

ARTIFICIAL INTELLIGENCE IN EDUCATION: A BOON OR A BANE?

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ABSTRACT

The World of technology has been expanding from a longer period back and its applications have amused the worldwide. Artificial intelligence: the future of the newer technology is taking the world in its hands. It is changing the nature of everything from jobs and the economy, to warfare, communications, privacy, and ethics. Artificial Intelligence is one of those branches in which advancements and developments can go beyond human imagination. The many sectors where AI is used profit the sector in a wide spectrum. Talking about fields like aeronautical model builders, mixed reality and smart board education and much more, AI has seen its present pinnacle. Now talking about whether it is a boon or bane, it totally depends on the way its use is expanded and is worked upon for innovation.

KEYWORDS

Artificial Intelligence, Gamification, Augmented and virtual reality.

Artificial Intelligence in Education Sector

Educational ecosystem is formed by knowledge base, teaching skills and experience, learning capability, and evolving teaching methods. It sets the foundation of human behaviour. Traditional learning or lecturing with limited resources leaves no quality feedback in the entire learning experience. One-way teaching system leaves the students incompetent to survive the ruthless, competitive outside world. The basic learning is confined just within the boundaries of the classroom and tuition centres and does not help in the advancement of the student's conscience. Technology wasn't much affordable and teachers were not adaptive to the use of innovative learning through digital resources. Nowadays, the introduction of digital teaching has benefitted the students in numerous ways. Digital learning solutions equipped with artificial intelligence is making revolutionary changes to the way education is imparted in students with varied interests and capabilities.

According to the founding father of AI, John McCarthy, "AI will attempt to equip machines to stimulate tasks that can only be accomplished with the help of Human Intelligence". In other words, AI is a machine or a computer program that learns how to do tasks which is funded by the human consciousness. The original 7 aspects of AI framed during 1956 Dartmouth Summer Research Project on Artificial Intelligence were:

- Simulating higher functions of the human brain.
- Programming a computer to use general language.
- Arranging hypothetical neurons in a manner so that they can form concepts
- A way to determine and measure problem complexity
- Self-improvement.
- Abstraction: Defined as the quality of dealing with ideas rather than events.
- Randomness and creativity.

Since the inception of AI, intensive sector presumes have been successful in achieving the first four aspects and in pursuit of randomness and creativity. Artificial Intelligence is known as such because intelligence is provided to computers, machines, and systems in an artificial manner. This process is made possible with complex mathematical algorithms and techniques which then processes the data and gives you the end result. It is the process of making things do as we humans do.

Machines, Computer, and other Electronic systems don't understand human. They process the data in a digital format (0s and 1s), but to process the data by applying logic and intelligence and making use of the data as we humans do, is what artificial intelligence is all about. Formally AI is defined as, "performing tasks and actions in the way we humans do, based on the knowledge it has". The knowledge can either be stored directly or it can also be stored in real time based on learning of the system from the external environment.

The advancements in the development of artificial intelligence spread all over the world at a tremendous speed and create an incredible hype increasing our expectations. With artificial intelligence, we can apply high degree of personalized learning wherein each student learns at her pace and remediated specifically for their weakness and not a class average. Such a learning solution can evaluate the understanding of a student about each parts of curriculum and emphasize on those that are not already mastered. At the same time, it also supplements the effort of a human teacher. Here are four ways AI is changing the education industry.

1. The Automation of Administrative Task

AI has great potential in automating and expediting administrative tasks for both organizations and professors. AI can automate the grading process in multiple choice tests in order to allow educators to spend more time with students one-on-one, but the technology may soon be able to do more than this. Software developers are creating new ways to grade written responses and essays as well. The admission process is also set to benefit as AI can automate the processing and classification of paperwork.

2. The Addition of Smart Content

The concept of smart content is a hot topic now as robots can create digital content with the same degree of grammatical prowess as their human counterparts, and this technology has finally reached the classroom. AI can help digitize textbooks or create customizable learning digital interfaces that apply to students of all age ranges and grades. One such system called Cram101 uses AI to condense the content in textbooks into a more digestible study guide with chapter summaries, practice tests and flashcards. Another platform called Netex Learning allows lecturers and professors to design a digital curriculum and content across a variety of devices, including video, audio and an online assistant. Virtual content such as digital lectures and video conferences are also a reality now thanks to AI.

3. Smart Tutors and Personalization

AI can do more than condense a lecture into flashcards and smart study guides as it can also tutor a student based on the difficulties they're having with class material. In the past, students had a limited window of time in which they could see their professors, meaning office hours or hoping they answer their emails. There are now smart tutoring systems such as Carnegie Learning that use data from specific students in order to give them feedback and work with them directly. While this AI application is still in its early stages, it will soon be able to work as a full-fledged digital professor that helps a students with their educational needs in just about any area of need. Also, these platforms will soon be able to adapt to a wide variety of learning styles in order to help every educator and student.

