

Role and Impact of Artificial Intelligence in Education Industry

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Abstract: Artificial intelligence is cutting edge technology that has begun transforming educational tools and organisations. Education is a field where the presence of teachers considered as must, which is the best educational practice. However, online education and ongoing development in the field of Artificial Intelligence and machine learning changes the teacher's job who are irreplaceable in the education system. The AI uses mainly advanced analytics, deep learning and machine learning for monitoring the progress of a particular individual among the others. As AI solutions continue to advance, they make it easier to spot where there are loopholes in teaching and learning and raise the calibre of education. AI will give time and freedom to teachers so that their skills can be utilised in developing understanding and adaptability where human capabilities are necessary and computers would struggle. AI can promote efficiency, personalisation, and streamline administrative processes. The finest performance can be obtained from learners by combining technology and instructors. In this research article, author tried to explore the role and impact of AI on education industry.

Keywords: Artificial Intelligence, Machine Learning, Education Industry, Online Education

I. INTRODUCTION

Technology is the main growth factor to many sectors of society and its inclusion into the education process has great benefits for teaching and learning. Conventional education systems are rapidly changing in order to encash benefit of technological advancements. The change is occurring because of the easy and widespread access to various educational sources of information online.

Artificial intelligence is not the new concept; in fact it is approximately as old as computer itself. But its application in the real life is few decades old and it is continue to evolve. It is difficult to give exact definition of AI because of the two reasons i.e. first AI is the continuously evolving field of technology and second AI is itself belong to the interdisciplinary field where expert from varying fields like computer science, linguistic, psychology, mathematics etc. making contribution in its development.

The advancement of computer and information communication technologies over time has facilitated the creation of artificial intelligence. According to Coppin[2004], artificial intelligence is the capacity of robots to adapt to new circumstances, deal with unexpected events, solve issues, provide answers, devise strategies, and carry out a variety of other tasks that call for a level of intelligence generally present in human beings. Our social interactions could change in every way thanks to the burgeoning field of artificial intelligence. AI in education has started to develop novel teaching and learning techniques that are currently being evaluated in various settings.

AI needs highly sophisticated infrastructures and a dynamic innovation ecosystem. However, the growth of AI in education has been hampered by the fact that traditional educational systems around the world have been slower to adopt technological advancements. A portion of the vision included AI, which promised to revolutionise education by enabling individualised tutoring. This promise is already beginning to materialise as modern technology has started testing many models all around the world, raising numerous concerns in the sphere of education.

II. IMPACT OF AI IN EDUCATION

AI influences almost every area of our life in the future and out of those areas education sector will be impacted hugely because teaching and learning is a major part of life and the current education system has many changes to be desired. Older schooling was less adaptable than what the future of AI in education will offer. The teachers who are most crucial to the educational system are both pricey and not scaleable. Teachers are underappreciated and given a lot of paperwork in some nations. AI can help each individual separately by giving them separate curriculum based on their interest and skill assessments

The development of AI applications in higher education introduces new ethical considerations and risks despite the immense opportunities that AI may provide to help teaching and learning. For example, in times of budget cuts, it might be tempting for administrators to replace teaching by profitable automated AI solutions. Faculty members, teaching assistants, student counsellors, and administrative staff may worry that chat bots, expert systems, and intelligent tutors will replace them in their positions. While AI has the potential to improve learning analytics, the fact that these systems require vast amounts of data, including sensitive information on faculty and pupils, presents severe privacy and data protection concerns.

III. ROLE OF ARTIFICIAL INTELLIGENCE

Many educational institutions, including certain colleges, are slowly abandoning the traditional methods of teaching and learning because they are becoming outdated. Instead of delivering physical books and Chalk and Talk way of teaching, most of the educational organisations making use of online learning and providing digital learning material.

AI powered machines can do the customization of the academic curriculum. AI tools can make global classrooms possible including people who are visually or hearing impaired. Students who are ill and unable to attend class can also benefit from this. The teacher assess the students according to traditional educational system based on their assignments and tests, which takes a lot of time. When AI intervenes in this situation, it would quickly complete these jobs. Additionally, it aids in providing advice on how to close learning gaps. People who speak different languages or have hearing or vision issues can access a variety of resources thanks to AI. AI provides with several resources to people who speak different languages or have hearing or visual difficulties. Presentation Translator provides subtitles in real-time mode, which is an AI based system application. Students can read and hear in their native language, for instance, with the aid of Google Translate. Modern technologies like VR and gamification are useful for more participatory meetings. There are now improvements 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. This makes the work of a teacher easier and no time is wasted and this saved time can be used to concentrate more on individual student assessment and their development.

