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ROLE OF ARTIFICIAL INTELLIGENCE IN EDUCATION

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ABSTRACT

The origin of artificial intelligence can be dated back to the early 1950s. It is essential to understand how Artificial Intelligence can be used and is being used in the Educational sector. Artificial Intelligence can be expected to improve teacher effectiveness and student engagement by introducing artificially intelligent games and creating better learning environments and better tutoring systems. artificial intelligence has tremendous potential for a country like India. Artificial intelligence has begun to demonstrate its benefits and power in the field of education. It is expected that “artificial intelligence + education” will close all the gaps in the education sector.

KEYWORDS

Artificial intelligence, education, future, technology

INTRODUCTION

Intelligence demonstrated by machines, as opposed to the natural intelligence displayed by humans or animals is known as artificial intelligence. Artificial intelligence leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind. The use of artificial intelligence and machine learning has simplified our lives in many ways with technologies like voice assistants, smart input keyboards, self-driving vehicles, facial recognition technologies, and most importantly artificial intelligence has great usage in security and surveillance. The emergence of big data, cloud computing, artificial neural networks, and machine learning have enabled engineers to create a machine that can simulate human intelligence. Machine learning is the study of computer algorithms that can improve automatically through experience and by the use of data.

With the advancement of technology, we are stepping into a new era of modernization and digitalization. Digitalization refers to the adoption of a system, process, etc. to be operated with the use of computers and the Internet. Artificial intelligence is important to almost everyone. Artificial intelligence is projected to have a huge impact on almost every industry. We already have it on our phones, Alexa, other smart devices, cars, healthcare systems, and many more and it is only going to expand and influence all the other sectors in the future.

The education sector has the most potential and actually is also the one that is rapidly growing every day. Artificial intelligence has a vast potential to address some of the major challenges in the education sector. It is extremely beneficial to students and young adults or for anyone who wants to learn anything. There is no limit. Artificial intelligence is a tool like no other.

Artificial intelligence oracle and venture capitalist - Dr. Kai-Fu Lee stated in 2018 “[AI] is going to change the world more than anything in the history of mankind. More than electricity.” This is a statement we can notice happening around us right now. Artificial intelligence and education together open up endless possibilities and opportunities.

Not just academically, but it can be utilized for administrative work related to education as well. At the administrative level, Artificial intelligence can be used for admission, planning curriculum, and evaluation. Whereas at the academic level, tutoring and assessment can be dealt with with the help of artificial intelligence.

The following areas are in which artificial intelligence steps benefit the educational field:

- Personalization - Artificial intelligence is the perfect evaluator. It can very accurately assess you and your skill set. It helps us to find out what we know and do not know. Every individual’s grasping level is different. Here artificial intelligence can easily step in and prepare a personalized and organized schedule for each person.
- Tutoring - Continuously evolving personal study programs take into account students’ gaps to fill during individual lessons. Personal tutoring and support for the students outside of the classroom help learners keep up with the course and keep their parents from struggling to explain algebra to their kids. Artificial intelligence tutors are great time-savers for teachers, as they do not need to spend extra time explaining challenging topics to students. With AI-powered chatbots or artificial intelligence virtual personal assistants, students can avoid being embarrassed by asking for additional help in front of their friends.
- Quick and any-time access - With artificial intelligence helpers and online-based robots, a student's query can be solved in a very short period. Students always have the access to learning. Artificial intelligence is also not restricted to one particular place, so it can be accessed anywhere.
- Unlimited learning - Education has no limits, and combining that with artificial intelligence is completely endless and can help to eliminate boundaries. Any information across the globe can be accessed anytime.

REVIEW OF LITERATURE

Kumar (2018) studied that modern-day education has majorly revolutionized and has become a digitally dependent world. Technology has slowly made its way into education as well which is artificial intelligence. Especially during the pandemic of covid 19 education and technology really came together. It becomes more accessible to all with the use of smartphones and computers. Amazon Alexa, google home and Microsoft Cortana are some tools used. Personalized learning, voice assistance, aiding education in administrative tasks, and breaking barriers are some of the opportunities of Artificial intelligence. Artificial intelligence systems can also assist in the field of education with secondary tasks such as grading activities and providing personalized responses to the students and other repetitive work. Challenges and shortcomings include lack of explainability, lack of contextual awareness and inability to learn, lack of trust and resistance to change, lack of ethics and value, and lastly job losses. Despite the above, artificial intelligence has tremendous potential for a country like India. It is rich with data and has technological capabilities. In the near future, it is understood that Artificial intelligence and machine learning will take a firm place in all fields of education. Artificial intelligence has begun to demonstrate its benefits and power in the field of education.

Kasinathan (2019) issued that while the idea of Artificial Intelligence is not new, how it is expanding and evolving is new. With the help of big data, machine learning and an exponential increase in computing power artificial intelligence has become a reality. The Indian school education system is among the largest in the world. The government education system is however weak and ill-equipped. It lacks proper infrastructure and qualified and motivated teachers. There are also newer challenges like increasing privatization and commercialization of the

sector leading to stratification. Even the introduction of digital technologies has also been uneven. Dynamic big data is used for the development of algorithms that can support self-learning through adaptive practice, personalized teaching, and Macro diagnostics and predictive models. Artificial intelligence in education in India is still in the beginning stages. In education, over time as more data is available more solutions are found for the different challenges. The biggest contribution that artificial intelligence could make to Indian education would be to promote the idea of student-centered learning.

