"INTERSECTION OF EDUCATION AND ARTIFICIAL INTELLIGENCE "

Research Paper

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"Abstract"

Artificial intelligence is certainly changing the world and like many fields in the world, education field is also impacted positively by this change. But there are aspects which needs to be carefully monitored and controlled so that the world can understand this change well and transition to a new world where the learning can fundamentally be different from what we all have gone through in our life and can be a lot more productive and constructive.

Keywords: Education, Artificial Intelligence.

1.   Introduction

Education is the transfer of knowledge, skills and character from one to other. Education can happen in a formal way in an institution or in an informal way outside the schooling system. Informal learning can happen through daily experiences also.

Artificial intelligence is the ability of machines or software to act intelligently based on the data available to it. Artificial intelligence is built on past performance and trend and it can come up with a futuristic approach or recommendation based on the past relevant data.

There are a few good research work available on this topic. A recent article (Dash and Bhoi, 2024) studied the role of AI in reshaping traditional educational paradigms. . Another article (Luan et. Al, 2020) discussed the new challenges and directions facing the use of big data and artificial intelligence (AI) in education research. AIs influence on traditional educational paradigms (Mustafa, 2023) is another good study on this topic.

A sample topics output from ChatGPT on this research area

Just to test the power of Gen AI, the author has placed the question ("Intersection of Education and Artificial intelligence") in ChatGPT prompt. The answer received from it is simply superb and it took less than a second to get the below topics as a guideline to this article.

2.   Personalized learning

In today's fast moving world education must be personalised. People are so busy with their day-to-day work and they need to devote their limited available quality time for updating themselves. Hence the learning must be personalised for each and every one of their asks. Personalized learning not just saves time but also customizes the learnings that each one wants to accomplish. People interest and learning preferences are very different. Their focus and performance would be different in different parts of the learning and that has to be normalised and has to be brought in a structured fashion. Apart from

improving learning outcomes personal learning also would focus on their specific strengths and weakness and bring in the best student experience and results. This would improve each and everyone's productivity to a greater extent. Hence personal learning can be a differentiator for the world.

3. Adaptive learning systems

Adaptive learning systems are the ability for learning systems to dynamically adjust the difficulty of the educational materials IN REAL TIME so that students can scale up or scale down based on their learning ability. This would help the students to have confidence to complete the learning rather Quitting early as the complexity goes up. So, AI based on the students learning ability, by scaling up and scaling down the complexity of the training program, support them in their learning journey and helps them to accomplish the results that are most desired and optimal for them.

4. Virtual Teaching Assistants and Tutors

AI driven virtual assistance and tutors help students to get personalised support and get answers for questions which are very specific to their learning. Also, based on the students ability to understand the concepts, AI can explain the concepts from simple way to most difficult way. Virtual Teaching Assistant can demonstrate the training material by offering explanations which could be analytical or graphical in nature, depending on the aptitude of the student, also based on the ability of the students to learn. Virtual AI Assistant can provide additional resources also at a rapid pace and no cost. Hence, virtual teaching assistance and tutors can bring in effectiveness to the learning through the personalised view that they can give.

5. Automated Grading and Assessment

AI driven Automated grading and assessment allows teachers to get plenty of time which they would use to create more course content. Also it gives flexibility to students to take as many exams as they want to achieve the right proficiency levels. By grading the final submitted material, teachers can focus on the differentiated learning to the students so that the students can achieve the maximum benefits out of these training programs.

6. Data Analytics for Educational Insights

Artificial intelligence helps someone to analyse the data related to education and identify patterns trends and comes up with insightful information on what needs to be done in terms of creating a curriculum. This also helps institutions to make policy decisions. Also based on the data educators and policy makers can make insightful path breaking decisions which can revolutionize the education of the future. Data analytics can provide a perspective of students strengths and weakness so that they can structure their education accordingly. In fact students can get benefited by AI which gives a point of view of their personal productivity, including a certain period in a day where they are very productive. Based on this analysis, they can devote their time and maximise their potential to achieve the best possible outcome.

7. Ethical Considerations

Important ethical consideration that needs to be considered is how are we planning to handle data privacy. Also some of the algorithms that are being created by AI tools can be used by students for their educational purposes. So key is how to structure their educational results/outcomes, on future

looking outcomes and not based on past available data and results. This can help students to create more and more innovative solutions and not necessarily struck with material that is available already.

8.   Conclusion

In a world rocked by many new innovations, Artificial Intelligence has a significant role to play in all fields. Specifically in Education field the changes that it can bring in can affect the stakeholders namely, Students, Teachers, Educational institutions, Industries etc., The intersection of education and AI holds tremendous potential for the teaching community as well as the students and also the educational institutions in terms of personalising the educational needs making their education to be optimal and effective. AI also reduces the time needed for regular mundane work of educator and free up their valuable time for activities which are value add in nature to the education field.

References

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