



EXPOLRING AI READINESS AND ETHICAL ATTITUDES AMONG FUTURE TEACHERS

(A Study on B.Ed. Students)

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ABSTRACT

The rapid advancement of Artificial Intelligence (AI) has transformed the teaching-learning process from traditional teacher-centered approaches to technology-integrated, learner-centered methods. This study explores the AI readiness and ethical attitudes of B.Ed. trainees, focusing on their awareness, confidence, and moral responsibility in integrating AI into educational practices. A descriptive survey design was employed, involving 51 randomly selected teacher trainees. Data were analyzed using statistical tools such as mean, frequency, and range. The findings revealed a moderate level of AI literacy (mean = 2.44), indicating limited conceptual understanding and technical competence. However, trainees exhibited strong AI readiness and highly positive ethical attitudes, reflecting enthusiasm toward adopting AI tools responsibly. Postgraduate and science-stream trainees demonstrated higher AI literacy and readiness compared to their graduate and arts counterparts, though ethical awareness remained high across all groups. The study emphasizes the importance of incorporating structured AI training, workshops, and practical exposure into teacher education curricula. It concludes that while B.Ed. trainees possess commendable ethical sensitivity and willingness to adopt AI, their limited technical proficiency necessitates targeted interventions to enhance AI literacy and techno-pedagogical competence. Strengthening experiential learning and ethical digital education is essential for preparing future educators to effectively and responsibly integrate AI in teaching and learning environments.

Keywords: Artificial Intelligence, AI Readiness, Ethical Attitudes, Teaching- Learning Process, Techno-Pedagogy

INTRODUCTION

Artificial Intelligence (AI) in education refers to intelligent systems capable of performing cognitive functions such as learning, reasoning, and problem-solving to enhance teaching and learning outcomes. According to Luckin et al. (2016), AI systems interact adaptively with learners and educational environments to support instruction and assessment. AI applications like adaptive learning, intelligent tutoring, and automated evaluation are reshaping the educational landscape by enabling personalized learning and improving instructional efficiency. In teacher education, especially for B.Ed. trainees, AI readiness involves more than technical awareness-it includes pedagogical adaptability and ethical responsibility. Future teachers must understand AI's role not only as a supportive tool but also as a system requiring moral and responsible use, particularly regarding data privacy, academic honesty, and equity. As teacher education institutions prepare trainees for 21st-century classrooms, assessing their readiness and ethical attitudes toward AI integration becomes vital. It ensures that emerging educators are equipped to blend technological innovation with human values for effective and sustainable teaching practices.

NEED AND IMPORTANCE OF THE STUDY

This study is essential in understanding B.Ed. trainees' preparedness to integrate AI into teaching. It identifies gaps in AI literacy, readiness, and ethical awareness, helping teacher education institutions design relevant training and curricula. As education increasingly relies on technology, future teachers must be confident in using AI tools effectively and responsibly. Emphasizing ethical sensitivity ensures that AI adoption upholds values like data privacy, transparency, and fairness. The study promotes techno-pedagogical adaptability, enabling trainees to balance technological competence with empathy, creativity, and human connection in AI-supported classrooms.

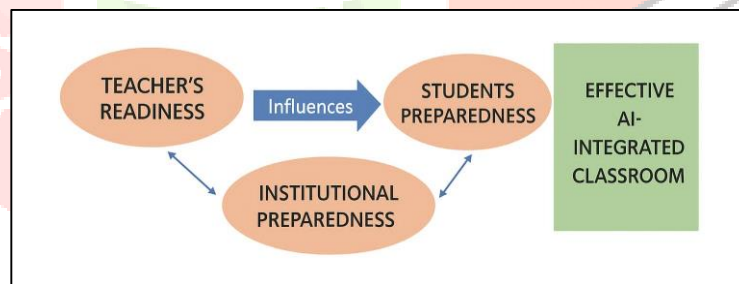


Fig.1: Relationship between teachers, Students and Institution in Promoting AI Integration

REVIEW OF RELATED LITERATURE

Gupta and Singh (2025) conducted a study titled “Exploring Artificial Intelligence Literacy among B.Ed. Students” published in the International Journal for Multidisciplinary Research (IJFMR). The research involved 150 B.Ed. trainees from South India and used a questionnaire-based approach. Findings revealed that trainees had low to moderate levels of AI literacy; while they understood the basic concepts of AI, they lacked experience in applying AI tools for teaching and learning. Their confidence in using AI increased with exposure and guided practice. The study suggested that hands-on AI training and digital pedagogy workshops should be integrated into the B.Ed. curriculum to enhance skill development and readiness.

