

## **Role of Artificial Intelligence in Education - A Boon or a Bane?**

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### **Abstract:**

The present article focusses on the involvement of Artificial Intelligence (AI) in the field of education. It elaborates the advantages and disadvantages of the applications of AI in education. The advancement in science, and hence technology has laid a foundation for the innovative developments in the applications. Artificial Intelligence (AI) is one such application of technology which is emerging as a pioneering branch of Engineering. The field of AI is the outcome of the computer technology with newer machine languages. Since Education is a very important part of life it needs some innovation in delivering the knowledge. AI is one such tool which has a power to transform the present education system into an advanced and make easily accessible to the learning fraternity. Artificial Intelligence has the potential to address some of the biggest challenges in education today, innovate teaching and learning practices, and accelerate progress. However, it may impose certain requisites that needs to be taken care in the application of this AI.

Keywords: Education, AI, Paradigms, Role of AI, Tutor

### Introduction:

The research and developments in Science and in turn, the developments in Technology is a very important aspect of a developed country. For a developed/developing country education is one such key which can unlock the doors for many trending opportunities. Where in a country like Bharat, the education system has evolved from Vedic period's GURUKUL to now-a- days higher education sector. This development is the indication that a country has adopted the new system of learning and imparting the knowledge.

Before past two decades students in the colleges used to apply logarithmic tables for the scientific calculations. For the resources students had to go libraries where, they were

referring the books for various studies. But the scenario changed in the past two decades where scientific calculators replaced the logarithmic tables, libraries were taken over by the online resources. So, the electronic mode of resources and knowledge impartation has boomed all over. The usage of technology in education has revolutionized education systems with better reach and improved execution.

The present generation is aiming towards the faster and smarter approach to the problems and attain the best outcome for it. To adopt the new technologies, the field of education is also ahead of all. The field of education started using scientific calculators than using the logarithmic tables. Then slowly the computing systems started taking over with the predefined machine languages. So, in this way the developments in technology has influenced the education system. So, the present-day invention what is called as Artificial Intelligence is also not lagging behind to take the part in the education system. The Association for Educational Communications and Technology (AECT) has defined educational technology as “the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources”. It denoted instructional technology as “the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning.”

***AI in education is not about humanoid robots as a teacher to replace human teachers, but it is about using computer intelligence to help teachers and students and making the education system much better and effective.***

**In an Artificial Intelligence (AI) a human intelligence is simulated as a machine language so that the machine can think and act like human beings. AI may make machines to mimic human behaviour. AI has various uses and applications in different sectors, including education [1]. Diverse AI techniques in education like natural language processing, artificial neural networks, machine learning, deep learning, and genetic algorithm etc. have been implemented to create intelligent learning environments for behaviour detection, prediction model building, learning recommendation, etc [2]. But how AI are going to change the existing educational and learning theories, and to what extent the use of AI technologies influence learning and instruction?**

Table 1 Three Level Paradigm of AI in Education [3]

Paradigm	Theoretical Underpinning	Implementations	AI Techniques	Examples
One - <i>AI-directed, learner-as-recipient</i>	Behaviourism	Earlier work of Intelligent Tutoring Systems (ITSs)	AI based on statistical relational techniques	ACT Programming Tutor [3];
Two-AI supported, learner-as a collaborator	Cognitive, social constructivism	Dialogue-based Tutoring Systems (DTSs); Exploratory Learning Environments (ELEs)	Bayesian network, natural language processing, Markov decision trees	An exploratory environment QUE (Metzler & Martincic, 1998)
Three - AI empowered, learner-as a leader	Connectivism, Complex adaptive system	The human-computer cooperation; Personalized/adaptive learning	The brain-computer interface, machine learning, deep learning	A real-time MOOC predictive modelling (Le et al., 2018)

## Role of AI in Education [1]:

## 1. Automate basic activities in education with AI:

This saves teacher's time in preparing the grade cards, home-work books etc. By applying an AI, teachers can save their time and utilise it for the interaction with students. This can bring the harmony and diverse cultural interactions, discussions and apply in the respective curriculum.

## 2. Additional Support for students with AI tutor:

This can help the learning community to learn even in the absence of a teacher.

Currently, there are various AI-driven tutoring programs that can help students in learning the basics of mathematics, writing, and other subjects.

3. Helpful feedback to students and teachers with AI-driven programs:

This role of AI in education system can give feedback to analyse the progress of the student and also alert the professors for the critical performance issue of the student.

4. Finding improvement required in course with AI:

When a large number of students are found to submit the wrong answer to a homework assignment, the system alerts the teacher and gives future students a customized message that offers hints to the correct answer. Such type of programs helps in filling the gaps while learning that can occur in courses, and also ensures that each student understands the concepts successfully. With AI, instead of waiting for feedback from the professor, students get an immediate system generated response, which helps them to understand a concept and remember their mistakes, and also how to do it correctly the next time around.

5. AI could change the role of the teacher:

AI systems can be programmed for providing expertise to students, which is a platform to ask their doubts. In such cases, AI could change the role of the teacher as a facilitator.

6. Personalize education with AI

7. Generating Smart content with AI

8. Ensure Access to Education for Students with Special Needs

9. Universal Access

However, with all these advantages of AI in an education system, AI can also impose certain restrictions in its application. AI learning may make a student less interested in writing as AI makes enables them to just visualise. AI may need highly skilled teachers to make use of it. AI can cut the effort of teachers in preparing the Modules for their curriculum, which may make them not updated with their subject area.

But this doesn't mean that AI is not useful in academics. For a learner AI can be used to train with interdisciplinary studies. AI can help students in working out with high-speed systems. AI can boost the memory storage capability of the computers that can give metadata to the learning fraternity.

For a tutor AI can provide wide platform of database and teaching management systems like AI tools for teaching-learning processes. AI can bring people with diverse interests in one platform and open up newer areas of studies. For example, a person in the medical field can take the help of AI to make the diagnosis with the help of AI tools which is difficult with available traditional methods. AI can help tutors learn new tools of teaching and save their time for the other academic and research works.

AI is the baby of the technology. AI must be brought up in such a way that AI is applied for improving the academics. AI needs more study and validation for its purpose in the academics.

So there is a need for the improved technology like Artificial Intelligence in education, however it should be properly created, analysed and implemented as per the necessity, but not as a convenience.

Conclusions: This discussion here clearly indicates that AI can of course has diverse implications in the field of education. It can however provide a teacher good platform to learn and impart the quality education with newer tools. AI to some extent inhibits the interaction of a learner with the tutor. AI can create more tools for the teaching -learning process. AI can help in interdisciplinary studies. So AI can make academics more interesting and play a role significant role for the overall development of the Learner and Tutor.

#### References:

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