



# Investigating ICT Integration in Teaching Plans as per NEP 2020 by Pre-service Teachers in Dehradun, DIET, Uttarakhand

1. **Ramesh Prasad Badoni,**

IT- Faculty, IT Department,  
SCERT, Uttarakhand, India.

Contact number-+917906411210

Email- [anamamesh2012@gmail.com](mailto:anamamesh2012@gmail.com)

2. **Rakhi Pandey**

DIET-Faculty, Pre-service Teachers Department  
Dehradun, Uttarakhand

Contact number-+917500111150

Email- [rakhi2014pandey@gmail.com](mailto:rakhi2014pandey@gmail.com)

## Abstract

The National Education Policy (NEP) 2020 emphasizes integrating Information and Communication Technology (ICT) into teaching practices to enhance the learning experience. This study investigates the extent of ICT integration in teaching plans by Pre-service teachers at the District Institute of Education and Training (DIET) in Dehradun, Uttarakhand. A survey comprising Likert scale questions was conducted, receiving 49 responses from Pre-service teachers currently pursuing a Diploma in Elementary Education (D.El.Ed). The study aims to assess their confidence, frequency of use, perceived effectiveness, institutional support, and alignment with NEP 2020 goals. Findings reveal that 81.6% of Pre-service teachers are confident in using ICT tools, and 85.8% believe ICT enhances student engagement. However, only 20.4% receive comprehensive institutional support for ICT infrastructure and training. These insights underscore the need for enhanced training and resources to fully realize the benefits of ICT integration in education.

**Keywords:** NEP 2020, SCF Uttarakhand, ICT Integration, Pre-service Teachers, Teaching Plans, Personalized Learning, Student Engagement, Teacher Training, Institutional Support, Critical Thinking, Problem-Solving Skills, Ethical Considerations

## Introduction

The National Education Policy (NEP) 2020 represents a transformative shift in India's educational framework, emphasizing the importance of integrating Information and Communication Technology (ICT) into teaching and learning processes (Ministry of Human Resource Development, 2020). This policy aims to foster critical thinking, problem-solving skills, and personalized learning experiences through the use of modern educational technologies. In alignment with NEP 2020, Uttarakhand adopted the policy in 2022 and subsequently launched its State Curriculum Framework (SCF) in 2023 to guide the integration of ICT in education by the State Council of Education, Research and Training (SCERT), Uttarakhand, in 2023.

Research on ICT integration in education has shown that effective use of technology can significantly enhance student engagement and learning outcomes (Bebell & O'Dwyer, 2010; Zhao et al., 2002). Additionally, digital literacy and the use of technology in educational processes align with global trends in educational reform (UNESCO, 2019). However, the successful implementation of ICT in teaching practices largely depends on the confidence and preparedness of teachers, as well as the availability of adequate infrastructure and institutional support (Ghosh, 2020; Hew & Brush, 2007).

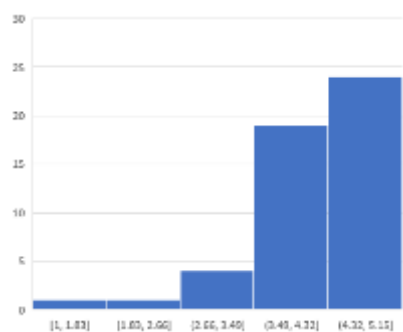
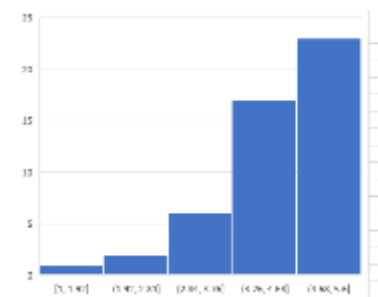
This study focuses on Pre-service teachers at the District Institute of Education and Training (DIET) in Dehradun, Uttarakhand. It aims to explore the extent to which these Pre-service teachers are integrating ICT into their teaching plans, examining their confidence levels, frequency of ICT use, perceived effectiveness, and the alignment of their practices with the goals of NEP 2020. Additionally, the study assesses the support provided by their institution in terms of ICT infrastructure and training. This investigation provides insights into the current state of ICT integration among Pre-service teachers and identifies areas for improvement to fully realize the potential of NEP 2020 in enhancing educational outcomes.

**Methodology**

A survey was conducted using a five-point Likert scale to gather responses from 49 Pre-service teachers. The questions assessed various aspects of ICT integration, including confidence in using ICT tools, perceived benefits for student engagement, frequency of ICT-based activities, relevance of ICT skills, effectiveness in promoting personalized learning, institutional support, alignment with NEP 2020 goals, troubleshooting abilities, awareness of ethical considerations, and willingness to seek new ICT resources.

