Artificial Intelligence in Modern Education in India

Dr. A. Magalingam

Assistant Professor, Department of Pedagogical Sciences, Tamil Nadu Teacher Education University, Karapakkam, Chennai - 97.

Abstract: *Artificial Intelligence refers to the development of computer systems that can perform tasks which typically require human intelligence. The tasks include learning, reasoning, problem - solving, perception, language understanding, and even decision - making. In the digital era, artificial intelligence (AI) plays vital role in education to enhance learning, assist teachers to make their job well precise and more effective in individualized learning. Artificial intelligence technology replaces the role of teachers. In this paper some benefits are elaborated.*

Keywords: Artificial intelligence, Education, Learning, Modern learning methodologies

1. Introduction

Primary contributions of AI in education are in the areas of individualized learning, intelligent content, 24/7 accessibility, and task automation for both academic and administrative purposes. AI can automate administrative tasks such as grading, freeing up time for educators to focus on other important aspects of teaching. AI - powered tools and technologies can also enhance the learning experience for the learners in a number of ways such as they can customizes the time so that the task of administration is not time bound.

AI can act as a virtual tutor, offering immediate feedback and guidance to the learners. This can be particularly useful for reinforcing concepts, practicing skills, and addressing individual learning gaps.

With the aid of AI, it is easy to analyze large sets of educational data to identify patterns and trends, helping educators make informed decisions about curriculum design, teaching methods, and learners in facilitate education.

Types of learning using AI:

Personalized Learning:
Personalized learning in an educational approach constitutes instruction, pace, and content to meet the individual needs, preferences, learning styles, need and interest of the student involved. The aim of personalized learning is to provide a more customized and flexible learning experience to the learner and allowing the leaner to progress based on their abilities and interests.

AI is capable of dynamically analyzing student performance data to modify learning pathways and provide resources and content that are specific to each learner's strengths. It can also adapt the individual needs and learning styles of students to provide the easiest way of learning to the leaner and it provides personalized learning experiences by analyzing data of every learners' performance and preferences by adjusting the pace and content accordingly.

AI facilitate every learner with a unique learning experience to enhance their skill set individually. Learnerss can access resources outside of the classroom and receive real - time feedback through AI interactions, creating new chances for learning and growth.

Adaptive Learning
The objective of adaptive learning is to design a customized and flexible learning environment that maximizes each learner's learning path by adapting to their particular qualities. it adjusts curriculum to each learner's unique needs and skills through the use of technology, data, and algorithms.

AI - powered adaptive learning platforms can identify areas where a learner may be struggling and provide additional support or present the material in a different way to enhance the better understanding of the curriculum.

Smart content creation for Education
Both AI and ML in education also assist the educator to create innovative content for convenient way of deliver the content to be preached and learning. Information visualization and digital lesion generation are the main two methods to create smart content of modern education. By using Information visualization techniques one can provide two dimensional and 3 dimensional visualization of the content so that the learner can perceive information in different perspectives. Whereas traditional teaching methods cannot offer visual elements except lab tryouts.

Digital lesson generation involves generation of e content which can be a low - storage study materials and other lessons in digital format. By using this content, learner and experts can leverage the entire study material without taking up much space in the system. Moreover, these materials are accessible from any device, so that the learner need not to worry about remote learning.

It also requires frequent content updates. AI allows learner to create and update information frequently to keep the content up - to - date with time. The learners also get notified whenever new information is added, which helps them to prepare for upcoming tasks.

Tools for Education:
There are numerous tools available for e - learning, each serving specific purposes to enhance the online learning experience. Here are some commonly used e - learning tools and their purposes:

Learning management tools
- Google Classroom
- Moodle
- Blackboard

- Canvas

Content creative tools:
- AI Question Paper Generator
- Articulate Storyline
- Adobe Captivate
- H5P

Video Conferencing Tools:
- Zoom
- Microsoft Teams
- Google Meet.

