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THE ROLE OF ARTIFICIAL INTELLIGENCE IN THE EDUCATIONAL PROCESS

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Abstract: Artificial intelligence automates key activities in education, such as assessment. Educational programs are adapted to the needs of students. Artificial intelligence programs provide useful feedback to students and teachers.
Keywords: artificial intelligence, big data, cloud computing, internet of things, intellectual systems.

Introduction. Science fiction writers, futurists, and filmmakers have long predicted that the rise of artificial intelligence will bring about significant, and possibly dangerous, changes. However, despite its widespread integration into our daily lives, AI has not caused any catastrophic events. Smart sensors, automatic parking, and personal assistants on smartphones are just a few examples of how AI has quietly become a part of our lives. Artificial intelligence means an intelligent artificial system that performs logical and creative human functions. The term can also be applied to any technology that exhibits characteristics associated with the human mind, such as learning and problem solving.

An ideal characteristic of artificial intelligence is the ability to evaluate and take actions that have the best chance of achieving a specific goal. The world of AI is almost limitless, and it's becoming more and more powerful thanks to growing engineering and computing capabilities.

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Various narrow functions, tasks and activities can already be performed at the level of human capacity and above, sometimes reducing the need for humans[1].

Literature review and methodolgy. The President of Uzbekistan issued a decree (No. PQ-4996) on 17 February 2021 to facilitate the rapid integration of artificial intelligence technologies. This decree is in line with the "Digital Uzbekistan - 2030" strategy, which aims to expand the use of AI and enhance access to digital data. The decree outlines several measures, including the promotion of scientific research to implement AI in various sectors, development of innovative products and automation software, and fostering cooperation with foreign institutions for joint projects[2].

Additionally, the decree calls for the creation of favorable conditions for training skilled professionals in the field of AI, forming a scientific ecosystem for the advancement of digital technologies, and introducing AI into the social and economic sectors and state management system. In web programming, Python allows you to create the entire backend of an Internet resource.

Backend is an internal component of the Internet resource. This is a database stored on a remote server computer. According to the user's request, information is obtained from such a database and transferred to the browser on his computer. And the data received here is processed by the second component of the site frontend. One area where this programming language is in high demand is machine learning. These technologies are closely related to artificial intelligence, neural networks and deep learning. Machines are already fully capable of learning when performing automated analysis of certain amounts of data. At the same time, the need for programming is minimized during machine learning. Many libraries are suitable for this task, such as Numpy, PyTorch, Pandas, etc. With their help, you can easily perform all mathematical calculations, because. they are able to do them automatically without human help. All that remains is to analyze the obtained results and choose the optimal solution for further tasks.

Results. AI may not replace teachers in the next ten years, but there are various ongoing projects utilizing

computer intelligence to enhance the educational experience for both students and teachers. These AI roles will be influential in shaping and defining the future of learning.

1. Artificial intelligence has the potential to streamline certain tasks in education, particularly assessment. Grading student work is often a tedious and time-consuming task for educators, leaving less time for lesson preparation, student interaction, and professional development. While AI will never fully replace human judgment, it has become increasingly capable of automating multiple-choice assessments and may soon be able to grade fill-in-the-blank and even student writing. Although essay grading software is still in its early stages and not yet completely reliable, it is likely to improve in the future, freeing up teachers to focus on more engaging classroom activities and personal interaction with students. By automating certain aspects of assessment, AI can help to alleviate the workload of teachers and enable them to provide more individualized attention to their students, ultimately improving the overall quality of education[3].

2. Education can be customized to meet the individual needs of students at all levels of education. AI is poised to significantly impact education by offering higher levels of personalized learning opportunities. One of the ways AI is already facilitating this personalized learning is through the implementation of flexible curricula, games, and software that cater to students' specific needs. These systems enable students to focus on topics that they need to improve on, review what they may not have fully understood, and work at their own pace. Personalized learning can help students of different levels to work together in the same classroom, with teachers serving as facilitators, and providing support as necessary. Adaptive learning has already made a significant impact on education in the United States, thanks in part to programs like Khan Academy. As AI technology advances over the coming decades, adaptive learning programs are expected to further improve and expand, providing students with even more opportunities for personalized learning[4].

3. Artificial intelligence can identify areas for improvement in teaching materials and lectures, which may not always be apparent to teachers, resulting in students becoming confused about certain concepts. Coursera, an online learning platform, is already utilizing this approach. When a large number of students answer a homework assignment incorrectly, the system alerts the teacher and provides a tailored message with hints on the correct answer for future students. This framework helps to bridge gaps in explanation that can occur in courses, ensuring that all students are building on the same foundational knowledge. By providing immediate feedback, students can understand a concept better and remember how to apply it correctly in the future, without having to wait for a professor to answer[5].

