



MODERN ARTIFICIAL INTELLIGENCE TUTORS SHAPE EDUCATION'S FUTURE

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ABSTRACT

Rapid advancements in artificial intelligence (AI) have opened up new possibilities for individual learning, especially in underdeveloped nations where inadequate funding and qualified educators keep excellent education out of reach. This article explores the potential of AI-powered tutoring systems to revolutionize and personalize the present learning process. It does this by adapting the learning material, delivery speed, and feedback to each learner's unique requirements. In light of the current teacher shortage, the need for scalable educational aid, and the importance of student autonomy, the study concludes that AI tutors would be a good addition to classrooms throughout the globe. In order to comprehend the viability and impact of AI-based solutions in environments with limited resources, it is necessary to address infrastructure difficulties, digital illiteracy, and socio-cultural obstacles. For students with varying levels of aptitude for learning, the article also considers how adaptive learning algorithms, NLP, and real-time performance analytics could improve comprehension, memorization, and engagement. The legislative, educational, and ethical considerations that are necessary to provide equitable access, data protection, and curriculum compatibility are the main points of discussion. AI tutors when integrated with traditional classroom activities and local education policies, have the potential to greatly improve learning outcomes, reduce educational inequality, and support teachers' professional development by providing them with actionable feedback on their students' skills. Based on the paper's findings, developing nations may be able to benefit from more inclusive, flexible, and data-driven educational environments made possible by tailored AI education systems.

KEYWORDS: POTENTIAL, OBSTACLES, LEARNING, RESOURCES AND INCLUSIVE.

INTRODUCTION:

Education is widely recognized as a critical component of social and economic development, particularly in developing nations where issues of fairness, access, and quality are prevalent. Traditional classroom modes of education, with their homogeneous curricula, large class sizes, and lack of resources, are ill-equipped to meet the requirements of today's varied student bodies. As a result, pupils' academic potential and interests are limited due to a lack of proper personalized attention, regardless of their learning ability, rates, or interests. Artificial intelligence (AI) has evolved at a rapid pace and has evolved the education landscape, especially the way students access, process and engage the learning content. The introduction of AI tutors is one of the most influential innovations of this field that is transforming the traditional system of learning, offering personalized, adaptive, and on-demand learning services. AI tutors are thinking of smart systems that can be used to mimic human tutoring through machine learning, natural language processing, and data analytics to understand the needs of students, provide personalized learning, and provide feedback. Their inclusion in the learning institution systems has grown to be more eminent during the post-digital learning age, particularly after the world moved to the online and hybrid systems of learning.

AI tutors are better applied in technologically progressive

educational settings, especially those that are urban and well-equipped with good digital infrastructure, more technologically literate, and institutional willingness to embraced tech solutions. These environments can be easily used to incorporate AI-based learning solutions into classrooms and self-study settings. Conversely, educational settings in under-resourced and rural areas are generally associated with other consider able obstacles, including the inability to access smart devices, bad internet access,

inexperienced trainers on AI-based tools, and low knowledge of digital learning solutions. Such inequalities demonstrate the increasing digital divide in education and raise the question of the fair access to AI-based learning opportunities. Artificial intelligence (AI) presents both potential and problems for emerging nations' educational systems, which vary along many dimensions, including language, culture, and socioeconomic status. One hand, there is a pressing demand for scalable solutions that can enable customized learning due to the scarcity of qualified instructors and the inability to supply the necessary infrastructure.

However, digital literacy, cost, curricular emphasis, and the ethical challenge of data privacy and algorithmic discrimination should all be carefully considered when using AI in these contexts. Recent research has shown that

learning powered by AI improves student engagement, retention, and performance in the classroom. The effectiveness, problems with acceptance, and long-term viability of the AI tutor in underdeveloped countries have not been well investigated. Therefore, it is of the utmost significance for lawmakers, educators, and tech developers to comprehend how AI tutors may be useful in augmenting present education systems and helping to achieve equitable learning results. In this research, we'll look at how AI tutors could change the face of individualized learning in developing nations. In the long run, better education and socioeconomic development indicators will be the outcome of this study's evidence-based reports on the potential benefits, drawbacks, and integration strategies of AI in the service of designing more accessible, efficient, and high-quality learning experiences for all students. For this technological advancement to have a real impact on education, further research is needed to determine its efficacy in the classroom, how much it costs, and what kinds of adjustments are necessary for different types of situations in order to make the most of AI tutors.

