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AWARENESS AND CURRENT SITUATION AND PROBLEMS OF COMPUTER EDUCATION AMONG TEACHING TRAINEES BASED ON THE RESIDENTIAL BACKGROUND (RURAL & URBAN)

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ABSTRACT

In the rapidly evolving digital era, computer education plays a crucial role in preparing future educators for technology-integrated teaching and learning environments. This research critically examines the awareness, current situation, and challenges of computer education among teaching trainees, assessing its effectiveness in developing essential digital competencies. A well-structured computer education curriculum is vital for equipping trainees with skills in instructional technology, digital resource management, and e-learning facilitation. The study explores whether the existing curriculum adequately prepares teaching trainees for the demands of modern classrooms and investigates barriers such as inadequate infrastructure, lack of practical exposure, and varying levels of digital literacy among trainees.

Furthermore, the research evaluates disparities in computer education awareness based on gender, access to technological resources, and prior exposure to digital tools. The first hypothesis (H_{01}) states that there is no significant difference in the awareness and challenges of computer education among teaching trainees based on gender. The study employs a mixed-method approach, incorporating surveys, interviews, and curriculum analysis to provide a comprehensive understanding of the current state of computer education. Findings from this research will offer valuable insights into potential curriculum reforms, ensuring that computer education remains relevant, accessible, and effective in fostering digital literacy, critical thinking, and pedagogical innovation among teaching trainees. The study aims to contribute to the development of a more robust and inclusive computer education framework that meets the needs of 21st-century educators

Keywords: Awareness, Situation, Problem, Computer, Education, Trainer, Gender.

I. INTRODUCTION

Awareness of computer education among teaching trainees encompasses their understanding of fundamental digital literacy, educational technologies, and the role of information and communication technology (ICT) in pedagogy. An informed teaching trainee recognizes the potential of digital tools in enhancing learning outcomes, facilitating collaboration, and personalizing education to meet diverse student needs. Studies have shown that teachers who integrate technology into their teaching practices can improve student engagement, motivation, and academic performance. According to Koehler and Mishra's (2009) Technological Pedagogical Content Knowledge (TPACK) framework, effective teaching in the digital age requires not only subject expertise but also an understanding of how to integrate technology meaningfully into pedagogy.

Despite the recognized benefits of computer education, the current situation among teaching trainees presents several challenges. Many teacher training institutions still lack adequate infrastructure, access to up-to-date technology, and structured ICT training programs. According to research by Pelgrum and Law (2003), disparities in access to technology between urban and rural training institutions contribute to unequal opportunities for trainees to develop their digital skills. Additionally, some trainees may have limited prior exposure to computer education due to socioeconomic factors or variations in their earlier schooling experiences. This digital divide can lead to inconsistencies in their preparedness to incorporate technology into their teaching practices.

Furthermore, while some teaching trainees are highly proficient in using digital tools for personal use, they may lack the pedagogical knowledge required to integrate them effectively into a classroom setting. Research by Ertmer and Ottenbreit-Leftwich (2010) highlights that even when teachers have access to technology, they may struggle with incorporating it into their teaching due to a lack of confidence, training, or institutional support. Many teaching trainees may also be unaware of the latest advancements in educational technology, such as

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artificial intelligence-driven learning platforms, digital assessment tools, and virtual reality-based teaching resources, which could significantly enhance student learning experiences..

II. REVIEW OF LITERATURE

1. Tondeur, J., Van Braak, J., & Valcke, M. (2011) –

Barriers to ICT Integration in Teacher Training Tondeur et al. (2011) investigated the barriers preventing effective ICT integration in teacher education programs and analyzed teacher trainees' perceptions of computer-based learning. The study found that although trainees recognized the importance of computer literacy, many lacked the confidence and technical skills needed to implement ICT in classrooms.One major problem highlighted was the lack of institutional support. Many teachertraining programs did not provide sufficient access to modern computing devices, software, and high-speed internet, making it difficult for trainees to gain hands-on experience. As a result, trainees were often left to self-learn technology, leading to inconsistent skill development.Another barrier was the resistance to change among educators and institutions. Many training programs were still heavily reliant on traditional teaching methods, with little emphasis on digital pedagogy. This resistance made it difficult for trainees to transition into tech-integrated teaching environments.Tondeur et al. also found that teacher attitudes played a crucial role in ICT adoption. While younger trainees were more open to using digital tools, older trainees or those with minimal prior exposure to technology often felt overwhelmed by digital learning methods.The study recommended a multi-level approach to improving ICT integration in teacher training:

