**Artificial intelligence in education**

Ms. Cina Mathew

 Assistant Professor,Department of Computer Application

 Kristu Jyoti college of Management and Technology

**ABSTRACT**

This study's objective was to evaluate how artificial intelligence (AI) is affecting schooling. The study's focus was on the use of AI and its impacts in administration, instruction, and learning. It was built around a narrative and framework for evaluating AI that were discovered during early investigation. The study purpose was successfully realised through the employment of a qualitative research approach that made use of the literature review as a research design and methodology. Computers, machines, and other artefacts now exhibit human-like intelligence that is defined by cognitive capacities, learning, adaptability, and decision-making capabilities thanks to the field of research known as artificial intelligence and the inventions and developments that have followed.

 According to the study, AI has been widely adopted and employed in education, especially by educational institutions, in a variety of ways. In the beginning, artificial intelligence (AI) was represented by computers and computer-related technologies. It then evolved into web-based and online intelligent education systems, and finally, with the use of embedded computer systems and other technologies, humanoid robots and web-based chatbots were used to perform the duties and functions of instructors either alone or in collaboration with instructors. These platforms have helped teachers improve the quality of their instructional activities and carry out other administrative tasks, such as reviewing and grading students' assignments, more quickly and effectively. On the other hand, curriculum and content have been tailored and customised in accordance with students' needs because the systems make use of machine learning and adaptability.

**I. INTRODUCTION**

The use of artificial intelligence in education has gained popularity because it alters how rapidly we learn. What does this entail for kids, then? Has the use of AI in children's learning changed anything for them? For every youngster, artificial intelligence in education has the power to change the game. You must understand how artificial intelligence (AI) can help your child because the AI-based prediction tool enables early interventions and assists teachers in giving greater attention to impacted kids to guarantee that their academic performance is not jeopardised. The four following ways that AI technology can improve teaching and learning methods can be seen.

1. Intelligently automating education-related administration processes
2. Augmenting the interaction with children
3. Detecting educational anomalies
4. Helping schools and teachers in decision-making processes

The use of AI in education has attracted attention in the following ways:

• **Automation:** The AI-based prediction tool enables early interventions and assists teachers in giving greater attention to impacted kids to guarantee that their academic performance is not jeopardised. The four following ways that AI technology can improve teaching and learning methods can be seen.

• **Acclimation:** Modern technology plays a crucial role in both the economic and educational worlds. According to the most recent Pew Research data, 45 percent of young people spend practically all of their time online while 95 percent of them approach their smart phones. Students will start the technological transition with the aid of AI in classrooms.

• **Integration**: AI solution can be integrated with other IT initiatives such as intelligent

technology and a managed IoT network to provide appropriate solutions to teach students.

• **Delineation**: Student needs and curriculum priorities are constantly changing, and ensuring

 that the content provided by teachers is relevant and practical, AI-driven analytics in education helps identify key trends, draw key markers, and help teachers develop the most effective classroom that drives digital transformation.

• **Identification**: Data analysis enables us to comprehend how adaptive AI solutions will uncover crucial learning areas for the user. Strong access control and security allow you to identify and address the formation issue.

**II. Benefits of AI in Education**

The education sector is no different than other businesses in that machine learning (ML) and artificial intelligence (AI) are major forces behind growth and innovation. According to eLearning Industry, in the following three years, learning management software will have AI capabilities activated in up to 47% of them.

AI in education has the potential to improve educational outcomes for students, encourage personalisation, and increase access to education.

Although there have been AI-powered solutions in the EdTech area for a while, the market has been slow to adopt them. The epidemic, however, fundamentally altered the environment, pushing educators to rely on technology for online instruction. Today, 86 percent of teachers agree that technology should be a fundamental component of education. AI has the potential to improve both teaching and learning, assisting in the evolution of the educational system for the betterment of both students and teachers.

**III. AI Benefits for Students**

AI can have a big impact on how students learn by giving them access to the relevant courses, enhancing contact with teachers, and giving them more time to concentrate on other aspects of life. A few examples are:

1. **Personalization**

One of the largest trends in education is personalization. Students now have a customised approach to learning programmes based on their own distinct experiences and interests thanks to the application of AI. To ensure that every student gets the most out of their education, AI may adjust to their knowledge level, rate of learning, and ultimate goals. Additionally, AI-powered tools may assess students' prior academic performance, spot areas for growth, and recommend courses, opening up several possibilities for a tailored learning environment.

1. **Tutoring**

Even though it's normal for students to need extra assistance outside of the classroom, many teachers don't have the time to help children after school. In these situations, AI instructors and chatbots are the ideal solution. While no chatbot can really take the position of a teacher, AI tools can assist students in honing their skills and strengthening any areas that need it outside of the classroom. They offer a one-on-one learning environment without an instructor on hand to respond to inquiries at all hours of the day. In actuality, an AI-powered chatbot can respond to student inquiries in 2.7 seconds on average.

