The Impact Of Artificial Intelligence On Education

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ABSTRACT

The increasing integration of artificial intelligence (AI) in education has sparked significant discussions among researchers and professionals in the field. Many believe that AI is reshaping the roles of teachers, schools, and educational institutions, bringing both opportunities and challenges. While AI has the potential to enhance learning experiences, streamline administrative tasks, and provide personalized education, it also raises concerns about the diminishing role of human educators and possible ethical dilemmas. Research findings suggest various strategies for utilizing AI effectively while mitigating potential drawbacks. Overall, educators, researchers, and professionals in the field tend to view AI positively, recognizing its ability to improve educational quality. However, concerns persist, particularly among teachers and academics, regarding the future of traditional teaching roles. Some worry that AI may replace critical aspects of human interaction in education, potentially affecting student engagement and mentorship.

Legal experts and jurists emphasize the importance of establishing clear regulations and ethical guidelines to govern AI's role in education. They highlight concerns related to data privacy, bias in AI algorithms, and accountability for decision-making processes. On the other hand, engineers and technologists primarily see AI as an innovative tool that can enhance efficiency and accessibility, benefiting both students and educators. Ultimately, while AI presents numerous advantages, it is essential to strike a balance between technological advancements and the irreplaceable value of human educators in shaping students' learning experiences.

Keywords: Artificial Intelligence, Education, School Management.

I.INTRODUCTION

When robots demonstrate intelligence, it is referred to as artificial intelligence, as opposed to the innate intellect that people possess. The study of intelligent agents, including any system that can sense its surroundings and take action to maximise its chances of attaining its objectives, is known as artificial intelligence (AI). The ability of machines, particularly computer systems, to mimic human intellect is known as artificial intelligence (AI). One common application of AI is to provide tailored recommendations for users based on their past actions on the web, such as searches, purchases, and more. There are several instances of AI software in use today, such as voice assistants, face recognition software for mobile phones, and financial fraud detection systems that use machine learning. The advantages of artificial intelligence include a decrease in human mistake, elimination of risk, round-the-clock availability, digital assistance, new innovations, and impartial decision-making. The future of mankind is being shaped by artificial intelligence in almost every field. It has been and will be an innovator for quite some time, and it is already playing a significant role in the development of new technologies like big data, robots, and more. Highlighted by Roll and Wylie (2016) Statements made by Henry Ford The school seems to have transformed into a "rapid class" that gets things done quickly. But in this new millennium, would these "quick teachings" still be relevant, or will something new be required? Or will we have to set up a whole new structure, unheard of before, to accommodate this new age? In the field of education, what opportunities does artificial intelligence present? Keeping people's emotional and social selves intact while setting it apart from AI cars? Policymakers and implementers in the field are likely to prioritise these concerns. Indeed, the question of whether AI can really replace educators has already sparked discussion (see Felix, 2020). According to Manika et al. (2017), excellent educators will always be available to lead programs that aim to improve students' EQ, creativity, and communication skills. Technological advancements in AI and automation will, in fact, "make humans more human," say these writers. The following is a condensed version of the results of the artificial intelligence education study that Haseski (2019) conducted: Learning becomes more personalised, students have a more effective learning experience, they are able to find their skills, and creativity is enhanced via the application of artificial intelligence in education. and make life easier for

