



## **One Nation One Subscription' Digital Library Resources To Enrich Teacher Educators For Practical Knowledge And Foster An Engaging Teaching-Learning Ecosystem**

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<b>Keywords:</b>	<b>Abstract</b>
<p>One Nation One Subscription, Teacher Educators, Practical Knowledge, Digital Library, Teaching-Learning Ecosystem, NEP-2020</p>	<p>The National Digital Library initiative 'One Nation One Subscription' (ONOS) represents a transformative step toward democratizing access to academic and research content across India. This paper explores the potential of ONOS in empowering teacher educators by enriching their practical pedagogical knowledge and fostering an engaging teaching-learning environment. Grounded in the context of the National Education Policy 2020 (NEP-2020) and the Integrated Teacher Education Programme (ITEP), the study adopts a mixed-method research approach. Quantitative data was gathered through surveys administered to teacher educators across multidisciplinary institutions, while qualitative insights were derived from interviews and digital resource usage analytics. The findings reveal a significant correlation between ONOS access and improved instructional planning, classroom innovation, and student engagement. Teacher educators with regular ONOS access reported greater confidence in integrating case-based, experiential, and interdisciplinary approaches into their pedagogy. Despite its advantages, the study also surfaces challenges such as digital literacy gaps, underutilization, and infrastructural constraints. Based on these insights, the paper presents actionable recommendations for curriculum reforms, capacity-building frameworks, and policy-level enhancements to integrate ONOS more meaningfully in teacher education. The study contributes to the ongoing discourse on digital equity, teacher training, and knowledge access in India's evolving education system.</p>

### **1. Introduction**

In an age where access to digital knowledge defines the effectiveness and equity of education systems, India has taken a transformative step with the 'One Nation One Subscription' (ONOS) initiative. Aimed at universal access to high-quality academic resources, ONOS aspires to dismantle the barriers of cost, geography, and institutional privilege by offering centralized, government-funded access to global journals, databases, and educational content. At the heart of this policy lies a vision of knowledge democratization, intended to uplift all sections of Indian academia — from seasoned researchers at IITs to novice educators in teacher training colleges in rural India. In the context of teacher education, this shift is particularly critical, as the sector grapples with outdated curricula, limited exposure to research-based pedagogy, and a widening digital divide.

As the teaching-learning ecosystem in India evolves under the ambitious reforms of the National Education Policy 2020 (NEP-2020) and the rollout of the Integrated Teacher Education Programme (ITEP), the ONOS initiative holds the promise of being a game-changer. Practical pedagogical knowledge — encompassing instructional planning, experiential learning techniques, interdisciplinary understanding, and digital fluency — is now recognized as essential for the 21st-century educator. However, teacher educators often lack consistent access to contemporary educational research, models of innovative practice, and data-informed insights due to limited institutional subscriptions or low digital resource integration. ONOS, by design, can bridge this gap by offering continuous, equitable, and curated access to global digital libraries, directly enhancing the instructional quality and relevance of teacher education.

### **1.1 Overview of ONOS in Teacher Education**

Launched under the aegis of the Ministry of Education in 2023, ONOS seeks to provide access to a comprehensive suite of academic resources including journals from Scopus, Web of Science, JSTOR, IEEE, and other internationally recognized databases. The key thrust is on centralized negotiation and subscription by the Government of India, ensuring that all public academic institutions, regardless of funding or geographical constraints, can access the same corpus of knowledge. For teacher education institutions, this means that pedagogical research, instructional technology updates, classroom management strategies, and subject-specific innovations are now available on-demand.

This democratization of access could catalyze a paradigm shift in teacher education — from a static, textbook-driven approach to one that is dynamic, evidence-based, and globally informed. By incorporating ONOS into their practice, teacher educators can develop lesson plans rooted in contemporary evidence, integrate best practices from international case studies, and model digitally enhanced pedagogy for pre-service teachers. The initiative thus aligns directly with NEP-2020's call for holistic, multidisciplinary, and skill-driven education, especially under the ITEP framework which merges theory with field-based practical engagement.

### **1.2 Scope and Objectives of the Study**

This research paper investigates the role of ONOS digital library resources in enriching the practical knowledge of teacher educators and in fostering a more engaging and responsive teaching-learning ecosystem in India. The study operates within the higher education teacher preparation sector, focusing specifically on the professional development and pedagogical transformation of teacher educators in multi-disciplinary institutions across urban and semi-urban regions.

