American Journal of Advanced Scientific Research (AJASR)
ISSN: 2195-1381
Vol. 2 Issue 10, February– 2025, Pages: 54-58

Artificial Intelligence In Education

Dedabaeva Azizakhon Bakhtiyor kizi,
2nd year student of the Faculty of Arabic Philology Alfraganus University

Annotation. The article considers the role of artificial intelligence in the modern educational environment. The article analyses the opportunities offered by the use of artificial intelligence to personalise the educational process, increase the efficiency of learning and improve the quality of education in general. Special attention is paid to the application of artificial intelligence in the creation of adaptive educational platforms, intelligent tutor-systems, as well as in the automation of routine tasks faced by educators. The article also discusses the ethical aspects of introducing artificial intelligence in education and the challenges associated with its use.

Keywords: artificial intelligence, education, personalisation, adaptive learning, intelligent tutor systems, machine learning, neural networks, ethics, challenges.

INTRODUCTION

Modern education faces the challenge of adapting to a rapidly changing world where knowledge and skills are becoming obsolete at an incredible rate. In these conditions, artificial intelligence is becoming a powerful tool that can radi-cally change the approach to learning. Artificial intelligence offers opportunities to personalise the educational process, making it more effective and interesting for each student. In this article, we will look at how artificial intelligence is pene-trating education, what benefits it offers, and what challenges and ethical issues arise from its use.

In particular, we explore the application of artificial intelligence in the crea-tion of adaptive educational platforms, intelligent tutor systems that can adapt to the individual needs of each learner, as well as the possibility of automating rou-tine tasks faced by teachers, allowing them to devote more time to creative work and individual communication with students.

We will also discuss the importance of developing quality educational con-tent that meets the new challenges and opportunities presented by artificial intel-ligence, and the need to train qualified educators who can effectively use AI tools in their work. Finally, we will focus on the ethical aspects of implementing AI in education, such as protecting personal data, combating algorithm bias, and en-suring equal access to educational resources for all students.

MAIN PART

Personalising learning with artificial intelligence. One of the key features of artificial intelligence is its ability to adapt to the individual needs of each learner. Machine learning algorithms, by analysing AI data, interests and learning pace, can create personalised learning trajectories. Artificial intelligence systems can recommend learning materials that match the knowledge level and learning style of a particular student, as well as suggest assignments that will help consolidate the material learnt and develop the necessary skills

Adaptive learning platforms. There are platforms that, analysing a stu-dent's answers to tasks, automatically adjust the difficulty of the next questions and recommend additional materials for studying. For example, if a student suc-cessfully copes with algebra tasks, the platform can offer him/her more complex tasks or introduce him/her to new topics. In case of difficulties, the platform will offer simplified tasks or additional explanations.

Intelligent tutor systems. Some programmes can simulate the work of a tu-tor by asking the student questions, checking their answers and giving feedback. For example, the system can help a student understand English grammar by ex-plaining the rules and offering exercises to reinforce the material.

Recommender systems. Artificial intelligence can analyse a student's inter-ests and recommend books, articles, video lessons and other educational re-sources that may be of interest and use to them. For example, if a student is in-terested in history, the system can suggest documentaries or books about a par-ticular historical period.

These examples demonstrate just some of the possibilities of personalising learning with artificial intelligence. In the future, as technology advances, we can expect to see even more sophisticated systems that take into account the individ-ual characteristics of each student and help them maximise their learning out-comes.

Intelligent tutor systems. Artificial intelligence-powered tutor systems can replace traditional tutors, providing students with personalised support at any time of the day. These systems can answer questions, explain complex concepts, as well as check assignments and provide feedback. At the same time, tutor sys-tems are constantly learning and improving, analysing the interaction with stu-dents and adapting to their needs. Examples:

Khan Academy. Although Khan Academy is not a fully artificial intelli-gence-powered tutor system, it uses algorithms to adapt exercises to the student's level of knowledge. The system tracks a student's progress and suggests exercises to help them consolidate what they have learnt and move on.

Duolingo. This language learning app uses artificial intelligence to person-alise the learning process. Duolingo analyses the student's mistakes and suggests exercises to close knowledge gaps.