1. **Quick responses**

 Nothing is more annoying than asking a question and not getting a response for three days. Daily, teachers and staff are frequently barraged with the same queries. Through support automation and conversational intelligence, AI can quickly provide answers to students' most frequently asked queries. This not only saves a tonne of time for teachers, but it also makes it so that students don't have to spend as much time looking up information or waiting for an answer to their queries.

1. **Universal 24/7 access to learning**

 All students may learn at anytime, anywhere, thanks to AI-powered tools. Every kid

learns at their own rate, and having access to resources around-the-clock makes it simpler for them to figure out what suits them without having to wait for a teacher. Additionally, students from all over the world can receive top-notch education without having to pay for housing or travel costs.

**IV. AI Benefits for Educators**

Given the volume of things on their daily to-do lists, it is reasonable that the majority of instructors and faculty members aren't hesitant to confess they have trouble managing their time. Teachers wish they had more time to devote to teaching students one-on-one, conducting in-depth research, and furthering their own education, but they lack the time. By automating chores, assessing student performance, and bridging the educational gap, AI can free up educators' time. Here’s how:

1. **Personalization**

AI can customise educational programmes for kids and teachers alike. AI can provide teachers with a clear image of which courses and classes need to be revaluated by looking into the learning styles and past performance of the pupils. Teachers can design the most effective learning programme for each student thanks to this data. Teachers and lecturers can modify their courses to meet the most frequent knowledge gaps or issue areas before a student falls too far behind by studying each student's unique needs.

1. **Answering questions**

 AI-powered chatbots can respond to a range of general and repetitive queries students frequently ask without requiring a teaching member because they have access to all of the school's knowledge base. AI saves the teacher time so they can concentrate on lesson planning, curriculum research, or increasing student engagement.

1. **Task automation**

 The power of AI can automate even the most tedious activities, such as office work, paper grading, learning pattern analysis, answering general questions, and more. Teachers spend 31% of their time organising courses, marking exams, and performing administrative tasks, according to a Telegraph poll. However, by automating manual tasks, teachers can free up more time to concentrate on teaching fundamental competencies.

The improvements in edutech are ten-fold, ranging from entirely remote lectures to online textbooks. AI is being used to assist students and teachers in streamlining and automating both teaching and learning tasks. All students and instructors will benefit from enhanced learning outcomes as the AI sector matures and innovation takes centre stage.

**V. How AI is Affecting Education**

Technology has always been crucial to education, but due to the increased accessibility of smart devices and web-based curricula, its use is now more common than ever. There are numerous ways artificial intelligence is being applied in education to aid students in their learning. Here are a few technologies with AI that are already affecting and will affect education in every way:

1. **Chatbots**

Students may soon employ chatbots as an example of AI instructional software. These are increasingly being used in classrooms, where students use computers or iPads to communicate with chatbots designed to help them comprehend specific subjects, like math or reading comprehension. Chatbot tutors may be able to educate students more than just new concepts; they may even be helpful when analysis is necessary. Chatbots are the technology of the future for all fields. It shortens the cycle of instructor workload. In the presence of parents, chatbots in the classroom may replace email correspondence between teachers and parents.

1. **Virtual Reality (VR)**

Virtual reality is a new advancement in education that is being utilised for everything from teaching history to assisting kids with their math skills. People can explore and engage with a three-dimensional computer-generated environment known as virtual reality. By incorporating experiential learning into their lessons, VR educators are redefining what it means to be a student.

VR is a fantastic tool for encouraging a sense of community among students. While using the same virtual reality programme in various classrooms, they can safely communicate even though they are still separated by distance. Students can explore things in virtual reality that they might never get the chance to see or learn about in the real world. Teachers are similarly affected. Teachers can come up with much more interesting techniques to instruct their pupils. Anyone who has used virtual reality (VR) would know that it is significantly more immersive than watching a video or being within a computer-generated setting. For students and teachers, increased engagement and thorough knowledge are just two advantages.

1. **Learning Management System (LMS)**

In this technology age, keeping up with educational advancements is one of the most important things to accomplish. Among these innovations is the use of learning management systems. A learning management system provides a centralised, user-friendly solution for the management of all online activities at a school. These tools can be used for a variety of purposes, but they are often utilised to achieve the following:

1. **Assign coursework**
* Communicate with students and parents
* Track student progress
* Generate reports on student performance

These systems make it possible to house all elements of a course in a single location, including lessons, assignments, tests, and grading. This implies that instructors are always free to offer input on any project or test. Without having to wait until the conclusion of the semester, students may view their marks right away.

These LMS with AI software allow for the learning of a wide range of subjects. An AI-powered intelligent digital teacher can assist a learner by giving them the solution to their problem as well as assistance with their problems. Artificial intelligence can even be used to create learning management systems that can analyse student thought processes and improve student learning. Today's LMS systems can assist teachers in content creation, support parents in tracking their child's progress in the system, and evaluate students using an AI engine. This has helped teachers manage the classroom more effectively while also reducing their workload and helping parents better understand their child's progress. LMSs are an invaluable tool for both teachers and students alike.

