

ARTIFICIAL INTELLIGENCE IN EDUCATION: A NEW ERA FOR INDIAN CLASSROOMS

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ABSTRACT

This study examines how artificial intelligence (AI) is transforming the Indian educational system, with a particular emphasis on how it aligns with the National Education Policy (NEP) 2020. It looks at how artificial intelligence-powered technologies like assistive technology, adaptive learning platforms, and intelligent tutoring systems improve accessibility, inclusion, and individualized learning. The research highlights AI's potential to close educational gaps, enhance teacher effectiveness, and facilitate skill-based learning through a qualitative approach that incorporates case studies and literature analysis. The study recognizes the advantages of AI while highlighting important issues such as algorithmic prejudice, data privacy, digital inequality, and its alignment. We present real-world applications, such as BYJU'S and CBSE AI attempts, for practical implementation. The study suggests that by using AI responsibly and reasonably, along with proper support, ethical guidance, and teacher training, India could create a learning environment that focuses on students and prepares them for the future.

Keywords: *Artificial intelligence (AI), National Education Policy (NEP)- 2020, Educational Accessibility and Inclusion, Ethical AI Implementation.*

1. INTRODUCTION

“AI in education can only grow at the speed of trust.” —Dr. Dale Allen

AI as an Innovative Tool in Education: In India as well as around the world, artificial intelligence (AI) is becoming a more powerful influence in education. AI, in its broadest

sense, is the emulation by computer systems of human cognitive functions, including learning, reasoning, problem-solving, and decision-making(Taru, 2025). These technologies help improve learning experiences, increase teaching effectiveness, and streamline institutional administration in educational settings by simulating intellectual tasks that typically happen to people. The growing acceptance of AI in the classroom is indicative of a significant pedagogical shift toward more intelligent, data-driven instructional methods(Amin, 2023).The top AI applications of 2025 are ‘Perplexity’ for real-time, cited replies; ‘DeepSeek’ for developers and researchers; ‘Copilot’ for automating office chores; and ‘ChatGPT’ for writing and learning. These resources improve learning and productivity in all domains.

AI Uses in the Educational Environment: Personalized learning routes, intelligent tutoring programs, real-time student feedback, and the automation of tedious activities like attendance monitoring and grading are just a few of the educational uses for AI. Additionally, AI makes learning environments more accessible by providing real-time language translation for multilingual learners and assistive technology for students with impairments(Of, 2024). It makes it easier to create virtual simulations, adaptive tests, and digital material that caters to the demands of specific students. By transforming traditional teaching methods, AI promotes student autonomy, engagement, and improved academic results(Cardona et al., 2023).

NEP 2020: A Technology Integration Policy Framework: The National Education Policy (NEP) 2020 in India offers a thorough plan for incorporating technology, including artificial intelligence (AI), into the educational system. To ensure that technology becomes a significant learning facilitator, NEP 2020 places a strong emphasis on the use of digital infrastructure, open educational materials, and teacher capacity-building initiatives. Due to the policy, AI may help reach objectives including competency-based and individualized learning, interdisciplinary curriculum, and inclusive education. NEP 2020 promotes the use of artificial intelligence-driven technology to meet India's varied educational demands, with an emphasis on lowering inequalities and enhancing the flexibility of the learning process.

Artificial Intelligence (AI) integration is emphasized in the National Education Policy (NEP) 2020 as a way to modernize education, improve accessibility, and get students ready for the AI-driven industry. Important elements consist of

- ***AI in the School Curriculum:*** To provide children 21st-century abilities, NEP 2020 incorporates AI, coding, and computational thinking from a young age.
- ***AI for Personalized Learning:*** AI-driven platforms provide inclusive and competency-based education by tailoring material to each learner's unique requirements.

- *AI in Higher Education:* Academic institutions are urged to provide master's and doctoral degrees in AI-related subjects like big data analysis and machine learning.
- *AI for Multilingual Education:* By facilitating multilingual learning, AI-powered Natural Language Processing (NLP) increases educational accessibility.
- *AI in Teacher Training & Assessment:* AI helps with subjective response grading, which lessens the burden for teachers and guarantees impartial assessments.

