

## ROLE OF AI IN TEACHING AND LEARNING SUPPORT

**\* Ms. Minal Shete & \*\*Ms. Neetu Sahu**

*\* Assistant Professor, KES's BK Shroff College of Arts and MH Shroff College of Commerce.*

*\*\*Assistant Professor, KES's BK Shroff College Of Arts and MH Shroff College Of Commerce*

### **Abstract:**

Artificial Intelligence (AI) is revolutionizing the education sector by enhancing learning outcomes, automating administrative tasks, and providing personalized learning pathways, artificial intelligence (AI) is transforming the education industry. The area of education is undergoing transformation due to artificial intelligence (AI). Teachers now have cutting-edge resources to help students prosper due to the introduction of artificial intelligence (AI) into the educational field. The importance of artificial intelligence in education is examined in this article, with a focus on its applications in automated assessment, adaptive learning, and student engagement. Artificial intelligence (AI)-powered solutions like virtual assistants, automated grading software, and intelligent tutoring systems enable individualized training based on each student's unique learning requirements. AI also improves accessibility by helping students with disabilities by using text-to-voice and speech recognition software. This study also provides overview of different AI tools used for learning and teaching support. But issues like data privacy, moral dilemmas, and the possibility of less human interaction in the classroom need to be addressed.

**Keywords:** Artificial Intelligence, Education, Personalized Learning, AI Tools, Creativity

**Copyright © 2025 The Author(s):** This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

### **Introduction:**

Conventional methods of instruction have been drastically altered by the use of AI in education. AI-powered solutions make adaptive learning possible, allowing for individualized instruction based on each student's needs. AI-powered chatbots and intelligent tutoring systems are just two examples of how technology is changing the way that people learn and teach.

Basically, artificial intelligence has so much potential to transform lives in education within underdeveloped countries, with such benefits highly optimized and the promise of fair access to quality education emerging greatly assured through due considerations of infrastructural, skills development, and ethical implications (Melweth et al., 2024; Pedro et al., 2019). By means of strategic infrastructure, capacity building, and regulatory frameworks, bridge the digital divide

and support inclusive educational practices leveraging artificial intelligence technologies. (I)

### **Applications of AI in Education:**

#### **Personalized Learning:**

AI-driven learning platforms evaluate student performance and offer personalized course materials. Based on user interactions, AI algorithms are used by platforms such as Coursera and Duo lingo to suggest exercises and courses.

#### **Computerized Evaluation and Grading :**

AI makes it possible to grade essays automatically, which lessens the effort for teachers. Students receive immediate feedback on their written responses through the use of Natural Language Processing (NLP) tools.

#### **Systems for Intelligent Tutoring:**

AI-based tutors help students instantly by responding to their questions and breaking down ideas. Carnegie

Learning's AI-powered platforms and IBM's Watson Tutor are two examples.

### **AI Chatbots for Student Support:**

AI chatbots increase accessibility and engagement by helping students with academic inquiries, course choices, and administrative duties.

**Generative AI**, a subset of artificial intelligence, is also making significant inroads in education. Tools like ChatGPT and GPT-4 are being utilized to create interactive learning experiences, assist in content creation, and provide personalized tutoring. These applications aim to enhance student engagement and provide tailored support to meet individual learning needs. (I)

**Adaptive learning** platforms utilize AI algorithms to adjust content delivery based on individual student performance, ensuring that learners receive material tailored to their needs and pace. (III)

**Accessible Education:** AI-driven tools can provide support for students with disabilities, offering features like speech-to-text, text-to-speech, and other assistive technologies that make learning materials more accessible. (III)

**Enhanced Teaching Efficiency:** AI assists educators by automating administrative tasks such as attendance tracking, allowing teachers to focus more on instruction and student interaction. Additionally, AI provides insights into student performance, helping educators identify areas where students may need additional support. (III)

### **AI Tools Enhancing Study Habits and Time Management**

Brown et al. (2023) explored university students' perceptions of generative AI technologies, such as ChatGPT, in higher education. The study found that students utilized these tools to clarify comprehension questions, explain subject-specific concepts, and assist with translations, thereby enhancing their learning efficiency. (V)

### **Doctrina AI:**

Doctrina AI revolutionizes education by employing AI algorithms to enhance learning. It can summarize notes, generate essays, quizzes, and exams on any topic, providing a comprehensive learning experience. However, access to notes and quizzes is limited in the free plan. (VI)

### **Student AI:**

StudentAI offers 24/7 AI tutoring and over 200 tools to assist with homework, research, job searches, scholarship applications, mock interviews, and essay writing. It aims to elevate academic and career journeys by providing dedicated AI tools and tutors for students, graduates, and professionals. (VII)

### **Khanmigo:**

Khanmigo, developed by Khan Academy in partnership with Microsoft, is an AI-powered tool designed to support teachers, parents, and students. It acts as a tutor, providing immediate feedback and enabling independent practice, thereby enhancing learning outcomes. (VIII)

### **Intelligent Tutoring Systems (ITS):**

These AI-driven platforms provide personalized learning experiences by analyzing student progress and adapting to their learning styles.