4. Kay, R. H. (2006) – Teacher Trainees' Awareness of Computer Literacy

Kay (2006) investigated teacher trainees' awareness and competence in computer education. The study found that while trainees acknowledged the importance of technology in teaching, their practical digital skills were lacking. Many trainees struggled with basic ICT tasks, and confidence in using technology for instructional purposes was low.The primary issues identified included:Outdated curricula that failed to integrate modern digital tools.Limited access to technology in teacher training institutions.A lack of structured ICT training that emphasized hands-on experience.Kay recommended that teacher education programs should embed technology across all courses, ensuring that trainees actively use digital tools in lesson planning, assessment, and classroom management.

5. Koehler, M. J., & Mishra, P. (2009) – TPACK Framework in Computer Education

This study introduced the Technological Pedagogical Content Knowledge (TPACK) framework, highlighting the importance of integrating technology into teaching methodologies.Findings showed that many teacher trainees struggled with:Applying digital tools in real-world teaching scenarios.Aligning technology with subject matter and pedagogy.Understanding how to use ICT for student engagement and assessment.The researchers recommended:Blended learning models in teacher education.Workshops and practice-based ICT training.Exposure to digital teaching strategies during practicum training.The study concluded that future educators need structured digital literacy programs to improve their technological competency in classrooms.

6. Tondeur, J., Van Braak, J., & Valcke, M. (2011) –

Barriers to ICT Adoption in Teacher TrainingThis study examined barriers preventing effective ICT integration in teacher education. The key issues identified were: Résistance from teacher educators due to a lack of ICT training.Insufficient institutional support and limited access to technology.A theory-heavy approach to ICT training, lacking hands-on application.Tondeur et al. concluded that teacher training programs must:Redesign curricula to make technology an integral part of coursework.Encourage collaborative learning environments where trainees practice ICT use.Provide ongoing professional development for educators to support ICT adoption.

7.Chai, C. S., Koh, J. H. L., & Tsai, C. C. (2013) –

Digital Readiness of Teacher Trainees

This study found that while most teacher trainees were familiar with basic ICT tools, they lacked higher-order technology skills such as:Using digital tools for personalized learning.Creating interactive and student-centered lessons using ICT.Applying problem-solving and critical thinking through digital resources.To address these gaps, the study recommended: Technology-rich teacher training environments.Workshops and simulations that

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mirror real classroom challenges.Mentorship programs pairing trainees with tech-savvy educators.The researchers emphasized that teacher training programs must focus on practical ICT application rather than just theory.

8. Fu, J. S. (2013) – Challenges of ICT in Education

Fu (2013) examined the major obstacles in computer education among teaching trainees. The study highlighted:A significant gap between theory and practice in ICT training.Overreliance on traditional teaching methods, discouraging digital learning.Trainees' anxiety and lack of confidence in using digital tools.To improve ICT integration, the study proposed:Active learning strategies using digital tools.Incorporating ICT training in micro-teaching and lesson planning.A gradual shift from traditional to blended teaching approaches

VARIABLES:

