



BEYOND CHALKBOARD AND CLICKS: MAPPING TEACHERS'S DIGITAL READINESS UNDER NEP 2020

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Abstract:

The rapid digital transformation of education, strengthened by India's 2020 education reform policy, has redefined the role of teachers as facilitators of technology-enabled learning. As a result, digital literacy has emerged as a core professional competency, becoming essential for effective pedagogy in contemporary classrooms. In this context, the present study investigates the digital readiness of pre-service and in-service teachers and explores its relationship with digital competencies and teaching readiness. To achieve this objective, a quantitative descriptive research design was employed, and data were collected from 100 respondents using a five-dimensional Digital Literacy Assessment scale. Subsequently, the collected data were analyzed using descriptive statistics and independent-samples t-tests. The findings reveal no significant difference in the overall level of digital literacy between the two groups, suggesting convergence in basic digital competencies. However, dimension-wise analysis indicates uneven development, with strengths in digital communication and cyber safety and persistent gaps in digital content creation and technology-integrated pedagogy. Significant differences in teaching readiness in favor of in-service teachers, underscoring the pedagogical value of professional experience. Moreover, a strong association between digital literacy and teaching readiness underscores digital competence as a pedagogical enabler rather than merely a technical skill. The study concludes that a shift from fragmented, operational training toward practice-embedded professional development, aligned with the Technological Pedagogical Content Knowledge (TPACK) framework, is essential to bridge the gap between 'clicking' and 'teaching'

Keywords: Digital Literacy; NEP 2020; Teacher Education; Teaching Readiness; Educational Technology.

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1. Introduction

Imagine classrooms where chalk dust gives way to digital interfaces and rote memorization is replaced by collaborative, technology-driven learning. This shift has been formally reinforced through the National Education Policy 2020, which redefines teachers as facilitators of dynamic, technology-integrated learning environments while also emphasizing digital infrastructure, technology-enabled pedagogy, and continuous professional development. NEP 2020 envisions teachers as digitally competent professionals capable of integrating technology meaningfully into classroom instruction rather than merely using it as an auxiliary tool (Panda, 2025).

Digital readiness extends beyond basic operational skills and encompasses teachers' ability to design digital content, ensure ethical and safe technology use, and apply digital tools pedagogically to enhance learning outcomes. Despite increased access to digital resources, empirical evidence suggests that teachers often struggle with higher-order pedagogical integration of technology. Understanding teachers' digital competence and their preparedness to teach in digitally enriched environments is, therefore, critical for achieving the transformative goals of the National Education Policy 2020.

According to the TPACK framework proposed by Mishra and Koehler (2006), which integrates technological, pedagogical, and content knowledge, prior research indicates moderate levels of digital literacy alongside persistent gaps—pre-service teachers often struggle with practical application, while in-service teachers tend to refine these skills through classroom experience. NEP 2020 amplifies this urgency, targeting universal digital infrastructure through the National Educational Technology Forum (NETF) and platforms like DIKSHA, yet empirical gaps endure: Do foundational strengths in cyber ethics mask deficits in creative tool-building? Does experience truly bridge the divide?

In this context, this study explores digital readiness among pre-service and in-service teachers and examines how digital literacy relates to teaching readiness. By situating the analysis within the policy framework of the National Education Policy 2020, the study contributes evidence-based insights relevant for teacher education institutions, policymakers, and educational stakeholders.

2. Objectives

1. Assess the level of digital literacy among pre-service and in-service teachers.
2. Examine dimension-wise digital literacy of teachers.
3. To examine differences in digital literacy between pre-service and in-service teachers.
4. Assess teachers' level of teaching readiness.
5. To analyze the relationship between digital literacy and teaching readiness among teachers.

3. Hypotheses

H₀₁: There is no significant difference in the level of digital literacy between pre-service and in-service teachers.

H₀₂: There is no significant difference in the dimension-wise digital literacy among teachers.

H₀₃: There is no significant difference in digital literacy between pre-service teachers and in-service teachers.

H₀₄: There is no significant difference in the level of teaching readiness among teachers.

H₀₅: There is no significant relationship between digital literacy and teaching readiness among teachers.