AI In the future, AI may be used to handle enrollment and admissions procedures, while its full potential is still untapped. AI can aid students in their home study habits and exam planning. Future AI will be able to respond to various learning styles. The development of more sophisticated tutoring and study programmes is entirely due to artificial intelligence. Applications for education are being created, such as AI mentors for students. Students can be divided into groups by AI that are most suited for specific assignments. Adaptive group formation is the term for this. Software using artificial intelligence that can evaluate student essays right away. These essays are added to a central database, and the database's prior essays can be used to compare future articles. A computer-based technique called artificial intelligence in education offers individualised, flexible, and perceptive instruction.

The other component of AI that is highly useful in education is Voice Assistant, which is very beneficial in teaching. This is a ground-breaking use of AI. 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. One-on-one private tutoring is encouraged using the Intelligent Tutoring System. Using neural networks and algorithms, they may decide against a certain pupil.

IV. CHALLENGES OF AI IN EDUCATION

Emotional well-being:

AI based online education makes the use of machines to interact and deal with learners and we all know machines are devoid of emotions. Emotional state of the learners affects how well student can focus and perceive the subject knowledge. It is always said that necessary part of the effective education is interaction with human. It is challenge for scientist and engineers to make the machine identify the learners or students emotion and present the relevant education material accordingly to keep the student motivated.

Teachers employment

With the advancement of Artificial intelligence and machine learning most of the teaching, learning job will be done by machine. Advancement in AI and ML will further improve the online education. Increasing number of students and learners get the education through online media and robots. There is possibility that the robots with AI technology will replace the human teachers. The challenge is to provide job to these teachers. However, with the advancement in AI, the new jobs will be created which requires new skills related to AI, ML and Big data.

Ethical Education

Advancement in Machine learning and AI will make the robots to learn and create the courses on their own. The process on online learning and teaching will be automated with the help of robots. In such scenario, the major challenge and issue of concern is to provide ethical online education. AI based education should promote creativity and thinking in students. Governments of the world should make policy in this regard.

Sustainable growth

The rapid development of AI is now starting to exceed the computational capacity of the largest AI developers. This pace of development in data driven AI may not be sustainable. Also the success of AI based educational technology depends on many educational, social and political factors. AI based education should be persuasive and easily accessible to all the section of society.

Ensuring inclusion and equity for AI in education

The least developed countries are at risk of suffering new technological, economic and social divides with the development of AI. Some main obstacles such as basic technological infrastructure must be faced to establish the basic conditions for implementing new strategies that take advantage of AI to improve learning.

V. CONCLUSION

Even though the AI-based eLearning platform hasn't become a standard learning approach amidst most learning organizations, but the rate of adoption of AI in teaching learning and evaluation process by educational organizations will be continue to grow. AI is making positive contribution toward the effectiveness of eLearning. Artificial intelligence paving the way for student centric personalised learning. AI based online education will fill the teaching learning gap, save the learning time and accelerate the student's performance with better understanding. Since, most of the education related tasks will take over by AI, role of teachers will be shifted to that of facilitator. The key challenges of AI based online education system will be keeping the sustainable growth of AI, simulating the intelligence of human expert from many fields and delivery of ethics and emotion related education.

AI learning is currently considered as education assistant at the early stage, while AI-enable education will play a more important role as learning requirements changes. It now provides courses of different difficulty based on simple rule judgement and has not reached the best intelligence level in intelligent education. There are education studies for AI systems involving knowledge map and probability model. With increasingly frequent interaction of the educational process, AI systems will generate more and more data to provide a clearer picture of the process of teaching and learning, which enables more accurate information recommendation. AI systems will help teachers and students by providing them with high-quality contents that will enhance teaching and learning and make the entire process measurable with the help of learner analytics, machine learning, and data mining.

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