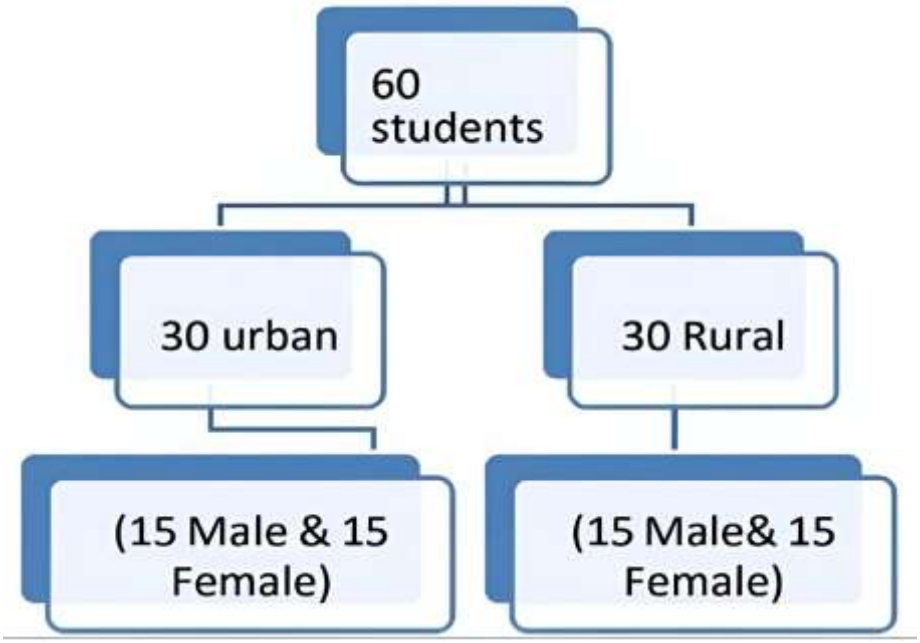
Independent Variable- current situation and problems of computer education **Dependent Variable-** Student

POPULATION AND POPULATION:

The entire group of individuals or items that the researcher is interested in studying and sample is a subset of the population that is selected for study, which is meant to represent the larger population.

Population: 60 Senior secondary school Students.

Sample:-Population sample 60 Senior secondary school students.(30 male 30 female).



HYPOTHESIS:

2. There is no significant difference in the awareness of computer education among teaching trainees based on residential background (rural&urban)

TABLE-2

Group	N	Mean	Diff. of Mean	S.D.	t-Ratio	Sign. Level	Result
1.Female	30	34.97	0.03	1.73	0.0494	0.05	Hypothesis Is Rejected
2.Male	30	35		2.84			

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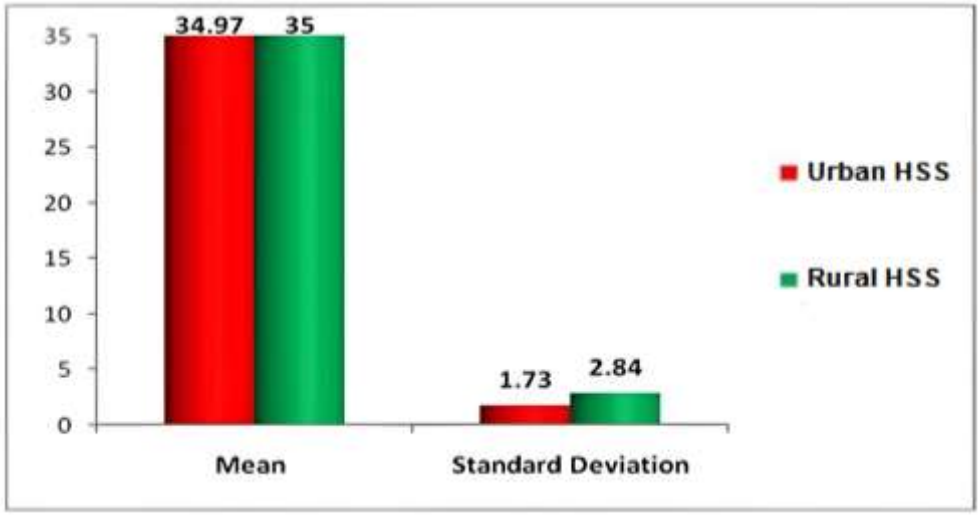
DEGREE OF FREEDOM=N1+N2

=(30+30)-2

=60-2

=58

SIGNIFICANT LEVEL OF 0.05= 2.048



III. ANALYSIS INTERPRETATION

In above mentioned table mean score of 30 Female senior secondary level teachers is 34.97 and 30 Male senior secondary level teachers have 35 mean respectively, whose difference is 0.03 and the standard deviation are 1.73 and 2.84 respectively for Female and Male senior secondary level teachers. Since the difference is 1.66 which is negligible.

