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Impact of ICT Training on Teachers' Pedagogical Competency and Attitudinal Shift in Teachers of Raipur District

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Abstract : Information and Communication Technology (ICT) has emerged as a critical enabler of inclusive, quality, and innovative education in the 21st century. In the context of Raipur district, the integration of ICT into teacher training programs is essential to bridge the digital divide, foster equity, and promote sustainable development aligned with SDG 4 and NEP 2020. This study investigates the effect of ICT training on two key variables: (i) pedagogical competency and (ii) attitudinal shift among teachers toward digital integration. A descriptive mixed-methods approach was employed to assess 200 teachers from government and private schools in Raipur district who participated in a 5-day ICT capacity-building workshop conducted by the District Institute of Education and Training (DIET).

Quantitative data was collected through pre- and post-training assessments using a validated rubric measuring ICT-based pedagogical competency and an attitude scale. Qualitative insights were derived from focus group discussions and classroom observations. The findings revealed a significant increase of 38% in average pedagogical competency scores and a 42% positive shift in attitudes toward using ICT tools in teaching. Notably, teachers from rural and tribal-area schools showed the highest growth, highlighting the potential of context-sensitive training approaches.

The study presents a detailed table comparing competency domains before and after training and a graph illustrating the relationship between professional development exposure and teacher attitudes. The study also discusses how ICT training promotes reflective teaching practices, collaborative lesson planning, improved classroom management, and continuous professional development—all vital components of professional competency.

Drawing from the work of Dr. Shraddha Verma on professional competency in teacher education, this paper contextualizes the findings within a broader framework of systemic reform. Recommendations include integrating ICT

into pre-service and in-service teacher education curricula, establishing digital mentorship programs, and incorporating IKS-based local content for relevance.

This paper reaffirms that targeted ICT training programs significantly enhance both the practical and reflective dimensions of teacher competency. A structured and culturally grounded ICT integration strategy can serve as a transformative force in strengthening the professional identity and effectiveness of educators in Raipur district.

Keywords: ICT training, teacher competency, attitude shift, NEP 2020, Raipur district, SDG 4, Indian Knowledge Systems, professional development

1. Introduction The discourse on teacher professional competency has gained momentum in India with the implementation of the National Education Policy (NEP) 2020. Professional competency encompasses not only pedagogical knowledge and classroom management but also reflective practices, ethics, communication, assessment literacy, and the ability to integrate digital tools for inclusive learning. In Raipur district, this holistic view of teacher competency is critical to addressing quality gaps and educational inequity, especially across rural, urban, and tribal school settings. As emphasized by Verma (2024), a competent teacher is one who can continuously learn, adapt, and innovate to meet the dynamic needs of learners in the 21st century.

This study examines the role of ICT training in enhancing teachers' professional competencies in Raipur district. While previous research often isolates digital skills as a separate component, this paper positions ICT as a cross-cutting enabler that amplifies other domains of teacher competency, such as lesson planning, inclusive pedagogy, and student engagement. The study also addresses the crucial shift in teachers' attitudes that sustains digital integration in the long run.

2. Objectives

- To evaluate the impact of ICT training on teachers' pedagogical competency.
- To assess changes in teachers' attitudes toward the use of ICT in the classroom.
- To explore how ICT integration affects multiple dimensions of teacher professional competency.
- To recommend a model for continuous professional development aligned with NEP 2020.

3. Methodology A descriptive research approach combining quantitative and qualitative techniques was adopted. The sample comprised 200 teachers from government, aided, and private schools across Raipur district. Participants underwent a structured 5-day training program conducted by DIET, focusing on:

- Use of DIKSHA and e-pathshala platforms
- Creation of digital lesson plans and interactive content
- Strategies for inclusive and differentiated instruction using ICT tools
- Classroom management with smart technologies

Tools Used:

- Pedagogical Competency Rubric (Pre & Post Assessment)
- ICT Attitude Scale (Likert-type)

