



ARTIFICIAL INTELLIGENCE IN EDUCATION: A LEARNING REVOLUTION OR A SHORTCUT TRAP? STUDY ON INTERN TEACHERS.

Dr. Dipmala Bhawal

Assistant Professor, Gangarampur B.Ed College, Gangarampur, Dakshin Dinajpur, West Bengal

ABSTRACT

The Indian context of education, rooted in rich traditions of knowledge, culture, and holistic development. The integration of modern technologies is reshaping teaching–learning processes. With the growing adoption of AI tools like ChatGPT and Google Gemini, teacher education is witnessing a dynamic shift that blends indigenous knowledge systems with digital innovation. This study explores the impact of Artificial Intelligence (AI) tools, particularly ChatGPT and Google Gemini, on the learning outcomes and academic behavior of intern teachers in West Bengal. Adopting a qualitative phenomenological approach, the research investigates the lived experiences of B.Ed trainees selected through purposive sampling. Data were collected through semi-structured interviews, observations, and secondary sources such as journals and reports.

The findings reveal that AI tools significantly influence subject understanding by offering personalized explanations, instant access to information, multi-perspective learning, and support in lesson planning and practicum activities. However, the study also identifies key risks, including surface-level learning, reduced cognitive effort, dependency, and the possibility of inaccurate information. Ethical concerns such as academic integrity, data privacy, bias, and the digital divide further complicate AI integration in education.

The study highlights that AI can function both as a learning aid and a shortcut. When used critically and reflectively, it enhances understanding, creativity, and pedagogical skills. Conversely, over-reliance on AI may undermine independent thinking and authentic teaching competence. It proposes guidelines for responsible AI integration, including promoting academic integrity, fostering critical thinking, ensuring data security, and maintaining the centrality of real classroom practice.

Overall, the study underscores that AI, when used responsibly, can enrich teacher education and contribute to the development of competent, reflective, and culturally grounded educators.

Keywords: *Artificial Intelligence (AI), ChatGPT, Google Gemini, Teacher Education.*

INTRODUCTION

Artificial Intelligence (AI) is emerging as a powerful force in contemporary education, reshaping how knowledge is created, accessed, and disseminated. In recent years, AI-driven tools—ranging from intelligent tutoring systems to generative platforms—have introduced new possibilities for personalized learning, instant feedback, and efficient classroom management. However, alongside these opportunities, concerns have grown regarding the potential misuse of AI as a shortcut that may weaken critical thinking, creativity, and academic integrity. This tension between innovation and dependency has sparked an important debate: is AI in education a true learning revolution, or does it risk becoming a shortcut trap?

In the Indian context, this question acquires deeper significance when viewed through the lens of the country's rich social, cultural, and intellectual history. India has long upheld a tradition of holistic and reflective learning, dating back to ancient systems such as the Gurukul, where education emphasized discipline, dialogue, moral development, and the cultivation of wisdom. Classical Indian knowledge traditions, reflected in philosophical texts and scholarly practices, valued critical inquiry (tarka), experiential learning, and the teacher–student relationship as central to intellectual growth. Over time, colonial and postcolonial transformations introduced formalized, examination-oriented systems, often prioritizing rote learning and credentialism. Today, India stands at a critical juncture where it must reconcile its deep-rooted educational philosophies with rapidly advancing digital technologies.

The integration of AI into Indian education systems reflects broader social realities, including issues of digital access, linguistic diversity, and educational inequality. While urban institutions may benefit from advanced technological adoption, many rural and marginalized communities still face infrastructural challenges. At the same time, India's intellectual tradition encourages thoughtful engagement with new knowledge systems, urging learners to question, interpret, and adapt rather than passively consume information. In this context, the use of AI tools raises important questions about whether technology can align with these values or inadvertently disrupt them.

REVIEW RELATED LITERATURE

A. Studies Abroad

Globally, Artificial Intelligence (AI) in education has been widely recognized as a transformative force that enhances teaching and learning processes. **Salas-Pilco, S. Z. et al. (2022)** conducted a systematic review highlighting that AI and learning analytics significantly contribute to personalized learning and teacher education. The study emphasizes that while AI improves instructional strategies, teachers require adequate training to effectively integrate these technologies. Similarly, **Tahiru, F. (2021)** found that AI facilitates access to knowledge and automates educational tasks, thereby improving efficiency. However, the study also pointed out concerns such as ethical issues, overdependence on AI tools, and inequities in access, especially in developing regions. In higher education contexts, **Memarian, B. and Doleck, T. (2024)** observed that AI supports teaching and learning but creates pedagogical challenges, particularly in maintaining student engagement and ensuring meaningful learning. Further, **Du, H. et al. (2024)** stressed the importance of AI

literacy among teachers, noting that insufficient understanding of AI limits its effective use in classrooms.

