



RESEARCH ARTICLE

ATTITUDE OF TEACHER EDUCATORS TOWARDS USE OF ICT: A COMPARATIVE STUDY

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ABSTRACT

The rapid advancement of Information and Communication Technology (ICT) has revolutionized the education system at present time. The use of ICT in classrooms has become an integral part of teaching-learning systems. The present study tried to explore the attitude of teacher educators towards the use of ICT in classroom teaching. Descriptive survey method has been adopted for the study. 200 teacher educators participated in the study as subjects, selected by random sampling technique from different government and private institutions of West Bengal. 'ICT Attitude Scale' was administered for collecting the data. After analysing the data by employing statistical techniques such as Mean and t-test, it was found that most of the teacher educators possess favourable attitude towards the use of ICT in classroom teaching. The results also revealed that gender does not significantly influence the ICT attitude of teacher educators. Further, the teacher educators of government institutions have more favourable ICT attitude in comparison to their counterparts. The findings of the present study have several important implications for teacher education and for the effective integration of ICT in classroom teaching.

INTRODUCTION

The rapid advancement of Information and Communication Technology (ICT) has brought a significant transformation in the field of education, leading to the emergence of ICT integrated teaching as a prominent mode of instruction. In contemporary times, use of ICT in classrooms have become one of the most widely adopted teaching-learning system, enabling flexibility, efficiency, and engagement among the learners (Kumar & Tammelin, 2008). These ICT-enabled platforms extend the reach of education to a broader population and facilitate the dissemination of knowledge at a global level (Dhawan, 2020; Bond *et al.*, 2021). The roots of this transformation can be traced back to the post-industrial revolution era, particularly with the invention and development of computer technology. This advancement significantly enhanced the capacity to store, process, and transmit knowledge rapidly to a large number of people (Castells, 2010 & Zhang *et al.*, 2004). Consequently, there has been a paradigm shift from traditional lecture-based classroom teaching to more interactive, technology-supported learning environments (Haleem *et al.*, 2022). Earlier, teaching was largely confined to one-way communication within physical classrooms, often making the process monotonous and less engaging. In contrast, modern classrooms incorporate a wide range of ICT tools such as audio-visual media, video conferencing platforms (e.g., Zoom, Google Meet), Learning

Management Systems, and cloud-based applications, which make learning more interactive, engaging, and learner-centered (Gil-Flores *et al.*, 2024; Martin *et al.*, 2020). Despite the increasing role of technology, the importance of teachers remains central to the teaching-learning process. Teachers act as facilitators who create meaningful learning environments by integrating appropriate pedagogical strategies with technological tools. In this context, technology may be considered as a pathway to knowledge acquisition, while teachers serve as guiding forces who illuminate this path and ensure the achievement of curricular objectives. Therefore, effective teaching in the digital era requires not only technological proficiency but also strong pedagogical knowledge and professional training (Koehler, Mishra, & Cain, 2022). The COVID-19 pandemic marked a turning point in the education system by causing a sudden disruption in traditional classroom teaching and compelling institutions worldwide to adopt online teaching methods (Dhawan, 2020; Hodges *et al.*, 2020). However, in countries like India, the transition to online education has not been entirely smooth. Challenges such as inadequate ICT knowledge, lack of training, limited infrastructure, and resistance to change among educators have hindered the effective implementation of online classroom teaching (Kumar *et al.*, 2020; Rapanta *et al.*, 2020). In many teacher education institutions, traditional practices still persist, indicating a gap between the availability of technology and its effective utilization (Trust & Whalen, 2020). Recognizing the

importance of ICT in education, policy initiatives such as the National Education Policy (NEP, 2020) have emphasized the integration of technology through platforms like DIKSHA, SWAYAM, and the National Educational Technology Forum (NETF) (Ministry of Education, 2020). These initiatives aim to improve the quality of teaching, learning, and assessment while addressing issues such as digital infrastructure and the digital divide (MHRD, 2020; UNICEF, 2021). ICT has thus become a powerful tool for storing, managing, retrieving, and disseminating information, contributing to the development of a digital knowledge society (Balaban *et al.*, 2023; Bharti *et al.*, 2024; Rajkumar *et al.*, 2026). In the digital age, the integration of ICT in education has become essential for improving the quality of teaching and learning (Zou *et al.*, 2025; Gil-Flores *et al.*, 2024). In this evolving educational context, teacher education programmes play a crucial role in preparing future teachers with the necessary competencies, skills, and attitudes required for effective ICT integration. Teacher educators are responsible for shaping the knowledge, behaviour, and professional readiness of prospective teachers. Their attitude towards ICT is a critical factor influencing the successful adoption and integration of technology in teaching-learning processes. Attitude is considered as a key determinant in the effective use of Information and Communication Technology in education (Kizil, 2011). It plays a significant role in influencing how teachers adopt and integrate technology into their teaching practices. A positive attitude towards ICT is largely shaped by one's level of knowledge and familiarity with digital tools (Teo, 2011). Teacher educators who are digitally competent are more likely to develop a constructive attitude and are better equipped to transfer knowledge effectively to student teachers (Antonietti *et al.*, 2022; Basilotta-Gómez-Pablos *et al.*, 2022). A favourable perception of ICT among teacher educators contributes to building a strong foundation for future teachers, enabling them to adapt to rapidly changing technological environments.

