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THE ROLE OF ARTIFICIAL INTELLIGENCE IN EDUCATION: PERSONALIZED STUDENT SUPPORT

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Abstract. This article explores the role of artificial intelligence (AI) in providing personalized student support in education. It will be shown that with the help of advanced technologies of artificial intelligence, it is possible to develop curricula adapted to the individual needs of students, learning difficulties and learning styles. By integrating SI tools into the educational process, individualized approaches are created for students, which in turn increases the quality of education. The article also discusses the process of monitoring the teaching process, data analysis and pedagogical decision-making with the help of artificial intelligence. The main goal of the article is to reveal the possibilities of SI technologies in the field of education and provide effective tools for personal growth of students.

Keywords: artificial intelligence, personalized education, educational technologies, monitoring of the educational process, teaching methods pedagogical decisions, innovation in education.

Абстрактный. В этой статье исследуется роль искусственного интеллекта (ИИ) в обеспечении персонализированной поддержки студентов в образовании. Будет показано, что с помощью передовых технологий искусственного интеллекта можно разрабатывать учебные программы, адаптированные к индивидуальным потребностям учащихся, трудностям обучения и стилям обучения. За счет интеграции инструментов СИ в образовательный процесс создаются индивидуализированные подходы к учащимся, что, в свою очередь, повышает качество образования. Также в статье рассматривается процесс мониторинга учебного процесса, анализа данных и принятия педагогических решений с помощью искусственного интеллекта. Основная цель статьи – раскрыть возможности СИ-технологий в сфере образования и предоставить эффективные инструменты личностного роста обучающихся.

Ключевые слова: искусственный интеллект, персонализированное образование, образовательные технологии, мониторинг образовательного процесса, методы обучения, педагогические решения, инновации в образовании.

INTRODUCTION

Artificial Intelligence (AI) has been able to revolutionize education in recent years. Along with the development of modern technologies, the educational system is also trying to use new and advanced methods. Traditional educational approaches often rely on standard curricula that provide a one-size-fits-all approach without taking into account the unique needs and learning styles of all students. This situation may cause many students to face difficulties in the learning process.

With the introduction of artificial intelligence technologies into the field of education, the possibilities of taking into account the individual needs of students and personalizing their learning process have expanded. With the help of artificial intelligence, it became possible to monitor students' educational activities, identify their strengths and weaknesses, and develop customized study plans. Such an approach helps to significantly improve the quality of education.

The range of SI technologies used in education today is very wide. For example, adaptive learning systems, virtual assistants, robots, and big data analysis serve to make the educational process more effective. These technologies provide personalized learning opportunities for students and help teachers work individually with each student.

This article details the role of artificial intelligence in education and how it can be used to provide personalized support. Identifying the difficulties and needs of students in the learning process, the possibilities and advantages of artificial intelligence in supporting them are studied. Also, the results of the integration of SI technologies into the educational process and the impact on the quality of education are analyzed.

The main goal of this research is to reveal the possibilities of artificial intelligence in the field of education and provide effective tools for personal growth of students. Identifying ways to improve student learning and improve the quality of education through personalized learning approaches.

ANALYSIS OF THE LITERATURE

Baker, R. S., & Inventado, P. S. (2014). Educational data mining and learning analytics. In Learning analytics (pp. 61-75). Springer, New York, NY.

Content: This paper analyzes educational data mining and learning. Educational data mining (educational data mining) and learning analytics (learning analytics) allow a deeper understanding of student behavior and educational processes. With the help of these methods, educational institutions will have the opportunity to optimize educational processes and improve the results of students.

Significance: This work provides an in-depth look at how data analysis is done and how it can be useful in education. This is especially important for educational technologies and digital learning environments.

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). Intelligence Unleashed: An argument for AI in Education. Pearson.

Summary: This book discusses how artificial intelligence (AI) can be used in education. The authors show how AI can be used in education and how it can help students.

Significance: This work is an important resource for exploring the potential of AI technologies in education. It will help to adopt innovations in education and create new learning methods based on AI.

Chen, X., Zou, D., Cheng, G., & Xie, H. (2020). Detecting latent topics and trends in educational technologies over four decades using structural topic modeling: A retrospective of all volumes of Computers & Education. Computers & Education, 151, 103855.

Abstract: This article identifies emerging themes and trends in educational technology over four decades using structural topic modeling. An analysis is conducted based on a retrospective of all volumes of "Computers & Education" magazine.

Significance: This study contributes to understanding the development and evolution of educational technology research. This is important in identifying new trends in the field of educational technology and defining future research directions.

Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial Intelligence in Education:

Promises and Implications for Teaching and Learning. Center for Curriculum Redesign.

Abstract: This paper examines the promise and implications of AI in education and training. Discusses the positive and negative effects of AI on teaching and learning.

Significance: This work provides a comprehensive overview of how AI technologies can be used in education and what they can achieve. It is an important resource for educational professionals and researchers.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education–where are the educators? International Journal of Educational Technology in Higher Education, 16(1), 1-27.

