International Journal of Advance Studies and Growth Evaluation

AI's Influence on Learning and Teaching

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Abstract
AI stands for Artificial Intelligence which has bring a rapid change in everything by making it well structured and organized. AI is currently known as solution for every problem. Artificial Intelligence in Education means using computer technology i.e. machine language to improve the teaching and learning process. It involves all the use of functions of technology that are used to identifying, analyzing, comparing the study material for the students. AI plays a significant role in personalizing education. By the help of AI, students can analyse their work and lead their performance to better outcomes. It includes adaptive learning platforms, intelligent tutor system, automated system of feedback and evaluation with 24*7 supports. AI not only is a time saving technology but also make learning personalized. It presents unparallel situations and complex challenges to advance educational goals. But as always says, each coin has its two sides. Along with great features it also bring lot of challenges like privacy concern, over reliance of technology, less human interaction, lack of communication and many more. Inspite of these challenges AI has a great impact on the world which leads education to a next step.

Keywords: Artificial Intelligence, Education, Technology.

Introduction

AI belongs to 5th generation of technology which is a broader term which concentrated on conduct performed by machines. AI has the implicit to revise the way we learn and educate by making it more individualized, engaging and efficient. AI integrates with online learning to make it more effective and effective. It brings paradigm shift in today's world.

John Mc Carthy (1956) coined the term "Artificial Intelligence" and defined it as "The science and engineering of making intelligent machines." It means making the machines which generally use mortal intelligence. It acts as a motorist of profitable growth, urban pool development and global competitiveness. It has given rise to the term "AI literacy", which concerns the design and implementation of AI learning activities, learning tools and operations, and pedagogical models.

Another pioneer Marvin Minsky (1968) described it as "The science of making machines do things that would require intelligence if done by men."

AI is one of the biggest inventions till now. With the help of AI machines can now perform task which were supposed to be done by human previously. Now the machines can perceive, fete, learn and solve the problems while human can focus on other tasks.

Education word derives from Latin word "Educare". It also ties to "educere" and "Educatum" which means "to bring up", "to nourish" or "to lead out". John Dewey said "Education is not preparation of life; education is life itself." Education is a process of nurturing one's life at every step. Individual learn by new gests they have in their life. Education refers to the process of acquiring knowledge, skills, values, beliefs and habits. People can acquired it formally or non-formally. It helps the people to fraternize, remove linguistic barriers, improve communication skills and lead human interaction. Eventually the main goal of the education is to lead the men towards the betterment of the society. It helps to foster critical thinking process, leads to creativity and help in problem working. All the variations in the present world are possible because of education because education leads to invention and revolution. It also leads to better career openings, advanced earning potential. It is directly related to country's development, profitable strength. Today we are living in 21st

century which is the world of technology.

Technology word itself is a dynamic topic. It derived from the Greek word "Tekhnologia"' which means systematic treatment. It has roots in human capability to produce and introduce. It changes as per the requirements of the human. Technology comes far in its race from 1st generation to present and fulfilling our daily needs. Elaboration of technologies shows a rapid change with continuous innovation and adaptation. Emmanuel G. Mesthene (1970) provides classic description "We define technology as the association of knowledge for the achievement of practical purposes." It enhances effectiveness in performing all tasks. With the help of it humans can now reach globally. Not only had this it also integrated with education. Today it is coupled with numerous apps like gamification in which scholars learn while playing.

Education all thresholds form tutoring under a tree to a shift in schools. Tutoring with a chalk and blackboard shifts to smart classes and projectors. Education has witnessed shifts in the presence of technology. Now AI is a game changer in the field of education.

Loekx suggested that AI could be an effective literacy tool that lessens the burdens of both teachers and students and offer effective learning gests. AI acts a global strategic change in education. New Advancements in computer language and AI are used to reach the eventuality of capabilities of teacher and learner. Integration of AI in Education not only brings innovation in this field but also open door for those who are not able to use their eventuality to educate themselves. Holmes *et al* (2019) defines, "AI in education as a means to give personalized literacy experience." In this we will see how AI in education play effective role in one's life. AI leads to CBT (Computer Based Training) and CAI (Computer Aided Instruction), virtual assistant, chat GPT and many more. In CBT, AI powered tools like chatbot and virtual reality systems which provide personalize education. In the same way AI enhances CAI in delivering of content. Examples of it include reviewed essays, personalized content, and effective grading system.

Method Research
The research method used in this study is qualitative descriptive method. Qualitative research is preferred when it is desired to examine a problem or subject in depth. Research with the aim of uncovering the ideas and the meanings of individuals is called phenomenological research. Thus, we tried to uncover the opinions of the participants in regard to the AI in education.

Discussion
From the research following results occurred which lead to success in education.

1. Chatbot
AI chatbots are becoming increasingly popular in the field of education due to their ability to provide real time support and interactive learning experiences. These intelligent systems can serve as conversational tools that enhance student engagement, personalized learning and supplement traditional teaching methods. They are acting as virtual assistant, providing support to the students and teachers. Chatbots often developed using (AIML) Artificial Intelligence Markup Language which is capable of understanding and providing solution of the queries. Chatbots provide both text and speech information which are beneficial to blind, deaf, dumb students. Use of chatbot can enhance communication skills, learning experiences and retention of leaning. Along with the students can learn new concepts as per their own pace.

