Confluence of Artificial Intelligence (AI) in Education Sector

Dr. Aaiman Siddiqui

Assistant Professor, Department of Commerce, Sunbeam Women's College Varuna, Varanasi
Uttar Pradesh, India

ABSTRACT

The employment of artificial intelligence in the educational sector is discussed in this study. The 21st International Conference on Artificial Intelligence in Education, which was held in 2020, identified AIED as one of the most recent fields in educational technology to emerge. The use of AI and its potential effects on teaching and learning in higher education are still unclear to educators in terms of how to employ it for pedagogical purposes more generally. Here, the impact of AI on education as well as its benefits and drawbacks are discussed. Additionally, it describes how to develop an educational platform with AI capabilities. Finally, it discusses how AI has affected education.

Keywords: AI, Education, Educational Technology, Artificial Intelligence

INTRODUCTION

In the years between 2018 and 2025, experts predict that the usage of AI in education would increase by 43%. This prediction is made in the 2018 Horizon study. For the past 30 years, research has focused on the use of AI in education. According to a survey by Research and Markets, the global AI education market reached $1.1 billion in 2019 and is projected to grow to more than $25.7 billion by 2030. The psychologists Sidney Pressey, a professor at Ohio State University in the 1920s, and B.F. Skinner, known as the father of behaviourism and a professor at Harvard University from 1948 until his retirement in 1974, are the forerunners on the use of AI in education. On January 1st, 1997, the AIED society was established. The International Journal of AI in Education (IJAIED) and the AIED conference series serve to bring together researchers. In terms of academic support services, institutional services, and administrative services, there are four main areas of AIED: profiling and prediction, assessment and evaluation, adaptive systems, personalization, and intelligent tutoring systems. Artificial intelligence is both novel and derived.

A new technology called artificial intelligence has begun to alter educational resources and organisations. The ideal educational practise in the sphere of education requires the presence of teachers. The employment of teachers, who are vital to the educational system, is altered by the development of artificial intelligence. The AI primarily employs deep learning, machine learning, and advanced analytics to track a specific person's relative speed to other people.

AI-based solutions serve to fill in the gaps between teaching and learning and raise educational standards as they continue to advance to higher levels. To provide teachers the time and freedom to teach understanding and adaptability—capabilities that are exclusively human—AI can promote

efficiency, personalisation, and streamline administrative procedures. You can get the best performance out of kids by using a combination of machines and professors.

IMPACT OF AI IN EDUCATION SYSTEM

In the future, almost every aspect of our lives will be impacted by AI, and the education sector will be one of those areas that will be most affected because teaching and learning are important aspects of life and the existing educational system leaves a lot to be desired. The educational system of the past was less adaptable than what the future of AI in education will offer. The most crucial component of the educational system, the teacher, is both expensive and not scaleable. In other nations, teachers are given a lot of paperwork and are not given enough credit. By offering each person a customised curriculum based on assessments of their interests and abilities, AI can assist them individually.

MERITS OF AI IN EDUCATION SYSTEM

Currently, young people frequently utilise their cellphones or tablets. They can use AI applications to study for ten to fifteen minutes during their downtime as a result. Gesture Recognition Technology combined with AI aids in understanding the student's state of mind or comfort during lectures. As AI becomes more powerful, it can now analyse a student's facial expressions or hand movements to determine whether they are having trouble understanding the lecture and can then adjust the lesson so that they can easily follow along.

AI-powered robots are capable of customising the educational programme. Global classrooms that accommodate students with hearing or visual impairments are possible thanks to AI techniques. Students who are unable to attend class due to illness can also benefit from this. In the traditional educational system, the teacher marks the pupils based on their assignments and exams, which takes a lot of time. When AI enters the picture, it would quickly finish off these chores. Additionally, it aids in recommending strategies for bridging knowledge gaps.

People who speak various languages, have hearing or vision issues, or speak other languages can all benefit from AI's resources. Presentation Translator, an AI-based system application, delivers subtitles in real-time manner. For instance, kids can read and hear in their own language with the aid of Google Translate. Modern technologies like VR and gamification are useful for sessions that are more engaging. There are now developments in the direction of utilising computers to grade written type answers, such as paragraphs and assertions. There were already several settings where multiple-choice tests were graded through machines. Because no time is wasted, a teacher's job is made easier and they have more time to focus on the growth and assessment of each individual student.