educators. According to Humble and Mozelius (2019), researchers in the field of artificial intelligence see this change in computer education as a threat. States and nations should identify and profile educators who collaborate with these support systems in order to be ready for the future (Wogu, Misra, Olu-Owolabi, Assibong & Udoh, 2018). While studies of AI in the classroom have garnered a lot of press as of late, studies of AI theory in general date back to the 14th century (Moselius, 2019). They are quickly rising to prominence in scholarly works and among scientists. The growing body of literature on "leadership with artificial intelligence" (Canbek, 2020) indicates that AI studies are moving into the realm of organisational management. The education system and its procedures are poised for significant transformations as a result of the growing use of artificial intelligence in the field. According to Sekeroglu, Dimiller, and Tuncal's (2019) study, AI may assist educators in better tailoring lessons to each student's unique needs, and it can open doors to higher-quality education for underserved populations. Supporting smart learning settings with artificial intelligence technology may successfully deliver customised ways, according to research (Mohammed & Watson, 2019). Although human instructors seem to be necessary for high-quality education, AI has the potential to enhance both the quantity and quality of instruction at all levels, particularly with extensive customisation (Grosz & stone, 2018). From the vantage point of personalised learning, Pedro et al. (2019) highlights the dual-supervised model including AI. There are a number of mundane and administrative things that teachers have to do, like: B. Use artificial intelligence assistants (secondary instructors) to cut down on mundane tasks and increase time for student supervision and one-on-one engagement in the classroom, rather than spending so much time repeating and answering questions on a wide range of subjects. Lets you concentrate on talking to people.

II. LITERATURE SURVEY

AI in Enhancing Teaching Efficiency
AI technologies such as image and face recognition, along with adaptive learning systems, have significantly improved teachers' efficiency in managing classrooms and grading assignments. Kuo (2020) highlights that AI-driven automation allows educators to focus more on interactive teaching rather than administrative tasks. Additionally, Cui et al. (2019) emphasize how AI enhances student learning experiences by offering personalized learning environments tailored to individual needs.

AI in Virtual Learning and Adaptive Education
Huang et al. (2021) discuss how AI is advancing virtual learning by integrating learning analytics, data mining, real-time analysis, and intelligent teaching systems. These adaptive learning technologies adjust instructional methods based on students' progress, ensuring a more effective and customized education. This innovation provides valuable insights into students' learning behaviors and enables educators to address weaknesses in real time.

Automated Examination and Assessment
AI technology has revolutionized the examination process by enabling the automatic generation of test questions (Rahim et al., 2018) and self-correcting assignments and test papers (Li et al., 2018). These advancements reduce educators' workload and increase the efficiency and accuracy of assessments, allowing teachers to focus on student engagement and critical thinking development.

Impact of Emerging Technologies on Teaching Environments
The integration of virtual reality (VR), augmented reality (AR), and sensing technologies has contributed to transformative changes in education. Huang et al. (2021) explore how these innovations enhance the learning environment by making lessons more interactive and immersive, which improves students' understanding of complex concepts. These technologies bridge the gap between theoretical knowledge and practical application, fostering a more engaging learning experience.

Intelligent Tutoring Systems and the Role of Educators
Intelligent Tutoring Systems (ITS) have redefined education by providing automated feedback, diagnosing knowledge gaps, curating learning materials, and facilitating student collaboration (Humble & Mozelius, 2019; Mousavinasab et al., 2021). Moreover, AIED (Artificial Intelligence in Education) has the potential to transform the role of educators rather than replace them. Humble and Mozelius (2019) suggest that 'cobots' (co-working robots) assist teachers in routine tasks, allowing them to focus on student engagement. Goksel and Bozkurt (2019) further highlight how AI can personalize learning experiences, reducing the necessity for educators to possess exhaustive subject knowledge (Roll & Wylie, as cited in Humble & Mozelius, 2019).

III. SYSTEM ANALYSIS

According to the study's aims, there will be several ways in which education is impacted by the ongoing use or usage of information technology. This research aims to evaluate the impact that various kinds of artificial intelligence (AI) have had on various facets of schooling. Specifically, this research aims to evaluate the effects of AI on educational administration, management, and teaching and learning. The study's authors are crossing their fingers that AI has enhanced the efficiency and efficacy of educational administration duties and contributed to better learning and teaching in the field as a whole.

Education and artificial intelligence Timms makes a compelling point; AI is strong, and it may easily penetrate and significantly alter many parts of society. One area that AI is expected to have a profound effect on is education. Based on the papers we looked at, it's clear that AI is already making waves in the education industry, where it's helping to enhance a variety of practices. Al has been used in various ways in educational institutions, according to the study's scholarly sources. These include automating administrative tasks and processes, developing curricula and content, teaching, and students' learning processes. Web-based platforms, robots, videoconferencing, audiovisual files, and 3D technologies have all contributed to AI's increased efficiency in automated grading, assignment feedback, and student work reviews. will have the opportunity to gain knowledge. A teacher's role evolves to include a greater emphasis on student-centered instruction.