4. Methodology

4.1 Research Design: A quantitative descriptive research design was used to systematically examine teachers' digital competence and their preparedness for instruction in accordance with the provisions of NEP 2020.

4.2 Method: The survey method was employed for data collection using standardized self-developed tool.

4.3 Population and Sample: The population for the study consisted of both pre-service and in-service teachers. Participants were selected through a random sampling method. A total of 100 participants were included from various departments, with equal representation of 50 in-service teachers and 50 pre-service teachers enrolled in teacher education programmes (B.Ed. and M.Ed.) at Aligarh Muslim University.

4.4 Tools Used for Data Collection: The Digital Literacy Scale was used as given below:

The Digital Literacy Scale: A self-developed scale was developed by the first author to collect data on teachers' digital literacy and its related dimension. The scale consisted of 50 items including both positively and negatively worded statements, distributed across five dimensions: Information and Data Literacy (10 items), Digital Communication and Collaboration (10 items), Digital Content Creation (10 items), Cyber Safety and Ethics (10 items), and Technology-Integrated Pedagogy (10 items).

Responses were measured using a five-point Likert scale consisting of Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree.

To ensure standardization, the instrument was subjected to expert validation for content relevance, clarity, and representativeness. A pilot study was conducted on a sample similar to the target population to evaluate the feasibility and comprehensibility of the items, leading to necessary revisions. Construct validity was maintained through alignment of items with the defined dimensions, and a standardized scoring procedure was followed. These steps ensured that the tool was appropriate and suitable for assessing teachers' digital readiness for research purposes.

However, advanced statistical measures of reliability and factor analysis may be undertaken in future researches.

4.5 Data Collection Procedure: Data were collected in two distinct phases using self-developed, validated questionnaire (Digital Literacy Scale), ensuring systematic coverage of both teacher groups (In-service & Pre-service).

Phase 1: In-Service Teachers

The researchers visited various departments at Aligarh Muslim University including Department of Education AMU and personally administered questionnaires to 60 in-service teachers. Data from 50 participants was received. Informed consent was obtained, purpose explained, and 45-60 minutes allotted for completion. Response rate was 83% and questionnaires were collected on-site within two to three weeks to minimize recall bias.

Phase 2: Pre-service Teacher

Subsequently, 50 pre-service teachers from B.Ed. and M.Ed. programmes at Aligarh Muslim University data were collected during class sessions. Similar protocols ensured ethical compliance, with digital forms offered for flexibility. Data collection spanned two to three weeks, yielding full participation amid academic schedules.

4.6 Scoring Procedure: Positive items were scored from 5 to 1, while negative items were reverse-scored. Digital Literacy max=250, min=50. Higher scores indicated higher levels of digital literacy and teaching readiness.

Statistical tools used for data analysis

The data were analyzed using descriptive statistical methods such as mean and standard deviation. In addition, t-tests were applied to determine and compare differences and relationships between pre-service and in-service teachers.

Analysis and Results

Objectives 1: Assess the level of digital literacy among pre-service and in-service teachers.

H₀₁: There is no significant difference in the dimension-wise digital literacy among teachers.

Table: 1

Group	N	Mean	SD	df	t-value	Critical Value	
						0.01	0.05
Pre-service teachers	50	3.96	2.33	98	1.26	1.98	2.63
In-service teachers	50	4.3	2.83				

Table 1 indicates that the obtained t-value for digital literacy levels between pre-service and in-service teachers is not significant at both the 0.01 and 0.05 levels of significance. Therefore, the null hypothesis is accepted, suggesting that there is no significant difference between the two groups. This further implies that the digital literacy levels of pre-service and in-service teachers are comparable.

Objective 2: Examine teachers' digital literacy dimension-wise.

H₀₂: There is no significant difference in the dimension-wise digital literacy among teachers.

Table: 2

Group	N	Mean	SD	df	t-value	Critical Value	
						0.01	0.05
Pre-service teachers	50	4.33	2.01	98	4.74	1.98	2.63
In-service teachers	50	9.83	7.34				

Table 2 reveals that the obtained t-value for the dimension-wise comparison of digital literacy between pre-service and in-service teachers is significant at both the 0.01 and 0.05 levels, as it is higher than the corresponding critical values. Consequently, the null hypothesis is rejected at both levels of significance. This indicates that there is a statistically significant difference in the dimension-wise digital literacy of pre-service and in-service teachers.

