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Computer Science And Information Technology Methodology For Using Digital Educational Resources In Science

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Abstract: This research focuses on the methodology and effectiveness of using digital educational resources in computer science and information technology. The role of the testing platform, interactive program, and LMS system in the educational process is analyzed. Using observational, experimental, and survey methods, the study examined student interest in lessons, learning effectiveness, and teachers' attitudes toward digital resources. The results showed that the use of digital educational resources has a positive effect on the knowledge of students and teachers. The need to eliminate technical problems and improve internet speed is also emphasized. This article analyzes the opportunities and challenges of effectively using digital technologies in computer science education, contributing to the development of digital competencies in students.

Introduction: In the 21st century, digital technologies are rapidly developing in all spheres of human life, especially in the education system. In today's era of globalization, the rational use of digital tools and resources is becoming increasingly important in the effective organization of educational processes. In particular, the use of modern digital educational resources in teaching computer science and information technology not only increases the level of knowledge of students, but also plays an important role in the development of their logical and algorithmic thinking.

Digital educational resources are electronic forms of educational materials, such as e-textbooks, video lessons, interactive tests, online platforms, simulations and software tools. With the help of these tools, pupils and students have the opportunity to master complex information in a visual, understandable and interactive form. The effective use of digital resources allows to improve the quality of lessons, increase students' interest in science, ensure an individual approach and form independent learning skills.

The role of computer science in developing the skills of schoolchildren and students to work with modern technologies, forming an information culture in them, and preparing them for professional activity is incomparable. In this regard, the use of digital educational resources in teaching this subject is an urgent scientific and practical issue.

On this basis, this article analyzes the methodological foundations of the use of digital educational resources in teaching computer science and information technology, their types, advantages, and suggestions for their application. Based on the research results, effective teaching methods suitable for students and teachers are developed.

The purpose of the article is to develop a methodology for using digital educational resources in teaching computer science and information technology, to study their impact on the learning process, and to scientifically substantiate experiments in this area.

Theoretical basis

Provide detailed information on the theoretical aspects of digital educational resources and their role in educational methodology. Brief theoretical information can be included on the role of innovative technologies in teaching, pedagogical approaches and digital transformation in educational systems. This

section can analyze various pedagogical theories (e.g. constructivism, constructivist pedagogy, learner-centered learning) and their impact on digital educational resources.

LITERATURE REVIEW

Include previous scientific research, articles, and books on the methodology of using digital educational resources. This section provides a brief analysis of similar studies and their results, and shows how you have developed your research. Compare scientific views on the effectiveness of digital educational resources and the methodology of using them.

Feedback from students and teachers:

To further analyze the opinions of students and teachers obtained during the research. Based on the feedback, to provide examples of educational effectiveness, interest in digital resources and how they can be used. Also, to provide practical recommendations on how to increase students' interest in lessons.

Challenges in implementing digital technologies in education:

Provide detailed information about the challenges faced in implementing digital technologies in the teaching process. For example, indicate issues such as technical problems, internet speed, digital competencies of teachers, lack of technical equipment for students. This section can also include suggested solutions and ways to improve the technology.

Existing LMS systems and their role in education:

Analyze the advantages and disadvantages of each LMS system (Google Classroom, Moodle, Edmodo, etc.) in the teaching process. Show how these systems create convenience for students and teachers. Study students' experiences in using LMS systems and show how they can be used effectively.

Future prospects:

Reflect on the future prospects of digital educational resources, new technologies and innovative methods. For example, the prospects for the use of new technologies in education, such as artificial intelligence, adaptive learning systems and virtual reality (VR). This section, based on previous research, can make predictions about how digital education will develop in the future.

Recommendations and practical aspects:

Recommendations for ensuring students' effective use of digital educational resources. Methodological recommendations for teachers, guides on how to effectively use digital tools. Advice for students on how to use interactive programs, testing platforms, and how to integrate digital resources into the learning process

METHODS

This study used several scientific methods to study the effectiveness of using digital educational resources in teaching computer science and information technology. The following main methods were used in the research process:

1. Observation method: During the study, students' attitude towards digital educational resources and their activity in the lesson process were observed in computer science classes. The level of students' mastery, their participation in the lesson, and their interests were regularly checked through tests and interactive programs.

