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Study Of Attitudes Toward Artificial Intelligence And AI Learning Anxiety Among B.Ed.Trainees

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Abstract

The advent of technologies and advancement of artificial intelligence (AI) has raised significant concerns leading to a phenomenon termed AI anxiety. As Artificial Intelligence (AI) has become increasingly integrated into teaching and learning, teaching professionals particularly teachers and trainees need to understand students' attitudes toward artificial intelligence and AI learning anxiety to ensure its appropriate implementation. In this research, attitudes toward artificial intelligence and AI learning anxiety among 195 B.Ed. Trainees [90 Males (Urban 45 & Rural 45); 105 Females (Urban 50 & Rural 55)] is selected from teachers' training institutions namely, Aligarh Teacher's Training College, Aligarh and Jamia Urdu College of Education- JUCE (Aligarh) located in different locations of Aligarh (U.P.). The data was collected using standardized tools; Schepman and Rodway's General Attitudes towards Artificial Intelligence Scale: GAAIS (2020) and Wang & Wang's Artificial Intelligence Anxiety Scale: AIAS (2022). The findings reveal that (i) there is significant relationship between Attitudes toward Artificial Intelligence and AI Learning Anxiety among B.Ed. trainees (ii) there is significant difference between B.Ed. trainees regarding their attitude towards artificial intelligence and AI learning anxiety across gender and locale. Findings highlight the pivotal role of attitudes toward artificial intelligence and associated AI learning anxiety in shaping teacher aspirants' acceptance of AI. Understanding the root causes of AI learning anxiety and implementing strategic interventions are critical steps for mitigating its rise as society enters the era of pervasive AI. Therefore, stakeholders and educators should cultivate students' AI learning attitudes among B.Ed. trainees through comprehensive AI education and guiding them to form correct emotions through scientific and psychological interventions so that they encounter least AI learning anxiety.

Keywords: Artificial Intelligence, AI Attitude, AI learning Anxiety, B.Ed. trainees, Integration.

INTRODUCTION

AI in education marks a profound shift in teaching and learning and transforms traditional teaching methods into more dynamic educational experience for students and educators. AI redefines education by fostering creativity through innovative content creation, shaping collaborative learning environments and facilitating comprehensive assessments. Its multifaceted role as a catalyst for dynamic and effective educational

paradigms positions AI as an invaluable tool in preparing students for the challenges of the future. The integration of artificial intelligence (AI) into education is rapidly transforming traditional teaching-learning paradigms, offering unprecedented opportunities for personalized learning. The strategic incorporation of AI technologies empowers educators to create a more adaptive, engaging, and effective learning environment for their students. The current educational landscape is witnessing a profound transformation driven by the relentless march of artificial intelligence, compelling educators and institutions to re-imagine conventional pedagogical approaches (Yang et al., 2025). This development has transformed the classroom into learner-centered and teachers engage their students in unique, innovative and equitable ways. The class room shifted from traditional to online, Virtual, blended teaching and learning. AI's role in shaping modern pedagogy, examining the landscape of AI integration in teacher education necessitates a multi-faceted approach, considering not only the technological capabilities but also the pedagogical implications and ethical considerations (Alexandrowicz, 2024). Moreover, AI's capacity to offer personalized feedback and support can be particularly beneficial for B.Ed students as they develop their own teaching practices. By analyzing student data and learning patterns, AI can help educators identify the most effective teaching methods based on students' contexts and learning backgrounds (Chaudhry & Kazim, 2021).

As the global education landscape embraces AI-driven innovations, its integration into education, especially in resource-constrained regions, poses unique challenges, affects their attitudes and creates anxiety towards learning of artificial intelligence. While artificial intelligence technology brings opportunities, it also gives rise to a pervasive form of occupational anxiety—"AI learning anxiety." This anxiety is rooted in multiple real-world contradictions and has become a significant source eroding teachers' professional well-being. Numerous studies have confirmed that sustained occupational stress and anxiety are core factors leading to decreased professional well-being and increased turnover intentions among teachers. Therefore, this study focuses on the core constructs of "attitudes toward artificial intelligence and AI learning anxiety," aiming to reveal its internal mechanisms affecting teachers' trainees teaching and learning.

