



XORIJY TILLARNI O'QITISHDA INNOVATSION YONDASHUVLAR NAZARIYANING AMALIYOTGA TATBIQI

mavzusidagi respublika ilmiy-amaliy anjumani

THE ROLE OF ARTIFICIAL INTELLIGENCE IN THE EDUCATIONAL PROCESS

Scientific supervisor: **Kholmurodova Madina Alisher kizi (PhD)**

Saidjonova Dildora Mirhabib kizi

UzSWLU, English philology faculty

Tashkent, Uzbekistan

E-mail: saidjonovadildora882@gmail.com

DOI: <https://doi.org/10.5281/zenodo.15178913>

Abstract. *Artificial intelligence creates new opportunities to improve the efficiency of the educational process, develop students' interests and adapt each of them to their individual needs. Applying artificial intelligence correctly can lead to achieving quality education and preparing new generations for the challenges of the modern world. Artificial intelligence (AI) is getting into the education system rapidly and becoming a reliable assistant for both students and teachers. It contributes significantly to the enhancement of education standards, and changing teaching methods. Artificial intelligence (AI) provides personalized learning materials for each student, creating the opportunity to take into account their level of understanding and individual needs. This article explores the impact of AI on education, its benefits, challenges, and future prospects and to present the effective application of artificial intelligence technologies in the educational process, along with examples of the use of artificial intelligence technologies in education abroad. Moreover, recommendations regarding the potential of artificial intelligence and its future application in this field are provided in the following article.*

Keywords: *artificial intelligence, analysis, assessment, educational process, teaching methods, educational technologies, ChatGPT, Duolingo, PrepAI, Smartest learning, MATHiaU.*

“Can technology improve language teaching and learning?” If we focus specifically on this question, particularly in terms of teaching English and language proficiency... Nowadays, technology is around and we cannot imagine our life without it. Even we use technology to order food. People only go outside when necessary, otherwise, they are expected to handle their tasks and communicate with each other through available technologies. In the same way, is it possible to conduct lessons without technology in education? The answer is probably no. Currently, many teachers are extensively using technology in their lessons, as well as in communication with their colleagues and students. We have reviewed research on the potential benefits of technology in language teaching and learning. Technology can fundamentally change learning language, allowing us to do things that were previously impossible, and it also helps improve both language teaching and learning.



XORIY TILLARNI O'QITISHDA INNOVATSION YONDASHUVLAR NAZARIYANING AMALIYOTGA TATBIQI

mavzusidagi respublika ilmiy-amaliy anjumani

Artificial intelligence (AI) is one of the most discussed topics in the modern world. Today, AI is actively imposed on different sectors, including education. Artificial intelligence can assist students in progressing their knowledge and practice skills, simplifying the educational process significantly. Artificial Intelligence (AI) is transforming various sectors, and education is no exception. With its ability to analyze vast amounts of data, provide personalized learning experiences, and automate administrative tasks, AI is revolutionizing the way students learn and teachers instruct. This article explores how AI-driven innovations are shaping the future of education.

Artificial intelligence can be applied to design individual education programs for each student. It identifies students' levels, achievements and difficulties, analyzing their activities. Based on this analysis, AI:

- ✦ suggests relative academic materials and tasks,
- ✦ provides individual support and guidance,
- ✦ offers additional explanations about difficult topics.

This method allows each student to adapt to their own pace of learning and receive effective education.

Artificial intelligence also plays a crucial role in assessing students' knowledge. It can automatically:

- ✦ check assignments and exams,
- ✦ find mistakes,
- ✦ offer a fast reverse network for students.

This allows teachers to save time that would be spent on manual grading, and focus their attention on in-depth analysis and individual approaches. Artificial intelligence is one of the advanced technologies that help to improve the quality of education, organize the learning process effectively and further develop students' knowledge deeply.

In the modern world, artificial intelligence (AI) is gaining importance and being widely used in various fields. One such field is education which AI can be used to optimize the learning process and enhance its effectiveness. For example, AI can help to personalize the educational process according to the individual needs of each student. In addition, it can also be used to develop new teaching methods, analyze and assess students' knowledge level and automate repetitive tasks such as checking tests and assignments.



XORIJIY TILLARNI O'QITISHDA INNOVATSION YONDASHUVLAR NAZARIYANING AMALIYOTGA TATBIQI

mavzusidagi respublika ilmiy-amaliy anjumani

According to Cambridge University professionals' opinion, using artificial intelligence (AI) actively is one of the main Ed-Tech trends in 2023. In some predictions, the AI technology market in the education sector is expected to grow average of 36,6% by 2030.