Objectives 3: To examine differences in digital literacy between pre-service and in-service teachers.

H₀₃: There is no significant difference in digital literacy between pre-service teachers and in-service teachers.

Table: 3

Group	N	Mean	SD	df	t-value	Critical Value	
						0.01	0.05
Pre-service teachers	50	1.52	3.71	98	3.28	1.98	2.63
In-service teachers	50	6.70	8.05				

Table 3 indicates that the obtained t-value for comparing digital literacy between pre-service and in-service teachers is significant at both the 0.01 and 0.05 levels of significance. Accordingly, the null hypothesis is rejected, showing a significant difference between the two groups. This implies that the digital literacy levels of pre-service and in-service teachers differ in a meaningful way.

Objective 4: Assess teachers' level of teaching readiness.

H₀₄: There is no significant difference in the level of teaching readiness among teachers.

Table: 4

Group	N	Mean	SD	df	t-value	Critical Value	
						0.01	0.05
Pre-service teachers	50	2.29	1.04	98	7.33	1.98	2.63
In-service teachers	50	8.45	5.61				

Table 4 indicates that the obtained t-value for the level of readiness between pre-service and in-service teachers is significant at both the 0.01 and 0.05 levels of significance. Therefore, the null hypothesis is rejected at both levels, suggesting a significant difference between the two groups. This implies that the level of readiness of pre-service and in-service teachers differs significantly.

Objective 5: To analyze the relationship between digital literacy and teaching readiness among teachers.

H₀₅: There is no significant relationship between digital literacy and teaching readiness among teachers.

Table:5

Group	N	Mean	SD	df	t-value	Critical Value	
						0.01	0.05
Pre-service teachers	50	4.02	1.11	98	3.04	1.98	2.63
In-service teachers	50	5.42	3.41				

Table 5 indicates that the obtained t-value regarding the relationship between digital literacy and teaching readiness among pre-service and in-service teachers is significant at both the 0.01 and 0.05 levels of significance. Accordingly, the null hypothesis is rejected at both levels, suggesting a significant difference between the two groups. This implies that the relationship between digital literacy and teaching readiness varies significantly for pre-service and in-service teachers.

Discussion: The findings of the study complicate the assumption that teaching experience alone guarantees superior digital competence. The absence of a statistically significant difference in digital literacy levels between pre-service and in-service teachers suggests a convergence in baseline digital skills, likely influenced by the pervasive digitization of everyday life. This convergence aligns with arguments that access to technology has become democratized, while pedagogical mastery remains uneven (Selwyn, 2016). However, the dimension-wise variations highlight a deeper structural issue. Teachers' relative strength in cyber safety and digital communication reflects compliance-driven and awareness-oriented training models, whereas weaknesses in digital content creation and technology-integrated pedagogy point to systemic deficiencies in teacher education curricula. These findings reinforce critiques that digital initiatives often prioritise operational competence over pedagogical transformation (Redecker, 2017). The significant differences observed in teaching readiness underscore the epistemic value of practice-based learning. In-service teachers' higher readiness levels suggest that pedagogical confidence emerges through situated engagement rather than formal training alone. Furthermore, the significant relationship between digital literacy and teaching readiness affirms that digital competence acts as an enabler of effective teaching practice rather than being merely a technical skill.

Conclusion: This study contributes to the growing discourse on digital education by offering empirical evidence that challenges technologically deterministic assumptions embedded within contemporary policy narratives. While teachers across career stages demonstrate comparable levels of general digital literacy, disparities in pedagogical readiness and advanced digital competencies reveal persistent structural and curricular gaps. The study concludes that digital readiness is a relational and developmental construct, shaped by experience, pedagogical orientation, and institutional support. Achieving the aspirations of NEP 2020, therefore, requires a shift from fragmented digital training toward coherent, theory-informed, and practice-embedded professional

development models. By grounding digital literacy in pedagogical readiness, this research advances a more critical, context-sensitive understanding of teacher preparedness and provides practical implications for policymakers, teacher educators, and institutions committed to sustainable digital transformation in education.

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