Impact of Artificial Intelligence in Teaching Learning Era

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Abstract

The learning process needs to be innovative and creative in order to meet the evolving demands of education. As artificial intelligence (AI) advances in the realm of education, it will assist in processing everyday tasks like teaching and learning. Investigating artificial intelligence (AI) in education, particularly in the context of teaching and learning, is the aim of this project. In several fields, including education, the use of artificial intelligence (AI) technology is becoming more and more apparent. Particularly in the areas of technology, science, math, and engineering, the introduction of AI technology has changed the course of study. However, AI will also alter the nature of education in general. The learning process needs to be innovative and creative in order to meet the evolving demands of education. As artificial intelligence (AI) advances in the realm of education, it will assist in processing everyday tasks like teaching and learning. Investigating artificial intelligence (AI) in education, particularly in the context of teaching and learning, is the aim of this project. Artificial Intelligence (AI) is a technology that has gained interest lately. This technology plays a significant role in supporting a number of work-related tasks, including those related to education. The process of creating a machine that can think and act like a person is known as artificial intelligence (AI). As science and technology advance, teachers' tasks, including correction, student attendance, daily assessments, knowledge explanation, administrative report creation, and other systemic tasks, can be turned over to technological equipment. In order to produce a golden generation with greater character and quality and natural intelligence—something that robots cannot do—teachers can save more energy and concentrate more on nonsystemic tasks. While the human mind, particularly that of teachers, produces new information, technology only functions systemically and is automated in response to human directions. The teacher would thus possess unmatched intelligence. Artificial intelligence, which is also the product of human natural intelligence's creative brains, emerged during the industrial revolution.

Keywords:

Artificial Intelligence, Teacher, Machine, Human, Task, Education

Introduction

AI is now used in many different areas, including manufacturing, entertainment, finance, healthcare, telecommunications, transportation, agriculture, and education, among others, as a result of its quick development. There is promise in incorporating AI into teaching to transform education through better student involvement, more effective grading and evaluation, and tailored learning experiences[1].

AI has the ability to significantly alter education, changing both how students learn and how professors instruct. AI has the ability to assist educators in adapting their lessons to each student's needs. student requirements and offer immediate feedback to assist students in enhancing their learning results. AI can also automate a lot of the administrative duties that educators have to perform, giving them more time to concentrate on providing excellent instruction. Some of the issues affecting education, such the necessity of lifelong learning and the rising need for reskilling and upskilling in the workforce, may also be resolved by AI. AI's potential to improve educational accessibility and allow for more individualized learning experiences

Advantages of AI in Education

AI technology holds tremendous potential for enhancing the quality of education at all levels of study. The key advantages of AI can be summarized as follows: (1) enhanced learning outcomes, (2) time and cost efficiency, and (3) global access to quality education[2].

1) Enhanced Learning outcomes

AI in education has significantly enhanced learning outcomes by personalizing learning experiences, improving engagement, and providing data-driven insights for educators.

Key ways AI contributes to improved learning outcomes include:

- Personalized Learning Paths
- Intelligent Tutoring Systems (ITS)
- Automated Assessment and Feedback
- Data-Driven Insights for Educators
- Gamification and Interactive Learning
- 24/7 Learning Support
- Language Translation and Accessibility
- Predictive Analytics for Student Success
- Content Creation and Curation
- Virtual and Augmented Reality Integration

2) Time and Cost Efficiency

AI in education greatly improves time and cost efficiency by automating administrative tasks, optimizing resource use, and streamlining learning processes. By reducing manual workloads and operational expenses, AI allows schools and universities to allocate more resources toward enhancing educational quality while minimizing costs and saving time[2].

3) Global Access to Quality Education

AI is playing a transformative role in providing global access to quality education by breaking down traditional barriers related to geography, cost, language, and accessibility.

Here's how AI makes high-quality education more globally accessible,:

- AI-powered online learning platforms offer educational resources to learners in remote and underserved regions.
- Virtual classrooms and MOOCs (Massive Open Online Courses) allow students from anywhere in the world to access world-class educators and institutions.
- AI enables real-time interactions, collaborative projects, and remote assessments, bridging the gap between rural and urban education systems.
- AI reduces the cost of education delivery, making it more affordable and scalable.
- Automated content creation and adaptive learning systems provide personalized education without requiring expensive infrastructure or large teaching staff.