The main majors of applying artificial intelligence in the educational process consist of:

- ❖ Automating official works;
- ❖ Personalizing academic process;
- ❖ Creating academic content and educational apps;
- ❖ Advancing soft skills.

Various neural network models can be used to check students' essays and written assignments. One such neural network model is LSTM (Long Short-Term Memory) based on an algorithm.

LSTM is a type of recurrent neural network that has the ability to process sequences of data. In the working process, the neural network first tokenizes the text data, meaning it separates it into individual words and punctuation marks. Then, the text is processed through the neural network, its key features are extracted and evaluated based on predefined criteria¹.

Different large-scale text materials should be used in order to teach neural network models, for instance, both well and poor-written essay samples. After the teaching process, neural networks can be applied for grading students' essays.

This system enables teachers to assess numerous essays immediately and effectively. However, the human factor cannot be completely replaced, as it is not always capable of fully assessing the content and creativity of the text, which these aspects are vital in evaluating essays and compositions.

A video control system based on artificial intelligence is organized at one of the schools in Hangzhou city of China. This system monitors which students are getting distracted during the lesson. It assesses the changes in student's facial expressions and communicates this information to the teacher, so this allows for partial automation of discipline.

Artificial intelligence helps to arrange academic processes taking into consideration the individual necessities of each student.

¹ Daggen S. Artificial intelligence in education: Changing the pace of learning. Research note by IITO YUNESKO; trans. s English: Parshakova A.V. — Moscow: YUNESKO Institute for Information Technologies in Education, 2020.



XORIJIY TILLARNI O'QITISHDA INNOVATSION YONDASHUVLAR NAZARIYANING AMALIYOTGA TATBIQI

mavzusidagi respublika ilmiy-amaliy anjumani

Carnegie Learning is an educational platform that offers teaching mathematics programs for both school and university students. This platform relies on adaptive academic principles and considers each student's individual needs.

One of the primary functions of Carnegie Learning is the **MATHiaU** algorithm. This algorithm uses artificial intelligence and machine learning technologies to create personalized mathematics courses for each student.

The MATHiaU algorithm determines the knowledge level of all students and provides them with personalized tasks and exercises accordingly. This process helps in developing the students' mathematical skills. Additionally, the algorithm offers a reverse network to students and guidance in solving questions².

Creating academic content with the help of artificial intelligence is carried out on special apps like **PrepAI** and **Smartest Learning**. **PrepAI** is an advanced tool based on artificial intelligence and machine learning technologies that enables the automatic creation of tests. This service allows creating tests in various formats which is highly beneficial for teachers and professors when forming quizzes, as well as for students during their exam preparation.

One essential feature of PrepAI is **the ability of adapt to the user's understanding level**. Artificial intelligence analyzes previous answers of the user and creates **individual personalized tests** by machine learning algorithm. This, in turn, assists the users to strengthen their knowledge and prepare for exams in the most effective way.

Smartest Learning – an extensive **educational online platform** that offers courses relating to different subjects and topics. The main goal of this platform is to **provide students and professionals with the opportunity to receive quality education and develop their knowledge and skills**.

Courses on the Smartest Learning platform differ in the following aspects:

- *Complexity on different levels* – courses from elementary to advanced;
- *Variety of formats* – video lessons, interactive assignments and tests.

Artificial intelligence is used **not only for creating personalized content and teaching through chatbots in educational applications** but also for making the learning process more interactive and efficient.

² Smarakova A. The Future Is Here: How Artificial Intelligence Is Changing Education [Electronic Resource] <https://theoryandpractice.ru/posts/20442-budushchee-uzhe-zdes-kak-iskusstvennyy-intellekt-menyaetobrazovanie?ysclid=lj6sgvx2wk834757252> (data of appeal: 20.06.2023)



XORIJIY TILLARNI O'QITISHDA INNOVATSION YONDASHUVLAR NAZARIYANING AMALIYOTGA TATBIQI

mavzusidagi respublika ilmiy-amaliy anjumani

- **Language learning apps** (for example, **Duolingo**) can recognize students' speech and analyze it via AI. The algorithm examines grammar structure, vocabulary resources and pronunciation, so it can offer the correct option, detecting mistakes.

- **Memory storage systems** (such as **Memrise**) use AI technologies to translate the names of real-life objects while learning a language. For instance, if you want to know the English meaning of the word “stol”, you can point your smartphone camera to the table and the app will automatically provide its translation.

- **The material reminder system.** Artificial intelligence analyzes when you should review a particular topic, and reminds you about the **optimal time**.