SIGNIFICANCE OF THE STUDY

Technology has always been an essential component of the learning process, beginning with the first abacuses and continuing all the way up to the computers of today. Because of the development of early technologies, our ability to compute has been significantly improved. Computers and the internet then came along, opening up information in a way that had never been possible before. For instance, this is made possible by digital archives, which allow us to store and retrieve a vast amount of information. However, artificial intelligence represents a giant leap forward. In the process of acquiring knowledge, it is more than just a tool; it has the potential to become a beneficial companion. Through its capacity to learn and adapt, artificial intelligence is able to provide customized experiences that were previously unattainable with conventional technologies. Following an assessment of a student's progress, it may be possible to identify the student's areas of strength and areas in which they may improve, and then develop a customized learning plan that is tailored specifically to the student.

Additionally, artificial intelligence enables a higher level of personalization and interactivity, in contrast to prior advancements that focused on the availability of information. It is possible that educators or systems powered by artificial intelligence may utilize it to educate pupils with lessons that are far more suited to their needs. This means that there will be a significant shift in the manner that education is carried out. A number of problems have plagued the educational system in developing nations. These include insufficient funding, an excessive number of students per instructor, and a dearth of high-quality teaching materials. Inequality in student performance and engagement is a result of conventional educational techniques' inability to constantly pay precise attention.

In this respect, AI has emerged as a practical answer to

these deficiencies via the creation of AI-based teaching systems. With the help of AI tutors, students may have their learning processes customized to their own speed, learning style, and knowledge gaps. This boosts students' understanding, retention, and overall academic achievement. Due to the persistent issue of educational disparity and resource scarcity, the deployment of AI tutors in poor nations is particularly pertinent. By using AI, educational institutions may provide affordable solutions that can scale to meet the demands of a wider range of people, including pupils from underprivileged or rural areas. To top it all off, AI tutors may help instructors out by automating mundane activities, keeping tabs on students' progress in real time, and providing useful feedback to tailor lessons. The project is justified since it aims to explore how customized education powered by AI might improve learning, address systemic difficulties, and promote fair education development. This paper's findings may help educators, legislators, and tech developers develop and deploy AI-based educational solutions that are effective from a pedagogical, cultural, and contextual perspective. Lastly, research on AI tutors in underdeveloped nations is important for understanding the game-changing potential of tech in education and for building a future where all students, regardless of their background or location, have access to individualized instruction.

OBJECTIVES

- ✓ The performance, engagement, and problem-solving capabilities of learners will be assessed about the use of an AI teacher.
- ✓ Provide an analysis of how technical readiness may influence the implementation and efficacy of AI tutors in educational settings.

A CRITICAL ROLE FOR AI TUTORS IN TODAY'S CLASSROOMS

One of the most fascinating applications of artificial intelligence in the classroom will be the introduction of AI professors when they eventually make their debut. With these AI-powered solutions, students will have access to a one-of-a-kind educational experience that is customized to their own pace and learning style. Artificial intelligence tutors have the ability to solve a number of ongoing issues in the field of education. These issues include an inadequate number of trained instructors, uneven access to high-quality education, and inconsistent student results. Students who would not normally have access to specialized education may be able to get assistance from artificial intelligence tutors in situations when human teachers are in limited supply.

Moreover, in contrast to traditional classroom-based learning, artificial intelligence tutors are accessible around the clock to provide assistance to students whenever they want it. In today's classrooms, where students' learning capacities range from one end of the spectrum to the other, artificial intelligence tutors are an excellent choice for providing tailored support. Teachers that possess this skill

set are invaluable in inclusive classrooms because of their ability to adapt to the specific requirements of each individual child attending the school. When used to the learning process, artificial intelligence (AI) tutors that are constructed utilizing these principles have the potential to assess students' abilities, identify areas in which they are lacking information, and adjust the curriculum appropriately. The provision of continuous and prompt feedback is yet another essential action that AI teachers may do to facilitate the growth and development of their pupils. It has been suggested by Timms (2016) that an efficient utilization of AI tutors may make it possible for them to enhance the treatments that are now being used with more individualized and stimulating methods. When it comes to managing large and varied class sizes, teachers may also profit from the use of artificial intelligence tutors. Artificial intelligence has the ability to automate some educational tasks, which would free up teachers to concentrate on more complex and nuanced parts of teaching, such as fostering students' social and emotional development, critical thinking skills, and creative abilities. For example, Schofield et al. (1994) state that the incorporation of artificial intelligence (AI) into education does more than just assist students in learning; it also initiates and alters teaching practices in order to make the classroom more dynamic and adaptive.