Table 1: Impact of AI on Different Aspects of Education

Aspect	AI Applications	Impact
Educational Administration	Automating administrative tasks, scheduling, record-keeping	Increases efficiency and reduces workload for educators
Curriculum Development	AI-driven content creation, personalized learning pathways	Enhances curriculum adaptability and relevance
Teaching & Instruction	AI tutors, virtual assistants, intelligent tutoring systems	Supports teachers and personalizes student learning
Student Learning	Adaptive learning platforms, VR/AR, AI-based feedback	Improves engagement and learning outcomes
Assessment & Evaluation	Automated grading, plagiarism detection, performance tracking	Provides timely feedback and reduces grading time

IV. OBJECTIVES

FINDINGS

Here are some products that might be notable and have a special place in education when it comes to artificial intelligence: Modern software, Assistive robots and instructional robots, Academically astute instruction, Personalised education (which is related to tailoring lessons to each student), Structures for the growth of interests, abilities, and wants; simulations for use in the classroom and in the creation of scenarios and case studies; System for vocational guidance (in the area of career choice), attendance tracking software or hardware, unmanned structures of various kinds, Devices for detecting learning outcomes (at various student levels), individual coaching, digital study environments (with or without distractions), software to improve curricula, System that can analyse and record the ways in which pupils learn

BENEFITS

In this section, we provide the findings from the survey on the advantages of AI in the classroom. People measurement has many benefits, such as the following: allowing individuals to learn at their own speed, evaluating specific requirements, and offering realistic answers to long-term issues The capacity to tarin in small groups with effective learning processes, the elimination of paperwork in school, the avoidance of wasting time, the improvement of teaching quality, the ability to make better judgements, and the planning of tuition according to student ability and speed are all benefits of using learning analytics. Assistance for decision-makers

DRAWBACKS

A number of concerns and dangers associated with artificial intelligence in the classroom have been raised in this discussion. Here is a list of the flaws that participants have identified: person's logical reasoning, repression of gut feelings, Practical or utilitarian viewpoints may supplant humanitarian principles, detail-oriented individual, Challenges with data security, the potential for unchecked intelligent technology in the classroom, and the elimination of the necessity for human interaction disruption of social interactions.
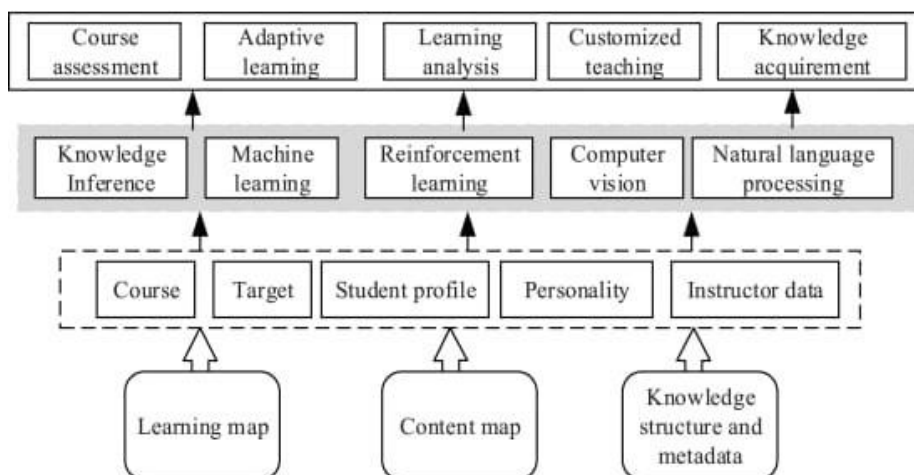

Figure-1: Technical structure of AI education

FUTURE SCOPE

Both students and educators stand to gain a great deal by incorporating AI into the classroom. It would be wonderful to become a part of them at some point because their presence in schools and classrooms is only going to increase. Few aspects can be given as:
- The evaluation of examinations is free from bias and political interference.
- Timely response is guaranteed There will be no problems with exam grading or results.
- Raise students' awareness of the use of AI in the classroom.