Several previous studies (Stella, 2017; Suniya & Lhungdim, 2017; Teo *et al.*, 2016) reported that teachers tend to have a positive attitude towards ICT integration in teaching-learning processes. However, Albert (2016) observed that although many teachers demonstrate a positive attitude, a significant proportion (44%) maintain a neutral stance. With regard to demographic variables, Ganesan and Krishnakumar (2016) found that gender does not significantly influence teachers' attitudes towards ICT integration, whereas locality has a noticeable impact. Similarly, Rana (2012) concluded that gender has no significant effect on attitudes towards ICT use. In contrast, Singh and Chan (2014) revealed that teaching experience and level of ICT knowledge significantly influence teachers' attitudes towards technology. On the other hand, Ang'ondi (2013) reported that some teachers exhibit negative attitudes towards ICT integration. The reasons for this include increased workload, lack of interest, insufficient support from school administration, and reluctance to modify traditional teaching methods and roles. Although a substantial body of research exists on ICT integration in education, several gaps remain. Most studies have primarily focused on school teachers or students, with limited attention given to teacher educators. Furthermore, there is a lack of focused research examining teacher educators' attitudes towards ICT specifically in the context of classroom teaching, particularly in the post-pandemic scenario. In the Indian context, empirical studies addressing the challenges faced by teacher educators—such as lack of training, institutional support, and

adaptability—are also insufficient. Additionally, the influence of demographic variables on ICT attitude in teacher education settings has not been explored comprehensively. Therefore, the present study seeks to address these gaps by examining the attitude of teacher educators towards ICT use. By analysing their perceptions, challenges, and readiness to adopt ICT, this study aims to contribute to the existing body of knowledge and provide valuable insights for improving teacher education programmes and promoting effective technology integration in education.

STATEMENT OF THE PROBLEM

The problem of the present study is stated as:

“Attitude of Teacher Educators towards Use of ICT: A Comparative Study”.

OBJECTIVES OF THE STUDY

- To study the level of attitude towards use of ICT among teacher educators.
- To compare the mean score of ICT attitude between male and female teacher educators.
- To compare the mean score of ICT attitude between teacher educators of government and private institutions.

HYPOTHESES OF THE STUDY

H₁: There is low level of attitude towards use of ICT in classroom teaching among teacher educators.

H₀₂: There is no significant difference in the mean score of ICT attitude between male and female teacher educators.

H₀₃: There is no significant difference in the mean score of ICT attitude between teacher educators of government and private institutions.

DELIMITATIONS OF THE STUDY

- The study is delimited to teacher educators only.
- It focuses on ICT use in classroom teaching.
- The study is confined to a selected geographical area and sample.

RESEARCH DESIGN

The present study employed a descriptive survey method to investigate the research problem. In this study, the attitude towards use of ICT in classroom teaching was considered as the dependent variable, while gender and type of institution were considered as categorical independent variables.

POPULATION

The population for the present study comprised of teacher educators working in teacher education institutions across the state of West Bengal.

SAMPLE AND SAMPLING TECHNIQUE

For the present study, a total of 200 teacher educators were selected using a random sampling technique. Out of the total sample, 120 were male and 80 were female teacher educators.

On the other hand, 103 teacher educators were chosen from 16 government and government-aided teacher education institutions, while 97 teacher educators were selected from 13 self-financed teacher education institutions across West Bengal. The detailed distribution of the sample has been presented graphically in Figure 1.