CHALLENGES AND ETHICS IN AI EDUCATION

Incorporating AI and Smart Classrooms requires meticulous preparation, despite the attractive advantages. Protecting students' personal information is of the utmost importance, and schools have a responsibility to do just that. Teachers also face a learning curve when they implement new technology into the classroom. One way to address these difficulties is by investing in teacher training and forming relationships with IT suppliers. Scalable alternatives, such as subscription-based AI platforms, reduce the technology's price and make it available to more organizations.

In order to successfully incorporate AI into education, it is crucial that instructors get sufficient training on how to use these technologies. Professional development programs and help are very necessary in order to ensure that educators are able to use the potential of artificial intelligence technology. Educators also need to have sufficient knowledge about artificial intelligence in order to assist their students in comprehending it and learning how to best use it. The collecting and analysis of data by artificial intelligence systems presents major risks to the students' privacy. It is necessary for educational institutions to provide a method for protecting the confidentiality of students' personal information in order for them to reap the benefits of AI-driven tailored learning. When it comes to the problems that are created by the rapidly expanding usage of artificial intelligence in the classroom, institutions need to approach them with prudence. It is very necessary to solve these challenges in order to make advantage of the ability of artificial intelligence to develop learning experiences that are both

individualized and efficient.

However, there are a number of concerns that must be taken into consideration, including the necessity for human connection in the classroom, privacy, and equality. Because artificial intelligence will have an effect on the traditional role that teachers play in the classroom, there are valid concerns over the future of the human connection that will exist in the classroom. If schools place a greater focus on programs that train teachers and establish clear ethical rules for the use of artificial intelligence, they will be better able to adapt to changing circumstances. When it comes to education, the human element should never be replaced but rather used as a complement. Integrating artificial intelligence with care and ethics is necessary if we are to overcome these challenges and maintain education that is accessible, inclusive, and effective. Artificial intelligence (AI) technology are increasingly being incorporated into educational programs in order to provide students the opportunity to get real-world experience while being supervised by humans. In order to encourage creativity and equip students for a dynamic and unpredictable future, we want to combine human knowledge with AI.

CONCLUSION

A growth in the use of artificial intelligence instructors is one of the most fascinating discoveries in the area of artificial intelligence that is causing a transformation in the way higher education is delivered. Through these platforms, students have access to ongoing academic assistance, quick feedback, and tailored learning support throughout their academic careers. The benefits of artificial intelligence tutoring systems are beginning to become more evident, despite the fact that there are still certain worries around them, such as data privacy and implementation costs. Through on-demand access in education systems with adequate infrastructure and technology, AI can provide personalized learning pathways, immediate feedback, sophisticated tutoring support, and unprecedented access to educational resources, particularly in under-resourced communities facing teacher shortages. These technologies have the potential to make learning more flexible, to improve student engagement, and to streamline academic processes at educational institutions such as colleges and universities.

As the digital revolution continues, artificial intelligence instructors are prepared to play a major role in the development of intelligent online education. It is possible for educational institutions to enhance the quality of education for future generations by combining artificial intelligence with established ways of teaching. Better communication, more efficient operations, and increased efficiency are just a few of the possible benefits of artificial intelligence. On the other hand, AI might lead to job losses, privacy breaches, and ethical dilemmas. To address these challenges, we need a comprehensive plan that promotes transparency, accountability, and equitable use of AI technology. We must understand the behavioral impacts of

AI if we are to maximize its benefits while mitigating its risks. To fully comprehend and manage the intricate interplay between AI and human behaviors, further research and collaboration across disciplines are essential. Discovering the mysteries of human behavior with the help of AI is an exciting moment.

It is anticipated that the educational environment of the future would be characterized by intelligence, engagement, and inclusion. An artificial intelligence teacher will not be an idea that is far off in the future; rather, it will be a tool that will assist in the distribution of knowledge in the years to come. By incorporating AI into the classroom, we are able to create a learning environment that is not only effective but also friendly and centered on the specific requirements of each individual student.

IMPLICATIONS

Artificial intelligence tutors should not be used in lieu of human teachers; rather, they should be used as complementary tools. It is essential to establish a robust structure for the professional development of educators in order to provide support for the use of artificial intelligence in educational settings. The findings of this study indicate that, in general, incorporating artificial intelligence into educational settings has good consequences for learning outcomes for both teachers and students. This is despite the fact that future research may analyze the impacts of integrating AI in a variety of learning environments. From this point on, it will be essential to conduct proactive investigations, maintain a laser-like focus on ethical problems, and collaborate with one another. If we take this approach, we will be able to ensure that artificial intelligence is used to its fullest potential in the future of education, which will be to the advantage of both students and instructors all around the world.

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