Squirrel AI Learning. Chinese company Squirrel AI Learning creates per-sonalised learning experiences for students of different ages. Their tutor systems use artificial intelligence to tailor the content and pace of learning to the individu-al needs of each student.

IBM Watson Tutor. IBM has developed an intelligent tutor system, Wat-son Tutor, which can be used in various educational institutions. Watson Tutor is able to answer students' questions, explain complex concepts and check as-signments, providing personalised feedback.

These examples demonstrate how artificial intelligence can be used to cre-ate effective tutor systems that can replace traditional tutors and provide stu-dents with personalised support at any time of the day.

Automation of routine tasks. Artificial intelligence can take over many of the routine tasks that educators face, such as test checking, grading, curriculum development, etc. This frees up teachers' time for more important work - person-alised interactions with students, developing creative teaching methods, etc. Ex-amples:

Automated assignment checking. Artificial intelligence systems can check multiple choice tests, short answers and even essays by analysing grammar, vo-cabulary and eligibility. For example, the Gradescope platform uses machine learning to assess written work, providing teachers with detailed analyses of er-rors and helping to identify patterns in student learning.

Personalised learning plans. Artificial intelligence can analyse a student's performance, interests and pace of learning to create personalised learning plans. For example, Squirrel AI Learning uses artificial intelligence to tailor the curricu-lum to each student, offering assignments that are relevant to their level of knowledge and help reinforce what they have learnt.

Analysing performance data. Artificial intelligence can process large amounts of student performance data to identify trends and patterns. For exam-ple, the Civitas Learning platform analyses data on college students to identify factors affecting their performance and offer recommendations for improving ed-ucational programmes.

Creating reports and presentations. Artificial intelligence can automate the creation of reports on student progress, as well as generate presentations based on available data. For example, Quill.org uses artificial intelligence to create per-sonalised reports on student progress in writing skills.

Using artificial intelligence to automate routine tasks allows teachers to fo-cus on more creative and important work, such as:

Individualised communication with students. Teachers can spend more time interacting with students to help them solve problems, answer questions and keep them interested in learning.

Developing creative teaching methods. Teachers can develop new, more in-teresting and effective teaching methods by using artificial intelligence to analyse data and adapt programmes to the needs of students.

Personalisation of learning. Teachers can use artificial intelligence to create individualised learning paths for each student, taking into account their charac-teristics and needs.

Automating routine tasks with artificial intelligence is an important step towards a more efficient and personalised education.

Using artificial intelligence to analyse data and improve educational pro-grammes. Artificial intelligence systems are capable of analysing vast amounts of data on student performance, identifying patterns and trends, and predicting learning outcomes. This information can be used to improve educational pro-grammes, identify problem areas and make informed decisions at the level of ed-ucational institutions and education systems as a whole.

Here are some specific examples of how artificial intelligence can be used to analyse data and improve educational programmes:

Analysing student performance. Artificial intelligence systems can analyse data on how pupils perform in various assignments, tests and exams. This al-lows them to identify which topics and sections of the programme cause them the most difficulty, as well as to identify individual gaps in each pupil's knowledge. On the basis of this information, teachers can adjust the curriculum to focus more on difficult topics and offer students individual assignments to reinforce the ma-terial.

Identifying patterns and trends. Artificial intelligence can analyse student performance data on a class, school or even regional scale. This can reveal com-mon patterns and trends, such as what factors influence student performance, what teaching methods are most effective, etc. This information can be used to develop more effective educational programmes and teaching methods.

Predicting learning outcomes. Artificial intelligence systems can predict how students will learn in the future based on their current performance and oth-er factors. This makes it possible to identify pupils who are at risk of undera-chievement and offer them timely help and support.

Adaptation of educational programmes. Based on the analysis of student performance data, artificial intelligence can tailor educational programmes to in-dividual needs and pace of learning. For example, students who learn quickly may be offered more challenging tasks, and students who need more time to learn a topic may be given additional support.

Evaluating the effectiveness of educational programmes. Artificial intelli-gence can be used to evaluate the effectiveness of different educational pro-grammes and teaching methods. By comparing

the learning outcomes of students who have followed different programmes, it is possible to determine which ones are the most effective and make the necessary adjustments.

