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Awareness of Teacher Educators in the Integration of ICT into Pre-Practice Sessions of Teacher Education Programmes

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Abstract: ***This study investigates how well-informed 300 teacher educators in Kerala, India, are about the incorporation of information and communication technology (ICT) into the Bachelor of Education (B.Ed.) program's pre-practice sessions. Lesson planning, individual and group instruction, whole-class instruction, and assessment were the five main areas in which ICT was evaluated. A Cronbach's alpha of 0.84 was used to validate a structured questionnaire. The results showed that only 2% of teacher educators had high levels of awareness, indicating that a sizable portion lacked adequate awareness. There were no discernible gender-based differences, but there was a clear urban-rural divide. The results highlight the need for focused training initiatives and legislative changes to close the ICT awareness gaps in teacher preparation.***

Keywords: ICT Integration, Teacher Education, Pre-Practice Teaching, Educational Technology, ICT Awareness

1. Introduction

In contemporary education, information and communication technology (ICT) plays a transformative and catalytic role by offering resources that improve teaching methods, encourage student participation, and raise overall learning outcomes (Grabe & Grabe, 2008; Suárez-Rodríguez et al., 2018). ICT facilitates learner-centred strategies that encourage students to collaborate, be creative, and think critically (Jonassen & Reeves, 1996). Integration of ICT into all educational levels, especially teacher preparation programs, has become increasingly important on a global scale (Buabeng-Andoh, 2012; Knezek & Christensen, 2016). But the awareness, attitudes, and digital competency of teacher educators—who are crucial in determining the pedagogical preparedness of aspiring teachers—often determine how successful such integration is (Lawrence & Tar, 2018). Examining the extent to which teacher educators are integrating ICT into their teaching practices is essential in India's developing digital education landscape, which is being fuelled by programs like Digital India and the National Education Policy (NEP) 2020. This is particularly true during pre-practice sessions that mimic actual classroom settings (Jadhav, 2011; Patra, 2014).

2. Rationale of the Study

Teacher educators must be prepared to incorporate information and communication technology (ICT) into teacher education programs in this age of swift digital change. In Bachelor of Education (B.Ed.) programs, pre-practice sessions are essential venues for aspiring educators to practice teaching techniques and classroom management strategies in mock environments (Jadhav, 2011). The proficiency, self-assurance, and awareness of teacher educators are critical to the successful integration of ICT into these sessions (Hwang et al., 2010; Suárez-Rodríguez et al., 2018). Teacher educators may find it difficult to demonstrate effective ICT use without sufficient preparation, which would limit its influence on aspiring teachers. As Balasubramanian et al. (2009) argue, the success of ICT integration hinges on the teacher's capacity to apply digital tools purposefully. Thus, empowering teacher educators with the necessary ICT skills is foundational to building technologically enriched classrooms for the future.

3. Objectives of the Study

- To assess the level of awareness among teacher educators regarding the integration of ICT into pre-practice sessions of the B.Ed. programme.
- To examine the gender-wise differences in ICT awareness among teacher educators.
- To compare the awareness levels between rural and urban teacher educators concerning ICT integration in pre-practice sessions.

4. Hypotheses

- H_{01}: Teacher educators have a low level of awareness regarding ICT integration in pre-practice sessions.
- H_{02}: There is no significant difference in ICT awareness between male and female teacher educators.
- H_{03}: There is no significant difference in ICT awareness between rural and urban teacher educators.

5. Methodology

In order to investigate and measure teacher educators' awareness of the incorporation of information and communication technology (ICT) into pre-practice sessions of the Bachelor of Education (B.Ed.) program, a descriptive survey research design was used. 300 teacher educators from different teacher education colleges in Kerala, India, were chosen for the study using a random sampling technique, guaranteeing diversity in terms of locality, gender, and institutional affiliation. Because both male and female teacher educators were included in the sample, comparisons across demographic variables were possible. The "Integration of ICT in Pre-Practice Teaching Questionnaire,"

a tool created by the researcher and intended to gauge awareness in areas like lesson planning, instructional strategies, and assessment, was used to gather data. The reliability of the tool was confirmed through Cronbach's alpha coefficient of 0.84, indicating a high level of internal consistency. For data analysis, descriptive statistics, t-tests, and standard deviation were employed to identify patterns, test hypotheses, and interpret group differences meaningfully.

6. Results and Discussion

6.1. Awareness Levels among Teacher Educators

The hypothesis H_{01}, which states that "Teacher educators have a low level of awareness regarding ICT integration in pre-practice sessions," was tested using descriptive statistical analysis. The results are summarized in Table 01, which categorizes the respondents based on their levels of ICT awareness.