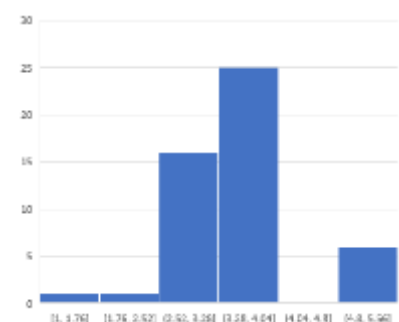
**Results**

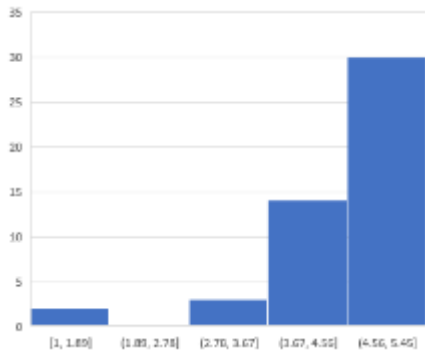
**Confidence in ICT Integration:** The survey revealed that 46.9% (23) of the Pre-service teachers are strongly confident in their ability to integrate ICT tools effectively into their teaching plans. Additionally, 34.7% (17) are confident, 12% (6) are well confident, and 6% (3) have medium confidence. Only 6% (3) reported low confidence in using ICT in their teaching plans.



**Enhancing Student Engagement:** When asked about the impact of ICT on student engagement, 47% (24) of the Pre-service teachers completely believe that ICT integration significantly enhances student engagement. Furthermore, 38.8% (19) agreed that ICT is a better engaging tool during the teaching-learning process, while 8.2% (4) partially agreed. A minority of 4% (2) disagreed with the notion that ICT enhances student engagement.

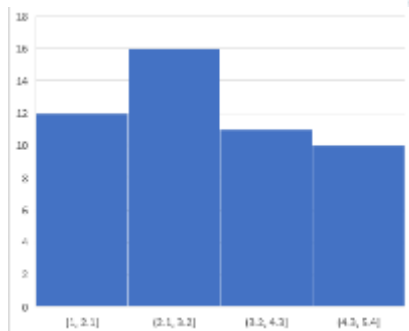
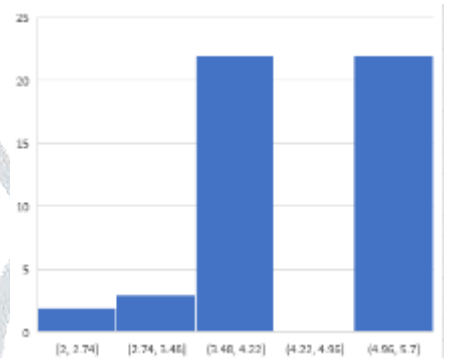
**Frequency of ICT Use:** Regarding the frequency of incorporating ICT-based activities in their teaching plans, 12.2% (6) of the Pre-service teachers always incorporate ICT. A significant 51% (25) mostly incorporate ICT, while 32.7% (16) use it frequently. Only 4% (2) reported rarely using ICT in their teaching plans.





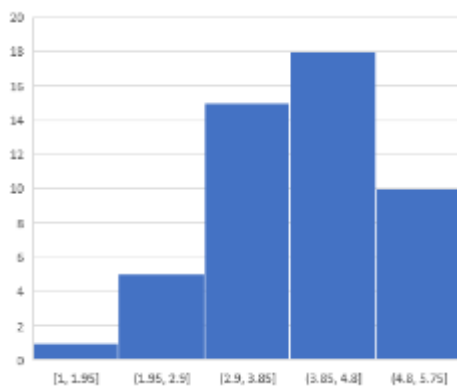
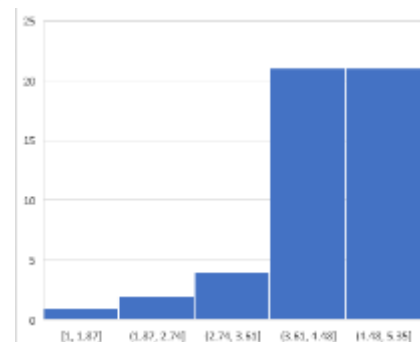
**Relevance of ICT Skills:** The survey results indicate that 61.2% (30) of the Pre-service teachers find the ICT skills emphasized in NEP 2020 to be highly relevant to their teaching practices. Additionally, 28.6% (14) consider these skills relevant, 6.1% (3) find them somewhat relevant, and 4.1% (2) view them as irrelevant.