1. Virtual Lecturers and Learning Environment

Even your actual lecturer may soon be replaced by a robot. Well, not entirely, but there are already virtual human guides and facilitators that can think, act and react with humans by using gesture recognition technology in a natural way, responding both verbal and nonverbal cues. A more digital learning environment is also becoming a reality with institutions such as the University Of Southern California (USC) Institute for Creative Technologies developing smart virtual environments and platforms.

The organization uses AI, 3-D gaming and computer animation to create real virtual characters and social interactions. This initiative includes more than virtual facilitators as augmented reality may soon be part of the classroom as well.

The Seven Digital Transformation Trends in the Education Industry with the introduction of AI is as shown below:

1. Augmented and virtual reality

AR and VR are examples of game-changing technologies whose implications are difficult to predict. Potential applications in the educational sphere are immense. Giving students an opportunity to choose their learning setting. Providing first-hand experiences of something that cannot be achieved in any other way. AR and VR have the potential to increase interactivity, immersion, collaboration, and attention.

2. Personalization

Every student is unique, with their own strengths and weaknesses. However, many educators have typically had little choice but to apply the same general teaching approach to all students. Technology enables them to evolve from this paradigm. The “blending learning” approach is based on giving individual students responsibility for aspects of their education.

2. Gamification

For years, many educators seemed to feel that learning and play were mutually exclusive. However, game elements can solve problems educators have faced for generations. They provide immediate feedback to actions and allow students to learn by doing rather than memorizing passages or formulas. Gamification enables students to use their knowledge in practice and solve problems in environments imitating real life. Better still, it greatly increases motivation and engagement.

3. Artificial intelligence and Chat-bots

AI technology may still be in its infancy, but it can have a significant impact on education. For example, chatbots can answer questions about homework, college regulations, paperwork requirements, and more, freeing up human resources for more complex issues. More advanced applications involve assessment and learning; for example, tools like Virtual Learning Assistant, by Cognii, have great potential for one-on-one tutoring. Natural language processing (NPL) can answer open-response questions and provide instant feedback and scoring

4. Internet of Things

IoT is another transformative technology that changes things in small but significant ways. In the sphere of education, one of the most promising trends is smart campuses. Uniting all a university’s devices into a single network enables a highly customizable learning environment that meets the needs of students and educators while eliminating unnecessary interactions.

5. Remote Proctoring

It is the new technology which can help to simplify exam invigilation process. Students can appear for exam from any location classroom/home. System is able to invigilate such exam remotely using remote Proctoring. It uses web camera attached to computer system to authorize remote students. Many education institutes, corporates, universities have started using this technology to simplify examination process with artificial intelligence of Remote Proctoring.

6. Answersheet Evaluation

Physical Answer sheet evaluation is one of the pain areas for university or education institution. Many entities are moving towards onscreen evaluation system as it is intelligent and auto calculates the score. It also ensures that examiner has truly verified all pages of the answer sheet. It also saves logistical cost of handling physical answer sheets. It can help you to automate result processing.

DEMERITS OF AI

Stephen Hawking, Elon Musk, Steve Wozniak, Bill Gates, and many other big names in science and technology have recently expressed concern in the media about the risks posed by AI.

The fundamental question asked by these minds is that if AI has the potential to become more intelligent than any human, then there is no way to predict what the future holds, especially if they end up 'outsmarting' us. Artificial intelligence will also negatively affect the various human-like features which are being used during the process of education. It can also create disparity among different sections of society as technology will be more accessible to elite section. Another criticism of using AI in education is that it will eliminate 'trial and error learning method' which is a critical part of learning. The machine technology will allow students to learn in a judgment free environment. There is another concern that if AI is put in place in schools, colleges and universities, we may diminish the role of teachers. Knowing the importance of both traditional learning process and AI based education, there is need to integrate both aspects in order to boost academic and social competencies. There is huge scope for both to flourish if they are integrated in a balanced manner. Artificial intelligence should not be used to replace the prevailing learning process, rather it should act as an extension or additional features to the education system.

CONCLUSION

As the famous physicist Stephen Hawking states, "Success in creating AI would be the biggest event in human history. Unfortunately, it might also be the last, unless we learn how to avoid the risks." With inference from the above stated, AI is neither a boon nor a bane in the present scenario. But in the near future, human: their causes and developments will estimate the truth of AI.