Difficulties in Integrating AI: Although artificial intelligence (AI) has the potential to completely transform education, a number of obstacles prevent its widespread use in India. Digital inequality, inadequate infrastructure, the scarcity of internet access and gadgets in rural regions, and instructors' ignorance of or lack of training in artificial intelligence are some of the main problems (Mukherjee, 2025). Significant problems also arise from ethical issues, including algorithmic prejudice, data privacy, and the possible over-reliance on robots (Moharana, 2025). AI has the potential to widen rather than solve current educational gaps if it is not used carefully and fairly. A multi-stakeholder strategy is needed to address these issues, with educators, technologists, legislators, and communities cooperating to maintain the ethical, inclusive, and learner-centered nature of AI adoption.

A Way Ahead with NEP 2020: The responsible and deliberate use of AI will determine its future in Indian education. By urging the establishment of research-based policies, teacher training programs, high ethical standards, and privacy safeguards, NEP 2020 provides a solid basis for this (Vishwavidyalaya, 2025). Building educators' confidence in their ability to use AI technologies successfully requires the establishment of venues for ongoing professional development. Public-private partnerships may also foster innovation, resource exchange, and ongoing assessment of AI's effects on educational results (Kamble, 2024). AI can greatly improve educational fairness, raise the standard of teaching, and get pupils ready for a quickly changing digital world, provided it is integrated responsibly (Sihag, 2023).

AI has the potential to significantly improve the inclusiveness, effectiveness, and readiness for the future of the Indian educational system (Kaur et al., 2025). India has the chance to use AI not just as a practical tool but also as a strategic asset to solve long-standing educational issues within the ambitious framework of NEP 2020. A progressive, learner-centered, and internationally competitive education system driven by artificial intelligence may be established in India via investments in infrastructure, ethical governance, teacher preparation, and equitable access (Majumdar, 2022). This study examines how artificial intelligence (AI) is revolutionizing accessibility and inclusion, providing insights into global best practices and tactics adapted for India's changing educational landscape.

2. OBJECTIVES

1. Impact on NEP 2020 Implementation: Evaluate how AI-powered solutions complement India's National Education Policy 2020 objectives, especially in the areas of skill-based learning and primary education.
2. Improving Inclusion and Accessibility: Look into how AI can help students with different learning styles, close educational gaps, and increase the availability of high-quality learning materials.
3. Challenges and Ethical Considerations: Determine any possible issues with bias in AI, data privacy, and the moral ramifications of incorporating AI into the classroom.

3. REVIEW OF RELATED LITERATURE

The National Education Policy (NEP) 2020's integration of new technologies and artificial intelligence (AI) has attracted a lot of academic interest. Many scholars acknowledge AI's revolutionary potential to improve inclusion, personalize education, and streamline administrative tasks.

The contributions of AI and programs like ChatGPT to accomplishing NEP 2020's objectives of comprehensive, adaptable, and transdisciplinary education were examined by Pachaiyappan (2024). The research highlighted how AI may help with inclusive and customized learning while also discussing implementation issues and suggesting practical integration techniques. According to Anowar & Khatun (2023), robots and artificial intelligence (AI) may transform schools and enhance STEM results. They saw a 20% improvement in performance via programs like Atal Tinkering Labs. They emphasized how crucial these technologies are to equipping kids with abilities that will be useful in the future. Moharana (2025) spoke about AI in the context of inclusive education, emphasizing systems that can adapt to the requirements of each individual learner. Along with recommendations for further study and legislation, important issues including ethics, equality, infrastructure, and teacher readiness were covered.

AI's function during and after COVID was examined by Sihag & Vibha (2024), who noted advantages such as improved grading systems, predictive analytics, and intelligent tutoring. In order to enhance learning outcomes, their research suggested a broader integration of AI into classroom instruction and policy. In NEP 2020, Tyagi, Banerjee, and Saxena (2024) investigated AI applications like intelligent tutoring systems and automated assessment, highlighting significant issues with data privacy, ethics, and teacher preparedness. They suggested strong legislative frameworks and ethical AI usage training for educators. Similar

to this, Kenchakkanavar, Rathod, and Kamble (2024) focused on how AI improves customization and accessibility. Their work emphasized the value of adaptable technologies, raised awareness of digital divisions and ethical issues, and promoted teamwork in line with NEP objectives. Prajapati (2023) gave a detailed look at how AI can be used under NEP 2020, highlighting its ability to improve management and personalized learning, while also pointing out the importance of having clear policies and training for teachers.