2. Personalized Learning Experience
AI leads to personalized learning experience through which students can diagnosis their weakness and learns at their own pace. This experience caters needs and wants of the learner and provides assistance to acquire knowledge. It provides adaptive environment to the learner which is the biggest opportunity in today's world. By this experience pattern of their learning can be assisted and study material altered according to it. Through this students' performance is also assess and evaluated and they will know their potential. Also AI can move them to more advanced material by providing different formats like video, interactive stimulations or text based materials. Examples of the application of personalized learning are Duolingo, Ruangguru, and Khan Academy etc.

3. Chat GPT
Chat GPT stands for Generative Pretrained Transformer is a type of AI specifically a large language model (LLM) chatbot which helps in creating content as per the topic. It tailored the requirements of the learner and presents the data in most prescribed form. It expands learning resources which lead to expand the learning experience of the learner. Along with it recommends other topic which relates with the learners idea. It helps in lesson planning. Educators with limited pedagogical experience are assisted by it and get suggestions for different topic. One of the important benefit of chat gpt is it can revise its writing format. It plays an important role in generating new ideas and brainstorming.

4. CBT & CAI
As CBT and CAI are the platforms which provide educator to assist the performance of the learner including multiple choice questions, true false and many more. This feature of AI is time saving and provide immediate feedback to the learner through which they can overcome their weakness. CBT involve interactive simulation and utilize computer software to deliver instructions in more efficient way. Also provide feedback on spellings and grammar by analyzing written projects, answer or assignment. By this feature of AI students can improve their presentation of answers. Example- Turnitin AI powered software uses NPL (Natural Language Processing) to analyze essays and provide grammar spelling and syntax feedback. Through these students assignments and work can be graded easily.

5. Virtual Reality (VR) AND Augmented Reality (AR)
VR and AR is the most important tool of AI. These tools give AI a new face through which students can learn practical live experiences. They transform the education by creating interactive learning environment. VR is a computer generated simulation that change perception of reality. Through VR students enter into virtual world that seem real. It facilitate the learning of complex subjects and create bond between culturally different students. They can learn by doing through VR glasses. While AR creates space in present world. Through this learner obtain a perspective of the present what they observe. It makes education more engaging, inclusive and effective. Overall these tools bring revolution in the field of education.

6. Voice Assistant

Voice assistant are increasingly becoming a valuable tool in education which offers a range of benefits to the learner. It acts as a powerful tool for language learners. It brings culturally different people together. It also helps student in learning different languages, improving their vocabulary, help in pronouncing correct words. Along with this feature it gives immediate feedback to the learner by real time translation services. Person who finds difficulty in learning new language can easily get information through it. Basically it acts as a personal tutor to the learner. It also builds the age gap between the people. Also teachers can use voice assistant to make announcements give instructions and even facilitate group discussions, making classroom activities more interactive. It also helps teachers to cater the needs of the diverse learners like podcast for auditory learners by offering speech to text tools for them. Examples are – Google Assistant (Google), Siri (Apple), Cortana (Microsoft) and others.

7. Presentation Translator

AI provides ample of opportunities to the learner to share their views globally. Using AI students can pursue different courses all around the world. It also provides facilities to the partially or fully blind people. This tool of AI gives them accurate explanation of the problem. This tool resembles very much with virtual assistant. The basic difference between them is that it relies on voice to perform action whereas presentation translator uniquely explains the text which is scanned in the language which you want to hear. This lead to vocabulary and grammar reinforcement as students easily learns new words by understanding their meaning in native language. In multilingual class where students are not able to easily understand the instructor instructions this tool of AI help them a lot.

8. Global Courses

These are online educational programs through which students can enroll in the courses globally. It expand the pool of talent through which students showcase their productive ideas easily. It personalized the learning experience by giving them chance to grow in their space. Courses like MOOC, Udemy, Google AI, Khan Academy, Udacity, Coursera, edX and many more. These courses are the hallmark which provide them study material and remove linguistic barriers. It also helps in maintaining human interaction. In short, we can said that AI and global courses are in a symbiotic relationship which lead the future of education.

9. Automatic Assessment

The use of AI in education assessment is a rapidly evolving field that is fundamentally changing how student performance is measured and evaluated. It gives the feature of automated grading and feedback. The use of this feature is a time saving process especially for the teachers. Now they can conduct test and quizzes fluently. Previously they spent their time to prepare them manually. Today there are so many platforms which perform this task within seconds. Teachers only need to choose type of level, subject, class, number of questions etc. Once the test ready teacher will share the link and students will attempt the question. As soon as students attempt the test they will immediately get the feedback and aware of their preparation. This feature of AI ease teacher's burden.