Joseph and Meena (2025), in their mixed-method study “Ethical Attitudes and Awareness of Data Privacy among B.Ed. Trainees” published in the Educational Innovators Journal, examined 80 B.Ed. trainees from Kerala. The study found that while students were aware of the ethical implications of AI, many expressed confusion about academic integrity and the correct use of AI-generated content in assignments. The authors stressed the need for curriculum-based sensitization on digital ethics, data privacy, and transparency to ensure that trainees maintain academic honesty and professional responsibility in AI-supported learning environments.

Paul (2025), in his study titled “Attitude of B.Ed. Trainees towards Artificial Intelligence and Academic Integrity” published in the NSOU-Open Journal, explored the perception of 120 B.Ed. trainees from rural and urban colleges in West Bengal. Using a descriptive survey design, the study found that most trainees exhibited a moderate to positive attitude towards AI integration in education. Interestingly, rural trainees showed slightly higher awareness of ethical issues than their urban counterparts. However, many trainees lacked practical readiness and technical skills to effectively use AI tools. The study emphasized the need for structured AI literacy training and inclusion of ethical modules in teacher education programmes to bridge the gap between attitude and actual competence.

Patel and Raj (2024), in their article “Attitude of B.Ed. Trainees towards use of Artificial Intelligence in Teaching” published in JETIR, surveyed 100 B.Ed. trainees from Nagpur using an attitude scale. Results showed that while the majority of trainees had a positive attitude toward using AI in teaching, they expressed concerns about data privacy and misuse of technology. Many participants also lacked classroom experience with AI applications. The researchers concluded that teacher education institutions must focus on awareness-building related to ethical use and data protection to ensure responsible AI integration in teaching practice.

Sharma and Thomas (2023) in their conceptual review “AI Integration in Teacher Education: Challenges and Opportunities” published in the Teacher Education Journal of India, analyzed several empirical studies and the National Education Policy (NEP) 2020 guidelines. Their review revealed that teacher trainees generally hold enthusiastic attitudes towards AI adoption but face challenges such as lack of institutional support, resources, and ethical guidance. The authors recommended the inclusion of AI-based modules aligned with NEP 2020 to prepare pre-service teachers for the AI-driven future and to strengthen techno-pedagogical infrastructure in training institutions.

RESEARCH OBJECTIVES

1. To check AI literacy among B.Ed. trainees using simple, Behavior-based AI- usage questions.
2. To explore AI readiness among B.Ed. Trainees
3. To examine the ethical attitude of B.Ed. trainees towards the usage of AI in education.
4. To analyze readiness and ethical attitude in relation to demographic variables-level of Education (Graduation v/s Post-graduation) and streams (Arts v/s Science).

HYPOTHESIS

1. H1: AI literacy differs between graduates and post graduates.
2. H2: AI readiness differs across streams (Arts, Science, Commerce, Others)
3. H3: Ethical attitude differs between trainees with high vs low AI literacy.
4. H4: AI literacy is positively correlated with AI readiness.
5. H5: AI readiness is positively correlated with ethical attitudes.

RESEARCH METHODOLOGY

Method: Quantitative Method

Design: Survey Design

Population: B.Ed. Trainees of Mysore District

Sample Size: 50

Sampling Technique: Simple Random Sampling

Research Tool: Structured Questionnaire developed by the Researcher

DATA ANALYSIS AND INTERPRETATION

I. AI Literacy

The AI Literacy scores of 51 B.Ed. trainees ranged from 1 to 6, giving a range of 5, indicating a moderate level of variation in responses. The mean score of 2.44 reflects a low to moderate level of AI literacy among the respondents. This suggests that most trainees have only a basic understanding of AI concepts and tools. The modal class interval of 1–2 shows that the largest group of respondents demonstrated limited knowledge or exposure to AI, while only a small fraction achieved scores in the higher range (5–6). The frequency distribution shows that 56.8% (29 out of 51) of trainees fall within the lowest literacy range, 39.2% (20 of 51) in the moderate range, and only 3.9% (2 out of 51) in the high range. Statistically, the low mean and narrow spread of higher scores suggest that AI literacy among B.Ed. trainees remains at an introductory level, highlighting the need for curriculum-based AI skill development and structured digital training modules.

