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## ARTIFICIAL INTELLIGENCE AND EVOLVING PEDAGOGICAL PRACTICES

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*This article discusses the impact of artificial intelligence (AI) technologies on modern education, how they have transformed the teaching and learning process, and the new opportunities and challenges expected in the future of education. It examines the role of AI in personalized learning, automated assessment, chatbots, and distance education, as well as its integration with advanced technologies such as AR/VR. Moreover, the article highlights important issues related to the use of AI in education, including data security, equitable access, and the need for teachers to acquire new skills.*

**INTRODUCTION.** In today's world, technology is rapidly evolving and its impact is evident across all spheres of life, including education. Artificial Intelligence (AI) has emerged as one of the most transformative technologies in the educational sector, introducing novel opportunities and approaches. This article explores the relationship between artificial intelligence and modern educational traditions, the innovative approaches AI brings to education, as well as the challenges and future prospects in this area. The integration of AI technologies in the education sector has introduced numerous possibilities. Through AI systems, the educational process can become more personalized, efficient, and accessible. Below are the key areas of AI implementation in education:

AI systems analyze each student's knowledge level, learning pace, and interests to design customized learning programs. This enables students to enhance their knowledge more effectively. For instance, adaptive learning platforms provide students with exercises and materials tailored to their individual needs.

Automated Assessment: With AI, tests, exams, and other forms of evaluation can be automated. This not only saves teachers time but also offers students timely and accurate

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feedback. AI systems are also capable of assessing students' written work and detecting logical errors.

**Chatbots and Virtual Assistants:**AI-powered chatbots assist students by answering questions, offering guidance, and providing support. Tools such as ChatGPT can help students understand complex topics by offering explanations and examples.

**Enhancement of distance learning:**AI makes remote education more effective by monitoring student engagement, assessing learning outcomes, and providing personalized recommendations. This leads to a more interactive and efficient distance learning experience.Modern educational traditions, when integrated with AI technologies, elevate the quality of education to a new level. The following highlights AI's contributions to contemporary education:

**Interactive learning environments:**AI contributes to making educational materials more interactive and engaging. By leveraging data collected through AI systems, educational institutions can enhance curricula, identify students' weak areas, and provide targeted support.

**Global access to education:**AI enables equitable access to high-quality educational resources for students across the globe, thereby promoting the democratization of education. For example, AI-powered translation tools expand access to multilingual learning opportunities.Despite its advantages, the use of AI in education also demands caution and presents several challenges:

**Data privacy concerns:**Misuse or theft of data can lead to significant issues. Poorly configured AI systems may create inequities among students. Therefore, fairness and inclusivity must be ensured in the design and deployment of AI technologies.

**Need for teacher training:**Effective utilization of AI requires teachers to acquire new skills and knowledge. Consequently, professional development and technological adaptation are essential for educators.

AI and modern educational practices complement and enhance each other. AI technologies facilitate more personalized, efficient, and accessible education. However, ensuring data security, equitable access, and upskilling of educators remains essential. In the future, the role of AI in education is expected to expand further, bringing new opportunities and innovations. All stakeholders in the education sector must be prepared to embrace and utilize this new era effectively.One of the core elements of AI is machine learning, which plays a significant role not only in education but also in other fields. Machine learning is the practice and theory of designing self-learning programs—a major branch of artificial intelligence. Developers train algorithms to identify patterns in specific cases and generalize them. As a result, computers begin to make decisions not based solely on predefined commands but through independent learning. Various methods exist within machine learning.The first definition of machine learning was given in 1959 by American computer

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scientist Arthur Samuel, who created the world's first self-learning program through a checkers game equipped with AI elements. Through machine learning, computers can now recognize not only faces in photos but also objects, texts, and numbers. In terms of text analysis, machine learning plays a crucial role: grammar check functions are now available in all modern word processors and even smartphones. Moreover, beyond spelling, AI takes into account context, nuances of meaning, and subtle linguistic features. Additionally, AI-powered software is capable of generating news articles on economic and sports topics without human intervention. Globally, there is a growing emphasis on youth education and upbringing. Comprehensive efforts are being made to ensure that young people receive modern knowledge and develop high moral standards. In the 21st century, science has progressed to such an extent that our daily lives are unimaginable without scientific achievements and technological tools. Notably, concepts such as the information society and artificial intelligence have become integral to our existence. Understanding the term "artificial intelligence" necessitates first comprehending the concept of intelligence. In our country, efforts are being made to develop all segments of the education system—from preschool and school to secondary and higher education—through construction of new institutions and the renovation of existing ones, all of which contribute to the development of youth. AI is a rapidly advancing field focused on creating intelligent machines that mimic human behavior and perform tasks with human-like precision. This field emphasizes the development of software and systems that can learn from data, reason, understand natural language, recognize images and sounds, and make decisions based on collected information. In supervised learning, machines are trained using labeled examples provided by humans. In unsupervised learning, systems identify patterns in data without explicit instructions. Deep learning—an advanced form of machine learning—involves training algorithms on large-scale data through layered neural networks to solve complex tasks.

Today, AI programs have evolved significantly, from voice assistants to stock market prediction algorithms, natural language processing, and image recognition tools. AI is closely connected with robotics, enabling the automation of routine tasks. The digitization of data has advanced rapidly in recent times. However, as with any technology, student data is vulnerable to cyberattacks. If misused, schools face the risk of compromising personal data. Despite concerns, the development of AI is inevitable. It is argued that its advantages outweigh the drawbacks. The time has come for our education system to embrace change, and AI may guide us in the right direction. While intelligent machines enhance the educational experience, they should not be seen as replacements for human interaction. Overreliance on these machines in classrooms may lead to harmful educational practices. Although computers can organize intelligent schedules and teach other computers, they are unlikely to possess the intuitive decision-making ability required for novel situations frequently encountered in classrooms. Thus, a cautious approach to AI usage is essential.

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Despite their analytical and predictive capabilities, AI systems cannot fully replace decisions based on human intuition and pedagogical expertise.

In assessing students' psychological well-being, adaptability to social environments, and individual abilities, the human factor remains vital. However, the integration of digital tools with AI enables the development of personalized learning plans, automatic analysis of student performance, identification of weak areas, and the provision of tailored assignments. This significantly improves the effectiveness of the educational process. Furthermore, AI-based security mechanisms help protect students' personal data and strengthen cybersecurity measures. Ensuring the confidentiality of personal information builds institutional trust and enhances the credibility of educational systems.

In conclusion, artificial intelligence is emerging as a powerful tool in modernizing digital education. However, its effective and balanced use without neglecting the human element is essential for ensuring educational quality and security. Thus, the modern education system will not only become digitized but will also evolve through the synergy of human insight and technology.

**List of used literature:**

1. Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial intelligence in education: Promises and implications for teaching and Learning.
2. Luckin, R. (2017). Towards artificial intelligence-based assessment systems. Nature human behaviour.
3. Baker, T., & Smith, L. (2019). Educ-AI-tion rebooted? Exploring the future of artificial intelligence in schools and colleges.
4. Chen, X., Xie, H., & Hwang, G. J. (2020). A multi-perspective study on artificial intelligence in education: Opportunities, challenges, and future directions.
5. UNESCO (2021). AI and education: guidance for policy-makers.