Table-2: Future Scope of AI in Education

Future Aspect	Potential AI Application	Expected Impact
Advanced Personalized Learning	AI-driven adaptive learning platforms	Tailored educational experiences based on individual student needs
Automated and AI-Driven Assessments	AI-generated exams, real-time feedback	Faster, unbiased grading and performance evaluation
AI-Powered Virtual Teachers & Tutors	AI chatbots, virtual teaching assistants	24/7 student support and interactive learning
Smart Classrooms & Learning Environments	IoT, AR/VR integration	Enhanced engagement and immersive learning experiences
Predictive Analytics for Student Performance	AI-based learning analytics	Early intervention for struggling students and improved retention rates
Enhanced Administrative Efficiency	AI in scheduling, record-keeping, and resource management	Reduced workload for educators and optimized institution management

V. CONCLUSION

Computers and associated technologies were the first conduit for artificial intelligence (AI) in the classroom. Eventually, web-based and online educational platforms emerged. Embedded systems have opened the door for the usage of chatbots for teacher-trainer roles, as well as cobots and other humanoid robots as co-teachers on independent trainers. Teaching efficiency, efficacy, and quality will all see significant improvements with the use of these platforms and technologies. In a similar vein, AI has made it possible to tailor and personalise educational resources to each student's unique set of needs and strengths, therefore improving students' educational experiences.

As technology advances, AI applications will be fine-tuned and optimised with more accuracy. By allowing students to experience the material firsthand, virtual reality AI simplifies and enriches the learning process. Artificial intelligence (AI) has the potential to revolutionise education in many ways, including classrooms and buildings, making them safer places for children to study and allowing for more efficient administration.

REFERENCE

1. Cui, Y., Zhang, L., & Huang, R. (2019). Adaptive learning and intelligent tutoring systems: Trends and challenges. *Educational Technology & Society, 22*(2), 11-22.

2. Goksel, N., & Bozkurt, A. (2019). Artificial intelligence in education: Current insights and future perspectives. *Interactive Learning Environments, 27*(6), 770-783. https://doi.org/10.1080/10494820.2019.1620086

3. Huang, T., Chen, X., & Liu, Y. (2021). The role of AI in modern education: Opportunities and challenges. *Computers & Education, 160*, 104034. https://doi.org/10.1016/j.compedu.2020.104034

4. Humble, N., & Mozelius, P. (2019). Intelligent tutoring systems in higher education: A systematic review. *International Journal of Educational Technology in Higher Education, 16*(1), 15. https://doi.org/10.1186/s41239-019-0167-2

5. Kuo, M. (2020). AI and its impact on student learning: A review of evidence-based research. *Journal of Educational Computing Research, 58*(4), 789-812. https://doi.org/10.1177/0735633120905582

6. Li, X., Wang, J., & Zhang, H. (2018). AI-assisted grading and feedback: Implications for student performance. *Educational Review, 70*(5), 529-547. https://doi.org/10.1080/00131911.2018.1424116

7. Mousavinasab, E., Zarifsanaiey, N., & Niakan Kalhori, S. (2021). The impact of artificial intelligence on personalized learning. *Educational Technology Research and Development, 69*(2), 451-478. https://doi.org/10.1007/s11423-020-09902-2

8. Rahim, M., Norazah, Y., & Latif, R. (2018). The role of AI in automated exam question generation. *Journal of Artificial Intelligence in Education, 28*(1), 45-66. https://doi.org/10.1007/s40593-017-0162-5

9. Roll, I., & Wylie, R. (2019). Evolution and revolution in artificial intelligence for education. *Artificial Intelligence in Education, 29*(3), 329-346. https://doi.org/10.1007/s40593-019-00186-7

10. Timms, M. (2020). The future of AI in education: Transforming teaching and learning. *Educational Technology Research and Development, 68*(2), 247-267. https://doi.org/10.1007/s11423-019-09731-3