



Navigating Prospective Teachers' Attitude towards AI Tools in Teacher Education

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Abstract

Objectives: The main objective of the study is to delve into the attitudes of secondary level prospective teachers towards the utilization of Artificial Intelligence (AI) tools in teacher education. Specifically, it focuses on their attitude towards the usability, functionality, efficiency, satisfaction and social influence associated with the use of AI tools in the teaching and learning processes. **Method:** This Normative survey involved a sample of 1178 Bachelor of Education (B.Ed.) students from various teacher education institutions across Tamil Nadu, India. The participants were drawn from both first and second-year cohorts, providing a comprehensive overview of prospective teachers' attitudes towards AI in educational contexts. **Findings:** The findings indicate a generally positive attitude among female prospective teachers towards the use of AI tools in education. Participants reported high levels of satisfaction with the functionality of AI tools, highlighting prospective teachers from semi-urban areas exhibit a high level of attitude in usability and satisfaction. The study revealed that social influence plays a significant role in shaping attitudes, with peer and mentor encouragement contributing to a more favorable disposition towards AI integration in educational practices. **Novelty:** The quality of school education primarily depends on the quality of teacher education. Prospective teachers, who are in the formative stages, play a crucial role in shaping the future of education. Their attitudes towards AI tools can significantly influence how these technologies are adopted and utilized in educational settings.

Keywords: Artificial Intelligence (AI); Teacher Education; Prospective Teachers; Attitude towards AI

1 Introduction

Technological innovations and a growing awareness of pedagogical approaches are causing a significant shift in the educational landscape⁽¹⁾. The most significant of these developments is Artificial Intelligence (AI), which is changing not just the resources available for education but also the responsibilities that teachers and students play⁽²⁾.

The incorporation of AI tools into teacher education programmes marks a critical shift in today's evolving educational setting. This process is more than just introducing new technologies; it requires reimagining the very ways teaching and learning are carried out⁽³⁾. In this transformation, prospective teachers play a pivotal role, as their perspectives and openness toward AI will largely determine how effectively these tools are adopted in classrooms, ultimately shaping the future of education.

Consequently, the attitudes of the teachers play a major role in the successful implementation of AI in classrooms, rather than just the infrastructure⁽⁴⁾. The prospective teachers will traverse a classroom where AI tools—from generative models like ChatGPT to automated assessment systems like Papershala—act as co-educators for prospective teachers. Whether these instruments are perceived as sophisticated disruptors that pose a threat to pedagogical traditionalism or as empowering helpers that lessen administrative duties depends on their perceptions of usability, functionality, and efficiency⁽⁵⁾. Understanding these attitudes is crucial as they can significantly influence the adoption and effective utilization of AI tools in educational settings. The dimensions of usability, functionality, efficiency, satisfaction, and social influence are pivotal in shaping these attitudes. Furthermore, as India strives toward the complete execution of the National Education Policy (NEP) 2020, teacher education programmes are under increasing pressure to prepare a workforce that is not only technologically literate but also "AI-ready". India plans to introduce AI into the school curriculum in class 3 by the 2026-27 academic session, making the preparation of secondary-level prospective teachers a top priority.

A considerable body of research emphasizes the importance of user-centered design in educational technologies, highlighting that tools must be intuitive and accessible to enhance user engagement. Usability refers to the ease with which prospective teachers can interact with AI tools. Studies indicate that high usability correlates positively with user satisfaction and willingness to integrate technology into teaching practices⁽⁶⁾. Research indicates that prospective teachers are more inclined to adopt AI technologies that offer robust functionalities aligned with their pedagogical needs. Functionality pertains to the features and capabilities of AI tools that facilitate teaching and learning processes. For example, AI tools that provide personalized learning experiences, automate administrative tasks, or offer real-time feedback on student performance are particularly attractive to future educators. A study by Holmes W, Bialik M, Fadel C (2019) demonstrated that prospective teachers value tools that not only enhance their teaching effectiveness but also support student engagement and learning outcomes⁽⁷⁾. Research has shown that prospective teachers are increasingly concerned with the time demands of teaching, making efficiency a significant factor in their attitudes towards AI tools. Efficiency in the context of AI tools refers to the extent to which these technologies streamline teaching processes and reduce workload. AI tools that automate routine tasks such as grading and assessment can alleviate some of the pressures associated with teaching, thereby enhancing teachers' overall effectiveness. A study highlighted that prospective teachers who perceived AI tools as efficient were more likely to view them favorably, as they could potentially provide more time for instructional planning and student interaction⁽⁸⁾. Satisfaction is another critical dimension influencing prospective teachers' attitudes towards AI tools. Research suggests that user satisfaction is a key determinant of technology acceptance and continued use. In the context of teacher education, satisfaction can stem from various sources, including the perceived effectiveness of AI tools in enhancing teaching and learning, the ease of use, and the overall user experience. Social influence refers to the impact of peers, mentors, and the broader educational community on prospective teachers' attitudes towards AI tools. Some studies indicate that social norms and the perceived opinions of significant others play a crucial role in technology adoption. In teacher education, prospective teachers are often influenced by the attitudes and practices of their instructors and peers regarding AI tools. Prospective teachers who observed their peers effectively using AI tools were more likely to develop positive attitudes towards these technologies. Additionally, mentorship and support from experienced educators can significantly enhance prospective teachers' confidence in using AI tools, further influencing their attitudes. Therefore, understanding the role of social influence is essential for fostering a supportive environment that encourages the positive adoption of AI tools in teacher education.