Web - based Quizzing and Assessment Tools
- Quizlet
- Kahoot
- Google Forms

AI integrated Learning Tools
- Duolingo - language tool
- Coursera – Offers many courses
- Carnegie Learning, DreamBox, Woot Math: - mathematics learning tools
- Smart Sparrow
- Google Bard

Chatbot:
- ChatGPT

Google Classroom is a well - known tool that incorporates AI to simplify several facets of teaching. It allows educator to design and assign tasks, give feedback, and effectively control classroom interactions. The Google Classroom AI algorithms can support automated grading, make individualized recommendations for learning materials, and examine student data to provide insights on performance and growth. With Google Translate, language barriers are no longer an obstacle as they provide instant text, websites, and even spoken language translations. Google Scholar utilizes AI algorithms to analyze and index scholarly articles, research papers, and academic resources, making it easier for students, researchers, and educators to find relevant and authoritative sources for their studies.

ChatGPT is considered one of the most advanced language models in the world, and its capabilities are increasing constantly. Incredible capabilities of ChatGPT that makes the learning system more interesting and easy are contextual conversing, feedback response, analytical power, adaptive tutoring, and multilingual capabilities. This technology can be combined with the LMS for better administrative learning system.

2. Benefits of AI in Education:

It saves time of the learner. A learner can tailor their learning time and subject matter to suit their needs.

AI can facilitate remote and online learning, making educational resources more accessible to a global audience. This is especially crucial in situations where physical attendance may be challenging.

AI can automate administrative processes like grading, testing, and keeping records, freeing up teachers to focus on teaching and engaging with students.

By analyzing student performance data, AI can predict potential challenges and provide early intervention strategies to prevent students from falling behind.

Artificial Intelligence (AI) in conjunction with virtual reality (VR) and augmented reality (AR) technologies enables students to engage in learning experiences that are more interactive and engaging.

AI on Natural Language Processing (NLP) can be used to assess and analyze written assignments, providing constructive feedback on grammar, structure, and content which also saves the time of the educator.

AI technologies help education in more accessible to the learners with different learning abilities. For example, text - to - speech and speech - to - text applications can assist disabled learners with reading or communication challenges.

Challenges in e - Education
It has been observed that users do not have sufficient knowledge about personal data privacy in AI usage (Başkaya and Karacan, 2022). The use of Artificial Intelligence (AI) in education in Computer - based training (CBT) and Computer - Aided Instruction (CAT), does not provide the same experience as having human teachers in classrooms. [3]. Factors such as security and privacy, ethics and pedagogy should be maintained in e - education system.

3. Conclusion

Even though AI presents numerous opportunities for positive transformation in education, it is very important to consider the other side of the education system which includes in approaches of integrating the student community, considering ethical values and to inculcated the moral values to the students based on their potential biases, and the need for human involvement in the teaching and learning process are to be considered. Teachers remain essential for guiding and mentoring students, even as AI plays a supporting role.

Artificial intelligence (AI) has the potential to revolutionize education by enhancing learners learning outcomes, expanding educational opportunities, and giving teachers real - time feedback. However, putting AI into practice is not without its challenges.

References

[1] Mehmet Fırat, Integrating AI Applications into Learning Management Systems to Enhance e - Learning, Instructional Technology and Lifelong Learning Vol.4, Issue 1, 1 - 14 (2023) https: //dergipark. org. tr/tr/pub/itall
[2] Lin, Jingjing, ChatGPT and Moodle Walk into a Bar: A Demonstration of AI's Mind - blowing Impact on E - Learning (March 20, 2023). DOI: http: //dx. doi. org/10.2139/ssrn.4393445

[3] Fati Tahiru, AI in EducTion: A ystematic Literature Review, Journal of Cases on Information Technology, Volume 23, Issue 1, • January - March 2021, DOI: 10.4018/JCIT.2021010101