https://doi.org/10.31995/jgv.2025.v16iSI005.010

Teacher's Perception of the Use of Artificial Intelligence in Classroom Teaching in Meerut District

Mukul Panwar
Researcher
Department of Education
C.C.S. University, Meerut,U.P.
Email: mukul2thakur@gmail.com

Dr. Vaibhav Sharma
Associate Professor
Department of Education
C.C.S. University, Meerut, U.P.

Reference to this paper should be made as follows:

Received: 09.03.2025
Approved: 20.05.2025

Mukul Panwar
Dr. Vaibhav Sharma

Teacher Perception of the Use of Artificial Intelligence in Classroom Teaching in Meerut District

Vol. XVI, Sp.2Issue May 2025
Article No.10, Pg. 091-101

Similarity Check: 12%

Online available at
https://anubooks.com/special-issues?url=jgv-si-2-rbd-college-bijnore-may-25

DOI: *https://doi.org/10.31995/jgv.2025.v16iSI005.010*

Abstract

This research paper explores the perceptions of teachers in Meerut district, Uttar Pradesh, India, regarding the integration and utility of Artificial Intelligence (AI) in classroom teaching. As AI increasingly permeates educational landscapes globally, understanding the attitudes, experiences, and concerns of local educators is paramount for effective implementation. This study employed a mixed-methods approach, combining quantitative survey data from 150 teachers across primary, secondary, and higher secondary schools in Meerut district with qualitative insights derived from in-depth interviews with a subset of 20 teachers. The findings indicate a largely optimistic yet cautious outlook among teachers. While acknowledging AI's potential to personalize learning, automate administrative tasks, and enhance student engagement, teachers in Meerut also voiced significant concerns related to the lack of adequate training, data privacy, potential algorithmic biases, and the indispensable role of human interaction in education. This paper offers crucial data and insights for educational policymakers, technology developers, and school administrators in Meerut and similar regions to facilitate the ethical and effective integration of AI in local classrooms.

Keywords

Artificial Intelligence, Teacher Perception, Classroom Teaching, Meerut District, Uttar Pradesh, Educational Technology, Personalized Learning, Data Privacy, Professional Development.

**This article has been peer-reviewed by the Review Committee of JGV.*

1. Introduction

The rapid evolution of Artificial Intelligence (AI) is poised to fundamentally reshape various facets of society, with education standing as a significant frontier. AI-powered tools, from intelligent tutoring systems to automated assessment platforms, are increasingly being introduced into classrooms with the promise of enhancing learning outcomes and streamlining pedagogical processes (Mouta et al., 2023; Tapalova & Zhiyenbayeva, 2022). In India, the National Education Policy (NEP) 2020 recognizes the potential of AI and recommends its integration into the curriculum and teacher training (Schoolnet India, 2025; ICRIER, 2025). Uttar Pradesh, specifically, has initiated projects to introduce AI curricula in schools, developing partnerships for early education AI training (OpenTextbooks, 2024; Teamupai, n.d.).

However, the efficacy of these technological advancements hinges critically on the perceptions and readiness of educators who are tasked with their implementation. Teachers in districts like Meerut, with its diverse educational institutions ranging from established private schools to government-aided and rural schools, represent a crucial demographic whose views must be understood. Their perceptions will ultimately dictate the pace and success of AI adoption in the region's classrooms. This research aims to specifically investigate the perceptions of teachers in Meerut district regarding the use of AI in classroom teaching, identifying opportunities, challenges, and training needs unique to this geographical context.

2. Literature Review

Existing literature, both global and Indian, provides a foundation for understanding teacher perceptions of AI in education.

2.1. Opportunities and Perceived Usefulness of AI

Globally, AI is perceived to offer numerous benefits for teachers and students. These include:

- **Personalized Learning:** AI can adapt to individual student needs, learning styles, and paces, providing tailored content and experiences (Ayala-Pazmiño, 2023; School of Scholars, 2025). This can lead to improved student performance and engagement (ResearchGate, 2024).
- **Automated Administrative Tasks:** AI tools can significantly reduce teachers' workload by automating repetitive tasks such as grading, scheduling, and report generation, freeing up time for direct student interaction (QuestionWell, n.d.; University of San Diego Online Degrees, n.d.; School

https://doi.org/10.31995/jgv.2025.v16iSI005.010

of Scholars, 2025).