Overall, the use of artificial intelligence to analyse data and improve educa-tional programmes is a promising direction that can lead to significant improve-ments in the quality of education. However, it is important to note that artificial intelligence is only a tool, and its effectiveness depends on how it is used. To suc-cessfully implement artificial intelligence in education, it is necessary to provide quality data, develop effective algorithms for analysis and, of course, train quali-fied educators who can use these tools in their work.

Challenges and ethical issues. The introduction of artificial intelligence in education involves a number of challenges and ethical issues. Firstly, it is neces-sary to ensure the privacy and security of student data. Secondly, it is important that AI systems are free from bias and discrimination. Thirdly, a balance needs to be found between the use of artificial intelligence and live communication be-tween teacher and student. Finally, it is important to ensure that artificial intelli-gence education is accessible to all students, regardless of their social and eco-nomic status.

The introduction of artificial intelligence in education, despite all its prom-ising possibilities, involves a number of serious challenges and ethical issues that need to be carefully considered and addressed to ensure the responsible and effec-tive use of AI in the educational sphere.

Privacy and security of student data. Learning platforms using artificial in-telligence collect and process a huge amount of personal data from learners: their academic performance, interests, preferences, even their emotional state. This da-ta can be used to personalise learning, but it can also be abused or leaked

In 2019, Pearson, one of the largest providers of educational services, was accused of collecting and sharing student data with third parties without consent. To address this issue, there is a need for strict rules and mechanisms to protect students' personal data, as well as transparency about exactly how this data is used.

Bias and discrimination. Artificial intelligence algorithms used in education can be subject to biases that can lead to discrimination against particular groups of students. For example, if an algorithm is trained on data dominated by stu-dents from advantaged backgrounds, it may underestimate the potential of stu-dents from less affluent backgrounds

A US study found that algorithms used to assess the risk of college drop-out were more likely to "reject" minority students, even if their academic perfor-mance was on par with other students. To combat bias, artificial intelligence sys-tems should be thoroughly validated and tested, and developers should be trained to consider possible sources of bias when creating algorithms.

Balance between artificial intelligence and live communication. Despite all the advantages of artificial intelligence, it is important to remember that it cannot completely replace live communication between teacher and student. The teacher plays an important role in the development of the child's personality, emotional and social development

Research shows that students who receive enough attention and support from a teacher learn better and feel more confident. A balance needs to be struck between the use of artificial intelligence and traditional forms of learning in order to preserve important aspects of human interaction in the educational process.

Accessibility of artificial intelligence education. Artificial Intelligence Edu-cation, like any other educational technology, may not be accessible to

some stu-dents due to the high cost of hardware, software or internet access

In rural areas or in low-income families, not all children have access to modern technologies, which creates additional inequalities in education. It is nec-essary to ensure equal access to AI education for all students, regardless of their social and economic status. This may require government support, creation of special programmes and initiatives.

CONCLUSION

Artificial intelligence offers tremendous opportunities to transform educa-tion, making it more personalised, efficient and accessible. However, for these opportunities to be fully realised, a number of challenges and ethical issues need to be addressed. It is important that the introduction of artificial intelligence in education is carried out consciously and responsibly, taking into account the in-terests of all participants in the educational process. Only in this case will artifi-cial intelligence become a powerful tool that can lead to a revolution in education and prepare a generation ready for the challenges of the future.

In conclusion, the implementation of artificial intelligence in education is a complex and multifaceted process that requires careful attention to ethical issues and addressing emerging challenges. Only then will artificial intelligence become a powerful tool that can improve the quality of education and make it more acces-sible to all.

REFERENCES:

1.Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial intelligence in edu-cation. In Artificial intelligence in education(pp. 1-17).

2.Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). Intelli-gence unleashed: An argument for AI in Education.

3. Popenici, S. A., & Kerr, R. (2017). Artificial intelligence and personal-ised learning environments. Computers & Education, 102, 124-140.

4.Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education-where 1 are the educators? International Journal of Educational Technology in Higher Education, 2 16, 1-27.