IV. DISCUSSION

After analyzing and describing each fact of above table where t=0.0494 which is very less than significant level of 0.05 which is 2.048 That shows the null hypothesis is rejected.

Educational Implications –

Awareness and Current Situation and Problems of Computer Education Among Teaching Trainees

1. Curriculum Enhancement for Digital Literacy:

A critical study of computer education for teaching trainees can help identify gaps in digital literacy. Educational institutions should design a curriculum that ensures a strong foundation in both basic and advanced computing skills, covering essential topics such as programming, cybersecurity, and digital pedagogy.

2. Integration of Practical and Hands-on Learning:

The study may highlight the need for more practical exposure to computer applications. Teacher training programs should include hands-on sessions with educational software, learning management systems, and real-world applications to ensure that trainees gain practical experience in using technology for teaching and administration.

3. Alignment with Emerging Educational Technologies:

If the current curriculum does not align with the latest trends in educational technology, necessary modifications should be made. Teaching trainees should be introduced to artificial intelligence, virtual classrooms, digital assessment tools, and adaptive learning platforms to prepare them for modern teaching environments.

4. Updating Curriculum with Contemporary Developments:

Since technology evolves rapidly, outdated topics in computer education should be revised. Teacher education programs should regularly update their content to include advancements in cloud computing, data analytics in education, and interactive e-learning tools to keep trainees well-informed.

5. Interdisciplinary Approach in Computer Education:

The study may suggest the importance of integrating computer education with other teaching subjects such as mathematics, science, and humanities. Teaching trainees should be encouraged to use digital tools in lesson planning, classroom management, and interdisciplinary learning approaches.

6. Use of Technology and Digital Resources in Teacher Training:

A critical analysis might reveal the necessity of incorporating e-learning platforms, online teaching simulations, and interactive modules in teacher training programs. Institutions should provide access to digital resources like MOOCs, webinars, and open-source teaching tools to enhance digital pedagogy skills.

7. Addressing Regional and Institutional Challenges:

The study may indicate disparities in access to technology and training infrastructure across different regions. Policymakers should work toward reducing the digital divide by ensuring equal access to computers, internet facilities, and digital literacy programs for all teaching trainees, especially in rural and underprivileged areas.

8. Assessment and Evaluation Reforms in Computer Education:

If the current evaluation system focuses more on theoretical knowledge rather than practical application, reforms should be introduced. Assessments should emphasize project-based learning, real-world problem-solving, and competency-based evaluations to measure trainees' ability to integrate technology into teaching.

9. Teacher Educator Training and Professional Development:

Effective computer education for teaching trainees requires well-trained faculty. Professional development programs should be designed to equip teacher educators with the latest technological skills, digital teaching methodologies, and strategies for integrating ICT (Information and Communication Technology) into teacher education.

10. Encouraging Research and Innovation in Educational Technology:

A well-structured teacher training curriculum should promote innovation in computer education. Teaching trainees should be encouraged to conduct research on technology-enhanced learning, participate in digital education projects, and engage with educational technology communities to stay updated with emerging trends.

V. CONCLUSION

A critical analysis of the current state of computer education among teaching trainees highlights the need for a dynamic and updated curriculum that integrates practical learning, emerging technologies, and digital pedagogy. Addressing these challenges will ensure that future educators are well-equipped to use technology effectively in classrooms, bridging the gap between traditional and modern teaching methods

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