Such kind of technologies make the learning process more **effective, flexible, and engaging** and also provide a chance for each student to learn in a way that suits them well.

Some educational services, especially artificial intelligence (AI) raise concern among the majority because of performing tasks that belong to students. At the present time, texts written by AI differ from those written by humans, yet technologies are developing rapidly and questions are getting serious about how such tools can be engaged usefully.

We can mention the following arguments regarding the potential benefits of artificial intelligence for education:

Students can use AI to make a draft for an essay and then rewrite it themselves. This will help them to deepen their understanding of literary works and enhance their skills in text analysis.

AI could serve as a unique opponent for debate. Students can engage in debates with AI, trying to persuade it on a specific topic which helps to develop their argumentation and critical thinking skills.

Students can analyze the responses provided by AI and verify their factual accuracy. This will teach them skills in analyzing sources and checking information carefully³.

However, there are different perspectives regarding the impact of such technologies on education. Linguistics professor Naomi S. Baron emphasizes that excessive use of artificial intelligence could impact negatively creativeness and

³ Linch M. Iskusstvenniy intellekt v obrazovanii: sem variantov primeneniya [Electronic Resource] <https://the-accel.ru/iskusstvenniy-intellekt-vobrazovanii-sem-variantov-primeneniya/?ysclid=ljbd0y2j5n134996491> (data of appeal: 16.06.2023)



XORIJY TILLARNI O'QITISHDA INNOVATSION YONDASHUVLAR NAZARIYANING AMALIYOTGA TATBIQI

mavzusidagi respublika ilmiy-amaliy anjumani

critical thinking. In her view, “excessive reliance on text editing and creation tools could lead to abandoning the opportunity of thinking and learning”.

According to some experts, artificial intelligence will be widely used as a virtual assistant for teachers in the future. This will include the following:

In lectures and class sessions, AI would automatically generate visual information. For example, explanations of terms, infographics and interactive illustrations would be created in real-time mode.

AI creates modern and advanced visual materials instead of standard and old-fashioned textbook images. This allows each student to understand the lesson materials according to their individual needs.

Students can manage the materials through their own interface. For example, they will have the ability to enlarge, rotate, or hide the presented visual information.

During the lesson, all materials created by artificial intelligence are automatically archived, allowing students to reuse them at any time.

In conclusion, artificial intelligence has great potential in the educational process: it can significantly benefit the education system by improving teaching quality, personalizing the academic process to individual needs, reducing teachers' workload, and enhancing students' critical thinking and creative skills. However, these technologies should be applied in an appropriate and balanced manner, because it is not advisable to entrust the human mind and creative thinking to artificial intelligence fully. At the same time, there is no doubt that the role of artificial intelligence in education is increasing. Artificial Intelligence is revolutionizing education by making learning more personalized, efficient, and interactive. As AI technology continues to evolve, it has the potential to bridge educational gaps and create a more inclusive and effective learning environment. However, ethical considerations and responsible AI implementation remain essential to ensure its benefits reach all students globally. AI will prepare students better for the demands of the modern world, making education more flexible and accessible in the future.

AI is reshaping the educational landscape, offering numerous benefits such as personalized learning, automation of administrative tasks, and increased accessibility. However, addressing challenges related to privacy, bias, and human interaction is crucial to ensure the responsible use of AI in education. By leveraging AI effectively, educators can create more engaging, efficient, and inclusive learning environments for students worldwide.



XORIY TILLARNI O'QITISHDA INNOVATSION YONDASHUVLAR NAZARIYANING AMALIYOTGA TATBIQI

mavzusidagi respublika ilmiy-amaliy anjumani

References:

1. Daggen S. Artificial intelligence in education: Changing the pace of learning. Research note by IITO YUNESKO; trans. s English: Parshakova A.V. — Moscow: YUNESKO Institute for Information Technologies in Education, 2020.
2. Smarakova A. The Future Is Here: How Artificial Intelligence Is Changing Education [Electronic Resource] https://theoryandpractice.ru/posts/20442-budushchee-uzhe-zdes-kak-iskusstvennyy-intellekt-menyaetobrazovanie?_ysclid=lj6sgvx2wk834757252 (date of appeal: 20.06.2023)
3. Linch M. Iskusstvennyy intellekt v obrazovani: sem variantov primeneniya [Electronic Resource] https://the-accel.ru/iskusstvennyiy-intellekt-vobrazovani-tem-variantov-primeneniya/?_ysclid=ljbd0y2j5n134996491 (data of appeal: 16.06.2023)