Role of Artificial Intelligence in School Education

Shri Madan V. Dhole[1]
Assist. Teacher, Jeevan Vikas Vidyalaya, Devgram Tah. Narkhed, Dist. Nagpur
Dr. Devendra S. Bhongade[2]
Principal, Jeevan Vikas Mahavidyalaya, Devgram, Tah. Narkhed, Dist. Nagpur

ARTICLEINFO

ABSTRACT

Now a days Artificial Intelligence (AI) is among one of the key and major words used in technological advancements. The applications for this modern technology are growing every day and we are just starting to explore the possibilities. Artificial Intelligence explores the new possibilities of innovation in educational technology. This paper explores the role of artificial intelligence in school education in different perspectives. The work also highlights the challenges and drawbacks faced by stakeholders in school education. The work concludes that besides drawbacks of using AI, the AI can turn out to be the powerful educational tool that can assist the educators for more modern method of teaching-learning process if use safely.

Keywords : Artificial Intelligence, Modern Technology, School Education, Teaching-Learning Process.

I. INTRODUCTION

Now a days Artificial Intelligence (AI) is among one of the key and major words used in technological advancements. Basically, it is a method of making a computer, a computer-controlled robot, or a software think intelligently like the human mind. AI is accomplished by studying the patterns of the human brain and by analysing the thought process. The outcome of these studies develops intelligent systems and software. It is a field, which combines computer science and robust datasets, to enable problem-solving. It also encompasses sub-fields of machine learning and deep learning, which are frequently mentioned in conjunction with artificial intelligence. These disciplines are comprised of AI algorithms which seek to create expert systems which make predictions or classifications based on input data. Put simply, AI systems work by merging large with intelligent, iterative processing algorithms. This combination allows AI to learn from patterns and features in the analysed data. Each time an Artificial Intelligence system performs a round of data processing, it tests and measures its performance and uses the results to develop additional expertise.

The history of artificial intelligence (AI) began in antiquity, with myths, stories and rumours of artificial beings endowed with intelligence or consciousness by master craftsmen. The seeds of modern AI were

planted by philosophers who attempted to describe the process of human thinking as the mechanical manipulation of symbols. This work culminated in the invention of the programmable digital computer in the 1940s, a machine based on the abstract essence of mathematical reasoning. This device and the ideas behind it inspired a handful of scientists to begin seriously discussing the possibility of building an electronic brain.

APPLICATIONS OF AI IN VARIOUS FIELDS:

The applications for this technology are growing every day and we are just starting to explore the possibilities. One of the most significant applications of AI is in the field of machine learning. Machine learning algorithms enable computers to learn from data and improve their performance over time. This has led to breakthroughs in areas such as natural language processing, computer vision, and robotics. For example, in natural language processing, machine learning algorithms can be used to analyse and understand text, speech, and other forms of human communication. This has led to the development of chatbots, voice assistants, and other applications that can interact with humans in a more natural way.

The ecommerce industry has capitalized on AI in a major way. Companies use AI to predict trends, analyze performance, assist with inventory management and more. AI's ability to track usage patterns and verify information has also made it a powerful tool in the fight against credit card fraud and fake online reviews. Further, AI forms the basis of "recommendation engines" that show shoppers products based on their browsing history and preferences. And of course, virtual assistants and chatbots show up here, too. It is used in lot of fields such as Online shopping and advertising, Car driving, Digital personal assistance, Machine Translations, Smart homes, cities and infrastructure, Cybersecurity etc. Artificial intelligence is widely used to provide personalised recommendations to people, based for example on their previous searches and purchases or other online behaviour. Hence this application is hugely important in commerce: optimising products, planning inventory, logistics etc.

AI has also risen to prominence in agriculture. Computer vision and machine learning have produced apps that can identify soil deficiencies and provide planting recommendations. AI also informs "precision agriculture," whereby farmers use AI to analyze weather patterns to predict forecasts and planting schedules, determine the best crops to grow, addressing pest attacks, measuring soil conductivity and pH. Also, the combination of AI and robotics helps farmers harvest crops faster and more efficiently than human laborers.

