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Need of Artificial Intelligence in the Present Education System

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ABSTRACT

Artificial Intelligence (AI) has emerged as one of the most influential technologies shaping contemporary society, and its relevance to education is rapidly increasing. The present education system faces several challenges, including diverse learner abilities, increasing student populations, teacher workload, limitations in individualized instruction, assessment requirements, skill gaps, and the growing demand for digitally competent graduates. Artificial Intelligence provides opportunities to address several of these challenges through personalized learning, intelligent tutoring systems, automated assessment, learning analytics, adaptive content, AI-enabled administrative support, virtual assistance, and improved accessibility. At the same time, the integration of AI into education raises concerns related to data privacy, algorithmic bias, academic integrity, digital inequality, and overdependence on technology, misinformation, and the changing role of teachers.

This paper examines the need for Artificial Intelligence in the present education system using secondary data obtained from academic literature, international reports, policy documents, and institutional publications. The study adopts a descriptive and conceptual research design to examine the educational relevance, applications, opportunities, challenges, and implementation requirements associated with AI. The analysis indicates that AI should not be viewed as a substitute for teachers but as a supportive technology capable of strengthening teaching, learning, assessment, administration, and educational decision-making. The paper argues for a human-centred approach in which AI adoption is accompanied by teacher training, student AI literacy, ethical safeguards, privacy protection, inclusive access, and appropriate institutional policies. The study concludes that responsible integration of AI can contribute to a more personalized, flexible, inclusive, and future-oriented education system.

Keywords: Artificial Intelligence, Education System, Personalized Learning, AI Literacy

INTRODUCTION

Education is undergoing a significant transformation due to rapid technological development. Traditional education systems were largely designed around standardized curricula, classroom-based instruction, fixed learning schedules, and relatively uniform approaches to assessment. However, contemporary learners differ considerably in their learning abilities, interests, pace, language backgrounds, technological familiarity, and career aspirations. At the same time, educational institutions are expected to provide high-quality learning to increasingly diverse populations while preparing students for a labour market influenced by automation, data science, digital platforms, and intelligent technologies.

Artificial Intelligence (AI) refers broadly to computational systems capable of performing tasks associated with human intelligence, including learning, reasoning, prediction, language processing, pattern recognition, recommendation, and decision support. In education, AI includes technologies such as intelligent tutoring systems, adaptive learning platforms, automated feedback systems, learning analytics, chatbots, recommendation systems, speech and language technologies, computer vision, and generative AI. The growing relevance of AI is reflected in international educational policy. UNESCO's Guidance for Generative AI in Education and Research emphasizes that AI can support curriculum design, teaching, learning, and research, while also requiring appropriate regulation, ethical safeguards, data protection, and human-centered implementation.

REVIEW OF LITERATURE

- **Zawacki-Richter et al. (2019)** conducted a systematic review of 146 studies concerning AI applications in higher education. The review identified major application areas including profiling and prediction, assessment and evaluation, adaptive systems and personalization, and intelligent tutoring systems. The authors also observed limited critical reflection on ethical issues and a weak connection between AI applications and pedagogical theories.

- **Holmes, Bialik and Fadel (2019)** examined the implications of AI for teaching and learning and argued that AI creates opportunities for educational transformation while simultaneously presenting technical, pedagogical and ethical challenges. Their work emphasizes the need for educational institutions to actively participate in determining how AI should be integrated rather than allowing technological development to occur independently of educational priorities.

- **Luckin et al. (2016)** discussed the potential of AI to provide teachers and learners with intelligent support. Their work conceptualized AI as a mechanism that could help understand learners, support personalized learning and improve educational decision-making. The study highlighted the importance of maintaining the teacher's central role while using AI to augment human capabilities.

- **Kasneci et al. (2023)** examined opportunities and challenges associated with large language models such as ChatGPT in education. The authors identified potential applications in content creation, student engagement, interaction and personalized learning. At the same time, they emphasized the need for learners and teachers to understand the limitations and unexpected weaknesses of such systems.

- **Tlili et al. (2023)** analysed ChatGPT as an emerging educational technology and identified both opportunities and risks associated with its adoption. Their work demonstrates that generative AI can support human-machine collaboration but also raises questions about academic integrity, responsible use, assessment and educational policy.

- **UNESCO (2024)** Competency Framework for Students proposes 12 competencies across four dimensions: human-centred mindset, ethics of AI, AI techniques and applications, and AI system design. The framework places students at the centre of responsible and creative interaction with AI and emphasizes progression from understanding to application and creation.

- **UNESCO (2024)** AI Competency Framework for Teachers identifies 15 competencies across five dimensions: human-centred mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning. This demonstrates that successful AI implementation depends not only on student access but also on teacher capacity.