Conclusion

Before the preface of AI in education, education is a complex process in which acquiring and furnishing knowledge is not only a purpose but managing duties like planning a assignment plan, minding the requirements of different learners, grading and assessment. But with the preface of AI there is a rapid change in this field. Now it can widely used in various educational platforms. AI grounded operations give the occasion to the learners that now they can learn from anywhere globally. There is no need to attend the classes physically, in addition they can fluently be assessed and guided by accurate feedback. Overall AI brings revolution in the field of education. AI enhanced learning gests give substantiated literacy in further effective and efficient way. AI makes the process of teaching learning time saving. AI provides efficient grading by diagnosing area of weakness. Through which material can be tailored as per the needs of the learner. AI tools completely play an effective role in learner's life. It makes them technology smart person and solve their queries 24*7. This will help the leaner to succeed in 21st century.

Implications

1. AI powered educational platforms can tailor learning experiences to meet the individual needs of students. By analyzing student performance, behavior, and preferences. These systems adapt content delivery in real time by customizing learning paths that suits student's pace and ability. It gives tailored feedback to enhance understanding and retention. Such personalization fosters more efficiency learning and can improve student motivation and academic performance. It also ensures every student master their concepts at their own pace.

2. AI significantly increases accessibility for diverse student populations. Speech-to-text and text-to-speech tools for students with visual, auditory or motor impairments. By this feature of AI it can give real time translation to students. AI tutors provide on demand assistance and support outside of regular classroom hours. AI contributes a lot in creating inclusive education environment, ensuring that all students engage with educational content.

3. Automating assessment processes through AI enables educators to allocate more time to pedagogy and student engagement. It includes rapid grading of multiple choice question, gives immediate feedback for students enhancing the learning loop. It is also time saving process which allows teachers to focus on critical thinking tasks.

4. AI can assist in the development of high quality interactive teaching materials that enhance student engagement. Simulations and virtual labs for hands on experience in subjects. It also provides immersive environment through virtual and augmented reality. It also suggests lesson plans on the basis of standard curriculum.

5. One of AI's most powerful feature is its ability to analyse vast amounts of students data, providing educators with valuable insights. It identifies pattern in student performance and engagement. It also highlights the area of strengths and weaknesses. This data driven strategy helps the teacher and the learner to lead their performance to better outcomes.

6. AI helps educators by automating time consuming administrative tasks, such as grading, generating lesson plans of chapters and creating quizzes. By handling these

tasks, AI frees up teachers' time, allowing them to focus more on direct student interaction, providing one on one support and fostering critical thinking.

References

1. Alasadi EA, Baiz CR. Generative AI in Education and Research: Opportunities, concerns, and solutions. *Journal of Chemical Education.* 2023; 100(8):2965-2971.
2. Alyenadi Wardat, Alshannag and ABU-AL- Aish, 2023.
3. Cetindamar *et al*., Sestino & De Mauro, 2022.
4. Davar NF, Dewan MAA, Zhang X. AI Chatbots in Education: Challenges and Opportunities. *Information.* 2025; 16(3):235. https://doi.org/10.3390/info16030235.
5. Davies HC, Eynon R, Salveson C. The mobilization of AI in education: A Bourdieusean field analysis. *Sociology.* 2021; 55(3):539-560.
6. Fitria TN. Artificial intelligence (AI) in education: Using AI tools for teaching and learning process. In Prosiding seminar nasional & call for paper STIE AAS, 2021, 134-147.
7. Gocen A, Aydemir F. Artificial intelligence in education and schools. *Research on Education and Media.* 2020; 12(1):13-21.
8. Harry A. Role of AI in education. *Interdiciplinary Journal & Hummanity (INJURITY),* 2023; 2(3).
9. McCarthy, 2004, 2.
10. Mesthene EG. Technological Change: Its impact on man and society, 1970.
11. Mosaiyebzadeh F, Pouriyeh S, Parizi R, Dehbozorgi N, Dorodchi M, Macedo Batista D. Exploring the role of ChatGPT in education: Applications and challenges. In Proceedings of the 24th annual conference on information technology education, 2023, 84-89.
12. Nguyen ND. Exploring the role of AI in education. *London Journal of Social Sciences.* 2023; (6):84-95.
13. Owan VJ, Abang KB, Idika DO, Etta EO, Bassey BA. Exploring the potential of artificial intelligence tools in educational measurement and assessment. *Eurasia journal of mathematics, science and technology education.* 2023; 19(8):em2307.
14. Sandhu R, Channi HK, Ghai D, Cheema GS, Kaur M. An introduction to generative AI tools for education 2030. Integrating generative AI in education to achieve sustainable development goals, 2024, 1-28.
15. Yim IHY, Su J. Artificial intelligence (AI) learning tools in K-12 education: A scoping review. *Journal of Computers in Education*. 2025; 12(1):93-131.
16. Zhai X, Chu X, Chai CS, Jong MSY, Istenic A, Spector M, Li Y. A Review of Artificial Intelligence (AI) in Education from 2010 to 2020. *Complexity, 2021*(1):8812542.
17. https://claned.com
18. https://www.chatgpt.com
19. https://d-nb.info
20. https://www.eduettu.com
21. https://www.gemini.google
22. https://kinginstitue.stanford.edu
23. https://rahacollege.in
24. https://www.teneo.ai
25. https://vection-technologies.com
26. https://www.vocabulary.com
27. https://en.wikipedia.org