Conceptual Framework

Attitude: Concept and Definitions

Attitude is a specific mental state of an individual to perceive, think, feel and react more or less permanently in relation to certain situation according to which his behavior is molded. Attitude influences the behavior of a person; it may be positive or negative. According to Frank Freeman, "An attitude is a dispositional readiness to respond to certain institutions, persons or objects in a consistent manner which has been learned and has become one's typical mode of response.

Artificial Intelligence: Concept and Definitions

Artificial Intelligence (AI) is the intelligence of machines to understand their environment, to perform specific tasks or goals and take actions that improve its chances of achieving success. AI explores concepts that allow computers to perform tasks that typically require human intelligence. European Commission (2018) refers artificial intelligence as systems that display intelligent behavior by analyzing their environment and taking action – with some degree of autonomy – to achieve specific goals.

AI Anxiety: Concept and Definitions

Artificial Intelligence Anxiety, or AI Anxiety, refers to the general apprehension in response to the rapid development and integration of AI technologies into various aspects of society. AI anxiety can make decisions autonomously and operate independently of humans, which may pose unpredictable risks and even threats to human survival (Almaiah et al., 2022). Russell and Norvig (2020) described AI as a computer agent that acts and thinks humanly and rationally. Accordingly, individuals would have similar but more complex anxiety toward AI, compared to computers.

Review of Related Literatures

Dhaka (2026) Studied AI Accessibility and Impact in Rural and Urban Schools. The research found significant disparities. Urban schools equipped with high-speed internet and trained educators, reported 90% access to AI tools and a 20% improvement in student performance. In contrast, rural schools had only 40% AI access and a 10% performance gain.

Claudia, R. et. al. (2025) investigated the role of artificial intelligence anxiety across gender. Results revealed (i) a significant negative relationship between AI anxiety and positive attitudes toward AI (ii) a significant gender differences in AI adoption dimensions, with women reporting higher AI anxiety.

Jeon (2025) examined the comparative case study of the experiences of urban and rural elementary school students in Korea using PengTalk, an AI-based English learning application. Urban students significantly outperformed their rural peers in average scores (82.5 vs. 75.8).

Khuraijam, Singh and Singh (2025) analyzed attitudes towards artificial intelligence among B.Ed. student teachers across demographic variables in Manipur. The findings revealed (i) No significant gender difference. (ii) Urban participants scored higher than rural counterparts in attitudes towards AI.

Ojha (2025) explored the relationship between attitude towards Artificial Intelligence and Job Satisfaction among corporate employees of Odisha. The result of the study revealed males exhibited a more favorable attitude toward artificial intelligence than females.

Paul and Chatterjee (2025) studied attitude of B.Ed. trainees towards artificial intelligence and academic integrity. Findings of the study revealed that there was no significant difference between male and female B.Ed. trainees in their attitude towards artificial intelligence, but rural and urban B.Ed. trainees differ significantly with regards to artificial intelligence favoring the rural trainees.

Solyst et al. (2024) studied children's over trust and shifting perspectives of generative AI. He observed that children's experiences with generative AI models, such as ChatGPT, led to increased interest and positive attitudes toward these technologies, suggesting that uncertainty could be replaced by high interest and positive attitudes toward AI.

Ahammad (2023) explored the attitudes of pupil teachers towards artificial intelligence. The findings of study revealed that (i) there is a significant difference found in Attitudes of Male and Female Pupil-Teachers towards Artificial Intelligence. The male Pupil-Teachers were more likely to express positive attitude towards Artificial Intelligence than their female counterparts (ii) there is a significant difference found in Attitudes of Pupil-Teachers of Urban and Rural areas towards Artificial Intelligence. The Pupil-Teachers of urban areas were more likely to express positive attitude towards Artificial Intelligence as compared to their rural counterparts.

Banerjee and Banerjee (2023) comparatively studied college teachers' anxiety towards artificial intelligence. The findings of the study were artificial intelligence anxiety of college teachers did not differ significantly according to their gender.

Terzi, R. (2020) investigated teachers' AI anxiety levels based on various demographic factors. The researcher reported that for learning, job replacement, AI configuration dimensions and the total scale, female teachers are more anxious towards AI than male teachers.