1. **Squirrel AI** – Adaptive learning system using AI to provide customized learning paths.
2. **Carnegie Learning's MATHia** – AI-powered math tutoring software for K-12 students.
3. **Knewton Alta** – Personalized adaptive learning platform for higher education.

### **AI for Automated Grading & Feedback**

AI helps educators by automatically grading assignments and providing real-time feedback.

1. **Gradescope** – AI-assisted grading platform for assignments and exams.
2. **Turnitin** – AI-driven plagiarism detection and writing feedback tool.

3. **Edmentum** – Automated assessment and feedback system.

### AI-Powered Chatbots & Virtual Assistants

These AI tools help answer student queries, assist with coursework, and provide academic support.

1. **ChatGPT (OpenAI)** – AI tutor for answering questions and generating study materials.
2. **IBM Watson Tutor** – AI-powered academic support for students.
3. **Brainly AI Tutor** – Community-based learning with AI-powered explanations.

### AI for Personalized Learning & Accessibility

AI makes education more inclusive and tailored to individual needs.

1. **Microsoft Immersive Reader** – AI-powered tool for improving reading comprehension.
2. **Google Read&Write** – AI tool for students with dyslexia and learning difficulties.
3. **Seeing AI (Microsoft)** – AI-powered app for visually impaired students.

### AI in Administrative Tasks & Classroom Management

AI helps institutions streamline administrative work and improve efficiency.

1. **Scribendi** – AI-powered proofreading and editing tool for educators.
2. **Ellucian** – AI-based student information and management system.
3. **Salesforce Education Cloud** – AI-powered student engagement and data analytics.

### Application of AI in education of students with learning disability:

AI has demonstrated its ability to serve as a great means of support for students with cognitive disabilities by enabling educators to adapt their content to the cognitive level of their students. Artificial intelligence (AI) has shown to be a powerful tool for supporting children with cognitive disorders. Existing research has demonstrated that AI-based platforms may

dynamically modify the difficulty of instructional content to reinforce and increase comprehension and retention. Similar to this, it has been shown that AI-powered chatbots may provide individualized help, meeting the needs of students with cognitive and learning disabilities and enhancing their educational experience and results. Additionally, in order to guarantee that the specific needs and difficulties of students are satisfied. Instructions and content can be organised and modified in a simpler manner for learning disability students to understand it by minimising content's difficulty level.

Virtual reality platforms and AI-powered adaptive systems can also help students with physical limitations by removing any physical impediments to learning that may currently exist. Alternative input techniques, such as voice commands and eye-tracking, can successfully include students with physical disabilities in the learning process and improve their engagement. In the same way, Mahon et al. outline how virtual reality platforms might help students with physical and developmental disabilities participate in physical activities, promoting their inclusion.(V)

### Key Recommendations of NEP 2020 for AI in education:

#### 1. Integration of AI in Curriculum

- A. AI to be introduced at the school level from Grade 6 onwards.
- B. Higher education institutions (HEIs) to offer AI courses, degrees, and research opportunities. (VI)

#### 2. AI-Powered Personalized & Adaptive Learning

- A. AI-based platforms to personalize learning paths for students.
- B. Use of machine learning models to assess individual strengths & weaknesses. (VII)

#### 3. AI for Teacher Support & Training

- A. AI tools to assist teachers in lesson planning, grading, and student assessment.

B. AI-driven teacher training for upskilling educators. (VIII)

#### 4. AI in Assessment & Examination

- A. AI to automate exam grading & feedback.
- B. AI-powered proctoring to prevent malpractice in online exams. (IX)

#### 5. AI for Inclusion & Accessibility

- A. AI-driven speech-to-text and text-to-speech tools for students with disabilities.
- B. Real-time language translation for multilingual education. (X)

#### Creativity and generative AI:

Anantrasirichai and Bull (2022) claim that artificial intelligence (AI) has been extensively incorporated into the creative industries of music, film, and entertainment in recent years. AI is being used to create musical experiences as well as narratives for novels and scripts. Companies like Forbes, the BBC, the Washington Post, and Microsoft employ AI in journalism in a number of ways to increase productivity. Spotify and Netflix also use AI to improve their suggestions and advertisements. "In the near future, AI will be adopted much more widely as a tool or collaborative assistant for creativity, supporting acquisition, production, post-production, delivery, and interactivity," according to research by Anantrasirichai and Bull (2022) (p. 639).(XI)

#### Future Directions:

The future of AI in education holds promising possibilities:

- **Advanced Personalization:** Future AI systems may offer even more refined personalization, taking into account not only academic performance but also factors like student interests and emotional states to tailor learning experiences.
- **Lifelong Learning:** AI could support lifelong learning by providing resources and support for learners of all ages, facilitating continuous education and skill development.