- **Enhanced Student Engagement:** AI can create interactive and immersive learning experiences, including virtual labs and gamified learning, increasing student motivation (Coursera, 2025; Yunus & Abdullah, 2011). In Meerut, early examples suggest AI and VR can foster deeper, immersive learning (Times of India, 2025).
- **Data-Driven Insights:** AI-driven analytics provide educators with valuable insights into student performance, identifying trends and areas for intervention (University of San Diego Online Degrees, n.d.; School of Scholars, 2025).

2.2. Challenges and Concerns Regarding AI Integration

Despite the perceived benefits, a number of challenges and concerns consistently emerge in the literature:

- **Lack of Training and Technical Expertise:** Teachers often report a lack of necessary knowledge and skills to effectively integrate AI tools (SciTePress, 2024; OpenLearning Blog, 2025; ResearchGate, 2025). This is a significant barrier to adoption.
- **Data Privacy and Security:** The collection and analysis of sensitive student data by AI systems raise significant concerns about privacy and security (Compilatio, 2025; ISMR Pune, 2024; Taxila Business School, n.d.).
- **Potential for Bias:** AI algorithms trained on biased data can perpetuate or exacerbate existing inequalities, leading to unfair assessments or unequal access to resources (ISMR Pune, 2024; Taxila Business School, n.d.).
- **Reduced Human Interaction and "Deskilling":** Concerns exist that over-reliance on AI might diminish crucial teacher-student relationships, foster over-dependence on technology, and potentially lead to a "deskilling" of the teaching workforce (OSF, 2025; ISMR Pune, 2024). Many educators emphasize that AI should augment, not replace, human teachers (School of Scholars, 2025; Times of India, 2025).
- **Academic Integrity:** The ease with which AI can generate content raises concerns about cheating and plagiarism (Compilatio, 2025; Lenovo, n.d.).
- **Cost and Equitable Access:** Implementing AI-powered solutions can be financially demanding, and unequal access to technology can widen the digital divide, particularly relevant in a diverse district like Meerut (OpenLearning Blog, 2025; ISMR Pune, 2024).

2.3. Theoretical Framework

This study employs the **Technology Acceptance Model (TAM)** as its guiding theoretical framework (Davis, 1989). TAM posits that **Perceived Usefulness (PU)** – the extent to which a person believes that using a particular system will enhance their job performance – and **Perceived Ease of Use (PEoU)** – the degree to which a person believes that using a particular system will be free of effort – are fundamental determinants of an individual's attitude toward using a technology and, consequently, their actual use. In the context of AI in Meerut's classrooms, teachers' beliefs about AI's ability to improve teaching and learning outcomes, coupled with their assessment of how straightforward it is to learn and implement AI tools, are crucial factors influencing their willingness to adopt AI.

3. Methodology

3.1. Research Design A mixed-methods research design was implemented, combining a quantitative survey to gather broad perspectives and qualitative interviews to delve into nuanced experiences. This approach ensures a comprehensive understanding of teacher perceptions.

3.2. Participants and Sampling The study involved 150 teachers from 15 different schools (5 primary, 5 secondary, and 5 higher secondary) across various zones of Meerut district. A stratified random sampling method was used to ensure representation across different school types and teaching levels. Participants were voluntarily recruited.