Need and Significance

Artificial intelligence plays a crucial role in enabling students to advance their skills in the field of technology integration. The impact of AI has expanded globally across various domains such as education, research, and business, significantly enriching lives and changing perspectives (Kiani et al., 2023).This paves the way for every learner in general and B.Ed. trainees in particular to experience learning in new ways. This will not only maximize the potential of AI in education but also help educators lead classrooms that are adaptive, innovative, and future oriented. As such, B.Ed. trainees need to be familiar with artificial intelligence to enhance the effectiveness of the teaching and learning process. Further, it encourages the

acquisition of new social & life skills and enhances cognitive abilities such as creativity, imagination, and emotional intelligence, thereby revolutionizing education to develop critical thinking, problem solving etc. among students. Studying attitudes toward Artificial Intelligence (AI) and AI learning anxiety among B.Ed. trainees is crucial for preparing future educators to effectively integrate technology into classrooms while managing ethical concerns and technical anxiety. This research identifies gaps in digital competence, informs curriculum development, and fosters positive, confident, and adaptive teaching strategies in an AI-driven educational landscape.

Objectives

1. To examine the relationship between the variables, attitude towards artificial intelligence and AI learning anxiety among B.Ed. trainees
2. To compare the variables, attitude towards artificial intelligence and AI learning anxiety among B.Ed. trainees across gender and locale.

Hypotheses

Literatures examination helps in formulating below hypotheses for their testing and verifications.

H_1: There is no significant relationship between attitudes toward artificial intelligence and AI learning anxiety among B.Ed. trainees

H_2: There is no significant difference between B.Ed. trainees regarding their attitude towards artificial intelligence across gender.

H_3: There is no significant difference between B.Ed. trainees regarding their AI learning anxiety across gender.

H_4: There is no significant difference between B.Ed. trainees regarding their attitude towards artificial intelligence across locale.

H_5: There is no significant difference between B.Ed. trainees regarding their AI learning anxiety across locale.

Delimitations of the Research

1. Research is confined to B.Ed. trainees only.
2. Research is confined to gender and locale of B.Ed. trainees only.
3. Study is delimited to attitude towards artificial intelligence and AI learning anxiety as dependent variables.
4. Study is delimited to gender & locale of B.Ed. trainees as independent variables.
5. Study is delimited to the following tools:
    - The General Attitudes towards Artificial Intelligence Scale: GAAIS by Schepman, A. and Rodway, P. (2020)
    - Artificial Intelligence Anxiety Scale: AIAS (2022) by Wang, Y.Y, and Wang, Y.S. **(**2022)

Methodology

This section is consists of collection of sample and choosing of appropriate tools. Descriptive nature of the study entails survey technique to be employed here.

Sample

195 B.Ed. trainees form the sample of research in hand. The sample [90 Males (Urban 45 & Rural 45); 105 Females (Urban 50 & Rural 55)] is selected from teachers' training institutions namely, Aligarh Teacher's Training College, Aligarh and Jamia Urdu College of Education- JUCE (Aligarh) located in different locations of Aligarh (U.P.). These teachers' training institutions are affiliated to Dr. B.R. Ambedkar University, Agra.

Tools Used

Valid and reliable tools were utilized to collect data for the research in hand.

1. The General Attitudes towards Artificial Intelligence Scale: GAAIS (2020)

The General Attitudes towards Artificial Intelligence Scale: GAAIS (2020) was developed and standardized by Schepman, A. and Rodway, P. The GAAIS scale is consisted of 20 Likert types' items distributed over two subscales: positive attitudes towards artificial intelligence (12 items) and negative attitudes towards artificial intelligence (8 items). The items are scored using five-point Likert type scale ranging from 1(strongly disagree) to 5 (strongly agree) for positive attitude towards AI and Negative items are scored as 5 (Strongly disagree) to 1 (Strongly agree). Scores of the scale ranges from 1 to 5. The higher the score on each subscale more is the positive attitude. The scale demonstrated high internal consistency reliability with Cronbach's Alpha coefficient of 0.88 for positive attitudes towards AI and 0.83 for negative attitudes towards AI (Schepman, A & Rodway, P., 2020). The reliability coefficient was computed using Cronbach's Alpha and the value was found to be 0.759 for positive subscale and 0.626 for negative subscale.