Using a mixed-method approach, Amin (2023) assessed how technology enhances educational infrastructure in accordance with NEP 2020, looking at its effects on equality, quality, and accessibility. The research underlined the need for digital preparedness and strategic implementation. Kaur and Kumari (2023) investigated the effects of AI on education using technologies such as automated tests and intelligent instructors. They recommended robust governance structures and warned about prejudice and ethical issues, even as they acknowledged the advantages. Last but not least, the essay "Envisioning Indian School Classrooms in 2035" made predictions on how AI and smart technology will change education, highlighting the need for new infrastructure, teacher roles, and revised policies to create inclusive, future classrooms.

4. METHODOLOGY:

To investigate AI's role in accessibility and inclusion under NEP 2020, this study uses a qualitative research methodology that integrates case studies, literature reviews, and expert perspectives. Information is gathered from scholarly publications, policy documents, and teacher surveys. AI-powered assistive technology and rural education initiatives are highlighted in case studies. Analysing AI's ability to close learning gaps is done via thematic analysis and comparative assessment. The study's shortcomings include regional differences in AI use and data availability, despite its emphasis on primary education in India. The results are intended to provide evidence-based approaches to the integration of AI that are inclusive.

5. ANALYSIS

5.1. The Function of AI in Elementary Education's Implementation of NEP 2020

A major shift in India's educational system is represented by the National Education Policy (NEP) 2020, which places a strong emphasis on technology-driven learning, skill-based learning, and holistic development. To accomplish these goals, artificial intelligence (AI) is expected to be very important, especially in primary education. Schools may provide individualized learning experiences, improve teacher productivity, and promote fair access to high-quality education by using AI-powered solutions. With an emphasis on vocational skill

development, numeracy, and fundamental reading, this article investigates how AI may support the implementation of NEP 2020.

AI is revolutionizing elementary education: Enhancing foundational learning and early childhood education is one of NEP 2020's top focuses. AI-driven technologies offer innovative ways to raise academic performance and student engagement (Anowar & Khatun, 2024):

- *Personalized Learning Systems:* Adaptive AI systems evaluate student performance and modify instruction according to each learner's unique requirements, guaranteeing successful understanding.
- *AI-Based Tutoring:* These technologies help students understand ideas at their own speed by providing automated coaching and real-time feedback.
- *Gamified Learning Models:* AI makes learning more engaging and efficient by enhancing classroom instruction with interactive, game-based learning that complements competency-based curriculum.

AI-Powered Teacher Empowerment: NEP 2020 acknowledges that teachers have a critical influence on students' performance. AI may be a valuable tool that reduces administrative workloads and enhances instructional effectiveness

- *Automating Repeated Tasks:* AI makes it easier to grade assignments, track attendance, and create materials, freeing up instructors to focus on engaging students in class.
- *Data-Driven Student Insights:* By analysing student learning patterns using analytics driven by artificial intelligence, instructors may implement focused interventions to boost academic achievement.
- *AI-Driven Teacher Training:* AI keeps teachers prepared to manage contemporary teaching approaches by enabling online seminars, simulations, and real-time support.

AI and Skill-Based Learning: Building Future-Readiness in Kids NEP 2020 places a strong emphasis on digital literacy and vocational education to prepare kids for the future from a young age. This change is greatly aided by AI through:

- *Career and Skill Guidance:* AI-driven career counselling systems help students make well-informed decisions by suggesting career pathways based on their aptitudes and areas of interest.
- *Early Introduction to Computational Thinking & Coding:* AI-powered coding tools facilitate experiential learning, developing logical thinking and problem-solving abilities.
- *Real-World Simulations:* AI-powered laboratories and virtual settings introduce students to real-world applications in entrepreneurship, STEM, and cutting-edge technology.

NEP 2020 has the potential to transform skill-based learning and primary education via artificial intelligence. Its incorporation may improve learning efficiency, accessibility, and personalization for both teachers and students. For AI-driven education to be equal across India, however, ethical and infrastructure issues must be resolved.