Table 1: Participant Demographics (N = 150)

Characteristic	Category	N	Percentage (%)
Gender	Male	68	45.3%
	Female	82	54.7%
Teaching Level	Primary (Grades 1-5)	50	33.3%
	Secondary (Grades 6-10)	50	33.3%
	Higher Secondary (Grades 11-12)	50	33.3%
Years of Experience	0-5 years	45	30.0%
	6-15 years	65	43.3%
	16+ years	40	26.7%
School Type	Private	70	46.7%
	Government/Aided	80	53.3%

https://doi.org/10.31995/jgv.2025.v16iSI005.010

3.3. Data Collection Instruments

• **Quantitative Survey:** A self-administered questionnaire was developed based on the Technology Acceptance Model and a review of existing literature on AI in education. It consisted of 25 items across four sections, rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree):

- **Perceived Usefulness (PU) of AI:** 8 items (e.g., "AI can help personalize learning for diverse students," "AI can automate routine administrative tasks like attendance and grading").
- **Perceived Ease of Use (PEoU) of AI:** 7 items (e.g., "AI tools are user-friendly and easy to learn," "I feel confident integrating AI into my current teaching methods").
- **Concerns and Challenges (CC) of AI:** 7 items (e.g., "I am concerned about student data privacy when using AI," "Lack of adequate training is a major barrier to using AI effectively").
- **Current Usage and Future Intentions (CUFI):** 3 items (e.g., "I currently use AI tools in my classroom teaching," "I intend to use more AI tools in my teaching in the next year").

• **Qualitative Interviews:** Semi-structured interviews were conducted with 20 teachers (selected to represent diverse demographic groups and initial survey responses). These interviews lasted approximately 25-35 minutes and explored in-depth their experiences, specific examples of AI use (or non-use), perceived benefits and drawbacks, training needs, and suggestions for future AI integration in Meerut's schools.

3.4. Data Analysis

- **Quantitative Data:** Descriptive statistics (means, standard deviations, frequencies, percentages) were computed for all survey items. Independent samples t-tests and one-way ANOVA were used to examine significant differences in perceptions based on demographic variables (gender, teaching level, years of experience, school type).
- **Qualitative Data:** Interview transcripts were analyzed using thematic analysis, following Braun and Clarke's (2006) six-phase approach. Key themes and sub-themes were identified, coded, and categorized to understand the underlying patterns in teacher perceptions.

4. Results

4.1. Perceived Usefulness (PU) of AI in Teaching

Teachers in Meerut generally held a positive perception of AI's usefulness in classroom teaching.

Table 2: Perceived Usefulness of AI in Teaching (Mean Scores, N = 150)

Statement	Mean	Standard Deviation
AI can personalize learning for students.	4.15	0.72
AI can reduce my administrative workload (e.g., grading, lesson planning).	4.08	0.81
AI can enhance student engagement in the classroom.	3.95	0.78
AI can provide valuable insights into student performance.	3.89	0.85
AI can offer individualized feedback to students.	3.80	0.89
AI can help in creating diverse learning materials.	3.75	0.90
AI can support students with special learning needs.	3.62	0.98
AI can facilitate continuous assessment.	3.55	0.92
Overall Perceived Usefulness	**3.85**	**0.65**

- **Key Findings:** The highest perceived usefulness was for "personalizing learning" and "reducing administrative workload," consistent with global trends. Teachers recognized AI's potential to free up their time and cater to individual student differences.

4.2. Perceived Ease of Use (PEoU) of AI

The perceived ease of use showed a more moderate and cautious outlook.

Table 3: Perceived Ease of Use of AI (Mean Scores, N = 150)

Statement	Mean	Standard Deviation
Learning to use AI tools for teaching is straightforward.	3.20	1.05
I have sufficient technical skills to integrate AI into my teaching.	3.05	1.10
AI tools are intuitive and user-friendly.	3.10	1.08
I feel confident using AI tools in my classroom.	2.98	1.12
I receive adequate technical support for AI tools.	2.75	1.15
Integrating AI into existing curriculum is easy.	2.60	1.20
The time required to learn AI tools is manageable.	2.55	1.25
Overall Perceived Ease of Use	**2.89**	**0.88**

https://doi.org/10.31995/jgv.2025.v16iSI005.010

- **Key Findings:** The mean scores for PEoU were considerably lower than PU, indicating that while teachers see the value, they perceive challenges in actually implementing AI. "Adequate technical support," "integrating into existing curriculum," and "time required to learn" scored lowest, pointing to practical barriers.
- **Demographic Differences:** Teachers from private schools reported slightly higher PEoU (Mean = 3.12) compared to those in government/aided schools (Mean = 2.70), suggesting potential disparities in access to technology or training resources. Experienced teachers (16+ years) surprisingly showed similar PEoU to less experienced ones, contradicting some general findings but aligning with research suggesting that training design should consider experience (ResearchGate, 2025).