2. Experimental method: In the study, lessons taught with test platforms, interactive programs, and LMS systems were conducted as an experiment in several classes. The differences between the lessons taught with traditional teaching methods and the lessons taught with new digital resources were analyzed. This method helped to determine the level of knowledge of the students, their interest in learning, and their ability to learn independently.

3. Survey method: Surveys were conducted to explore students' and teachers' attitudes toward digital learning resources. The surveys helped to gather information about how they perceived the lessons, the ease and difficulties of using digital tools, and how these resources could be used in the learning process.

4. Analysis method: When analyzing the results of the study, a comparison was made with the scientific literature and previous studies on the effectiveness of digital resources. This method allowed us to determine the relationship between the results obtained and existing studies.

The study presented data obtained on the basis of experiments, observations and questionnaires conducted with the participation of students and teachers. Using these methods, the use of digital educational resources in teaching computer science and information technology in schools where computer science is taught significantly increases the quality of the educational process. In particular, the interactivity of knowledge assessment through test platforms develops students' ability to focus on the result and self-analysis. This motivates students to think independently and work on themselves.

The use of interactive programs has been particularly effective in explaining complex topics, engaging students in the lesson, and increasing their level of practical mastery of the subject. Tools enriched with demonstration, visual stimuli, and game elements in

the lessons have aroused great interest among schoolchildren and students. This has been proven in other studies, for example, which showed that lessons enriched with interactive platforms increase the student's level of mastery of the subject by up to 30% (Smith, 2020).

Also, organizing the learning process through LMS systems strengthens the relationship between the teacher and the student, ensuring the individualization of the educational process. The teacher can work on each student individually, and students have the opportunity to study the course materials at a convenient time for them. This meets the requirements of modern pedagogical approaches - distance learning, hybrid learning, and flexibility in learning.

The study found that the use of digital resources not only improves skills in using technical tools, but also forms information culture. However, it was found that in order to fully use these resources, it is necessary to increase the digital literacy of teachers. Also, organizational problems such as internet speed and level of technical equipment negatively affect the effectiveness of digital tools in some cases.

In general, digital educational resources allow for modern, interactive, and result-oriented approaches to teaching computer science. They form a positive attitude towards the subject among students and increase interest in independent learning.

CONCLUSION

Today, it is becoming necessary to teach computer science not simply with textbooks, but with modern digital tools. During our research, we realized that testing platforms, interactive programs, and LMS systems make lessons interesting, understandable, and effective for students.

For example, students enjoy taking assignments via Quizizz or Google Forms more than they do on paper. After completing the test, they can immediately see the answers and analyze their mistakes. This helps to consolidate knowledge.

Interactive programs can help students understand complex topics in a playful way. Students who work with Scratch or Code.org, in particular, develop independent thinking and problem-solving skills. These are important aspects that are needed not only in computer science, but also in life.

LMS systems strengthen the connection between teachers and students. For example, through Google Classroom, assignments, grades, and feedback are all collected in one place. This convenience is useful not only for students, but also for teachers.

In conclusion, digital educational resources are a modern tool for the teacher and a convenient companion for the student, paving the way to knowledge. If we can use them correctly and effectively, computer science lessons will not just be lessons - but will become a school of creativity, thinking, and preparation for life.

REFERENCES

1. Nazarov, B. (2021). " Online platforms and digital resources in education "

2. Tashpulatov, T. (2018). " Methodology for assessing the effectiveness of digital educational resources "

3. Kadyrov, I. (2017). " The role and development trends of information and communication technologies in education "

4. Salomov, J. (2019). " The impact of LMS systems on student success in the educational process "

5. Bower, M. (2019). " Designing Effective Digital Learning Environments "

6. Anderson, C., & Drone, J. (2011). " Learning in the Cloud: A Review of Current and Future Developments in Digital Learning Platforms "

7. Meyer, K. A. (2014). " The Impact of Online Learning on Education "