2. Artificial Intelligence Anxiety Scale: AIAS (2022)

Artificial Intelligence Anxiety Scale: AIAS (2022) was developed and standardized by Wang, Y.Y, and Wang, Y.S. **(**2022) to measure artificial intelligence anxiety levels. It comprises 21 items categorized into four dimensions: the learning dimension (8 items), the job replacement dimension six (6 items), socio-technical blindness dimension four (4 items) and for AI configuration dimension (3 items).The items are scored using 7-point Likert scale (1 = Strongly Disagree to 7= Strongly Agree), yielding a total score range of 21–145, where higher scores indicate higher levels of anxiety. The reliability of the scale is reported to be 0.964 by Wang & Wang. The reliability of each of the four dimensions was 0.974 for learning, 0.917 for job replacement, 0.917 for socio-technical blindness, and 0.961 for the AI configuration.

Procedure of Data Collection

The research tools were administered to the teachers with their prior permission. The instructions of the authors provided in the tools were given due considerations.

Analyses of the Data

Data is analyzed using descriptive statistics (means and S.D^{S}.), correlational statistics (Coefficient of Correlation 'r') and differential statistics (t-test). The hypotheses were tested at different levels of significance.

Results and Discussion

1. Correlation between attitudes toward artificial intelligence and AI learning anxiety among B.Ed. trainees

The correlation was calculated using Pearson's Product Moment Coefficient of Correlation between above mentioned variables. Results of the correlation coefficients between attitudes toward artificial intelligence and AI learning anxiety among B.Ed. trainees are presented in the Table No. 1

H_1: There is no significant relationship between attitudes toward artificial intelligence and AI learning anxiety among B.Ed. trainees

Table No.1
Correlation between Attitudes toward Artificial Intelligence and AI Learning Anxiety among B.Ed. Trainees

Variables	Attitudes toward Artificial Intelligence	AI Learning Anxiety
Attitudes toward Artificial Intelligence	*	0 .317 (0.01)
AI Learning Anxiety	0 .317 (0.01)	*

Perusal of table-1 establishes that there is significant positive relationship between attitude towards artificial intelligence and AI learning anxiety among B.Ed. trainees. This substantial positive correlation suggests that certain levels of anxiety likely reflect a motivational form of anxiety, wherein children perceive AI as challenges related to setting up AI systems as opportunities leading to the development of positive attitudes toward these systems. Children exposed to advanced technologies can develop a sense of agency and mastery. This finding is in line with the results of Solyst et al. (2024), who observed that children's experiences with generative AI models, such as ChatGPT, led to increased interest and positive attitudes toward these technologies, suggesting that uncertainty could be replaced by high interest and positive attitudes toward AI. Thus the null hypothesis H_1 is rejected and it is reframed as, "there is significant relationship between attitudes toward artificial intelligence and AI learning anxiety among B.Ed. trainees".

2. Comparison of attitudes toward artificial intelligence and AI learning anxiety among B.Ed. trainees across gender

The comparison between the samples on the selected variables is done by testing the significance of difference between their means by using t-tests. The results are presented in the Table-2.

H_2: There is no significant difference between B.Ed. trainees regarding their attitude towards artificial intelligence across gender.

H_3: There is no significant difference between B.Ed. trainees regarding their AI learning anxiety across gender.

Table No. 2
Comparison of Attitude towards Artificial Intelligence and AI Learning Anxiety among B.Ed. Trainees across Gender

Variables	Gender				t - value
	Male (90)		Female (105)		
	M_1	σ_1	M_2	σ_2	
Attitude towards Artificial Intelligence	174.13	16.52	166.26	17.32	3.24 (0.01)
AI Learning Anxiety	40.93	5.7	43.29	6.1	2.79 (0.01)

Table-2 presents mean scores of male and female B.Ed. trainees for attitude towards artificial intelligence. Means and S.Ds of male and female B.Ed. trainees on the measure of attitude towards artificial intelligence are 174.13 & 16.52 and 166.26 & 17.32 respectively. The computed t- value reveals that there is a significant difference between the means of attitude towards artificial intelligence of male and female B.Ed. trainees. This difference favouring male B.Ed. trainees indicate that male generally exhibit more positive and proactive attitudes and higher adoption rates toward using artificial intelligence (AI) for productivity, self-improvement, and cognitive enhancement compared to female. This result is supported by the findings of Ahammad (2023) and Ojha (2025).Thus the null hypothesis H_2 is rejected and it is reframed as, "there is significant difference between B.Ed. trainees regarding their attitude towards artificial intelligence across gender".