The potential of AI for admissions and enrollment procedures is still being explored.AI can assist students with their schoolwork or test preparations at home. In the near future, AI will be able to respond to a variety of learning styles. The improvement of tutoring and study programmes is entirely due to artificial intelligence.

Student groups that are best suited for various assignments can be formed using AI. Adaptive group formation is what is meant by this. Instantaneous essay grading software for AI applications. These writings are added to a central database, and future articles can be compared to those already included there. Computer-based artificial intelligence in education is a technology that offers individualised, flexible, and insightful instruction. The Domain Knowledge component of the AIED system is crucial. A representation of the learner's evolving knowledge and skills is given by the student model. The

component that symbolises the system's ability to teach is the Model of Pedagogy, and the component that offers the communication channel between the system and the learner is the Interface.

Voice Assistant is the second aspect of AI that is very beneficial in teaching. It uses artificial intelligence in a novel way. This includes the Google Assistant, Microsoft's Cortana, Apple's Siri, and Amazon's Alexa. Without the assistance of their teacher, these voice assistants allow students to communicate directly with the instructional materials that are available on the internet and in the installed devices.

Different educational institutions and certain universities are gradually abandoning the traditional techniques of learning as they become dated. Students are already being given voice assistants in place of printed study materials and websites with complex information for campus-related information. As an illustration, Arizona State University makes Amazon's Alexa available to prospective students in an effort to give the students more regular, succinct, and accurate institutional information regarding their needs on campus.

No wonder education institutions are scrambling to keep up with the need to foster more talent in order to keep the AI growth engine running as artificial intelligence becomes a fast expanding component of our daily life. However, advancements in education extend beyond STEM (science, technology, engineering, and mathematics). But AI curricula are changing the educational landscape. Through support people in learning effectively and achieving their learning objectives, smart systems are quickly transforming educational institutions from elementary through higher education, as well as adult and advanced learning.

To encourage one-on-one private tuition, the intelligent tuition System is employed. They may decide against a specific student based on the neural network methods. With the aid of AI, students are already exposed to a large array of higher education options. AI has the potential to significantly impact educational reform. The grammatical quality of digital information can be improved by robots. Digitalization of instruction had already begun in the classrooms.

Universities will be impacted in the future by the surge of investments and the growing interest in artificial intelligence. The growth of the worldwide student market, the democratisation of higher education, and the rising financial pressure from more students choosing to pursue a higher education will be the main drivers of the use of AI in higher education.

By creating sophisticated instructional designs and digital platforms, a number of organisations, including Carnegie Learning and Content Technology, have begun integrating AI into the educational system from Pre-K to college level for testing, learning, and gathering feedback. With the aid of artificial intelligence, the CTI company's Cram101 online service analyses textbooks and academic papers to highlight key points. As additional tasks for students, it also generates practise exams and flashcards. Another platform, Netex Learning, focuses on delivering digital learning in businesses and educational institutions. It is devoted to applying new technologies in the field of learning. The use of audio, video, and voice aides in the classroom is encouraged by this.

AI BASED SOLUTION IN EDUCATION

There are numerous tech-driven educational options available, like Dream Box, Khan Academy, Achieve3000, etc. There are many AI-based educational platforms available.

Third Space Learning

Little Dragon

CTI

Brainy
Thinker Math
Carnegie learning

With the assistance of academics from London University College, the Third Space Learning system was developed. It is helpful to give suggestions for improving teaching methods, such as issuing a warning when a teacher's explanation is either slow or excessively fast. The Little Dragon develops intelligent software that interprets a user's facial expressions or hand movements and modifies the user interface accordingly. For children, Little Dragon also makes instructional video games. By creating sophisticated instructional designs and digital platforms, a number of organisations, including Carnegie Learning and Content Technology, have begun integrating AI into the educational system from Pre-K to college level for testing, learning, and gathering feedback. Artificial intelligence is used in the online textbook study tool Cram101 from the CTI firm.