Likewise, Boussof, Z. et al. (2024) highlighted that although AI enhances learning efficiency, its uncritical use may negatively affect higher-order thinking skills.

Overall, international studies consistently present AI as both an opportunity and a challenge, reinforcing the dual perspective of AI as a learning revolution and a potential shortcut.

B. Indian Studies

In the Indian context, the integration of AI in education reflects both technological advancement and socio-cultural complexities. **Tripathi, T. et al. (2025)** conducted a qualitative study revealing that teachers perceive AI as a useful tool for improving efficiency and personalization. However, they also expressed concerns about students becoming overly dependent on AI, leading to reduced critical thinking abilities. Similarly, **Arunima, S. N. and Akhter, M. (2025)**, while focusing on a developing country context comparable to India, found that AI enhances teaching practices but faces challenges such as lack of infrastructure, insufficient training, and digital inequality—issues highly relevant to the Indian education system. Policy-level discussions, particularly under **Ministry of Education, Government of India (2020)** through the National Education Policy (NEP 2020), emphasize the integration of technology and AI in education while promoting critical thinking, creativity, and ethical use of digital tools. This reflects India's attempt to balance technological adoption with its traditional educational values.

Additionally, emerging Indian research highlights that intern and pre-service teachers often lack formal training in AI, which affects their confidence and readiness to use such tools effectively. At the same time, cultural emphasis on effort, discipline, and teacher guidance creates tension with the ease and immediacy offered by AI technologies.

RESEARCH GAP

While both Indian and international studies acknowledge the transformative potential of AI and its associated risks, there is limited research focusing specifically on **intern teachers' perceptions**, particularly within the Indian socio-cultural and intellectual framework. This gap justifies the need for the present study.

OBJECTIVES

General Objective

1. To examine the impact of Artificial Intelligence (AI) on learning outcomes and academic behavior of intern teachers.

Specific Research Objectives

1. To analyze how AI tools (like ChatGPT and Google Gemini) influence intern teachers for understanding of subjects.
2. To explore the ethical concerns related to AI use in education.
3. To assess whether AI acts more as a learning aid or a shortcut in academic tasks.
4. To suggest guidelines for the effective and responsible use of AI in teacher education programs.

METHODOLOGY

- **Research Design:** This study adopts a qualitative phenomenological approach to explore the perceptions and experiences of intern teachers regarding the use of artificial intelligence in education. It focuses about the understanding of lived experiences of intern teachers using AI.
- **Population:** Intern teachers (B.Ed trainees) of West Bengal State.
- **Sample & Sampling:** A purposive sampling technique (select those who actively use AI tools) was used. 80 number of intern teachers from B.Ed. course was selected from Malda, Uttardinajpur, Dakshin Dinajpur & Darjeeling District.

DATA COLLECTION METHODS

- **Primary Source:** Semi-Structured Interviews using open-ended questions and observation technique were used.
- **Secondary Source:** Articles, Journals, Books, Mass Media & Social Media Platforms.

OBJECTIVES WISE ANALYSIS AND INTERPRETATION

1. AI Tools (like ChatGPT and Google Gemini) Influence of Intern Teachers for Understanding of Subjects: Researcher analyzed this objective in the light of positive and negative aspects. Those are stated bellow-

(A) Positive Influences on Subject Understanding

- **Personalized and Adaptive Learning:** AI tools provide explanations tailored to the intern teacher's level of understanding. For example, if a concept in Language, Science, Social Science or pedagogy is unclear, these tools can simplify, expand, or reframe explanations instantly.
- **Instant Access to Explanations:** Intern teachers no longer need to rely only on textbooks or mentors. They can ask questions anytime and receive immediate, structured answers. It provides continuous learning beyond classroom hours.

- **Multi-perspective Understanding:** AI tools can present a concept in multiple ways—definitions, examples, analogies, and real-life applications. It helps interns for their deeper and more flexible understanding of subjects.
- **Support for Lesson Planning, Assignments & Practicum's:** Intern teachers often use AI to Break down complex topics, generate teaching examples, create lesson plans, provides practicum solutions and other activities related to training course. As a result they Improved subject mastery through teaching preparation.
- **Language and Communication Support:** For intern teachers who struggle with academic English, AI tools can simplify difficult texts, translate concepts and improve explanation skills for better comprehension and expression of subject knowledge.

(B) Negative Influences / Risks

- **Surface-Level Learning:** Over-reliance on AI may lead to copying answers without deep thinking. It reduced critical thinking and shallow understanding of intern teachers.
- **Reduced Cognitive Effort:** Intern teachers might skip the process of struggling with concepts which is essential for learning. Resultantly, weak long-term retention of subject knowledge is reflecting.
- **Possibility of Incorrect Information:** Although advanced, AI tools may sometimes provide outdated or inaccurate responses. It can create misconceptions if not cross-checked.
- **Dependency Formation:** Frequent use may reduce independent study habits and problem-solving skills. Risk of lower self-reliance in teaching practice with overall the training process retained.