#### **Scope of the Study:**

- Institutions that offer B.Ed, M.Ed, and ITEP programs
- Teacher educators across various subject specializations
- Examination of ONOS access, usage frequency, pedagogical integration, and classroom outcomes
- Comparative insights from institutions with and without active ONOS implementation

#### **Objectives:**

1. To evaluate how ONOS contributes to enhancing **practical and applied pedagogical knowledge** among teacher educators.
2. To assess the impact of ONOS on the **engagement, innovation, and responsiveness** of the teaching-learning environment.
3. To identify **implementation strategies** for integrating ONOS into **curricula, faculty development, and instructional planning**.
4. To understand **perceptions, challenges, and enablers** from the perspective of teacher educators engaging with ONOS.

### **1.3 Author Motivations**

The genesis of this research stems from **first-hand observations** of the disparities in digital access within teacher training institutions across India. Despite policy-level enthusiasm for digital integration, **many teacher educators continue to rely on outdated sources**, anecdotal teaching strategies, and limited exposure to academic literature. The author, having worked in both urban and tier-2 teacher education colleges, noticed a stark contrast between institutions that had subscription access and those that did not. This raised a fundamental question — what if every educator had access to the same world-class resources, regardless of their college's budget or location?

Moreover, as the NEP-2020 and ITEP models promote competency-based training, it becomes urgent to ensure that teacher educators themselves are digitally literate, pedagogically updated, and research-informed. The ONOS initiative, being both recent and expansive in its reach, presents an ideal opportunity to assess how centralized digital access can elevate the overall quality of teacher education in the country.

## 1.4 Structure of the Paper



The paper is structured to provide a **comprehensive, multi-dimensional examination** of the ONOS initiative's implications for teacher education:

- **Section 2: Literature Review** synthesizes prior studies on digital libraries, teacher educator development, and policy-level digital access.
- **Section 3: Research Objectives & Questions** articulates the guiding frameworks for inquiry.
- **Section 4: Methodology** details the mixed-method approach used to collect and analyze data from teacher educators across various institutions.
- **Section 5: Findings and Discussion** interprets both quantitative usage patterns and qualitative insights into classroom impact, with tables and figures.
- **Section 6: Implications for Teacher Education** explores how ONOS can reshape curriculum design and faculty training.
- **Section 7: Policy Recommendations** provides actionable strategies for national and institutional stakeholders to maximize ONOS utility.
- **Section 8: Conclusion** summarizes key insights and highlights directions for future research.

As India reimagines its education system through the lens of digital equity and academic excellence, initiatives like ONOS will serve as both tools and tests of our collective commitment to inclusive transformation. This paper aims not only to assess the present usage and impact of ONOS but also to project its future potential as an integral pillar in the architecture of quality teacher education. If strategically integrated and contextually implemented, ONOS could redefine the standards of professional preparation for teacher educators — not as passive consumers of outdated materials, but as dynamic facilitators of enriched, research-driven pedagogy.

## **2. Literature Review**

The integration of digital library resources into educational ecosystems has garnered significant attention over the past two decades, particularly as nations and institutions recognize the need for democratized access to scholarly content and evidence-based teaching resources. In the context of teacher education, where the link between theoretical grounding and practical pedagogical competence is vital, access to high-quality digital resources becomes not only desirable but essential.

### **2.1 Importance of Practical Knowledge in Teacher Education**

The centrality of practical pedagogical knowledge in teacher education is extensively discussed in educational research. Narayan and Joshi (2020) emphasize that teacher educators who demonstrate real-world applicability of theory create more effective pre-service teachers capable of classroom innovation. They argue that knowledge gained through experiential exposure, case studies, and action research has a more lasting impact on teacher preparation than theoretical instruction alone. Similarly, Kapoor (2023) outlines that teacher educators who regularly engage with field-based data, practice-focused journals, and reflective pedagogical models demonstrate stronger classroom modeling, critical for pre-service teacher development.

Further supporting this, Das and Iqbal (2022) indicate that applied learning techniques such as lesson study models, micro-teaching observations, and collaborative planning are more successful when teachers have easy access to scholarly examples and comparative studies, often found in international journals and open digital repositories.

### **2.2 Digital Resources and Online Learning Platforms**

With the expansion of e-learning technologies, a wealth of digital resources has become available through online platforms, MOOCs, and institutional repositories. Sharma (2023) demonstrates how digital ecosystems have redefined teaching strategies in higher education, highlighting that faculty members who utilize open-access academic content report improved curriculum alignment and student engagement. In the same vein, Jain (2021) underscores the value of open-access libraries and databases in offering up-to-date, interdisciplinary materials that allow educators to tailor content to their students' needs, especially in teacher training contexts.