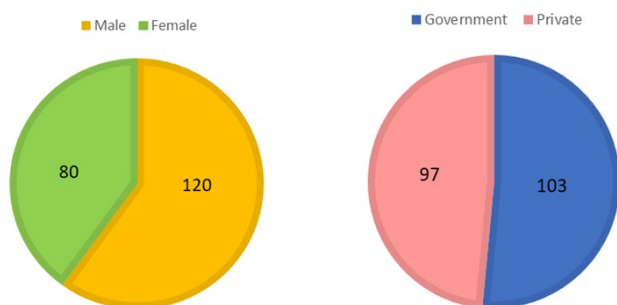


Figure 1. Distribution of sample according to gender and type of institutions

TOOL USED FOR DATA COLLECTION

For the present study, the 'ICT Attitude Scale' developed by Dr. Manoj K. Saxena and Ms. Dhara Hans on the basis of 5 point Likert scale was adopted to measure the attitude of teacher educators towards ICT in classroom teaching. The items which are included in this ICT attitude scale has been divided into three domains, (i) Affective Domain which measured the individuals' emotions, feelings and levels of interest towards ICT; (ii) Behavioural Domain which measured how individuals actually use or intend to use ICT in their classroom; and (iii) Cognitive Domain which measured the individuals' actual knowledge, belief and understanding about ICT. The tool was consisted of 30 items, having 18 positive items and 12 negative items. Each item is rated as 1 to 5, for "Strongly Disagree" to "Strongly Agree" respectively. Therefore, a respondent can score minimum of 30 and maximum of 150. The indication of the scale towards higher score means more favorable attitude towards ICT use and vice versa.

STATISTICAL TECHNIQUES USED FOR DATA ANALYSIS: For the analysis of data, statistical techniques such as mean, standard deviation, and independent samples t-test were employed. The data were processed using SPSS software, and the results were interpreted accordingly to draw meaningful conclusions.

RESULTS

Data were analysed with the help of Mean, Standard Deviation and t-test by using SPSS. Hypotheses were tested by analysing the data and results were drawn subsequently.

Testing of Hypothesis:

Hypothesis 1: There is low level of attitude towards use of ICT in classroom teaching among teacher educators.

Table 1. Descriptive statistics of attitude of teacher educators towards use of ICT

Variable	Mean	Median	Mode	S.D.	Skewness	Kurtosis
ICT Attitude	112.14	121	100	18.45	-.15	-1.58

From the above table, it is observed that the mean score of ICT attitude of teacher educators is 121. It means that the teacher educators possess favourable attitude towards the use of ICT in classroom teaching.

Hypothesis 2: There is no significant difference in the mean score of ICT attitude between male and female teacher educators. The results presented in Table-2 demonstrate that the t value is 1.59 which is not significant. It means that the male and female teacher educators do not differ significantly in terms of ICT attitude, though the male teacher educators obtained a higher mean score (113.91) compared to female teacher educators (109.44). The t-value indicates that gender does not significantly influence the ICT attitude of teacher educators.

Table 2. Male and Female Teacher Educators' Attitude towards use of ICT

Gender	N	Mean	S.D.	't' value (df-198)
Male	120	113.91	16.27	1.59 (NS)
Female	80	109.44	21.17	

NS- Not Significant

Hypothesis 3: Attitude of Teacher Educators of Government and Private Institutions towards use of ICT

Table-3: Government and Private Institutions' Teacher Educators' Attitude towards use of ICT

Type of College	N	Mean	S.D.	't' value (df-198)
Government	103	114.66	15.47	1.99
Private	97	109.42	20.94	

Table-4 shows that the calculated t value is 1.99 which is significant at 0.05 level of significance, with degree of freedom 198. The mean score of teacher educators from government institutions (114.66) was higher than that of private institutions (109.42) towards use of ICT in classroom teaching. Therefore, the null hypothesis is not accepted. Hence, it can be inferred that the type of institution has a significant influence on the ICT attitude of teacher educators.

DISCUSSION

The present study aimed to examine the attitude of teacher educators towards use of ICT in classroom teaching with respect to gender and type of institution. The study revealed that a majority of teacher educators possess a favourable attitude towards ICT in classroom teaching. This finding aligns with previous studies conducted by Stella (2017), Suniya & Lhungdim (2017), and Teo & Zhou (2016), which highlighted positive attitudes among teachers towards ICT integration. However, the presence of neutral and unfavourable attitudes among a considerable proportion of teacher educators indicates that certain barriers still exist, such as lack of training, insufficient infrastructure, and resistance to change, as also pointed out by Ang'ondi (2013). The finding suggests that while teacher educators generally exhibit a positive attitude towards ICT, factors such as knowledge level, institutional support, and access to resources play a crucial role in shaping their attitudes and effective use of ICT in teaching. The finding of second objective revealed that gender does not have a significant influence on the ICT attitude of teacher educators, as no significant differences were observed between male and female teacher educators in respect to attitude towards use of ICT. This finding is in agreement with earlier studies conducted by Rana (2016) and Ganesan & Krishnakumar