5.2. Using AI in Indian Classrooms to Promote Inclusion and Access

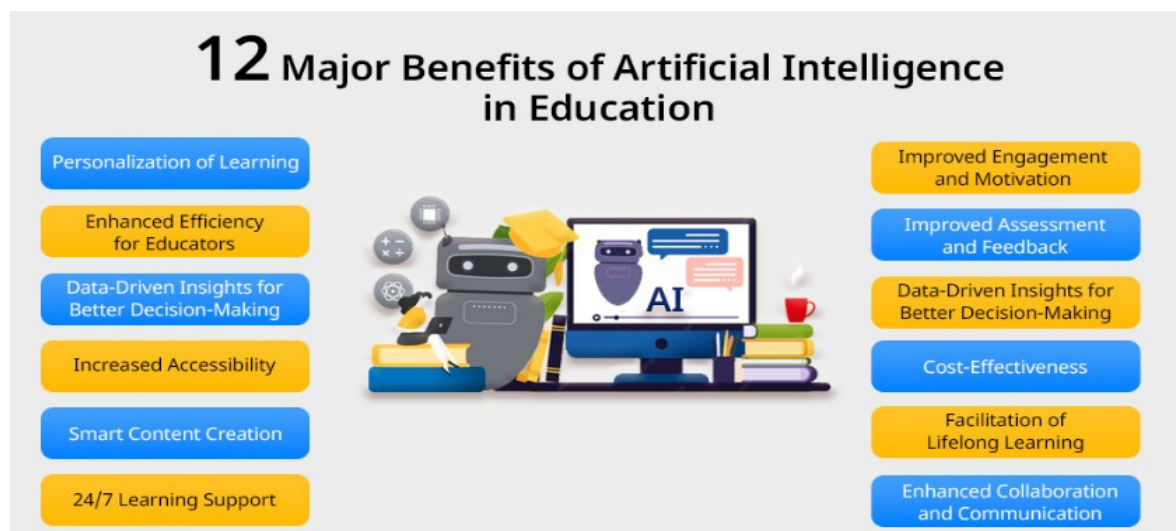
Although many students encounter obstacles because of cognitive difficulties, socioeconomic inequalities, or restricted access to high-quality resources, education is a basic right. The goal of the National Education Policy (NEP) 2020 is to create an inclusive classroom where everyone has fair access to education. By providing individualized learning experiences, assistive technology, and adaptive teaching strategies, artificial intelligence (AI) is revolutionizing the way that educational gaps are filled. This study examines how AI improves inclusion and accessibility in Indian classrooms, with an emphasis on resource allocation and a range of learning demands.

AI-Powered Assistance for Varying Learners: Specialized teaching methods are needed for students with impairments and learning challenges. AI makes personalized solutions possible, creating a more welcoming and stimulating learning environment.

- *Text-to-Speech and Speech-to-Text Tools:* AI-powered assistive tools translate text to speech and vice versa to support students who are blind or hard of hearing.
- *Artificial Intelligence-Based Learning Analytics:* These systems analyze individual learning styles and modify information for students with cognitive disabilities like dyslexia or ADHD.
- *Sign Language Recognition:* AI improves accessibility in regular classrooms by helping hearing-impaired students communicate by translating sign language.
- *Filling Up Regional and Socioeconomic Educational Gaps:* Many pupils may not always have regular access to good teachers and educational resources, particularly in rural India.

The *Following are some ways that AI-powered solutions may democratize education:*

- *Smart & Digital Classrooms:* AI-powered platforms reduce reliance on physical resources by providing students in poor regions with individualized instruction.
- *Automated Translation & Language Adaptation:* AI breaks down linguistic barriers and facilitates multilingual learning by translating instructional materials into regional languages.
- *AI-Enabled Learning Applications:* Self-paced education is made possible by interactive applications, which provide students in far-off places access to high-quality learning materials.



(figure gathered from internet sources)

Making Skill-Based Learning Accessible: Early vocational training and skill development are prioritized in NEP 2020. AI can increase accessibility to this area of education by

- *AI-Powered Career Counselling:* By analysing students' interests and skills, intelligent algorithms provide tailored career advice.
- *Virtual Labs & Simulations:* AI-powered systems provide hands-on teaching without requiring costly infrastructure, enabling all students to participate in skill-based learning.
- *Adaptive Skill Training Modules:* AI adjusts course material according to a student's speed, guaranteeing successful skill development for a range of learners.

Artificial intelligence is changing education by improving inclusion and accessibility, guaranteeing individualized instruction for a wide range of pupils, and closing socioeconomic divides. As India moves closer to implementing NEP 2020, AI must be carefully included to guarantee that everyone has access to equal educational opportunities.

The Impact of AI on Closing Learning Gaps: A Thematic Analysis and Comparative Assessment: Thematic Analysis: A thematic examination of AI's contribution to closing learning gaps identifies a number of important themes:

- **Personalized Learning:** Artificial intelligence ensures customized learning by adjusting educational materials to each student's demands.
- **Accessibility and Inclusion:** Students with impairments and those in underprivileged areas are supported by AI-driven technologies.
- **Teacher Support and Efficiency:** By automating administrative duties and offering data-driven insights, artificial intelligence helps instructors.
- **Skill-Based Learning:** AI helps students become ready for their future employment by improving digital literacy and vocational training.