Research Gap

Existing literature establishes substantial opportunities for AI in education, particularly in personalization, assessment, intelligent tutoring and educational support. However, technological capability alone does not guarantee educational effectiveness. There remains a need for integrated approaches that connect AI with teacher competencies, student AI literacy, curriculum transformation, ethical governance, privacy, equity and institutional preparedness. The present paper addresses this gap by providing a comprehensive descriptive analysis of why AI is increasingly needed in the present education system and what conditions are necessary for its responsible implementation.

OBJECTIVES OF THE STUDY

1. To examine the need and relevance of Artificial Intelligence in the present education system.
2. To identify the major applications of Artificial Intelligence in teaching, learning, assessment and educational administration.
3. To examine the potential benefits of AI for students, teachers and educational institutions.

RESEARCH METHODOLOGY

The study adopts a descriptive and conceptual research design and is based entirely on secondary data. No primary survey or questionnaire was conducted. Secondary information was collected from peer-reviewed research articles, academic

publications, UNESCO reports, Government of India policy documents, OECD publications, and other credible institutional sources.

The literature was reviewed thematically according to the following dimensions: AI applications in education, personalized learning, teacher support, assessment, administrative applications, generative AI, AI competencies, ethical concerns, digital inclusion and policy requirements.

The study uses qualitative descriptive analysis to synthesize the available literature. The analysis focuses on identifying recurring themes, educational needs, opportunities and implementation challenges. The approach is appropriate because the purpose is to develop a comprehensive understanding of the role of AI in the present education system rather than to statistically test a specific causal relationship.

Need for Artificial Intelligence in the Present Education System

5.1 Need for Personalized Learning

One of the most important requirements of contemporary education is the ability to address individual learning differences. Students do not learn at the same speed or through identical methods. Traditional classroom teaching can find it difficult to continuously adapt content to every learner. AI-based adaptive learning systems can analyse learner interactions, performance patterns and areas of difficulty and provide differentiated learning materials. Students who require additional practice can receive reinforcement exercises, while advanced learners can receive more challenging activities.

5.2 Need for Intelligent Tutoring

Intelligent tutoring systems can provide students with explanations, questions, hints, feedback and practice activities. Such systems can operate beyond normal classroom hours and can support learners who require additional assistance. AI-enabled tutoring does not necessarily replace teachers. Instead, it can provide supplementary support so that teachers can devote greater attention to complex learning needs, classroom interaction, mentoring and socio-emotional development.

5.3 Need to Reduce Teacher Workload

Teachers perform numerous tasks beyond classroom instruction, including preparing learning materials, evaluating assignments, maintaining records, communicating with students, preparing assessments and analysing performance. AI can assist with several routine activities. Automated systems can support question generation, preliminary feedback, classification of responses, attendance analysis and administrative documentation.

5.4 Need for Immediate Feedback

Feedback is an essential component of effective learning. Conventional assessment often involves a time gap between student performance and teacher feedback. AI systems can provide immediate responses to certain types of learning activities.

5.5 Need for Data-Driven Educational Decision-Making

Modern educational institutions generate substantial amounts of data related to attendance, assessment, course completion, student participation and learning activities. AI and learning analytics can process such information and identify patterns. Institutions can use these insights to identify students who may require academic support, understand course-level performance and improve resource allocation.

5.6 Need for Inclusive Education

AI can support accessibility through speech recognition, text-to-speech systems, automatic captioning, translation and other assistive technologies. These capabilities can potentially support learners with different linguistic, sensory or learning requirements. For multilingual educational environments such as India, language technologies can also facilitate access to learning resources in different Indian languages.

Major Applications of AI in Education

Area	Application of AI	Educational Contribution
Teaching	AI-assisted lesson planning	Supports preparation, content development
Learning	Adaptive learning	Provides individualized learning pathways
Tutoring	Intelligent tutoring systems	Provides additional academic assistance
Assessment	Automated assessment support	Reduces routine evaluation workload
Feedback	AI-generated formative feedback	Provides rapid learning guidance
Language	Translation and language assistance	Supports multilingual learning
Accessibility	Speech-to-text & text-to-speech	Supports diverse learners
Administration	Automated documentation and analytics	Improves institutional efficiency
Student Support	AI chatbots	Provides basic information and guidance
Career Guidance	Recommendation systems	Supports exploration of educational and career options
Research	Literature and information assistance	Supports research-related activities
Teacher Development	AI-supported professional learning	Supports continuous teacher development

Benefits of Artificial Intelligence in Education

- AI can provide personalized learning, immediate feedback, additional practice and flexible access to educational assistance. Students can interact with learning resources according to their individual pace.
- AI can also support creativity when students use it to brainstorm ideas, compare perspectives, simulate scenarios and receive feedback. However, such use should be accompanied by critical evaluation rather than passive acceptance.
- AI can function as a teaching assistant by supporting lesson preparation, resource development, formative assessment and analysis of student performance.
- UNESCO's teacher competency framework specifically recognizes AI pedagogy and AI-supported professional learning as important areas of teacher development.
- Educational institutions can use AI to support administrative efficiency, student services, academic analytics and resource planning. The OECD's Digital Education Outlook emphasizes the importance of trustworthy, useful, effective and equitable digital education ecosystems.
- A well-designed AI-enabled education system can contribute to lifelong learning and workforce development. It can help learners acquire digital competencies required for participation in an increasingly technology-intensive economy.