**VI. Robotics**

Over the past few years, artificial intelligence and robotics have become more prevalent in education. Now that it is being used in education, it may be seen to increase student engagement and safety for both teachers and kids. The current state of AI development makes robotics in education unavoidable. Robots may be a fantastic learning tool for both students and teachers, providing an engaging method to delve deeply into a subject. This means that robots can give teachers a method to spend more one-on-one time with children who need extra assistance.

 Additionally, it enables them to test out novel teaching techniques, which is crucial when attempting to engage various student types. For students, it's an opportunity to learn something new on their own without feeling under pressure from being the only student in the class or from having their peers criticise them when they make mistakes. Robots can provide a place for people to feel comfortable if they don't immediately understand something. For students, robotics is essential because it can show them that engineering is more than just problem-solving on paper or sketching on a mat. They are able to observe the results of their work and the end result.

Teachers can also use robotics as an instructional tool to teach lessons about current events or even math concepts like fractions. As technology evolves, it will undoubtedly play an essential role in people’s lives.

**VII. Challenges**

Both students and professors have difficulties while trying to teach their students how to use technology. The main issue is that instructors are frequently not given the proper training to use the new technology in their classes. As a result, they are forced to either figure it out on their own or contact a friend. To give students an interesting learning experience, teachers need assistance understanding how to use these tools.

The global rise in student dropout rates has become one of the biggest issues facing schools today. The fact that 10% of students in Europe often drop out before earning a higher academic degree is cause for concern. The Europe 2020 strategy's objective of "having at least 40% of 30-34-year-olds finish higher education, thus boosting the overall education level" can be hampered by incomplete higher education. 2015 European Commission One of the primary strategies for reaching this goal is lowering dropout rates and raising completion rates in higher education.

In order to assist schools, Capgemini Netherlands created a prediction model that uses machine learning techniques to enable early detection of children who might drop out. The prediction accuracy for data that the model has not been trained on was 91 percent while taking into consideration about 33,000 sample observations, 1,800 dropout observations, and the class imbalance. The AI-based prediction tool enables early interventions and assists teachers in giving greater attention to impacted kids to guarantee that their academic performance is not jeopardised.

**VIII. Pros and Cons of Artificial Intelligence in Education**

The benefits and drawbacks of AI in education are not as clear-cut, though. Each side has benefits and drawbacks, but both sides also have advantages. In an expanding number of industries, including education, AI is taking the place of people. Along with teaching, it involves grading papers, composing essays, and advising students on their next course of study. The question is: should it be?

1. **Pros**

The use of artificial intelligence in education is currently a hotly debated issue. Whether or not AI should be utilised to educate pupils is a contentious issue. Many claim that instructors will be replaced by AI, eliminating the human component of education. However, using AI in education has a lot of benefits. Essays and papers can be graded by AI far more quickly than by humans. As a result, teachers will have more time to work with pupils on developing their critical analysis and thinking skills.

 Additionally, it would enable teachers to concentrate on specific pupils who would gain from their direction. Insights into student learning preferences and practical feedback for students who need more practise with a particular subject or ability can be provided by AI to support human teachers. AI is never worn out, never has mood swings, and just exists to further education.

1. **Cons**

However, there are also potential drawbacks to artificial intelligence in the classroom. Perhaps a human teacher can teach better than a robot. The drawback of artificial intelligence in education is that it could not always be effective as a teaching tool. Artificial intelligence is emotionless. When being lectured at, when they have a query, or when the AI doesn't respond to them, students don't feel like the AI is looking out for them.

This is a burgeoning topic, and professors are working to create AI technologies that enhance human lives at institutions all across the world. In order to give pupils adaptive learning, artificial intelligence can also be utilised to modify the pace of instruction according to how each student is doing. Conversely, some people are concerned about the influence of AI in a world where human interaction is dwindling.

**IX. Conclusion**

Parents who are constantly worried about their children's social lives would profit from AI. They may now keep a closer eye on their child's internet activity than ever before thanks to AI technology. Schools employ software that analyses data points, such as the degree to which different pupils learn content, and then assigns students to groups depending on their individual needs. With AI, students will be able to access instructors and lessons around-the-clock from any location. AI can be used in education to help students achieve their goals by giving them individualised feedback on their assignments, tests, and other assignments based on AI algorithms. Artificial intelligence has the ability to simplify everyone's lives through automation because it can complete tedious chores so you don't have to waste time organising emails or looking for files. The age of education has arrived! AI is a key force behind changes in education. AI offers so many advantages. No matter their learning capacity or disability, every student will have equal access; this is extremely important because not all kids develop their skills or knowledge at the same rate. Students can brighten their future with the aid of AI.