4. Artificial Intelligence-based tutoring programs are gaining popularity among students who need extra help. Although human tutors offer benefits that machines cannot yet replace, AI-based tutoring programs can teach basic subjects such as math and writing. However, they currently have limitations in helping students with higher-order thinking and creativity, which require human educators' assistance. This does not rule out the possibility of AI tutors providing these services in the future. With the rapid pace of technological advancements in recent years, advanced tutoring systems may become a reality soon[6].

5. AI-powered software can provide valuable feedback to students and educators, not only assisting in the creation of customized courses but also in evaluating the success of the entire course. Many schools, particularly those offering online education, use AI systems to monitor student progress and alert teachers when there are performance issues. These AI programs enable struggling students to receive the support they require and professors to identify areas where learning can be enhanced. These schools' AI systems offer more than just course recommendations; some are also developing systems to assist students in selecting majors based on their academic strengths and weaknesses. While students are not required to participate in counseling, it can open up new opportunities for potential students in terms of college options[7].

6. The impact of AI systems on the way we interact with information is often unnoticed, but it is significant. For instance, Google personalizes search results according to the user's location, while Amazon recommends products based on past purchases. Siri also adapts to user needs and commands, and web advertising is tailored to individuals' interests and buying habits. These intelligent systems will continue to shape how we interact with information in our personal and professional lives, and their influence may extend to how data is found and used

in academia and schools. With AI-based systems already having transformed the way we interact with data, the integration of more advanced technologies could lead to a new era of research and fact-finding for students[8].

7. New technologies, such as intelligent computing systems, can bring about changes in the role of teachers in education. While teachers will always be present in education, their responsibilities and significance may evolve due to the advancements of AI. As previously mentioned, AI can perform tasks like grading, provide learning assistance to students, and even replace human tutors. However, AI can be applied to many other aspects of teaching as well. For instance, AI systems can create learning experiences that allow students to ask questions and find information, or even substitute teachers for the most elementary course materials. Nonetheless, in most cases, AI supplements the role of teachers rather than replace them altogether. Teachers can complement AI classes, provide support to struggling students, and offer human interaction and hands-on experiences. This shift in the teacher's role is already happening in many schools, especially those that employ an online or flipped classroom approach[9].

8. AI-based systems can provide a less intimidating environment for trial and error learning, which is essential for the learning process, as some students fear failure or being put on the spot. AI educators can offer a non-judgmental learning experience and provide solutions for improvement, making it easier for students to learn. In fact, AI is well-suited for this type of learning since AI systems themselves often learn by trial and error[10].

9. AI-driven data has the potential to revolutionize the way schools identify, educate, and assist their students. With intelligent data collection facilitated by AI systems, universities can customize every aspect of the college experience to suit the unique needs and objectives of each student. This includes recruitment efforts and course selection, among others[11]. Data mining has already become an integral part of higher education, but AI could take this transformation to the next level. Some institutions have already introduced AI-based instruction to help students transition from high school to college. In the future, the college selection process could resemble that of Amazon or Netflix, recommending the best schools and programs based on students' preferences and interests.

10. Artificial intelligence has the potential to completely transform education by changing the location of learning, the individuals who teach students, and the methods students use to acquire essential skills. Even though major changes may take several years, AI systems can revolutionize every aspect of education. With the use of AI-powered software and support, students can learn from any location at any time, thereby replacing certain forms of classroom instruction. However, in some cases, AI may even replace teachers[12]. Currently, AI-based education programs help students learn basic skills, but as these programs expand and developers gain more knowledge, they can offer more services to students. The educational process may be completely different in a few decades with the integration of AI technology.

Conclusion. In the future of education, teachers and machines will work hand-in-hand to help students learn more effectively and efficiently. As artificial intelligence takes over tasks like testing and grading, personalized curriculum development, and emotional understanding of students, teachers will be able to focus on teaching social skills and acting as coaches. This shift in roles will allow teachers to provide emotional support and guide students towards their goals. Additionally, AI-powered education can provide better learning opportunities for students in remote areas and offer personalized online learning options. With widespread internet access, students in developing countries and remote locations can access high-quality education previously unavailable to them. Overall, the implementation of AI in education has the potential to transform the role of teachers and improve educational access and outcomes for students worldwide.

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