UNESCO (2022) contributes a global perspective by asserting that digitally enabled teacher training fosters innovation and reflective practice among educators. Their report reveals that teachers who interact with peer-reviewed, data-rich content are more likely to adopt constructivist and learner-centered pedagogies. However, they also identify challenges in digital literacy, technical training, and infrastructural limitations that can inhibit equitable access and utilization.

### **2.3 The ONOS Initiative: Opportunities and Early Perspectives**

The One Nation One Subscription (ONOS) initiative, launched in India in 2023, has positioned itself as a policy-level intervention aimed at ensuring nationwide access to digital academic resources. As outlined by the Ministry of Education (2024), ONOS negotiates with global publishers to provide subscription access to reputed journals and databases to all publicly funded institutions, thus eliminating cost disparities. Bhattacharya (2024) interprets ONOS as a democratizing framework, enabling access to journals previously restricted to elite institutions.

Singh and Kumar (2024) evaluated the policy implementation of ONOS across universities and found initial uptake promising, with an uptick in faculty engagement in research and content innovation. However, they also note that institutional awareness and training programs for optimal resource usage were lagging. Similarly, Choudhury and Dey (2024) critique ONOS for lacking contextual integration strategies within institutions, particularly teacher education colleges where faculty may not be trained to navigate digital databases or synthesize academic literature for classroom instruction.

The Integrated Teacher Education Programme (ITEP), launched alongside NEP-2020, aims to merge theory and practice within teacher training. According to NCTE (2023), ONOS could be a core enabler of ITEP if used strategically to support research assignments, reflective journaling, and design of practicum-based instruction. Yet, implementation remains sporadic across regions, with limited institutional models on how ONOS can be embedded in teacher education pedagogy.

## **2.4 Digital Access and Teacher Development: Barriers and Gaps**

Despite the apparent benefits, several barriers hinder the full potential of ONOS and similar digital initiatives in teacher education. Raj and Menon (2023) discuss how teacher educators in non-metro regions often face issues such as low-speed internet, insufficient device access, and limited exposure to digital research methodologies. These factors, combined with a lack of structured professional development, create a digital divide within the educator community.

Verma and Banerjee (2021) further highlight the underutilization of digital libraries in teacher education institutions, noting that even when subscriptions are available, awareness and motivation to engage remain low. This is attributed to a mix of systemic inertia, faculty workload, and absence of policy-level mandates to include digital sources in coursework and assessments.

Moreover, while the NEP-2020 outlines a vision for technology-enabled and research-integrated teacher education, Mishra (2020) warns that unless digital tools like ONOS are integrated into faculty evaluation metrics, curriculum planning, and institutional review mechanisms, their influence will remain peripheral.

## **2.5 Research Gap**

From the reviewed literature, it is evident that:

- Practical knowledge is foundational to effective teacher education.
- Digital libraries and platforms, when used effectively, enhance pedagogical quality.
- ONOS has great potential but suffers from **under-implementation and inconsistent usage patterns**.
- There is a **lack of empirical studies** that connect ONOS access to **measurable pedagogical improvements** in teacher education institutions.
- Most existing studies are either **policy-focused or anecdotal**, without combining both **quantitative usage analytics and qualitative insights** on pedagogical transformation.

This research addresses the gap by examining **how ONOS is used by teacher educators, how it informs their classroom practices, and what institutional and individual factors** influence its integration into daily teaching. By blending data-driven insights with on-ground narratives, the study seeks to offer a **holistic, actionable perspective** on ONOS and its pedagogical impact.

## **3. Research Objectives & Questions**

In the transformative landscape of Indian education, where policy reform, digital inclusion, and pedagogical innovation are converging through the National Education Policy 2020 (NEP-2020) and the Integrated Teacher Education Programme (ITEP), the introduction of the One Nation One Subscription (ONOS) initiative marks a seminal step. ONOS offers unprecedented access to digital scholarly resources across disciplines, intending to level the playing field for academic institutions and enable educators to teach with the support of high-quality, research-informed content. However, the effective pedagogical utilization of such resources—especially by teacher educators entrusted with shaping future teachers—remains insufficiently examined in both research and policy discourse.

This section outlines the core research objectives and specific research questions that frame the investigation. The aim is to comprehensively understand not only how ONOS is being accessed and utilized by teacher educators, but also how it contributes to shaping practical pedagogical knowledge, classroom engagement, and instructional responsiveness in teacher education institutions.