(2016), which also reported that gender does not significantly influence teachers' attitudes towards ICT integration, though the male teacher educators scored higher than female teacher educators. This suggests that male teacher educators possess relatively more favourable attitude towards use of ICT than their female counterparts. With regard to the type of institution, the results indicate that there is significant difference between government and private institution teacher educators in terms of ICT attitude. This finding is in alignment with previous studies which suggest that institutional support, availability of resources, and access to professional development opportunities significantly influence teachers' attitudes towards ICT integration (Gil-Flores *et al.*, 2017; Ertmer & Ottenbreit-Leftwich, 2010). Government institutions' teacher educators possess more favourable attitude towards use of ICT in classroom teaching than those from private institutions. This may be attributed to better access to resources, training opportunities, provision of promotion and institutional support available in government institutions. Contrary to this, limited access to such resources in some private institutions may hinder the development of favourable ICT attitudes among the teachers. However, it is important to note that this finding may vary depending on context, as some studies have reported that private institutions can also demonstrate strong ICT adoption due to flexibility and innovation (Buabeng-Andoh, 2012).

EDUCATIONAL IMPLICATIONS OF THE STUDY: The findings of the present study have several important implications for teacher education and the effective integration of ICT in classroom teaching. Firstly, since the majority of teacher educators exhibited a favourable attitude towards ICT, teacher education institutions should capitalize on this positive orientation by promoting more ICT-based teaching-learning practices. Secondly, the absence of significant gender differences in ICT attitude suggests that both male and female teacher educators are equally capable of adopting technology. Therefore, training programmes should be designed inclusively, without bias, ensuring equal opportunities for all educators to enhance their digital competencies. Thirdly, the significant difference observed in the ICT attitude based on the type of institution highlights the need to strengthen ICT infrastructure, training, and support systems, particularly in private institutions. Providing access to digital resources, workshops, and continuous professional development programmes can help bridge this gap. Furthermore, as some teacher educators still exhibit neutral or unfavourable attitudes, it is essential to address barriers such as lack of technical knowledge, inadequate institutional support, and resistance to change. Regular orientation programmes, hands-on training, and motivational strategies can help improve their confidence and willingness to integrate ICT. Lastly, teacher educators should be encouraged to adopt innovative pedagogical approaches using ICT tools, which will not only enhance their own teaching effectiveness but also prepare prospective teachers to function effectively in a digital learning environment.

RECOMMENDATIONS FOR FUTURE RESEARCH

Based on the findings and limitations of the present study, the following recommendations are suggested for future research:

- Similar studies can be conducted with a larger and more diverse sample across different states or at the national level to enhance the generalizability of the findings.

- Future research may include additional variables such as age, educational qualification, teaching experience, ICT training, and digital competency to gain a deeper understanding of factors influencing ICT attitude.
- Comparative studies can be undertaken between different levels of education, such as school teachers, college teachers, and teacher educators, to identify variations in ICT attitude.
- Qualitative or mixed-method studies may be conducted to explore in-depth perceptions, challenges, and experiences of teacher educators regarding ICT integration.
- Longitudinal studies can be carried out to examine changes in ICT attitude over time, especially with the continuous advancement of technology.
- Further research may focus on the relationship between ICT attitude and actual classroom practices or student learning outcomes.
- Experimental studies can be designed to evaluate the effectiveness of ICT training programmes in improving teachers' attitudes and competencies.

CONCLUSION

The study concludes that teacher educators generally demonstrate a positive attitude towards the use of ICT in classroom teaching. Gender does not significantly influence ICT attitude of teacher educators. On the other hand, the type of institution plays a significant role in influencing the ICT attitude among the teacher educators, where teacher educators of government institutions showing comparatively higher scores than those serving at private institutions. The findings highlight that although ICT has been widely accepted in the education system, there are still gaps in its effective implementation. The presence of neutral and unfavourable attitudes among some teacher educators indicates the need for continuous professional development, training, and institutional support in this regard. Therefore, it is essential to strengthen ICT training programmes in teacher education institutions and provide adequate resources and infrastructure to enhance the effective integration of technology in teaching-learning process. Promoting a positive attitude towards ICT among teacher educators will ultimately contribute to better preparation of future teachers and improve the overall quality of education in the digital era.

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