1.1 Need and Significance of the study

As multidisciplinary approaches and technology integration in teacher education are emphasized in the New Education Policy 2020, the inclusion of technology in teacher education plays a vital role in creating future teachers with 21st century skills⁽⁹⁾. However, it is the need of the hour because school education and teacher education are playing crucial roles in shaping the future of the country. The developments in Artificial Intelligence have made the powerful four-quadrant approach in the education system easier⁽¹⁰⁾. These tools have the ability to prepare e-contents, e-tutorials, self-assessments and discussions, which are the four quadrants of the education system⁽¹¹⁾. This technology has the ability to provide a personalized learning experience to a wide variety of learners. AI tools like ChatGPT and Google Bard help teachers prepare e-contents, lesson plans, and question papers⁽¹²⁾. Our country is multicultural and multilingual, and various AI translation tools, such as Anuvadini, are also available⁽¹³⁾. Semantris, Mathmicrosoft, and Papershala are some of the tools that can be used for automated grading and assessment of the teaching-learning process⁽¹⁴⁾. So many presentation tools are also available, which will help the teachers focus

on the personalized learning of students, adaptive testing, identifying learning gaps, emotional recognition, natural language processing, and proctoring examinations⁽⁷⁾. A study on attitude towards the use of AI tools among secondary level prospective teachers will help the school education system⁽¹⁵⁾.

1.2 Hypotheses of the study

1. There is a significant difference in the attitude towards the use of AI tools among secondary level prospective teachers based on their Gender, Medium of Instruction and Locality.
2. There is a significant positive correlation between the perceived usability of AI tools and the satisfaction and perceived efficiency and functionality of AI tools among prospective teachers.
3. There is a significant difference in the perceived social influence among prospective teachers to AI tools based on their Gender, Medium of Instruction and Locality.

2 Methodology

For the present study, Normative survey method was adopted with a sample size of 1178 B.Ed. I and II year students from various teacher education institutions from Coimbatore, Salem, Namakkal and Vellore districts of Tamil Nadu, India, using stratified random sampling method. The researcher developed the tool, and it was validated by experts. A Pilot study had been conducted with 93 secondary level prospective teachers from a Government-Aided Institution to check the reliability of the test items. Item analysis was done with the responses obtained from the study. The reliability of the tool was established using Cronbach's Alpha (0.83) ensuring the internal consistency. The tool consisted of 37 items in the dimensions of usability (9), functionality (7), efficiency (6), satisfaction (8) and social influence (7), which were rated on a 5-point scale (1, 2, 3, 4, 5). The maximum possible score was 185, and the minimum score was 37. Inferential statistics was employed to examine the significant differences and relationships among the variables.

3 Results and Discussion

The analysis of significant differences in the attitude towards the use of AI tools among secondary level prospective teachers based on their Gender (Table 1), Medium of instruction (Table 2), Locality (Table 3) and the significant relationship in the attitude (Table 4) was given below.

Table 1. Significant difference in the attitude towards the use of AI tools among secondary level prospective teachers based on their Gender

Variable	Gender	N	Mean	S. D.	T-values	Sig.(p)	Interpretation
Usability	Male	148	29.94	7.997	- 0.751	0.453	Not significant
	Female	1030	30.49	8.468			
Functionality	Male	148	22.46	6.213	- 2.727	0.006	Significant
	Female	1030	24.00	6.442			
Efficiency	Male	148	19.73	4.901	- 1.944	0.053	Not significant
	Female	1030	20.58	5.490			
Satisfaction	Male	148	25.67	7.463	- 2.430	0.015	Significant
	Female	1030	27.23	7.276			
Social Influence	Male	148	22.92	5.592	- 1.801	0.073	Not significant
	Female	1030	23.82	6.321			
Total	Male	148	120.72	28.500	- 2.137	0.034	Significant
	Female	1030	126.12	30.497			

From Table 1, the calculated 't' values are significant in the dimensions, functionality and satisfaction at 0.05 level of significance. Hence, the hypothesis is accepted; there is a significant difference in the attitude towards the use of AI tools among secondary level prospective teachers based on their Gender. It is inferred that male and female prospective teachers differ in their attitude towards the use of AI tools.

