also, R. Paul and L. Elder (2002) conducted research on metacognitive approaches to developing critical thinking and emphasized that students should be taught to consciously evaluate and change their thinking processes. In their opinion, the use of information technologies is one of the most effective tools for developing critical thinking, since digital tools allow students to analyze in real time, obtain information from various sources, and draw conclusions. Local researchers have also conducted a lot of research on the impact of information technologies on the educational process. In particular, within the framework of the Resolution of the President of the Republic of Uzbekistan No. PQ-4851 “On Measures for the Development of the Digital Economy” dated October 6, 2020, a number of reforms are being implemented to introduce modern information technologies into the education system. As part of these reforms, the widespread use of digital resources, artificial intelligence, and distance learning platforms in the educational process is being introduced [1, 2, 3].

This study used qualitative and quantitative analysis methods. The research methodology consisted of the following areas:

Theoretical analysis - scientific sources, monographs and articles on the topic of information technology and critical thinking were analyzed.

2. Experimental research - an experiment was conducted to develop critical thinking among students through the use of information technology.

3. Surveys and interviews - questionnaires and interviews were conducted to assess the level of critical thinking of students and the effectiveness of using information technology.

4. Statistical analysis - the data obtained based on the research results were processed using statistical methods and conclusions were drawn.

Methodological approaches showed that the effective use of information technology serves to develop independent thinking among students, correctly analyze information and increase the level of digital literacy.

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RESULTS

The experiments and analyses conducted within the framework of this study showed that the use of information technologies is an effective tool for developing students' critical thinking. During the study, students were able to independently solve complex problems using various information technologies, develop their skills in analyzing available information, and draw conclusions.

1. Experimental research results

As a practical part of the study, training and lessons were organized to develop critical thinking based on the use of information technologies. During these lessons, students:

- Improved their ability to independently search for information and identify reliable sources;
- Taught to draw reasonable conclusions using various sources to solve given problems;
- Various digital tools were used to solve problems - interactive platforms, simulations, online tests and artificial intelligence tools.

The results showed that through the use of information technologies, students achieved changes in the following aspects:

Table 1. Changes in students' skills under the influence of information technologies

Indicator	Before experiment (%)	After the experiment (%)
Critical thinking skills	55%	85%
Independent information analysis	50%	82%
Problem-solving skills	60%	88%
Digital literacy	58%	90%
Use of innovative technologies	45%	80%

1. Survey results

A survey was also conducted among students as part of the study. The survey results showed that 87% of respondents noted that learning through information technologies is more interesting and effective than traditional methods. At the same time, 79% of respondents noted that information technologies make a significant contribution to the development of critical thinking.

1. The impact of information technologies on the educational process

The results of the study showed that the following technologies serve as the most effective tools for developing students' critical thinking:

- Interactive learning platforms (Kahoot, Quizlet, Google Classroom) - help assess and consolidate students' knowledge.
- Artificial intelligence and analytical programs - students can use to independently test their knowledge and solve problems.
- Simulations and virtual laboratories - form critical thinking by modeling real-life situations.
- Data visualization tools (Google Charts, Tableau) - simplify complex analytical processes.

1. General conclusions

The results of the study prove that:

- The use of information technologies significantly increases the level of critical thinking of students.
- Independent thinking and analytical skills are developed through digital tools.
- Compared to traditional teaching methods, interactive technologies increase student participation and help them learn more effectively [4, 5].

DISCUSSION

The results of the study showed that the use of information technologies is an important factor in the development of students' critical thinking. As a result of the integration of digital tools into the educational process, students are learning to independently search for information, analyze it, and draw reasonable conclusions. Unlike traditional teaching methods, the learning process through interactive platforms and artificial intelligence systems encourages students to think actively.

The use of information technologies also serves to increase problem-solving skills. As a result of the use of programs and digital resources, students develop the skills to analyze issues more deeply and find effective solutions. In particular, simulations, problem-based learning methods, and digital projects are used to form a culture of independent research.

In addition, various digital tools have been found to be one of the most effective ways to stimulate critical thinking. The use of interactive games, visualization tools, and artificial intelligence technologies in the learning process helps to further consolidate students' knowledge. The process of understanding complex topics is accelerated, as a result, the ability to analyze information and extract the necessary information from it is formed.

At the same time, it was observed that the differences between traditional education and digital education are also significant. If traditional methods provide students with ready-made knowledge, the use of information technologies creates opportunities for independent research and thinking. Distance learning, online platforms, and learning through interactive tools encourage students to actively participate, which is one of the most effective ways to form critical thinking.

The study found that students learned more quickly and effectively through interactive platforms such as Google Classroom, Kahoot, and Quizlet.

The use of information technologies enriches the learning process not only theoretically, but also through practical experiences. As a result, students acquire the skills to analyze their knowledge in more depth and apply it in real life. However, the widespread introduction of technologies into the educational process is also associated with some limitations and problems. In particular, there are problems related to the lack of technical capabilities, the difficulty of using digital tools for some students, and the adaptation of curricula to modern technologies. The issue of creating equal conditions for all students also remains relevant [6].

Overall, the research findings suggest that effective use of information technology can significantly enhance students' critical thinking skills. However, the correct and targeted implementation of technology is crucial in this process. In the future, the wider application of

innovative technologies in the educational process can serve to develop students' knowledge and enhance their analytical thinking skills.

CONCLUSION

As a result of the conducted research, it was found that the use of information technologies plays an important role in developing students' critical thinking skills. The integration of digital tools into the educational process helps students develop independent research, problem-solving and logical analysis skills. Teaching through interactive platforms, artificial intelligence systems and digital educational resources increases the activity of students and encourages them to think deeply.

Also, as a result of the widespread use of information technologies in the educational process, students are gaining an approach focused on solving real-life problems. With the help of simulations, problem-based learning and online assessment systems, students are not only able to master existing knowledge, but also have the opportunity to analyze and apply it in practice. However, there are some difficulties in the process of integrating technologies into education. In particular, the lack of technical means, different levels of digital literacy, and the inability of some students to adapt to interactive teaching methods can cause problems. Also, one of the important tasks is the integration of modern technologies with the traditional education system. In general, the widespread introduction of information technologies into the educational process has an effective effect on increasing students' critical thinking skills. In the future, more effective use of these technologies and their full integration into the education system will further increase the level of knowledge of students and strengthen their logical and analytical thinking skills. Therefore, the widespread use of innovative technologies in the educational process and increasing their opportunities for use remain one of the important strategic directions.

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