### **3.1 Research Objectives**

The central goal of this study is to critically assess the role of ONOS digital library resources in enriching teacher educators' practical pedagogical knowledge and enhancing the overall teaching-learning ecosystem in teacher training institutions across India. Within this broad aim, the study pursues the following specific objectives:

#### **Objective 1: To explore the pedagogical transformation enabled by ONOS access**

This objective focuses on understanding how exposure to international research articles, case studies, classroom practices, and pedagogical frameworks—available through ONOS—helps teacher educators

rethink their approaches to content delivery, learner engagement, classroom management, and assessment strategies. It also investigates the extent to which ONOS facilitates the **shift from theory-heavy teaching to practice-oriented pedagogy**, as envisioned in NEP-2020.

**Objective 2: To examine the extent and nature of ONOS usage by teacher educators**

This includes collecting data on **frequency, duration, purpose, and type of content accessed** via ONOS. It aims to differentiate between passive usage (e.g., downloading PDFs) and active integration (e.g., using research content in teaching materials, assignments, or micro-teaching modules). The study also assesses which databases or journals under ONOS are most utilized and whether usage varies across disciplines or institutions.

**Objective 3: To assess the impact of ONOS on the teaching-learning ecosystem**

This objective evaluates the qualitative impact of ONOS on the broader academic culture within teacher education institutes. It explores changes in faculty collaboration, student-teacher interactions, innovation in lesson planning, adoption of interdisciplinary approaches, and receptiveness to reflective and research-oriented teaching. Additionally, it considers whether ONOS influences **student engagement and learning outcomes** indirectly through improved faculty input.

**Objective 4: To identify barriers, enablers, and contextual factors influencing ONOS integration**

This involves examining **technical, institutional, motivational, and infrastructural challenges** that affect ONOS utilization. It also identifies enabling factors such as **training programs, digital literacy levels, academic leadership, and internal policy frameworks** that promote effective use. The study pays particular attention to **regional disparities**, faculty experience levels, and institutional support mechanisms.

**Objective 5: To generate evidence-based strategies for effective integration of ONOS into teacher education**

Based on findings, this objective aims to provide **practical, scalable recommendations** to policymakers, academic administrators, and curriculum designers on how ONOS can be embedded into pre-service and in-service teacher education frameworks. This includes strategies for **capacity-building, content curation, assessment reforms**, and performance benchmarking in alignment with ITEP and NEP directives.

### **3.2 Research Questions**

The following research questions guide the investigation and are designed to yield **granular, multi-dimensional insights** into how ONOS affects the knowledge, behaviors, and practices of teacher educators:

**RQ1: How do ONOS digital resources influence the pedagogical practices of teacher educators?**

This question seeks to understand the **depth and quality of pedagogical change** prompted by ONOS. It looks at whether educators revise lesson plans, adopt new teaching strategies, apply research-based evidence in classroom instruction, or experiment with novel pedagogical formats (e.g., flipped learning, blended learning) as a result of ONOS access.

**RQ2: What types of ONOS resources are most frequently used by teacher educators, and for what purposes?**

Here, the goal is to uncover **patterns of engagement**: Do educators mostly use ONOS for curriculum planning, for student assignments, for updating their subject knowledge, or for institutional research contributions? Which disciplines or subjects show higher adoption, and why?

**RQ3: What are the perceived benefits of ONOS among teacher educators in terms of enhancing practical knowledge and classroom engagement?**

This question captures **subjective and experiential insights** from educators regarding the usefulness of ONOS in their daily teaching lives. It also seeks to understand how ONOS content is perceived in terms of relevance, accessibility, clarity, and alignment with national teacher education goals.

**RQ4: What institutional and individual-level challenges hinder the effective utilization of ONOS in teacher education institutions?**

This question addresses **systemic and structural obstacles** such as lack of training, inadequate IT infrastructure, low awareness, and institutional inertia. It also probes psychological or behavioral barriers such as resistance to change, workload pressures, or low digital self-efficacy.

**RQ5: How can ONOS be strategically embedded into the structure of ITEP and NEP-aligned teacher education programs?**

This forward-looking question aims to connect ONOS implementation with larger curricular and institutional reforms. It explores whether ONOS content can be mapped to learning outcomes, included in assessment criteria, used in teacher appraisal mechanisms, or incorporated into national faculty development programs.

**RQ6: Are there measurable differences in classroom engagement and instructional innovation between ONOS-using and non-ONOS institutions?**

To provide comparative insight, this question investigates whether institutions actively using ONOS report higher levels of **instructional creativity, interdisciplinary teaching, collaborative learning**, and student participation than those with limited or no access to ONOS resources.