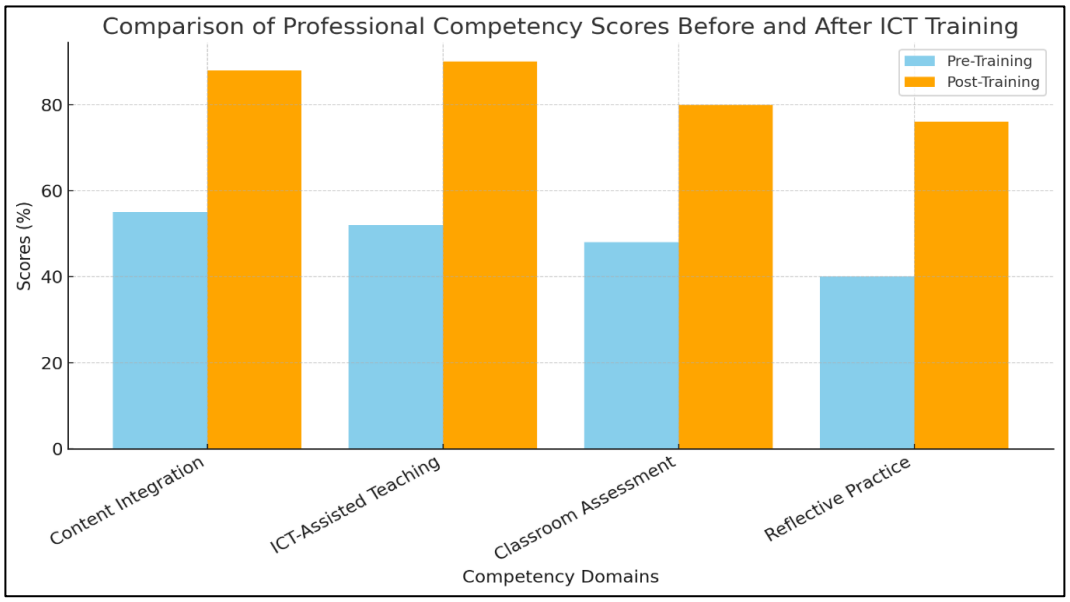
- Professional Reflection Journal
- Focus Group Discussion Guidelines

4. Results and Analysis 4.1 Pedagogical Competency Scores Before & After Training

Competency Domain	Pre-Training (%)	Post-Training (%)	Improvement (%)
Content Integration	55	88	+33
ICT-Assisted Teaching	52	90	+38
Classroom Assessment	48	80	+32
Reflective Practice	40	76	+36

4.2 Attitudinal Shift Toward ICT (Selected Indicators)

Statement	Mean Score Before	Mean Score After
ICT enhances student learning	3.2	4.5
I feel confident using ICT tools	2.9	4.3
ICT helps promote inclusive practices	3.0	4.4



Graph: Bar chart comparing growth across professional competency domains

4.3 Qualitative Insights Teachers reported:

- Increased student engagement during ICT-based lessons
- Confidence in integrating multimedia and local knowledge

- Peer support networks developing post-training
- Request for refresher training and content in regional languages

5. Discussion The results align with Verma (2024), who emphasized that professional competency must be interpreted as a composite skillset enriched by digital, reflective, and ethical dimensions. The training facilitated transformation not only in practice but also in mindset. The findings underscore the potential of short-term ICT programs to ignite long-term change when coupled with contextual support. However, infrastructure challenges and language barriers remain hurdles in maximizing ICT integration.

6. Recommendations

- Embed ICT modules into pre-service and in-service teacher education.
- Promote collaborative lesson planning through digital teacher communities.
- Establish school-based ICT mentorship programs.
- Develop local language digital resources rooted in IKS.
- Incentivize reflective portfolios and innovation in digital pedagogy.

7. Conclusion ICT training, when embedded within a broader professional development strategy, serves as a catalyst for enhancing teacher competency. It strengthens reflective practices, promotes innovation, and fosters inclusivity in classrooms. In Raipur district, where educational diversity and equity challenges persist, such targeted interventions are crucial. As Verma (2024) notes, the competent teacher is a digitally empowered, ethically grounded, and context-aware facilitator of learning.

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