The field of finance has leaned heavily into the use of AI at every level. Customers can take advantage of AI to get information about their banking and investment accounts. Banks and credit card firms rely on AI to detect changes in transaction patterns to catch fraud in action. Lenders use artificial intelligence to predict and assess borrowers' risk levels and make lending decisions. Venture capital firms adopt AI to generate customized insights and financial risk management decisions. Robo-advisors and financial management services have leaned into AI to automate trading.

As artificial intelligence has grown more accurate, it's made its debut in the medical field as well. On the less interesting side, AI helps administrators to process the data, schedule meetings, organize files and transcribe medical notes. For more eye-popping illustrations of applications of artificial intelligence, consider how robots rely on AI to automate surgeries. Machine-led surgeries are more precise and less invasive, have a smaller margin for error and can run 24/7. AI can assist in medical diagnosis by tracking health using wearable devices and indicating problems before patients are aware. Some programs have also adopted AI to help interpret body scans (like MRIs) to detect harmful growths with greater speed and accuracy. Pharmaceutical companies even use AIs to analyze historical and modern data to discover new potential drugs.

Another common application of artificial intelligence can be found in companies' marketing teams. AI's ability to quickly analyze data is useful for teams that need to quickly generate and act on insights. It can generate campaign reports, improve customer engagement, personalize messages, deliver online retargeting campaigns, pivot advertising methodology mid-campaign based on new insights Editing programs like Grammarly also make the cut, as AI can analyze grammar, vocabulary and sentence construction to keep brands on-message. Social media makes another excellent use case for artificial intelligence. Firms like Meta and Twitter use AI to analyze massive amounts of data and generate actionable insights. Many companies also use AI to cultivate their social media brand.

ARTIFICIAL INTELLIGENCE AND SCHOOL EDUCATION:

Today's education plays a vital role in an individual and a society's development. The research has been discovering and developing the use of Artificial Intelligence (AI) in the educational field and coming up with potential applications that have not been known before. Artificial Intelligence explores the new possibilities of innovation in educational technology. Today, artificial intelligence becomes the core element of the modern education system and a basic tool to get competitive advantages of the market.

Artificial Intelligence (AI) has the potential to address some of the biggest challenges in education today, innovate teaching and learning practices, and accelerate progress. While education is still dominated by human personnel, artificial intelligence helps boost educators' potential. Often, AI is used to facilitate automation in repetitive and data-heavy tasks such as grading homework, scheduling meetings, managing multiple online courses at once, sending personalized communications to students, creating or digitizing lectures and study guides. Yet again, chatbot-style AIs pop up – this time, to quickly answer routine questions and allow educators to spend more time on complex tasks. In particular, there are various applications of AI

in school education including classroom monitoring and recommendation systems, intelligent tutoring, sentiment analysis, students' retention, and drop out the prediction and student grading and evaluations.

Rather than teaching in front of a classroom full of students, lockdowns forced many educators across the globe to teach remotely, from their homes. Using AI in education holds many benefits for both students and teachers:

➢ Learning resources can be accessed from anywhere, at any time
➢ Time-consuming, tedious tasks such as record keeping or grading multiple-choice tests can be completed through AI automation
➢ Frequently asked questions can be answered through chatbots
➢ AI tutors and chatbots can be available to answer questions at any time
➢ Learning can be tailored and adapted to each student's goals and abilities through personalized programs

CHALLENGES FOR ADOPTING AI APPLICATION:

As the significance of using AI algorithms and systems in education has eventually increased, educators have consistently adopted AI tools in teaching and learning. Teachers utilize AI algorithms to analyze data on individual students' learning progress and know about their strengths, weaknesses, and learning style. With AI tools, educators can design their lesson plans and use appropriate resources to create an effective curriculum that fulfils modern teaching standards. Consequently, AI algorithms help teachers to focus on interacting with their students. It helps boost student and teacher relationships. However, corporate training institutions face different challenges in adopting AI for education.

1. Creating effective public policy on AI:

As more technological advancements are taking place, public institutions should provide financial aid to educational foundations aided to help learners

develop AI skills. Moreover, public policies should set a policy, allowing local and international organizations to work in partnership. It will help improve AI functions in many educational institutions. As more educational institutes emphasize using AI education tools to transform their teaching and students' learning, state policies should provide sufficient monetary assistance to academies. They should be provided with funds and resources that provide innovative opportunities for AI in the field of education. Governments should also invest in building academic centres of excellence to conduct AI research, gain AI scholarships and prepare AI experts.