Table 1: ICT Awareness Levels among Teacher Educators

ICT Awareness Level	Frequency	Percentage (%)
Very Low	12	4%
Low	162	54%
Moderate	103	34.33%
High	6	2%
Total	300	100%

Findings
The data clearly indicates that a majority of teacher educators (54%) exhibited a low level of ICT awareness, while an additional 4% demonstrated very low awareness, making a combined 58% of respondents with insufficient ICT preparedness. A moderate level of awareness was reported by 34.33%, and only 2% of educators showed high levels of awareness. This pattern strongly confirms Hypothesis H_{01}, suggesting that teacher educators, on the whole, possess inadequate knowledge and preparedness to integrate ICT effectively into pre-practice teaching sessions of the B.Ed. programme. The results underscore the pressing need for targeted interventions, such as ICT training and curriculum revision, to bridge this critical gap in teacher education.

6.2 Gender-wise comparison of ICT awareness among teacher educators

The hypothesis H_{02}, which states that "There is no significant difference in ICT awareness between male and female teacher educators," was tested using descriptive statistical analysis. The results are summarized in Table 02, which categorizes the respondents based on their levels of ICT awareness.

Table 2: Gender-wise Comparison of ICT Awareness

Gender	Mean (M)	N	SD	df	t	Significance
Male	20.07	170	8.37	298.00	1.349	Not Significant
Female	18.87	130	7.04			

The mean score for male teacher educators (M = 20.07) was slightly higher than that for female teacher educators (M = 18.87). However, the computed t-value of 1.349 was found to be less than the critical t-value at both the 5% and 1% levels of significance, indicating that the observed difference is not statistically significant. Therefore, the null hypothesis H_{02} is accepted.

This finding suggests that gender does not have a significant influence on the awareness of ICT integration in pre-practice sessions of teacher education programmes. Both male and female teacher educators exhibited comparable levels of ICT understanding and application, indicating a uniform need across genders for professional development and training in this area. The result reinforces the idea that any strategies aimed at enhancing ICT integration in teacher education should be inclusive and gender-neutral in their design and implementation.

6.3 Comparison of ICT Awareness among teacher educators based on the locality

The hypothesis H_{03}, which states that "There is no significant difference in ICT awareness between rural and urban teacher educators," was evaluated using an independent samples t-test. This statistical test was applied to compare the mean ICT awareness scores of teacher educators based on their geographic location—urban or rural. The aim was to determine whether location-related disparities exist in the integration of ICT into pre-practice sessions of teacher education. The results are presented in Table 03.

Table 3: Urban vs. Rural Comparison of ICT Awareness

Location	Mean (M)	N	SD	df	t	Significance
Urban	22.79	150	6.71	298.00	7.846	Significant
Rural	16.31	150	7.55			

Findings and Interpretation:
The results indicate a clear and statistically significant difference in ICT awareness levels between urban and rural teacher educators. Urban respondents had a significantly higher mean score (M = 22.79) compared to their rural counterparts (M = 16.31). The computed t-value of 7.846, which exceeds the critical t-values at both the 5% and 1% significance levels, confirms the rejection of the null hypothesis H_{03}.

This finding suggests that urban teacher educators are considerably more aware and better equipped to integrate ICT into pre-practice teaching sessions than those in rural areas. Several factors may contribute to this gap, including better access to technological infrastructure, more frequent exposure to digital tools, and greater opportunities for professional development in urban settings. The results highlight a pressing need for targeted interventions and support systems to enhance ICT training and infrastructure in rural teacher education institutions to ensure equitable ICT competence across regions.

7. Major Findings

1) **Low ICT Awareness:** 58% of teacher educators exhibited low or very low awareness of ICT integration in pre-practice sessions, while only 2% demonstrated high awareness.

2) **Moderate Competence**: 34.33% of teacher educators showed moderate awareness, indicating limited but insufficient familiarity with ICT tools and applications.
3) **No Gender-Based Difference:** No statistically significant difference was found between male and female educators in terms of ICT awareness, suggesting gender-neutral competence levels.
4) **Urban-Rural Disparity:** Urban teacher educators had significantly higher ICT awareness than their rural counterparts, highlighting geographic inequality in ICT access and exposure.
5) **Need for Structured Training:** The study emphasizes the necessity of structured ICT training in both pre-service and in-service teacher education programmes.
6) **Underdeveloped Integration**: ICT integration in teacher education, especially in pre-practice sessions, is still in its early stages in Kerala.

8. Conclusion

This study identifies a critical gap in the integration of ICT in teacher preparation programs in Kerala. With over half the teacher educators displaying low awareness, urgent measures—such as curriculum revision, targeted professional development, and infrastructure enhancement—are essential to bridge the divide. Strengthening ICT capacity among educators, particularly in rural areas, will be pivotal in ensuring that pre-service teachers are future-ready.

9. Recommendations

- **Policy Action:** Introduce a mandatory ICT module in B.Ed. curricula across universities.
- **Training Programs:** Conduct regular ICT-focused workshops for teacher educators.
- **Rural Support:** Allocate resources and infrastructure to bridge urban-rural disparities.
- **Blended Learning:** Promote hybrid training models combining face-to-face and digital methods.
- **Future Research:** Explore governance, strategic planning, and institutional readiness for ICT adoption.

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