4.3. Concerns and Challenges (CC) of AI

Teachers in Meerut expressed significant concerns regarding AI integration.

Table 4: Concerns and Challenges of AI (Mean Scores, N = 150)

Statement	Mean	Standard Deviation
I am concerned about student data privacy with AI tools.	4.35	0.65
Lack of adequate training is a major barrier to using AI effectively.	4.28	0.70
I fear AI might reduce human interaction in the classroom.	4.10	0.75
AI tools may contain biases that could unfairly impact students.	4.02	0.80
Students might over-rely on AI for assignments, leading to less critical thinking.	3.90	0.82
The cost of AI tools is a barrier for my school/institution.	3.85	0.90
Ensuring the accuracy and reliability of AI-generated content is a concern.	3.70	0.95
Overall Concerns and Challenges	**4.03**	**0.60**

- **Key Findings:** "Student data privacy" and "lack of adequate training" were the most pressing concerns, mirroring national and global apprehensions. The fear of reduced human interaction and potential biases were also highly rated.
- **Qualitative Insights:** Interviews provided deeper context. A secondary school teacher from a government school stated, "We hear about AI, but

practically, we don't know how to use it, and we don't have proper internet access or devices for students. How can we ensure privacy if we don't even have basic infrastructure?" Another teacher from a private school commented, "While AI can help with grading, I worry that students will just use AI to write essays, and we won't know if they truly understood the material. The human touch in teaching empathy and critical thinking can't be replaced."

4.4. Current Usage and Future Intentions (CUFI)

- **Current Usage:** Only 18.7% of surveyed teachers reported regularly using AI tools in their classroom teaching. Common uses included generating lesson plan ideas (e.g., via ChatGPT-like tools), creating simple quizzes, or finding quick information for class preparation. This aligns with initial low adoption rates often seen with new technologies.
- **Future Intentions:** A significant 75.3% of teachers expressed a strong intention to integrate AI into their teaching within the next 1-2 years, contingent on receiving appropriate training and support. This indicates a strong willingness to adapt, despite current hurdles.

5. Discussion

The findings from Meerut district teachers largely align with the Technology Acceptance Model (TAM), demonstrating that while the perceived usefulness of AI is high, the perceived ease of use presents a notable barrier to widespread adoption. Teachers recognize the transformative potential of AI in personalizing education and alleviating administrative burdens, which are significant stressors in the Indian education system. This positive outlook on AI's utility is a strong foundation for future integration efforts.

However, the moderate scores for perceived ease of use and the high scores for concerns highlight critical areas for intervention. The most prominent concerns, "student data privacy" and "lack of adequate training," are consistent with broader national and international discussions on AI in education (Compilatio, 2025; ISMR Pune, 2024; Taxila Business School, n.d.). In a district like Meerut, with varying levels of technological infrastructure across schools, these concerns are particularly salient. Government schools, in particular, may face greater challenges in terms of digital access and comprehensive training compared to their private counterparts.

The fear of diminished human interaction and potential algorithmic biases also indicates a crucial awareness among Meerut's teachers of the ethical dimensions

https://doi.org/10.31995/jgv.2025.v16iSI005.010

of AI. This suggests that future AI implementation strategies must not only focus on technical literacy but also on fostering a critical understanding of AI's societal implications and ensuring that human oversight and pedagogical expertise remain central to the learning process (Lenovo, n.d.). The role of the teacher as a facilitator of social-emotional learning and critical thinking is irreplaceable (JetLearn, 2025; School of Scholars, 2025).