DEVELOPING OF AN AI ENABLED PLATFORM FOR EDUCATION

The creation of an AI platform for education involves six basic processes.

Step 1: Analyse the current solutions.

Step 2: Take into account the applications content, which should be both engaging and interactive.

Step 3. Talk to the development team about your project's requirements.

Step 4: To prevent bugs, the application must be appropriately and thoroughly tested.

Step 5: After the app has been out, promote it and solicit user feedback.

Step 6: Consistently update your app.

To get the user to choose your solution above the competition, you must first carefully analyse the features of the already existing solutions. Consider the design concepts. Because users always favour valuable information, you can choose from subjects like medicine, literature, math, and more. This helpful information can also be acquired from instructors at various institutions or colleges as well as from a variety of sources, including courses and training programmes. Before beginning a project, it is important to define the business objectives and project needs. The development team must consist of seasoned software professionals who have expertise in artificial intelligence. You can start with a basic version of your platform or application and then update it frequently with new features or additional material in response to customer comments and reviews. In order to draw in more users, great user experience should be offered. This can occur if users have no complaints, and in order for this to occur, we need to identify and resolve any flaws prior to the platform's introduction.

DISADVANTAGES OF AI IN EDUCATION

Even though AI presents enormous opportunities, there may also be some possible hazards. AI has the potential to be either the best or the worst thing that ever occurs to humans. Although the growth of AI applications in higher education raises new ethical issues and concerns, AI has the potential to support teaching and learning. For instance, administrators may consider replacing instruction with financially successful automated AI solutions in light of the ongoing corona virus outbreak and budget cuts. As the use of AI in education grows, there is a possibility that students may become more dependent on technology and that their personal interactions with others would suffer. In some cases, this could be

harmful rather than beneficial for the students. The worry among the academic staff, student counsellors, teaching assistants, and support personnel is that they will be replaced by the Intelligent Tutor System, an AI application. A lot of data, particularly sensitive employee and student data is needed for AI systems, which poses major privacy risks. AI is quite expensive when measured against the cost of setup, upkeep, and repair. Only well-funded educational institutions may allow its members to use such advanced technologies. Overreliance on technology can lead to a loss of interpersonal ties, which could be detrimental to users. We can never know how much data is lost when something happens, like a natural disaster or an accident, and an AI needs to be repaired.

CONCLUSION

A revolutionary shift in education is the use of AI. According to a paper published by the Centre for Integrative Research in Computer and Learning Sciences, the next generation of AI applications for education have not yet been developed. Therefore, those developing AI applications should inform educators and decision-makers about this in great detail. Even though there are a number of drawbacks to adopting AI in the educational sector, this type of technology, which has begun using some AI, should be introduced to students in the educational system. The effects of AI will be felt initially at the lowest levels of education and progressively progress to higher education. The long-term effects of AI on education won't be known for some time. AI's primary goal is to facilitate educators' work, not to take their position.

REFERENCES

1. https://www.ieee.org
2. https://iaied.org/about
3. https://medium.com/towards-artificial-intelligence/artificial-intelligence-in-education-benefits-challenges-and-use-cases-db52d8921f7a
4. https://link.springer.com/content/pdf/10.1186%2Fs41239-019-0171-0.pdf
5. https://ieeexplore.ieee.org/document/9069875
6. https://www.teachthought.com/the-future-of-learning/10-roles-for-artificial-intelligence-in-education/#:~:text=AI-driven%20programs%20can%20give%20students%20and%20educators%20helpful,the%20success%20%20of%20the%20course%20as%20a%20whole.
7. https://emerj.com/ai-sector-overviews/examples-of-artificial-intelligence-in-education/
8. https://www.e-pspl.com/blog/role-of-artificial-intelligence-in-improving-education-sector
9. https://thejournal.com/articles/2020/12/03/report-theres-more-to-come-for-ai-in-ed.aspx
10. https://www.express-journal.com/artificial-intelligence-ai-in-education-industry-market-286783/
11. https://codeinstitute.net/blog/artificial-intelligence-education/