**Effectiveness for Personalized Learning:** When assessing the effectiveness of ICT integration in promoting personalized learning experiences, 44.9% (22) of the Pre-service teachers reported it as very effective, while another 44.9% (22) found it extremely effective. A smaller percentage, 6.1% (3), considered it effective, and 4.1% (2) found it somewhat effective. Notably, no respondents deemed it ineffective.



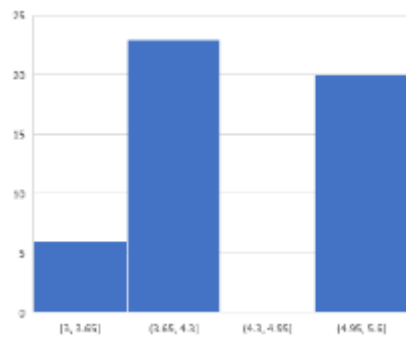
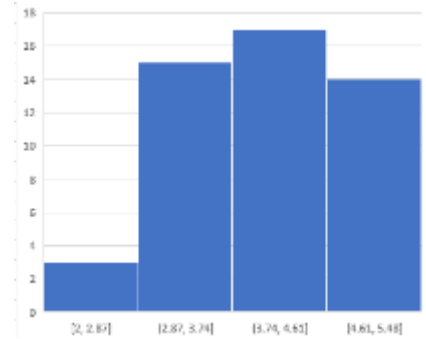
**Institutional Support:** In terms of institutional support for ICT infrastructure and training, 20.4% (10) of the Pre-service teachers reported it as mostly comprehensive, and 22.4% (11) found it very comprehensive. However, 32.7% (16) rated it as partially comprehensive, 22.4% (11) as rarely comprehensive, and 2% (1) as not comprehensive at all.

**Alignment with NEP 2020 Goals:** The survey revealed that 42.9% (21) of the Pre-service teachers completely agree that ICT integration aligns with the broader goals of NEP 2020 in fostering critical thinking and problem-solving skills. Another 42.9% (21) agreed, 8.2% (4) partially agreed, 4.1% (2) rarely agreed, and 2% (1) did not agree at all.



**Comfort with Troubleshooting ICT Issues:** When asked about their comfort level in troubleshooting ICT-related issues during teaching sessions, 20.4% (10) of the Pre-service teachers reported being very comfortable, while 36.7% (18) were comfortable. Additionally, 13.6% (7) were partially comfortable, 10.2% (5) were rarely comfortable, and 2% (1) were not comfortable at all.

**Awareness of Ethical Considerations:** The survey results indicate that 28.6% (14) of the Pre-service teachers are completely aware of the ethical considerations related to ICT usage in educational settings, as outlined in NEP 2020. Additionally, 34.7% (17) are aware, 30.6% (15) are partially aware, and 6.1% (3) are rarely aware.



**Willingness to Seek New ICT Resources:** Regarding their willingness to actively seek out new ICT tools and resources to enhance their teaching plans based on NEP 2020 principles, 40.8% (20) of the Pre-service teachers reported being very likely, while 46.9% (23) were likely. A smaller percentage, 12.2% (6), were partially likely, and none were unlikely or very unlikely.

## Discussion

The findings indicate a positive trend towards the adoption and integration of ICT tools in teaching plans among Pre-service teachers in Dehradun. The high confidence levels and perceived effectiveness of ICT in enhancing student engagement and personalized learning experiences reflect the successful dissemination of NEP 2020 guidelines. However, the variability in institutional support for ICT infrastructure and training underscores a significant challenge. Previous studies have shown that adequate support and resources are crucial for the successful implementation of ICT in education (Hew & Brush, 2007; Lawless & Pellegrino, 2007). The lack of comprehensive support observed in this study suggests that while Pre-service teachers are willing and able to integrate ICT, they require more robust infrastructural and training support to do so effectively.

## Conclusion

The study highlights the progress made by Pre-service teachers in Dehradun towards integrating ICT in line with NEP 2020. Despite challenges in infrastructure and support, the overall attitude towards ICT is positive, indicating a readiness to embrace modern educational technologies. Further investments in training and resources will be crucial in achieving the full potential of ICT integration in education. Ensuring that Pre-service teachers are well-equipped and supported will be key to realizing the broader goals of NEP 2020 in fostering a technologically advanced and critically thinking student body.

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#### Appendices:

Survey data was collected from Pre-service teachers at DIET, Dehradun.

<https://docs.google.com/spreadsheets/d/1f4FqvYm7uEQ7-6cALuySWPqSzyyFN5L/edit?usp=sharing&oid=101871309040236176376&rtpof=true&sd=true>