2. Developing appropriate infrastructure:

The developed countries are unable to employ AI facilities in their educational institutes as they lack basic technological infrastructure such as unavailability of modern electrical equipment, ICT hardware availability, Consistent internet facility, data costs, and deficiency of ICT skills. Therefore, the state should take necessary measures to initiate new strategies that improve AI learning facilities in educational institutes.

3. Providing AI training to the teachers:

It implies educators learn AI digital skills and employ them in their instructive methodologies. Teachers work and engage in extensive research and data analytical skills to improve their AI- education systems. The institutes should acquire inventive management skills to manage human and AI resources. Hence, AI tools allow learners to accomplish new skills and competencies.

4. Managing ethics and transparency in data collection:

It implies the institutes maintain ethical concerns while implementing AI in the education system. A transparent data collection system should ensure the protection of individual data and maintain privacy and ownership of users' data.

DRAWBACKS OF AI APPLICATION IN SCHOOL EDUCATION:

This new uprising technology can also be misused for various means. AI's potential for misuse also includes developing more sophisticated malware and attack techniques, data manipulation and forgery, automated social media manipulation, advanced fraud schemes, and manipulation of an autonomous vehicle or drone navigation systems. Ultimately, AI is all about data. Just like how data is analyzed and understood through cybersecurity solutions, the same happens on the other side. Cybercriminals and hackers are increasingly using AI to launch even more sophisticated attacks. This is being done with many various forms of cyberattacks being automated. This means thousands of attacks are launched relentlessly through AI. Cyber criminals also use AI to run their own research and find loopholes in enterprises.

There is a myriad of risks to do with AI that we deal with in our lives today. Not every AI risk is as big and worrisome as killer robots or sentient AI. Some of the biggest risks today include things like consumer privacy, biased programming, danger to humans, and unclear legal regulation. Despite of all its misuses it can still be of great use if kept in safe hands.

Some teachers and instructors may see AI as a threat to their jobs, believing it will automate their tasks and make them redundant. But it is important to note that AI is not meant to replace teachers but rather to assist them in their work. AI is a tool and should be developed and used as such. There is also cost of developing and implementing AI-powered educational tools. This can be a significant barrier for schools and teachers who need more resources to invest in AI technology. There is also the lack of human interaction and emotional support that students receive when using AI-powered educational tools. While AI can provide personalized learning and instant feedback, it cannot replace the human and emotional support that students need to succeed, and relying too heavily on AI-powered educational tools may impact students negatively. Privacy concerns are also a limitation of AI in the classroom. AI-powered educational tools may

collect and store sensitive personal data, which raises concerns about privacy and security.

II. CONCLUSION

AI is redefining the way business processes are carried out in various fields, such as marketing, healthcare, financial services, and more. Companies are continuously exploring the ways they can reap benefits from this technology. As the quest for improvement of current processes continues to grow, it makes sense for professionals to gain expertise in AI. Though only a dream a while ago, artificial intelligence (AI) has become a reality, being now part of our routines and penetrating every aspect of our lives, including education. It is still a field in its infancy, but as time progresses, we will witness how AI evolves and explore its untapped potential. This paper examines current insights and role of AI in various contexts. The challenges faced by the education field in implementation of artificial intelligence are discussed. The work concludes that besides drawbacks of using AI, the AI can turn out to be the powerful educational tool that can assist the educators for more modern method of teaching-learning process if use safely.

III. REFERENCES

[1]. Darell and Allen John (2018). How artificial intelligence is transforming the world, Brookings, USA.

[2]. Report of UNESCO, (2022). Artificial intelligence in education, International Forum on artificial intelligence and education, New Delhi, India.

[3]. Wang, X., He, X., Wei, J., Liu, J., Li, Y., & Liu, X. (2023). Application of artificial intelligence to the public health education. Frontiers in Public Health, 10.2. Wesh,

[4]. www.ask.com/news/artificial-intelligence-simple-explanation

[5]. Zou Jiefeng (2003). Advances in Artificial Intelligence and Machine Learning for Computer Engineering, Journal of Computer Engineering & Information Technology, London, UK. ISSN: 2324-9307

Cite this article as :