Technology Acceptance of Artificial Intelligence Tools among Teacher Educators: An Analysis of Perceived Usefulness, Perceived Ease of Use, and Behavioral Intention

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Abstract—This study investigates the technology acceptance of Artificial Intelligence (AI) tools among teacher educators in Tamil Nadu, focusing on the key constructs of the Technology Acceptance Model (TAM): Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioral Intention to Use (BI). A sample of 100 teacher educators from colleges of education participated in the study. The AI Tools Acceptance Scale, developed by the researcher, consisted of 24 Likert-type items across three dimensions. Descriptive and correlation analyses were performed. Results indicated high levels of PU, PEOU, and BI among teacher educators. Significant positive correlations were found among all three constructs, suggesting that teacher educators who perceive AI tools as useful and easy to use are more likely to adopt them in their teaching practice. The findings imply a strong potential for integrating AI literacy and usage training into teacher education programs to promote effective adoption of AI-based pedagogical tools.

Index Terms—Technology Acceptance Model, Perceived Usefulness, Perceived Ease of Use, Behavioral Intention, Artificial Intelligence, Teacher Educators

I. INTRODUCTION

The integration of Artificial Intelligence (AI) in education has transformed how teaching and learning processes are conducted. Teacher educators play a crucial role in preparing future teachers to utilize AI tools effectively. Understanding their acceptance of AI technologies is therefore essential. The Technology Acceptance Model (TAM) proposed by Davis (1989) provides a robust framework for analyzing how users come to accept and use technology based on two key perceptions: usefulness and ease of use.

II. REVIEW OF RELATED LITERATURE

Davis (1989) introduced the Technology Acceptance Model (TAM), which has since become one of the most influential frameworks for predicting technology adoption. Research by Venkatesh and Davis (2000) extended the TAM to include behavioral intention as a determinant of actual use. In recent years, studies have explored TAM in educational contexts, particularly focusing on teachers' acceptance of digital technologies (Zawacki-Richter & Latchem, 2023). However, limited attention has been given to teacher educators' acceptance of AI tools. This study bridges that gap.

III. OBJECTIVES OF THE STUDY

1   To assess the level of perceived usefulness, perceived ease of use, and behavioral intention to use AI tools among teacher educators in Tamil Nadu.
2   To examine the relationships among perceived usefulness, perceived ease of use, and behavioral intention to use AI tools.

IV. HYPOTHESES

H1: There is a significant positive correlation between perceived usefulness and perceived ease of use.
H2: There is a significant positive correlation between perceived usefulness and behavioral intention to use AI tools.
H3: There is a significant positive correlation between perceived ease of use and behavioral intention to use AI tools.

V. METHODOLOGY

The study adopted a descriptive correlational design. A sample of 100 teacher educators from government and private colleges of education in Tamil Nadu was selected using a simple random sampling technique. The researcher-constructed AI Tools Acceptance Scale contained 24 items distributed equally among the three dimensions, Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioral Intention (BI), measured on a 5-point Likert scale. The reliability of the instrument was found to be 0.85 using Cronbach's alpha.

VI. RESULTS AND DISCUSSION

Table-1: Descriptive Statistics of AI Tools Acceptance Variables

Variable	N	Mean	SD	Level
Perceived Usefulness (PU)	100	3.85	0.54	High
Perceived Ease of Use (PEOU)	100	3.78	0.52	High
Behavioral Intention (BI)	100	3.91	0.56	High

Table 1 shows that the mean scores of PU (M = 3.85), PEOU (M = 3.78), and BI (M = 3.91) are all above 3.5, indicating a high level of acceptance of AI tools among teacher educators.

Table - 2: Correlation Matrix among the Variables

Variables	PU	PEOU	BI
Perceived Usefulness (PU)	—	.58*	.64*
Perceived Ease of Use (PEOU)	.58*	—	.61*
Behavioral Intention (BI)	.64*	.61*	—

Table 2 reveals significant positive correlations among all three constructs of TAM. The relationship between PU and PEOU (r = .58, p < .01), PU and BI (r = .64, p < .01), and PEOU and BI (r = .61, p < .01) indicates that teacher educators who find AI tools easy to use and useful are more likely to intend to use them.

VII. DISCUSSION

The findings are consistent with previous studies on TAM (Davis, 1989; Venkatesh & Davis, 2000). The high correlations among PU, PEOU, and BI reaffirm the model's predictive validity in explaining AI adoption among teacher educators. This suggests that improving the usability and perceived benefits of AI tools can substantially enhance educators' willingness to integrate AI into their teaching practices.

VIII. CONCLUSION

Teacher educators in Tamil Nadu demonstrate a positive attitude toward AI tool adoption. Both perceived usefulness and ease of use significantly influence their behavioral intention to use AI in teaching. The study highlights the need for targeted training and institutional support to foster AI readiness in teacher education programs.

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