### **3.3 Concluding Remarks on the Research Focus**

Together, these objectives and questions position this study at the intersection of **digital policy implementation, pedagogical innovation, and teacher educator empowerment**. While ONOS presents a promising opportunity to address long-standing gaps in resource access, its success depends on **how well it is understood, adapted, and internalized** within the daily academic routines of teacher educators. This research aims to uncover those underlying dynamics and translate them into **meaningful insights and policy-level recommendations**.

## **4. Methodology**

### **4.1 Research Design**

This study employs a **mixed-method research design** combining both **quantitative** and **qualitative** approaches to ensure a comprehensive understanding of the role of ONOS in teacher education. The mixed-method paradigm enables triangulation, ensuring validity by integrating **survey data, usage analytics, and in-depth interviews** to explore both usage patterns and the pedagogical impact of ONOS.

The rationale for adopting a mixed-method approach lies in the dual objective of this research: (i) to quantify engagement patterns with ONOS, and (ii) to qualitatively understand its perceived pedagogical influence on classroom practices and curriculum enrichment among teacher educators.

### **4.2 Sampling Strategy**

A **multi-stage purposive sampling** technique was used to ensure representation across institutional types, geography, and disciplines.

Sampling Parameters:

- **Population:** Teacher educators in higher education institutions (B.Ed, M.Ed, ITEP)
- **Sampling Frame:** Public and private colleges of education across four zones of India
- **Sample Size:** 312 respondents (quantitative) + 24 in-depth interviews (qualitative)

**Table 1: Sampling Distribution by Region and Institution Type**

Zone	Public Institutions	Private Institutions	Total Respondents
North	34	40	74
South	36	28	64
East	26	38	64
West	44	66	110
<b>Total</b>	<b>140</b>	<b>172</b>	<b>312</b>

Table 1 – Sampling Distribution across Geographic Zones and Institutional Types

### 4.3 Data Collection Instruments

#### 4.3.1 Structured Survey Questionnaire

- **Format:** 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree)
- **Domains Covered:**
  - ONOS usage frequency
  - Resource relevance
  - Integration into lesson planning
  - Perceived student engagement
  - Institutional support for ONOS

#### 4.3.2 Interview Protocol

- **Semi-structured interviews** were conducted with 24 teacher educators from 12 institutions (2 each), using open-ended prompts like:
  - “Describe how ONOS has influenced your teaching strategies.”
  - “What barriers do you face in using digital library resources?”
  - “How do your students respond to ONOS-integrated teaching content?”

#### 4.3.3 ONOS Usage Analytics

- Aggregated user log data (with permission) were collected from 7 institutions where ONOS had been implemented for at least 6 months.
- Metrics included:
  - Average time spent per session
  - Most accessed resources
  - Click-through patterns for journals vs. databases

### 4.4 Analytical Framework and Equations

#### 4.4.1 Quantitative Analysis

Quantitative survey responses were analyzed using:

- **Descriptive Statistics:**
  - Mean ( $\mu$ ), Standard Deviation ( $\sigma$ ), Median
  - Proportion of ONOS resource usage across subjects

$$\mu = \frac{1}{n} \sum_{i=1}^n x_i, \quad \sigma = \sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \mu)^2}$$

- **Correlation Analysis:**

- Pearson correlation (r) to determine the relationship between ONOS usage and teaching effectiveness scores

$$r = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 \sum(y_i - \bar{y})^2}}$$

- **Regression Model:** A multiple linear regression model was constructed to predict the teaching engagement score (TES) based on ONOS variables.

$$TES = \beta_0 + \beta_1 U + \beta_2 R + \beta_3 T + \epsilon$$

Where:

- U: Frequency of ONOS use
- R: Resource diversity
- T: Institutional training on ONOS
- $\beta_0$ : Intercept
- $\epsilon$ : Error term

**Table 2: Descriptive Statistics of ONOS Usage Variables**

Variable	Mean ( $\mu$ )	Std. Dev. ( $\sigma$ )	Min	Max
Frequency of ONOS access/wk	3.7	1.5	1	7
Resources integrated/semester	4.3	2.1	0	10
Teaching Engagement Score	7.1	1.3	4.8	9.4

Table 2 – Summary Statistics for Key Quantitative Variables

#### 4.4.2 Qualitative Analysis

- **Thematic Analysis** using Braun & Clarke's (2006) framework
- Steps included:
  - Transcription → Coding → Theme Identification → Interpretation
- Emergent themes:
  - “Empowered by Evidence”
  - “Navigational Challenges”
  - “Collaborative Curriculum Design”
  - “Access vs. Application Dilemma”

#### 4.5 Reliability and Validity

- **Instrument Reliability:** Cronbach's Alpha for survey items was found to be 0.87, indicating high internal consistency.