The gap between current limited usage and high future intentions signals a significant opportunity. Teachers in Meerut are open to AI, but they need practical, relevant, and sustained professional development that addresses their specific concerns about usability, technical support, and ethical implications. The Uttar Pradesh government's initiatives for AI curriculum and teacher training are a positive step, but their reach and effectiveness need careful evaluation at the district level.

6. Conclusion and Recommendations

This study provides valuable insights into teacher perceptions of AI in classroom teaching within Meerut district. Teachers in Meerut are optimistic about AI's potential but are also acutely aware of the practical and ethical challenges. To ensure the successful and equitable integration of AI in Meerut's schools, the following recommendations are crucial:

- **Develop Context-Specific Training Programs:** Design and implement comprehensive professional development programs tailored to the needs of teachers in Meerut, considering varying levels of digital literacy and access across school types. These programs should focus on practical AI tools, pedagogical strategies for integration, and discussions on ethical AI use. Hands-on workshops and continuous support are essential.
- **Prioritize Data Privacy and Security Infrastructure:** Educational authorities in Meerut and Uttar Pradesh must establish clear guidelines and robust infrastructure for student data privacy and security when AI tools are used. This includes transparent data handling policies and secure platforms.
- **Address Equitable Access and Infrastructure:** Bridge the digital divide by ensuring equitable access to necessary hardware, reliable internet connectivity, and relevant AI software across all schools in Meerut, especially in government and rural settings.
- **Foster Ethical AI Literacy:** Integrate ethical considerations, including bias, transparency, and the importance of human oversight, into AI training

modules for teachers.

- **Promote Collaborative Learning Communities:** Create platforms or networks for teachers in Meerut to share experiences, best practices, and challenges related to AI integration. This can build confidence and foster a supportive environment for innovation.
- **Pilot and Evaluate AI Tools Locally:** Encourage pilot projects for specific AI tools in Meerut schools, with rigorous evaluation of their effectiveness, usability, and impact on learning outcomes. This localized data can inform broader implementation strategies.
- **Policy Support and Resources:** Advocate for sustained policy support and allocation of resources from the state government to facilitate AI integration, including funding for training, infrastructure upgrades, and procurement of quality AI educational tools.

By strategically addressing these recommendations, Meerut district can effectively harness the potential of Artificial Intelligence to enhance the teaching-learning process, empower its educators, and prepare its students for the demands of the 21st century.

References

1. Ayala-Pazmiño, M. E. (2023). AIED: Artificial Intelligence in Education. *International Journal of Modern Education and Computer Science*, *15*(1), 1-10.
2. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101.
3. Compilatio. (2025). *Artificial Intelligence in Education: Opportunities and Challenges in 2025*. Retrieved from https://www.compilatio.net/en/blog/ai-in-education
4. Indian Council for Research on International Economic Relations (ICRIER). (2025). *AI IN SCHOOL EDUCATION: TOWARDS A PREPAREDNESS FRAMEWORK*. Retrieved from https://icrier.org/pdf/AI_in_School_Education.pdf
5. International School of Management & Research - ISMR Pune. (2024). *CHALLENGES OF ARTIFICIAL INTELLIGENCE IN EDUCATION*. Retrieved from https://ismrpune.edu.in/challenges-of-artificial-intelligence-in-education/

https://doi.org/10.31995/jgv.2025.v16iSI005.010

6. JetLearn. (2025). *The Future of Education: Will AI take over the role of teachers?* Retrieved from https://www.jetlearn.com/blog/the-future-of-education
7. Lenovo. (n.d.). *What are the Ethics of Using AI in Education?* Retrieved from https://www.lenovo.com/in/en/education/ai-in-education/ethics-of-ai-in-education/
8. Mouta, C., Almeida, R., & Sarabando, A. (2023). Artificial Intelligence in Education: A Systematic Literature Review. *Education Sciences*, *13*(10), 999.