From Table 2, the calculated 't' values are significant in all the dimensions at 0.05 level of significance. Hence, the hypothesis is accepted; there is a significant difference in the attitude towards the use of AI tools among secondary level prospective teachers

Table 2. Significant difference in the attitude towards the use of AI tools among secondary level prospective teachers based on their Medium of Instruction

Variable	Gender	N	Mean	S. D.	t-values	Sig. (p)	Interpretation
Usability	English	537	31.52	7.845	0.420	0.000	Significant
	Tamil	641	29.54	8.775			
Functionality	English	537	24.79	6.204	4.861	0.000	Significant
	Tamil	641	22.97	6.522			
Efficiency	English	537	21.29	4.834	4.890	0.000	Significant
	Tamil	641	19.77	5.794			
Satisfaction	English	537	27.78	6.961	3.208	0.001	Significant
	Tamil	641	26.41	7.563			
Social Influence	English	537	24.47	5.881	3.848	0.000	Significant
	Tamil	641	23.08	6.474			
Total	English	537	129.84	28.311	4.619	0.000	Significant
	Tamil	641	121.78	31.491			

based on their Medium of Instruction. It is inferred that prospective teachers from Tamil and English medium differ in their attitude towards the use of AI tools.

Table 3. Significant difference in the attitude towards the use of AI tools among secondary level prospective teachers based on their Locality

Variable	Sum of squares	Df	Mean square	F-value	Sig. (p)	Interpretation
Usability	1534.437	2	767.218	11.034	0.000	Significant
	81697.339	1175	69.530			
Functionality	1699.209	2	849.604	21.248	0.000	Significant
	46982.493	1175	39.985			
Efficiency	307.584	2	153.792	5.263	0.005	Significant
	34334.100	1175	29.221			
Satisfaction	764.332	2	382.166	7.218	0.001	Significant
	62210.442	1175	52.945			
Social Influence	689.975	2	344.987	8.983	0.000	Significant
	45124.399	1175	38.404			
Total	20964.139	2	10482.070	11.627	0.000	Significant
	1059274.201	1175	901.510			

From Table 3, the calculated ‘F’ values are significant in all the dimensions at 0.05 level of significance. Hence, the hypothesis is accepted; there is a significant difference in the attitude towards the use of AI tools among secondary level prospective teachers based on their locality. It is inferred that prospective teachers from rural, semi-urban and urban localities differ in their attitude towards the use of AI tools. Based on Duncan’s Multiple Range test, prospective teachers from semi-urban localities are significantly higher than others in all the dimensions.

Table 4. Significant relationship in the attitude towards the use of AI tools among secondary level prospective teachers

Variable	Usability	Functionality	Efficiency	Satisfaction	Social Influence
Usability		0.757**	0.674**	0.699**	0.655**
Functionality			0.795**	0.816**	0.757**
Efficiency				0.811**	0.798**
Satisfaction					0.815**
Social Influence					1.000

**Correlation is significant at 0.01 level (2-tailed)

From Table 4, the calculated values are significant in all the dimensions at the 0.01 level of significance. Hence, the hypothesis is accepted; there is a significant positive relationship in all the dimensions of attitude towards the use of AI tools among secondary level prospective teachers. It is inferred that prospective teachers' satisfaction has the highest relationship with their functionality and social influence.

The present study reveals that there is a significant difference in the acceptance and perception of AI tools. While the attitude is moderate among prospective teachers, the study highlights that Female prospective teachers possess a significantly more positive attitude toward the functionality, satisfaction, and social influence of AI tools than their male counterparts. The study by Yetişensoy O (2024) also supported the results of the present study⁽¹⁶⁾. Moreover, a study examining teachers' attitudes towards AI integration in suburban schools indicated that acceptance and preparedness for innovation; prospective teachers from semi-urban regions demonstrate a positive attitude, especially regarding usability and satisfaction, compared to their counterparts in urban and rural environments⁽¹⁷⁾. A survey conducted among university students (2025) revealed a significant relationship between social influence and the use of AI tools⁽¹⁸⁾ which strongly supports our result; a strong positive correlation between Social Influence and Satisfaction also suggested that the adoption of AI is not merely a technical choice but a socially driven one. However, the language barrier remains evident: English medium students show a consistently higher attitude across all dimensions than Tamil medium students. A study also revealed that English pre-service teachers were very familiar with AI-powered learning platforms⁽¹⁹⁾.

4 Conclusion

According to the study, prospective teachers have a moderate attitude towards the use of AI tools; whereby adoption is mainly driven by demographic factors rather than technical skills. The significant difference among female teachers highlights an evolutionary change in which women in the teaching profession contribute to the shift toward AI-enhanced functionality and social influence. Further, the usability and satisfaction of prospective teachers from semi-urban areas suggests that these areas have the perfect blend of infrastructure and real-world support. It will be beneficial to establish "AI Innovation Hubs" in semi-urban colleges to train teachers in neighbouring rural localities. However, a crucial "digital-linguistic divide" is brought out by the language barrier, where English-medium students consistently outperform Tamil-medium students in the attitude towards the use of AI tools. The authorities need to support the development and incorporation of multilingual AI models to prevent them from being used effectively by English medium students. The significant relationship between social influence and satisfaction illustrates that adoption of AI tools is purely a socially driven phenomenon. The research indicates that these factors interact dynamically, shaping how future educators perceive and engage with AI technologies. As teacher education programmes increasingly incorporate AI tools, it is imperative to consider these dimensions to foster positive attitudes and promote effective technology integration. Future research should continue to explore these dimensions in greater depth, examining how they can be leveraged to enhance the educational experiences of prospective teachers and ultimately improve teaching and learning outcomes in diverse educational contexts.

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