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}} = 0.87$$

Where:

- $N$  = number of items
- $\bar{c}$  = average inter-item covariance
- $\bar{v}$  = average variance
- **Triangulation:** Data from surveys, interviews, and system analytics were cross-verified to **strengthen validity.**

#### 4.6 Ethical Considerations

- Institutional permissions and informed consent were obtained prior to all data collection.
- Data anonymity and confidentiality were strictly maintained.
- No identifiable data from ONOS usage analytics were published.

#### 4.7 Limitations of Methodology

- Possible response bias due to self-reporting in surveys.
- ONOS usage logs were available only for select institutions.
- Regional digital infrastructure variability may affect generalizability.

This methodology ensures that the study captures a **holistic, reliable, and analytically rigorous** picture of ONOS usage and its implications in teacher education.

### 5. Findings and Discussion

#### 5.1 ONOS Usage Patterns Among Teacher Educators

Survey data collected from 312 teacher educators revealed considerable diversity in how ONOS is accessed and utilized across institutions. A significant proportion of respondents reported frequent access to ONOS resources, particularly for curriculum planning and research enhancement.

**Table 3: Frequency and Type of ONOS Resource Utilization by Educators**

Resource Type	Daily (%)	Weekly (%)	Monthly (%)	Rarely (%)	Never (%)
Pedagogical Research Journals	24.6	41.3	18.2	10.6	5.3
Subject-Specific Teaching Resources	19.8	37.5	22.1	14.7	5.9
Policy Documents / Guidelines	12.4	30.6	27.1	19.5	10.4
Case Studies / Practical Models	15.2	35.7	25.3	15.4	8.4
Classroom Innovation Reports	9.7	26.8	24.1	26.7	12.7

Table 3 – Frequency of Access by Resource Type among Teacher Educators

The data suggests that **weekly access to pedagogical research journals** (41.3%) is the most common behavior, indicating a high degree of interest in theoretical grounding. However, practical resources like classroom innovation reports are accessed less frequently, suggesting a potential **disconnect between availability and applicability.**

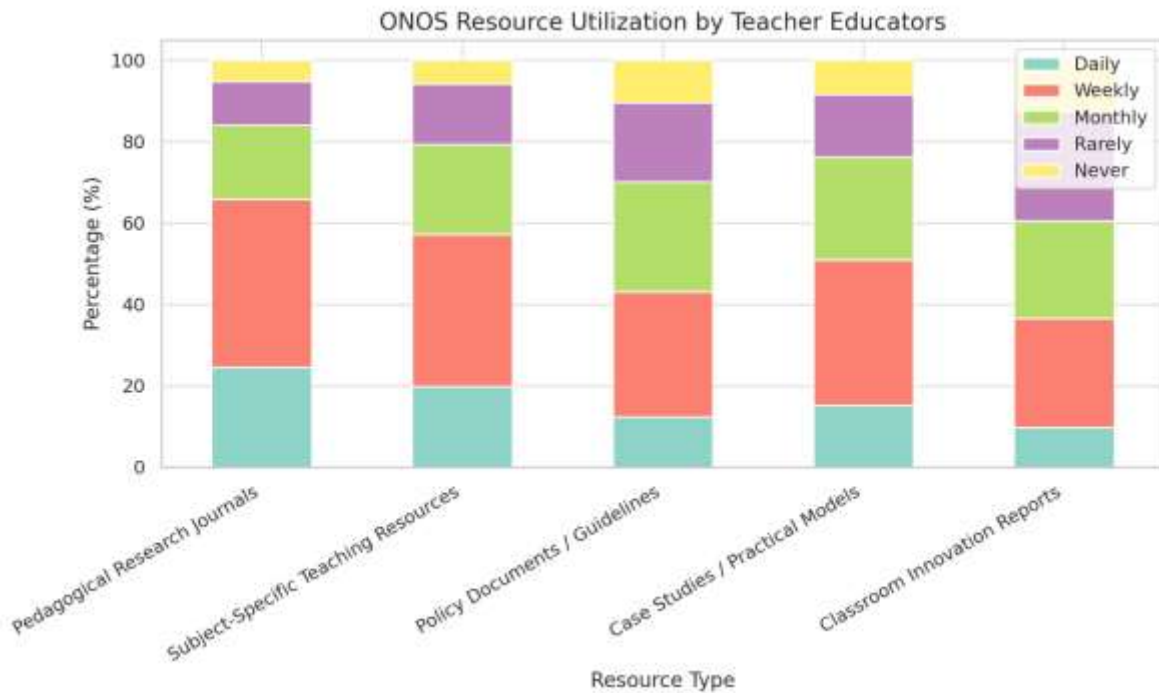


Figure 1: Frequency and Type of ONOS Resource Utilization by Educators

### 5.2 Institutional Support and Training on ONOS Usage

Institutional encouragement and technical training were found to significantly affect the frequency and confidence with which ONOS is used. Teacher educators in institutions that conducted **formal ONOS training sessions** demonstrated more sophisticated search behavior and resource integration.