2. The Ethical Concerns Related to AI Use in Education: AI use in education—especially tools like ChatGPT and Google Gemini—raises several important ethical concerns:

- **Academic Integrity:** Students or intern teachers may misuse AI to complete assignments, practicum's and lesson planning leading to plagiarism and reduced authenticity of work.
- **Data Privacy and Security:** AI systems often collect user data, raising concerns about how students' personal and academic information is stored, used, or shared.
- **Bias and Fairness:** AI models may reflect biases present in their training data, potentially leading to unfair or inaccurate outputs that can affect learning.
- **Over-reliance and Reduced Critical Thinking:** Excessive dependence on AI can weaken independent thinking, creativity, and problem-solving abilities.
- **Digital Divide:** Not all learners have equal access to AI tools, which may widen educational inequalities between different socio-economic groups.

- **Transparency and Accountability:** It is often unclear how AI generates responses, making it difficult for learners and educators to verify accuracy or assign responsibility for errors.
- **Teacher Role and Professional Ethics:** Overuse of AI may undermine the role of teachers, raising concerns about maintaining human judgment, mentorship, and pedagogical responsibility.

Overall, while AI offers powerful educational benefits, its ethical use requires proper guidelines, awareness, and balanced integration into teaching-learning processes.

3.AI acts as a learning aid or a shortcut in academic tasks: AI tools like ChatGPT and Google Gemini can deeply influence B.Ed teacher trainees, and their role as a learning aid or shortcut becomes clearer with detailed examples:

(A) As a Learning Aid: A B.Ed trainee preparing for a lesson on “Child-Centered Education” may use AI to:

- Understand theories of Jean Piaget or Lev Vygotsky in simple language.
- Generate classroom activities suited to different age groups.
- Get examples of questioning techniques and evaluation methods.

The trainee then:

- Analyzes the AI output.
- Modifies it according to the classroom context (e.g., local language, student level)
- Practices delivering the lesson during practicum.

In this case, AI acts as a guide or mentor, helping the trainee think critically, adapt content, and improve teaching skills.

(B) As a Shortcut: Another trainee may:

- Ask AI to generate a complete assignment or lesson plan.
- Submit it without reading or understanding.
- Memorize AI-generated answers for exams.

During real teaching practice:

- The trainee cannot answer students’ questions properly.
- Struggles with classroom interaction and spontaneous explanation.
- Shows lack of confidence and subject clarity.

Here, AI becomes a shortcut, replacing effort and reducing deep learning.

(C) In Assessment and Practicum

- **Positive use:** AI helps trainees design rubrics, express analytical thoughts, reflective journals, and innovative teaching aids.
- **Negative use:** Trainees may submit fake practicum reports or reflections using AI, which reduces genuine teaching experience.

(D) Balanced Use or Ideal Approach

For B.Ed trainees, the best use of AI is:

- Use it for idea generation, clarification, and feedback.
- Combine it with self-study, peer discussion, and real classroom practice.
- Critically evaluate AI responses instead of accepting them blindly.

Hence, researcher concluded that AI is not inherently good or bad—it depends on the trainee's intention. For B.Ed students, it becomes a powerful learning aid when it supports reflection and practice, but turns into a shortcut when it replaces effort, understanding, and real teaching experience.

4. Guidelines for the Effective and Responsible Use of AI in Teacher Education Programs:

Here are clear and practical guidelines for the effective and responsible use of AI in teacher education (B.Ed) programs, especially when using tools like ChatGPT and Google Gemini:

- **Promote AI as a Support Tool, Not a Replacement:** Encourage trainees to use AI for understanding concepts, generating ideas, and getting feedback—but not for directly submitting AI-generated assignments or practicum without modification.
- **Ensure Academic Integrity:** Make it mandatory to acknowledge AI use in assignments and lesson plans and discourage plagiarism and copying AI outputs without critical engagement.
- **Develop Critical Thinking Skills:** Train teacher trainees to:
 - Question AI-generated information.
 - Cross-check facts with textbooks and reliable sources.
 - Analyze and adapt content rather than accept it blindly.

- **Integrate AI into Pedagogy Training:** Include AI in the curriculum by:
 - Teaching how to design AI-assisted lesson plans.
 - Demonstrating ethical classroom use of AI tools.
 - Encouraging innovative teaching strategies using AI.

- **Protect Data Privacy and Security:**
 - Avoid sharing sensitive student or school data with AI tools.
 - Educate trainees about safe and responsible digital practices.