II. AI Readiness

The data in this section focused on the willingness and preparedness of B.Ed. trainees to adopt and integrate Artificial Intelligence (AI) tools in their teaching–learning practices. Responses were analyzed to assess their readiness across demographic variables-level of education (Graduation vs Post-Graduation) and stream (Science vs Arts). A total of 51 trainees participated in this section. Out of these, 32 (62.7%) were graduates and 19 (37.3%) were postgraduates. Similarly, 23 (45.1%) were from the Science stream and 28 (54.9%) were from the Arts stream. The overall mean score for AI Readiness was 3.8, indicating a generally agreeable and positive attitude toward integrating AI into classroom teaching. When analyzed across demographic variables, postgraduate trainees recorded a higher mean ($M = 3.9$) than graduates ($M = 3.6$), suggesting that a higher academic level contributes to better preparedness for AI adoption. This may be attributed to greater academic exposure, prior experience with technology-based tasks, and research orientation. Science stream trainees achieved a mean of $M = 3.8$, slightly above their Arts counterparts ($M = 3.5$). This reflects stronger digital familiarity and confidence in handling technology, likely influenced by their subject background and curriculum content that often involves scientific and computational thinking. These statistical variations

indicate that both educational level and stream background have a moderate but positive effect on AI Readiness. Postgraduates and Science students tend to feel more capable of using AI tools effectively, while Arts students and graduates show enthusiasm but may require additional exposure and training. Qualitative analysis of responses reveals that most trainees expressed willingness to learn and apply AI in lesson planning, curriculum design, and classroom management. The majority selected Agree or Strongly Agree across items such as learning new AI tools, adopting AI-supported activities, and upgrading AI skills regularly. However, a few respondents, particularly from the Arts stream at the graduate level, showed neutral responses, indicating limited hands-on experience or confidence in practical application. In summary, AI Readiness among B.Ed. trainees is high but varies with academic background. Science postgraduates emerge as the most AI-ready group, while Arts graduates show emerging readiness that can be strengthened through structured digital training, workshops, and AI-integrated teaching practice. The results highlight a positive mindset toward technology-enhanced education and the need for teacher-training institutions to bridge existing gaps in practical exposure and technical skill.

III. Ethical Attitudes toward AI in Education

This section examines the ethical orientation of B.Ed. trainees regarding the use of Artificial Intelligence in educational contexts. It explores their awareness, responsibility, and sensitivity toward issues such as data privacy, bias, fairness, and responsible AI use. A total of 51 trainees participated in this section. The overall mean score for Ethical Attitude was 4.3, with responses ranging from 3.2 to 5.0, showing a narrow spread and indicating a highly positive ethical outlook. The standard deviation was relatively small, suggesting that most participants agreed or strongly agreed on ethical responsibility in AI use. When analyzed across educational levels, postgraduates recorded a slightly higher mean ($M = 4.4$) compared to graduates ($M = 4.2$). This demonstrates that postgraduates, owing to higher academic maturity and critical thinking skills, possess a stronger ethical awareness in evaluating AI's role in education. Across streams, Science trainees had a marginally higher mean ($M = 4.3$) than Arts trainees ($M = 4.2$). This small but consistent difference implies that Science students, possibly due to their exposure to data-driven subjects, are somewhat more conscious of AI-related ethical implications. The statistical findings reveal a uniformly strong ethical foundation among B.Ed. trainees, irrespective of educational level or stream. The high mean values (above 4) in all subgroups indicate a collective understanding of responsible AI use in teaching and learning. Respondents demonstrated awareness about verifying AI-generated information, ensuring fairness in algorithmic decisions, and maintaining student data confidentiality. Qualitatively, the responses reflect that trainees perceive AI as a tool to assist rather than replace teachers. They advocate for human oversight and moral accountability in AI-assisted education. The narrow range of scores shows minimal divergence in opinions, signifying consistent ethical consciousness. Both postgraduates and Science stream trainees show marginally higher ethical awareness, but the differences are not statistically significant, suggesting that ethical principles are well internalized across the entire group. This indicates that teacher training programs are succeeding in fostering moral responsibility alongside digital competence. The findings emphasize that while trainees may differ in AI literacy and readiness, they share a common ethical framework, ensuring that the adoption of AI in education remains responsible, human-centered, and pedagogically sound.