- AI adapts educational content to individual learning styles, speeds, and abilities, ensuring that every student can learn effectively.
- Adaptive learning technologies adjust lesson difficulty and provide tailored resources, catering to diverse student needs across the globe.
- Platforms like Duolingo use AI to teach languages, fostering cross-cultural learning and communication.
- AI makes education more inclusive for students with disabilities.
- Text-to-speech, speech-to-text, and screen readers powered by AI support learners with visual, hearing, or cognitive impairments.
- Customizable interfaces and adaptive technologies ensure equitable access for all learners.
- AI-driven chatbots and virtual assistants provide continuous academic support.
- Smart content curation delivers up-to-date information, eliminating reliance on outdated textbooks.
- Students worldwide gain exposure to a wide range of topics, global perspectives, and industry-relevant skills.
- Offline learning apps and low-bandwidth solutions powered by AI bring educational resources to regions with poor connectivity.
- Solar-powered devices and offline AI programs help rural communities access quality education.
- Virtual exchange programs and global classrooms allow learners to engage in cross-cultural discussions and projects.
- Learners can access industry-specific courses and certifications that prepare them for global employment opportunities.
- AI tracks learning progress and suggests career paths, making education more outcome-driven.

AI democratizes education by making it more accessible, affordable, and inclusive. It empowers learners worldwide, regardless of their location, economic background, or physical abilities, to access high-quality educational opportunities. This global access to quality education fosters social equity, economic growth, and cultural exchange on an unprecedented scale.

2) Literature Review

Abdulaziz et al. [2024] defines the purpose of this descriptive study was to investigate if using artificial intelligence (AI) enhances the learning outcomes of Kuwaiti pre-service social studies instructors. A survey using a questionnaire was administered to 100 female instructors at Kuwait University's College of Education who were chosen at random. The findings showed that applying AI applications greatly improved the participants' learning outcomes, suggesting that AI has the potential to revolutionize teacher preparation. Pre-service teachers showed a thorough understanding of the benefits of artificial intelligence (AI) in education as well as competence in incorporating AI into their teaching.

Pongsakorn Limna et al. [2022] done a investigation using narrative synthesis approach. Future studies on AI in education are advised to use quantitative methods, such as questionnaires. A clear image of the insight results could be obtained by a qualitative method like interviews. A deeper comprehension of AI deployment in the education sector could result from reading this review article. Therefore, the implications could be used to help teachers, students, and school administrators better comprehend and put into practice suitable techniques to enhance educational performance through the use of AI in education.

Agus Nursalim et.al. [2022] proposed an emphasis on student engagement, critical thinking development, data-driven decision-making, and tailored learning experiences, this study attempts to explore the effects of implementing AI in education. The Systematic Literature Review (SLR) technique is used in this study to gather and examine pertinent theoretical frameworks and empirical data. The study's findings demonstrate a notable rise in student engagement, tailored learning, enhanced critical thinking abilities, and better data-driven decision-making processes made possible by AI technology. These results advance our knowledge of the AI-driven educational transformation in the digital age and highlight how crucial it is to responsibly integrate AI to promote inclusive, creative, and successful educational systems.

Luan.H et al. [2020] discusses the new issues and paths that the application of artificial intelligence (AI) and big data in education research, policy, and business is facing. Applications of AI and big data in education have advanced significantly in recent years. This draws attention to a recent development in cutting-edge educational research.

Miao. F et al. [2021]This article provides policymakers with advice on how to best take advantage of the benefits and manage the risks associated with the expanding relationship between artificial intelligence and education. It begins with the definitions, methods, and technologies that are fundamental to artificial intelligence. A thorough examination of the new developments and implications of AI for education follows, covering topics such as how to guarantee the moral, inclusive, and fair application of AI in the classroom, how education can equip people to live and work with AI, and how AI can be used to improve education.

3) Research Objective

1. How much do teachers employ AI apps in their teaching and learning processes?
2. How well do teachers demonstrate learning outcomes?
3. How does the incorporation of AI affect instructors learning outcomes?

4) Result and Discussion

- Level of AI knowledge (Average, Basic, Advanced, Expert)
- Which sources of knowledge (research, training, or media) were used?
- Creative Methods for Including AI in Future Teacher Preparation
- Increasing Knowledge of AI Including AI in Courses for Teacher Training
- Promoting Collaborative Education in Teacher Training
- Creating a Positive Attitude Regarding AI Use

The above questions were discussed among teachers and students through questionnaire. Most of the respondents responded as that the AI tools like canva, chatboat, ChatGPT, slidesgo, slides AI, Simplified AI, slideSpeak are some of the AI tools helpfull for the preparation of presentation for the class. AI tools simplifies the work of instructors due to automation tools.

5) CONCLUSION

Education is predicted to become increasingly reliant on AI technology, much like other businesses. Teacher training programs must therefore give educators the abilities and information required to apply AI successfully in a rapidly evolving society. This position paper argues that although while AI has the potential to revolutionize education, instructors will likely still be required to help students develop their critical thinking skills and to provide them with moral and emotional support. But to effectively reap the benefits of AI in education, Teachers of the Future will need to embrace new technology, such developing AI literacy. This can be accomplished by integrating AI into teacher training programs through the use of tactics like fostering a positive attitude toward the use of AI, integrating AI into teacher training courses, encouraging collaborative learning among teachers in training, providing opportunities for continuing education, and developing AI literacy.

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