Challenges of AI Integration in Education

- AI-enabled education requires appropriate devices, connectivity, electricity, digital infrastructure and technical support. Students from disadvantaged communities may have less access to these resources.
- AI systems frequently depend on learner data. Educational institutions must therefore establish appropriate mechanisms for collecting, storing, processing and protecting student information.
- AI systems may reproduce or amplify biases present in training data, design choices or deployment contexts. Biased outputs could affect educational recommendations, assessment or student support.
- Generative AI can produce essays, answers, summaries, computer programs and other academic content. This creates challenges concerning plagiarism, authorship and authentic assessment.
- Excessive reliance on AI may reduce opportunities for independent thinking, problem-solving and knowledge construction. Students may accept AI-generated answers without verifying their accuracy.
- AI literacy should therefore include the ability to question, verify, compare and critically evaluate AI-generated information.
- Education involves values, relationships, empathy and social development. Excessive automation could weaken human interaction if technology is introduced without pedagogical consideration.

Strategies for Responsible AI Implementation

- Schools, colleges and universities should establish clear guidelines regarding acceptable and unacceptable AI use. Policies should cover academic integrity, data protection, transparency and responsible use.
- AI literacy should become an integral component of contemporary education. Students should learn about AI capabilities, limitations, ethics, bias, privacy and responsible usage.
- Continuous professional development should equip teachers with practical AI skills. Training should focus not only on operating AI tools but also on pedagogical integration and ethical decision-making.

- Important academic decisions should not be based exclusively on automated outputs. Teachers and institutional authorities should retain responsibility for significant educational decisions.
- AI initiatives should consider students who lack devices, connectivity or technological skills. Public investment and institutional support are necessary to reduce the digital divide.
- Assessment should increasingly measure reasoning, creativity, application, communication, collaboration and problem-solving rather than only the production of written answers that can easily be generated by AI.

DISCUSSION

The literature demonstrates that AI has moved from being a specialized technological concept to becoming a significant component of contemporary educational transformation. Earlier AI applications in education primarily focused on intelligent tutoring, adaptive learning, prediction and assessment.

More recent generative AI systems have expanded the scope to content generation, dialogue, language assistance, brainstorming and personalized interaction. The central implication is that AI should be treated as an educational support technology rather than an educational replacement technology.

Teachers continue to provide contextual judgement, emotional support, classroom management, motivation, ethical guidance and social interaction that cannot simply be reduced to automated processes. The teacher's role is therefore likely to evolve. Instead of spending disproportionate time on repetitive activities, teachers can increasingly become learning designers, mentors, facilitators and evaluators of AI-supported learning experiences.

RECOMMENDATIONS

1. AI literacy should be incorporated progressively into school, undergraduate and postgraduate curricula.
2. Teacher training programmes should include AI pedagogy, ethics, assessment and practical applications.
3. Educational institutions should establish clear policies concerning generative AI and academic integrity.
4. Student data should be protected through strong privacy and cyber security mechanisms.
5. AI tools should be evaluated for accuracy, fairness, accessibility and educational effectiveness before institutional adoption.
6. Assessment systems should be redesigned to emphasize higher-order thinking, application and authentic performance.
7. Governments and institutions should address the digital divide by improving connectivity, devices and digital infrastructure.
8. AI should support teachers rather than be positioned as a replacement for teachers.
9. Students should be trained to verify AI-generated information using reliable sources.
10. AI implementation should remain human-centred, inclusive, transparent and context-sensitive.

CONCLUSION

Artificial Intelligence has become increasingly relevant to the present education system because educational institutions must respond to diverse learners, growing information volumes, teacher workload, personalized learning requirements, changing employment patterns and the rapid expansion of digital technologies. The analysis indicates that AI can support education through personalized learning, intelligent tutoring, automated feedback, learning analytics, accessibility tools, administrative assistance, curriculum development and AI-enabled student support. These capabilities create opportunities to improve the flexibility and responsiveness of educational systems. Nevertheless, AI is not a solution to every educational problem. Challenges related to privacy, bias, digital inequality, academic integrity, inaccurate information, teacher preparedness and excessive technological dependence require systematic attention. The rapid development of generative AI has made these issues particularly urgent. The future of AI in education should therefore be based on augmentation rather than replacement. Teachers should remain central to educational decision-making, while AI can support them with appropriate technological capabilities. Students should be prepared not only to use AI but also to understand its limitations, evaluate its outputs and employ it ethically.

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