- **Global Collaboration:** AI can connect students and educators worldwide, fostering global learning communities and cross-cultural exchanges.(III)

#### Challenges and Ethical Considerations

Despite its benefits, the integration of AI in education presents several challenges:

- **Data Privacy:** The use of AI requires the collection and analysis of student data, raising concerns about privacy and data security. Ensuring that student information is protected and used ethically is very important.
- **Bias and Fairness:** AI systems can inadvertently perpetuate biases present in their training data, leading to unfair outcomes. It's essential to develop and implement AI systems that are transparent and equitable.
- **Equity and Access:** There is a risk that AI could exacerbate existing educational inequalities if access to AI-powered tools is limited to certain groups. Efforts must be made to ensure that all students have access to the benefits of AI in education.(III)

#### Research Objectives:

1. To assess how AI technologies influence learning outcomes, accessibility, teaching methodologies and personalized learning, in educational settings within developing countries.
2. To analyse the primary obstacles, including technological, infrastructural, and socio-cultural barriers that hinder AI implementation in education in developing regions.

#### Conclusion:

AI is transforming education through automation, intelligent tutoring, and tailored learning. But for AI-powered education to be implemented successfully, ethical issues must be addressed and fair access must be guaranteed. Future studies should focus on improving AI applications to improve efficacy and inclusivity in educational settings.

**Review of Literature:**

The merging of artificial intelligence (AI) with information technology (IT) has created a revolution in the constantly changing field of education known as the GenAI Revolution. A large number of literatures have been reviewed which is based on AI and their impact on education

- I. Delello, J. A., Watters, J. B., & Garcia-Lopez, A. (2024). *Artificial intelligence in education: Transforming learning and teaching*. In **Disruptive technologies in education and workforce development** (pp. 1–26). IGI Global. <https://doi.org/10.4018/979-8-3693-3003-6.ch001>
- II. Hakimi, M., & Shahidzay, A. K. (2024). *Transforming education with artificial intelligence: Potential and obstacles in developing countries* (Version 1). Preprints.
- III. Chetry, K. K. (2024). *Transforming education: How AI is revolutionizing the learning experience*. *International Journal of Research Publication and Reviews*, 5(5), 6352–6356.
- IV. Rane, N. L., Choudhary, S. P., & Rane, J. (2024). *Education 4.0 and 5.0: Integrating artificial intelligence (AI) for personalized and adaptive learning*. *Journal of Artificial Intelligence and Robotics*, 1(1), 29–43.
- V. Brown, A., Davis, B., & Miller, C. (2023). Artificial Intelligence in studies—use of ChatGPT and AI-based tools. *Humanities and Social Sciences Communications*, 10(1), 1-10.
- VI. Adwani, K. (2025). 19 Best AI tools for students in 2025 (mostly free). Kripesh Adwani.
- VII. StudentAI. (n.d.). *StudentAI: AI tools for students*.
- VIII. Khan Academy. (n.d.). *Khanmigo: AI-powered learning assistant*.

- IX Chalkiadakis, A., Seremetaki, A., Kanellou, A., Kallishi, M., Morfopoulou, A., Moraitaki, M., & Mastrokoulou, S. (2024). Impact of artificial intelligence and virtual reality on educational inclusion: A systematic review of technologies supporting students with disabilities. *Education Sciences*, 14(11), 1223.
- X. Sharma, R., & Gupta, A. (2024). Role of artificial intelligence in education: An overview. *International Journal of Multidisciplinary Research and Development*, 11(7), 100-105.
- XI. Tyagi, S., Banerjee, S., & Saxena, M. K. (2023). The role of artificial intelligence in implementing the National Education Policy-2020: Challenges and opportunities. *International Journal of Advanced Research in Education & Technology*, 10(2), 15-25.
- XII. Thawrani, U., Sharda, T., Gaurav, U., Kumar, B., Saloni, & Acharya, R. (2024). Empowering NEP 2020 with artificial intelligence: Revolutionizing education in India. *African Journal of Biomedical Research*, 27(1), 45-58.
- XIII. Kumar, S., & Singh, P. (2023). Artificial intelligence in education: An overview. *Journal of Emerging Technologies and Innovative Research*, 10(2), 146-152.
- XIV. Sharma, R., & Gupta, A. (2024). Role of artificial intelligence in education: An overview. *International Journal of Multidisciplinary Research and Development*, 11(7), 100-105.
- XV. Habib, S., Vogel, T., Anli, X., & Thorne, E. (2024). How does genAI impact student creativity? *Journal of Creativity*, 34(1), Article 100072.

**Cite This Article:**

**Ms. Shete M. & Ms. Sahu N. (2025).** Role of AI in Teaching and Learning support. In **Aarhat Multidisciplinary International Education Research Journal**: Vol. XIV (Number II, pp. 56–60).