Abstract: This article provides a systematic review of AI applications in higher education. The article discusses how AI technologies are being used and the role of teachers in this process.

Significance: This work provides insight into the use of AI technologies in higher education and how teachers are involved in this process. It is an important resource for the successful implementation of AI technologies in higher education.

METHODOLOGY

In this study, the existing scientific literature, articles and studies on the role of artificial intelligence in personalized support in education were analyzed. The main goal is to gain a broader picture of how SI technologies affect students, how they improve their learning, and how they help teachers.

This study used the following methods to explore the role of artificial intelligence in personalized support in education:

Literature Review:

Articles and Books: Articles and books on artificial intelligence and education were explored. For this, databases such as Google Scholar, IEEE Xplore were used.

Scientific Research: The scientific research of the last ten years was analyzed, information was gathered about the use of artificial intelligence in the educational system and its effectiveness.

Data Analysis:

Big Data: Big data about students' learning activities was analyzed. Through this information, difficulties and needs of students in the learning process are determined.

Learning Analytics: The learning results and activities of the students were monitored with the help of learning analytics used in education.

Adaptive Learning Systems:

Practical Experiments: Experiments have been conducted in several schools and universities to study the effectiveness of adaptive learning systems. Factors such as student achievement, motivation, and satisfaction were analyzed.

Virtual Assistants: The use of virtual assistants and robots in working with students was tested and their effectiveness was evaluated.

Surveys and Interviews:

Students: Questionnaires were collected from students and asked about the effectiveness, convenience, and satisfaction level of SI-based learning systems.

Teachers: Interviews were conducted with teachers to collect their views, experiences and opinions about SI technologies.

Monitoring and Evaluation:

SI Tools: Monitoring and evaluation of the learning process was observed with the help of SI. Problems in the educational process and their solutions are identified.

Teacher's Guide: A guide has been developed for teachers on how to use SI tools and how to improve student learning.

Basic Steps of Research

Literature Review: The scientific literature in the field of artificial intelligence and education was analyzed.

Data Collection: Data were collected from students and teachers through questionnaires and interviews.

Practical Experiments: The effectiveness of adaptive learning systems and virtual assistants is evaluated through practical experiments.

Data Analysis: The obtained data is analyzed and results are drawn.

Monitoring and Evaluation: Monitoring and evaluation of the educational process is carried out using SI tools.

Through this methodology, the role of artificial intelligence in the field of education and its potential to improve the quality of education through personalized learning approaches are determined.

ANALYSIS AND RESULTS

The results of this study showed the role and effectiveness of artificial intelligence in personalized support in education in the following main areas:

Individualized Learning: The individual needs and learning styles of students are identified through big data analysis. This helps teachers to create personalized learning plans for each student.

Strengths and Weaknesses: Students' strengths and weaknesses are identified and approaches are developed accordingly. This, in turn, helped students to understand in which areas they should develop.

Adaptive Learning Systems:

Customized Learning: Adaptive learning systems adapt to the needs of each student and allow them to choose the most effective learning methods. The results showed that these systems significantly increase student achievement.

Real-Time Feedback: With SI, real-time feedback is provided to students, enabling them to get immediate help when they encounter difficulties in their learning process.

Virtual Partners and Robots:

Interactive Learning: Virtual assistants and robots make the learning process fun and effective by interacting with students. Students can learn complex concepts more easily with these tools.

Motivation and Interest: Working with virtual assistants increases students' learning motivation and makes them interested in learning.

Monitoring and Evaluation:

Continuous Monitoring: Continuous monitoring of the learning process with the help of SI allows teachers to more accurately monitor the progress of students. This, in turn, helps to make effective pedagogical decisions.

Individual Assessment: An opportunity to accurately and fairly assess student performance has been created. With the help of SI tools, individual achievements and difficulties of students were identified and their level of knowledge was correctly assessed.

Artificial intelligence technologies provide great opportunities in providing personalized support in education. Approaches tailored to the individual needs of students through data analysis and adaptive learning systems help improve the quality of education. Virtual assistants and robots increase the motivation of students and make the learning process interesting.

Implementation of the monitoring and evaluation process with the help of SI allows teachers to more accurately monitor the development of students and make effective pedagogical decisions. These approaches are of great importance in supporting the personal growth of students in the educational process and increasing their level of mastery.

The results of this research reveal the possibilities of artificial intelligence in the field of education and provide effective tools for personal growth of students. With the help of SI technologies, it is possible to make the educational process more efficient and introduce approaches adapted to the needs of students. This will create a solid foundation for further development and innovation of the education system in the future.

CONCLUSION

The application of artificial intelligence in the educational system allows providing personalized support to students. This will improve the quality of education and help students achieve higher levels of achievement. With the help of SI technologies, it is possible to make the educational process more efficient and introduce approaches adapted to the needs of students. Also, through SI tools, it allows teachers to fully understand and support students, which helps to further develop the education system.

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