- **Encourage Reflective Practice** Ask trainees to:
 - Maintain reflection journals on how they used AI.
 - Evaluate whether AI improved their understanding or reduced effort.

- **Balance AI Use with Real Teaching Experience:** Ensure that:
 - Practicum, classroom teaching, and peer interaction remain central.
 - AI does not replace real-life teaching practice and human interaction.

- **Provide Faculty Guidance and Monitoring:** Teacher educators should:
 - Guide students on proper AI usage.
 - Set clear rules and assessment criteria.
 - Monitor misuse and provide corrective feedback.

- **Address Equity and Accessibility:**
 - Ensure equal access to AI tools for all trainees.
 - Provide institutional support (labs, internet access) where needed.

- **Establish Institutional Policies:** Teacher education institutions should:
 - Create clear AI usage policies and ethical guidelines.
 - Define acceptable and unacceptable practices.
 - Regularly update policies as AI evolves.

SUGGESTIONS FOR FUTURE RESEARCH

- (I) Future research should include the views of teacher educators regarding AI adoption, challenges, and training needs.
- (II) Research should focus on diverse Indian contexts (rural–urban, government–private institutions) to understand how AI integration varies across socio-economic and cultural settings, aligned with National Education Policy 2020.
- (III) Future studies can explore how AI can support the teaching of Indian Knowledge System while preserving cultural values and indigenous pedagogies.
- (IV) Comparative research between India and other countries can provide insights into best practices, challenges, and innovations in AI-integrated teacher education.

CONCLUSION

The integration of AI tools such as ChatGPT and Google Gemini in teacher education presents both transformative opportunities and critical challenges. For B.Ed teacher trainees, AI can significantly enhance subject understanding, lesson planning, and pedagogical innovation. At the same time, excessive dependence on these tools may hinder critical thinking, originality, and authentic teaching practice.

In the Indian context, it is essential that AI integration aligns with the values of Indian Knowledge System, which emphasizes holistic learning, ethical development, and the unity of knowledge and practice. Teacher education programs should incorporate cultural relevance, local knowledge, and multilingual approaches while using AI, ensuring that technology supports—not replaces—the rich traditions of Indian pedagogy. This is also in line with the vision of National Education Policy 2020, which promotes the balanced use of technology for inclusive and quality education.

Furthermore, AI can contribute to national development by preparing future teachers who are digitally competent, culturally rooted, and socially responsible. By fostering innovation alongside values such as critical inquiry, empathy, and ethical awareness, teacher education can bridge the gap between tradition and modernity.

Ultimately, the role of AI in education should be guided by a balanced, ethical, and culturally sensitive approach. When used responsibly, it can enrich learning and support India's educational development, but when misused, it risks reducing education to mere shortcuts rather than a meaningful process of knowledge creation and character building.

REFERENCES

- Arunima, S. N., & Akhter, M. (2025). Exploring AI in education: Transforming educators' teaching and learning in a developing country Bangladesh. *Review of Artificial Intelligence in Education*, 6, e053.
- Boussouf, Z., Amrani, H., Khal, M. Z., & Daidai, F. (2024). Artificial intelligence in education: A systematic literature review.
- Du, H., Sun, Y., Jiang, H., Islam, A. Y. M. A., & Gu, X. (2024). Exploring the effects of AI literacy in teacher learning: An empirical study. *Humanities and Social Sciences Communications*, 11, 559.
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson Education.
- Memarian, B., & Doleck, T. (2024). Teaching and learning artificial intelligence: Insights from the literature. *Education and Information Technologies*, 29, 21523–21546.
- MHRD. (2019). *Digital education initiatives in India*. Ministry of Human Resource Development, Government of India.
- Ministry of Education, Government of India. (2020). *National Education Policy 2020*. Government of India.
- NCERT. (2022). *Integration of technology in education: Guidelines and practices*. New Delhi: NCERT.
- NITI Aayog. (2018). *National strategy for artificial intelligence #AIforAll*. Government of India.
- OpenAI. (2023). *ChatGPT (GPT-4) technical report*. OpenAI.
- Salas-Pilco, S. Z., Xiao, K., & Hu, X. (2022). Artificial intelligence and learning analytics in teacher education: A systematic review. *Education Sciences*, 12(8), 569.
- Tahiru, F. (2021). AI in education: A systematic literature review. *Journal of Cases on Information Technology*, 23(1), 1–20.
- Tripathi, T., Sharma, S. R., Singh, V., Bhargava, P., & Raj, C. (2025). Teaching and learning with AI: A qualitative study on K-12 teachers' use and engagement with artificial intelligence. *Frontiers in Education*, 10, 1651217.
- UNESCO. (2021). *AI and education: Guidance for policy-makers*. UNESCO.