Ahmad (2021) published that Education is one of the most important and primary sectors of society. It is linked with all the other sectors and its impact on them is substantial. Education is significant and hence becomes indispensable. Even during the pandemic, different alternatives were discovered when it came to education and teaching. Covid 19 is not the only challenge. Other difficulties include access to education, difficulties in reaching real classrooms, financial issues, and more. One of the solutions to these problems is incorporating technology in the form of artificial intelligence. It is changing every sector of society which includes the education sector to a great extent. The future of education is with the evolution of technology. In education, artificial intelligence can step in for the role of tutoring, communication, analysis, assessment, and evaluation of the student, supervision, and other administrative tasks as well. Artificial intelligence's use in education and learning is significant and cross-disciplinary. Students can access any education from a location without access to physical classrooms in a real environment. Geography is not a problem for technology. artificial intelligence systems interact with each student individually and address them according to their needs and level of understanding. Students can learn according to their level of understanding or knowledge. Other tasks like attendance, syllabus, assignments grading, etc. can also be done through artificial intelligence systems.

Xu(2021) studied that Education in a broad sense means to increase people's knowledge and skills, while it also refers to education from schools that carry out systematic learning for students. Artificial intelligence education is a new form of education-based artificial intelligence technology and systems, which is integrated into concepts, organization, modes, resources, and other aspects. Artificial intelligence will first transform a traditional classroom into a more advanced one. It can free teachers from monotonous work. Education these days is not confined to a single actual classroom. Artificial intelligence is able to observe and analyze learning patterns and individual differences among students. Artificial intelligence education also enables universal quality-oriented education. It improves and increases critical thinking, innovation, and other elements to comprehensively develop students' skills. Smart assessment, smart tutoring, educational simulation games, and educational robots are some applications of artificial intelligence used for education. The most direct result of the application of artificial intelligence in education is the introduction of an intelligent education system. The intelligent learning system was born based on computer learning. But there are problems with artificial intelligence. Because current education is still in its infancy, the role of artificial intelligence and the development of artificial intelligence education is still in the preliminary stages. There is a lot of advancement yet to happen. Technology is upgrading. As of now the scope of artificial intelligence is also limited which means, there are certain areas where artificial intelligence systems can not be used. They are not yet a replacement for teachers. It is expected that “ artificial intelligence + education” will close all the gaps in the education sector.

Kandula (2020) researched Artificial intelligence as the simulation of human intelligence processes by machines, especially computer systems. Artificial Intelligence is present in our lives and is progressing with efficiency in modern times. Today, artificial intelligence work is performed in a police investigation of diseases, reducing the danger of car collisions, developing cures, etc. Artificial intelligence-equipped robots have outperformed humans in almost every field that was once dominated by man. Artificial intelligence provides a secure solution to ensure the integrity of online test system assessments in a cost-effective and scalable manner. artificial intelligence has applications in almost every field and education, in particular, it can help a lot both the teachers and the students be it in grading, revision, testing, or improving the learning capability of the students and giving additional support to those who are weak in particular subjects or students who can't learn properly in class or who just want a quick revision before an upcoming test it can help students no matter the stage they might be on.

Kengam (2020) said Contrary to popular belief, utilizing artificial intelligence in education isn't such a bad idea after all. Just like any other element, artificial intelligence, too, has pros and cons that come at a certain cost. Many students who are introverted or shy and who don't ask doubts in class can easily get the answers from artificial intelligence software that has been made for this particular task looking at the bigger picture it becomes visible that artificial intelligence has more pros than cons in terms of education. It becomes difficult to move forward and evolve if we are concentrating more on the drawbacks, rather than benefiting from the advantages. Moreover, artificial intelligence can encourage eLearning, to enhance the potential of the student Additionally, artificial intelligence in education incorporates different frameworks and tools that emphasize structure, improvement, research and development, administration, and assessment of procedures to ease teaching and learning.

Chen (2020) researched Artificial Intelligence in Education (AIEd) can be considered to be the combination of three major fields, including computer science, statistics, as well as education. In education, AI is the outermost layer then comes machine learning and then deep

Learning. Machine Learning (ML) has a primary aim to propose methods enabling learning from data and to further make predictions. Educational Data Mining (EDM) is the analysis of various types of educational data by using statistical, Machine learning, and data mining algorithms.

Chen (2020) studied that Artificial intelligence-aided education includes intelligent education, innovative virtual learning, and data analysis and prediction. Various techniques are incorporated into artificial intelligence systems for learning analysis, recommendation, knowledge understanding, and acquirement, based on machine learning, data mining, etc. The 3 main things in artificial intelligence in education are machine learning, learning analytics, and data mining. At the core of machine learning is knowledge discovery it can help create recommendations for students, then comes learning analytics that gives a better insight to the teachers of how the students are taking the classes whether they are understanding or not, and how the course can be customized or changed according to the need of a particular student. Data mining is used in education to give a precise systematic response to the student or teachers it helps in the learning process.

FINDINGS AND CONCLUSION

Artificial intelligence in education is revolutionary. There is a rapid growth of Artificial Intelligence and hence it becomes necessary for one to know how to use it to their benefit. The use of artificial intelligence is inevitable and this is only going to advance in the future. Educators need to understand how to educate using artificial intelligence as a tool, as well as learners, need to learn how to utilize it. Artificial intelligence education can integrate the knowledge of different disciplines and multiple technologies simultaneously and has great potential to enrich children's learning. Artificial intelligence-integrated learning offers a flexible learning experience that's easily accessible for students and employees all over the world. The role of education in our modern-day society is vital. Education leads to evolution. There may be some drawbacks to this and the complete efficiency is yet to be completely understood but the dependence on artificial intelligence is only going to increase.

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