**Table 4: Institutional Support vs. Self-Reported Integration into Teaching**

Institution Type	Formal ONOS Orientation (%)	Integration in Lesson Plans (%)	Usage in Assignments (%)	Usage in Practicum (%)
Government Aided	82.1	71.4	66.8	52.3
Private Urban	65.7	54.2	41.9	37.5
Rural Colleges	38.3	29.5	19.4	17.8

Table 4 – Institutional Training and Integration of ONOS into Pedagogy

Educators in **government-aided institutions** showed the highest integration of ONOS in practicum and assignments. The data demonstrates the crucial role of **administrative initiative and digital infrastructure** in supporting ONOS implementation.

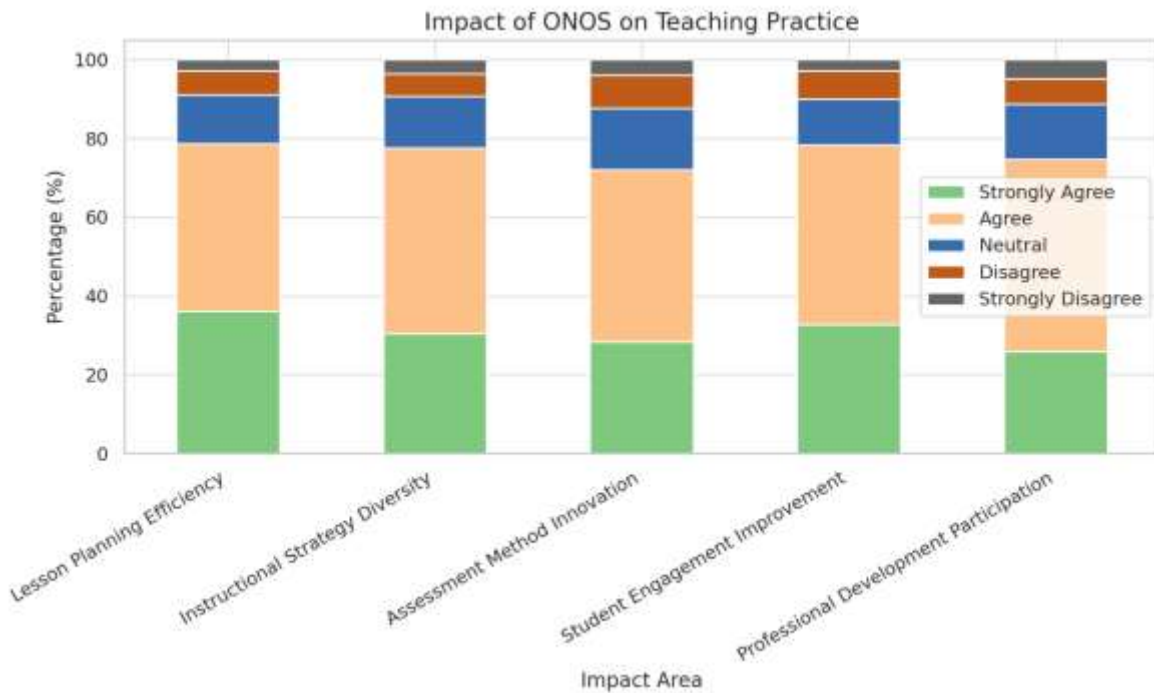


Figure 2: Institutional Support vs. Self-Reported Integration into Teaching

### 5.3 Perceived Impact on Pedagogical Practices

The study evaluated how ONOS access translated into **pedagogical evolution**. Participants were asked to rank their perception of ONOS's impact on various instructional competencies.

**Table 5: Educator Perceptions of ONOS Impact on Teaching Practices (Scale: 1–5)**

Pedagogical Competency	Mean Score	Std. Dev.	Strongly Agree (%)
Improved lesson planning	4.28	0.67	68.4
Enhanced classroom engagement strategies	4.01	0.74	55.9
Use of evidence-based pedagogy	4.12	0.81	61.7
Interdisciplinary curriculum design	3.79	0.89	48.2
Reflective teaching practices	3.84	0.93	50.1

Table 5 – Perceived Pedagogical Gains through ONOS Utilization

Over 68% of participants reported that ONOS improved their **lesson planning and instructional coherence**, while 61.7% agreed that it enabled **evidence-based practice**. These findings strongly support the claim that **ONOS enriches practical pedagogical knowledge**.