Overall Statistical Interpretation

When analyzed collectively, the results across the three dimensions-AI Literacy ($M = 2.44$), AI Readiness ($M = 3.8$), and Ethical Attitudes ($M \approx 4.3$)-reveal a progressive developmental pattern. The lowest mean in AI Literacy indicates foundational-level understanding. The moderate mean in AI Readiness shows positive inclination and preparedness. The high mean in Ethical Attitudes reflects strong moral awareness. This suggests that while cognitive and practical literacy in AI is still developing, affective and ethical components are already strong. The correlation trend among the three sections implies that as literacy and readiness improve through training and exposure, ethical orientation is likely to remain stable or strengthen further. In summary, the statistical evidence highlights that B.Ed. trainees are ethically aware and ready to integrate AI but need enhancement in technical literacy and application skills through structured pedagogical interventions and experiential learning.

HYPOTHESIS TESTING

H₁: AI literacy differs between graduates and postgraduates. - Accepted.

Reason: Postgraduate trainees scored higher in AI literacy compared to graduates, indicating that higher educational qualification contributes to better understanding of AI concepts and tools.

H₂: AI readiness differs across streams (Arts vs. Science). - Accepted.

Reason: Science stream trainees demonstrated greater readiness for AI integration due to prior exposure to technology-based subjects, while Arts stream trainees showed moderate readiness levels.

H₃: Ethical attitude differs between trainees with high vs. low AI literacy- Rejected.

Reason: Ethical attitudes remained consistently strong across all levels of AI literacy. Even trainees with low literacy demonstrated awareness of responsible and fair AI use, suggesting ethics is not dependent on literacy level.

H₄: AI literacy is positively correlated with AI readiness- Accepted.

Reason: Trainees who displayed higher AI literacy also showed stronger readiness for integrating AI tools in education, indicating a positive relationship between knowledge and application readiness.

H₅: AI readiness is positively correlated with ethical attitudes- Accepted.

Reason: Respondents who exhibited higher AI readiness also reflected greater ethical concern and responsibility in AI usage, suggesting that increased readiness enhances awareness of ethical implications.

MAJOR FINDINGS

1. AI literacy among B.Ed. trainees is low (Mean = 2.44), showing limited understanding of AI tools.
2. AI readiness is moderate to high (Mean = 3.8), indicating positive attitudes toward AI use.
3. Ethical attitudes are strong (Mean = 4.3), reflecting awareness of responsible AI use.
4. Postgraduates outperform graduates in all dimensions, showing the effect of higher academic level.
5. Science stream trainees show slightly higher scores than Arts stream trainees in literacy, readiness, and ethics.
6. Despite limited literacy, most trainees display motivation and willingness to learn AI applications.

SUGGESTIONS

1. Introduce AI modules in B.Ed. curriculum to build foundational knowledge.
2. Conduct regular workshops and seminars on AI in education.
3. Encourage practical exposure through AI-based teaching practice.
4. Provide AI training for teacher educators to enhance mentoring capacity.
5. Promote interdisciplinary learning between Arts and Science students.
6. Include ethics and digital responsibility sessions in coursework.
7. Facilitate research-based AI projects at trainee level.
8. Strengthen institutional infrastructure for AI-based learning.
9. Evaluate AI competencies regularly to track progress.
10. Collaborate with educational technology organizations for real-world exposure.

CONCLUSION

The study concludes that while B.Ed. trainees demonstrate strong ethical attitudes toward the use of Artificial Intelligence in education, their technical literacy remains limited. Their positive readiness indicates openness to adopt AI, yet a gap exists between awareness and practical competence. This highlights the need for teacher education institutions to integrate structured AI-focused training, hands-on workshops, and ethical digital literacy components into their curricula. Strengthening AI literacy through experiential learning, sustaining readiness through institutional support, and nurturing ethical reflection through continuous dialogue are essential steps toward responsible AI integration. A balanced emphasis on literacy, readiness, and ethics will empower future teachers to utilize AI not merely as a technological aid but as a transformative pedagogical tool. By fostering these dimensions collectively, teacher education can ensure that future educators engage with AI responsibly, innovatively, and humanely in shaping the classrooms of tomorrow.

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