Comparative Assessment: The following are some highlights of comparing AI-driven educational approaches in different regions:

- *Developed Countries:* Regular schooling incorporates AI to provide real-time analytics and sophisticated adaptive learning.
- *Developing Countries:* To bridge socioeconomic divides, AI emphasizes accessibility, low mobile learning, and multilingual education.
- *India's Context:* AI promotes NEP 2020, which places a strong emphasis on teacher empowerment, inclusive education, and regional language adaptation.

This research highlights the revolutionary potential of AI to deal with learning gaps while also pointing out infrastructural, accessibility, and ethical AI implementation concerns.

Case studies: • *BYJU'S AI-Powered Learning:* This approach uses AI models that include TeacherGPT, MathGPT, and BADRI to provide interactive tutoring, adaptive assessments, and personalized student learning.

- *CBSE AI-Based Grading:* Lowers teacher effort and ensures fair grading by using NLP (natural language processing) and automated pattern recognition to assess subjective responses.
- *State-Level AI Initiatives:* Karnataka and Maharashtra include analytics and adaptive learning, while Tamil Nadu's TEALS program integrates AI-driven pedagogy to instruct educators.
- *IFP Boards in Telangana:* More than 4,000 schools already utilize interactive whiteboards, which enhance instruction via the use of multimedia, AI-assisted material, and preparation for teachers.

5.3. AI Integration in Education: Difficulties and Ethical Issues

Though it also presents significant ethical and practical issues, the incorporation of artificial intelligence (AI) into education has the potential to transform it. Essential concerns include algorithmic bias, data privacy, and the wider ramifications of deploying AI-powered systems in various educational settings.

Data security and privacy: AI-powered learning systems collect and evaluate enormous volumes of student data, which raises questions about security lapses, abuse, and illegal access. We must enforce privacy laws, adhere to data rules, and utilize robust encryption to safeguard student information. Institutions must restrict the collection of a great deal of data and stop other organizations from exploiting student information to secure the ethical deployment of AI.

AI Bias & Fairness: AI-powered learning systems that use pre-trained models may provide biased results if the datasets are not diverse. Inadvertent algorithmic bias may penalize students from underrepresented groups or distort material suggestions according to socioeconomic status. AI models must be trained on multiple datasets, subjected to regular audits, and integrated with ethical AI principles to prevent discrimination in education and ensure fairness.

AI's Ethical Implications for Education: AI improves learning, but if used excessively, it might harm critical thinking skills and teacher-student interaction. Ethical issues include the misuse of AI-generated material, decreased human supervision in assessments, and the replacement of conventional teaching methods with AI-driven automation. To maintain human-centered learning experiences, NEP 2020 promotes a balanced approach where AI complements rather than replaces educators.

6. DISCUSSION

AI is becoming a powerful tool for enhancing inclusion and accessibility in education, particularly in India under the NEP 2020 framework. AI-powered resources provide students from a variety of backgrounds—including those in rural locations and those with disabilities—with individualized learning experiences tailored to their specific requirements. Technologies that help close learning gaps and make schools more accessible include multilingual translation systems, assistive AI technologies, and adaptive learning platforms. Around the world, AI-powered educational models have shown promise in reducing inequalities. China's adaptive learning platforms and Finland's AI-powered digital classrooms demonstrate effective integration. While addressing issues such as teacher readiness, ethical AI biases, and limitations in digital infrastructure, India may adopt comparable strategies. India can ensure fair educational opportunities by focusing on the responsible use of AI, providing high-quality learning experiences to students regardless of socioeconomic or geographic constraints.

7. CONCLUSION

AI has the potential to revolutionize education by improving inclusivity and accessibility, especially in line with India's NEP 2020 objectives. Students with impairments, language challenges, and socioeconomic disadvantages may all benefit from individualized learning experiences and assistive technology that make education more egalitarian by using AI-driven solutions. With their effective integration into skill-based education, digital

classrooms, and adaptive learning, international AI education models offer valuable insights. The strategic use of AI technologies can address India's obstacles, including teacher preparedness, AI biases, and limitations in digital infrastructure. By emphasizing ethical implementation, teacher empowerment, and fair access, artificial intelligence (AI) may assist with closing the achievement gap and ensuring that all students, regardless of their circumstances, get high-quality education. Perplexity, DeepSeek, Copilot, and ChatGPT are among the top AI tools of 2025, enhancing learning and productivity across various areas of education.

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