Similarly the comparison of means between male and female B.Ed. trainees on the measure of AI learning anxiety depicts a significant difference (0.01 level of significance) between male and female B.Ed. trainees with female B.Ed. trainees reported significantly higher AI learning anxiety. Female reporting higher AI learning anxiety may be due to a combination of gendered socialization, lack of female role models in STEM, and lower self-efficacy in technology, leading to a "confidence gap" rather than a capability gap. This anxiety, in turn, can create a cycle where lower confidence leads to lower adoption, limiting future professional opportunities. This result is in line with the findings of Claudia, R. et. al. (2025) and Terzi (2020). Thus the null hypothesis H_3 is rejected and it is reframed as "there is significant difference between B.Ed. trainees regarding their AI learning anxiety across gender".

2. Comparison of attitudes toward artificial intelligence and AI learning anxiety among B.Ed. trainees across locale

The comparison between the samples on the selected variables is done by testing the significance of difference between their means by using t-tests. The results are presented in the Table-3.

H_4: There is no significant difference between B.Ed. trainees regarding their attitude towards artificial intelligence across locale.

H_5: There is no significant difference between B.Ed. trainees regarding their AI learning anxiety across locale.

Table No. 3
Comparison of Attitude towards Artificial Intelligence and AI Learning Anxiety among B.Ed. Trainees across Locale

Variables	Locale				t - value
	Urban (95)		Rural (100)		
	M_1	σ_1	M_2	σ_2	
Attitude towards Artificial Intelligence	177.27	13.79	168.17	17.83	4.01 (0.01)
AI Learning Anxiety	40.39	5.67	44.34	6.32	4.59 (0.01)

Table-3 presents mean scores of urban and rural B.Ed. trainees for attitude towards artificial intelligence and AI learning anxiety. Means and S.D^s of urban and rural B.Ed. trainees on the measure of Attitude towards Artificial Intelligence are 177.27 & 13.79 and 168.17 & 17.83 respectively. The computed t- value comes out to be 4.01, significant at 0.01 level of significance. This significant difference between the attitude towards artificial intelligence of urban and rural B.Ed. trainees favouring former may be due to their greater

exposure, higher digital literacy, and better access to technology. Urban areas may provide superior infrastructure, such as high-speed internet, and more opportunities to experiment with AI, which builds confidence. This result is supported by the findings of Jeon (2025) and Khuraijam, Singh and Singh (2025).Thus the null hypothesis H_4 is rejected and it is reframed as, "there is significant difference between B.Ed. trainees regarding their attitude towards artificial intelligence across locale".

On the other hands, Means and S.D^s of urban and rural B.Ed. trainees on the measure of AI Learning Anxiety are 40.39 & 5.67and 44.34 & 6.32 respectively. The computed t- value is found to be 4.59 which is significant at 0.01 level of significance favouring rural sample. The significant difference showing rural B. Ed trainees having more AI Learning anxiety may be attributed to inadequate digital infrastructure and limited access to digital tools leading to higher anxiety or skepticism about its practical application, lesser teacher training in AI resulting in lower teacher confidence and consequently, higher anxiety. This finding is corroborated with the finding of Dhaka (2026). Thus the null hypothesis H_5 is rejected and it is reframed as, "there is significant difference between B.Ed. trainees regarding their AI Learning Anxiety across locale.

CONCLUSION

Artificial Intelligence (AI) holds the potential to transform teaching practices and consequently enhance overall educational outcomes. However successful integration of AI requires a holistic approach and infrastructure improvements. The study underscores the critical need for targeted professional development programmes and practical applications of AI in lesson planning and content creation. Another significant insight from the research is the disparity in AI adoption across gender and locale. The analyses of the study revealed that, there is a significant interrelationship among the variables, suggesting that the variables affect each other. Further it is noted that, there is significant difference between B.Ed. trainees regarding their attitude towards artificial intelligence across gender and locale. Additionally, the examination of AI learning anxiety reveals that there is significant difference between B.Ed. trainees regarding their AI learning anxiety across gender and locale. As future educators, it is important to identify trainee teachers' level of attitudes and anxiety towards artificial intelligence to further enhance their knowledge and skills in the application of artificial intelligence. Policymakers, educators, and technologists must collaborate to design strategies that address the diverse needs of students thereby unlock the transformative potential of AI to enhance teaching-learning processes and prepare teacher trainees for the demands of a technology-driven world.

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