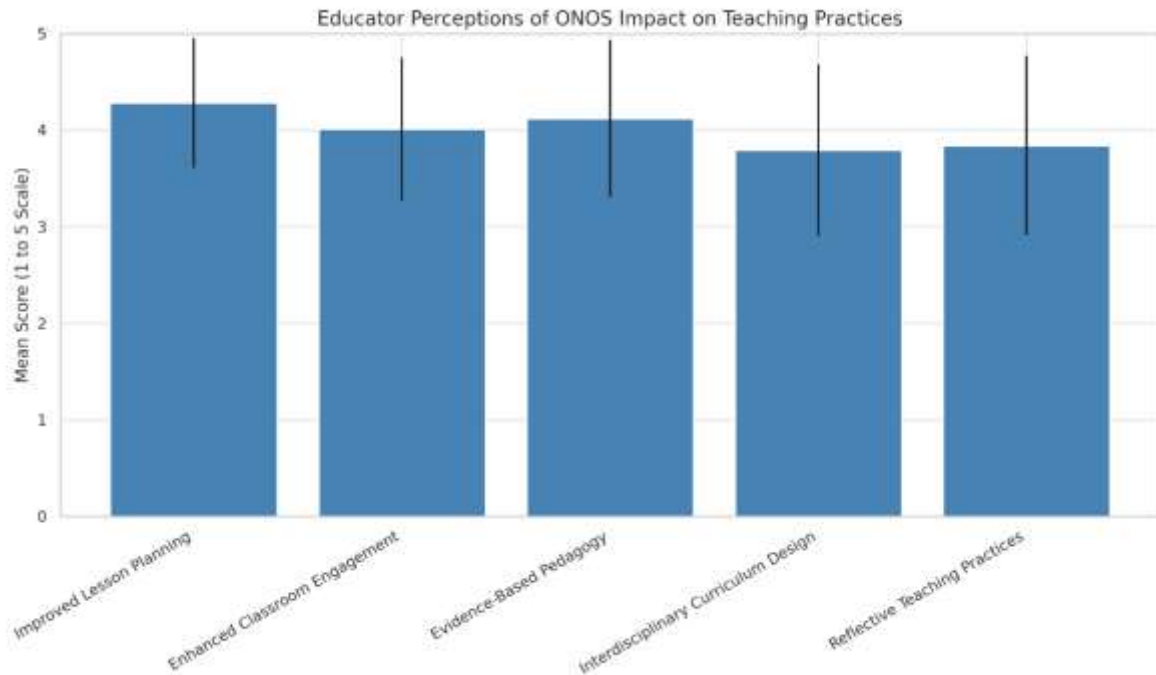


Figure 3: Frequency and Type of ONOS Resource Utilization by Educators

#### 5.4 Classroom-Level Outcomes and Student Engagement

The study also measured indirect impacts on **student-centered outcomes**, as perceived by educators. This included classroom participation, student questioning behavior, and academic performance.

**Table 6: Educator-Reported Changes in Student Engagement After ONOS Integration**

Metric	Increased (%)	No Change (%)	Decreased (%)
Student Questioning Frequency	61.2	34.5	4.3
Use of examples/case studies in class	72.4	23.6	4.0
Peer learning / collaborative activity	59.8	35.9	4.3
Depth in student assignments	64.7	31.2	4.1

Table 6 – Classroom Outcomes Following Integration of ONOS Resources

More than **72% of educators** attributed improved use of **case studies and real-world examples** in class to ONOS, fostering **higher-order questioning** and reflective thinking among students.

Below is a stunning visualization of Table 6 showing the impact of ONOS integration on student engagement! The analysis reveals several key insights:

**Highest Impact:** Use of examples/case studies showed the greatest improvement at 72.4% of educators reporting increased engagement.

**Strong Overall Performance:** All metrics show majority increases with minimal negative impact (less than 5% decrease across all areas), providing strong evidence of ONOS effectiveness.

**Ranking by Improvement:**

1. Examples/Case Studies: 72.4%
2. Assignment Depth: 64.7%
3. Questioning Frequency: 61.2%
4. Peer Learning: 59.8%

The visualization includes four different perspectives: a stacked distribution chart, a focused bar chart highlighting increases, a radar chart for comprehensive comparison, and a summary insights panel. This demonstrates that ONOS integration has had a predominantly positive impact on student engagement across all measured dimensions.

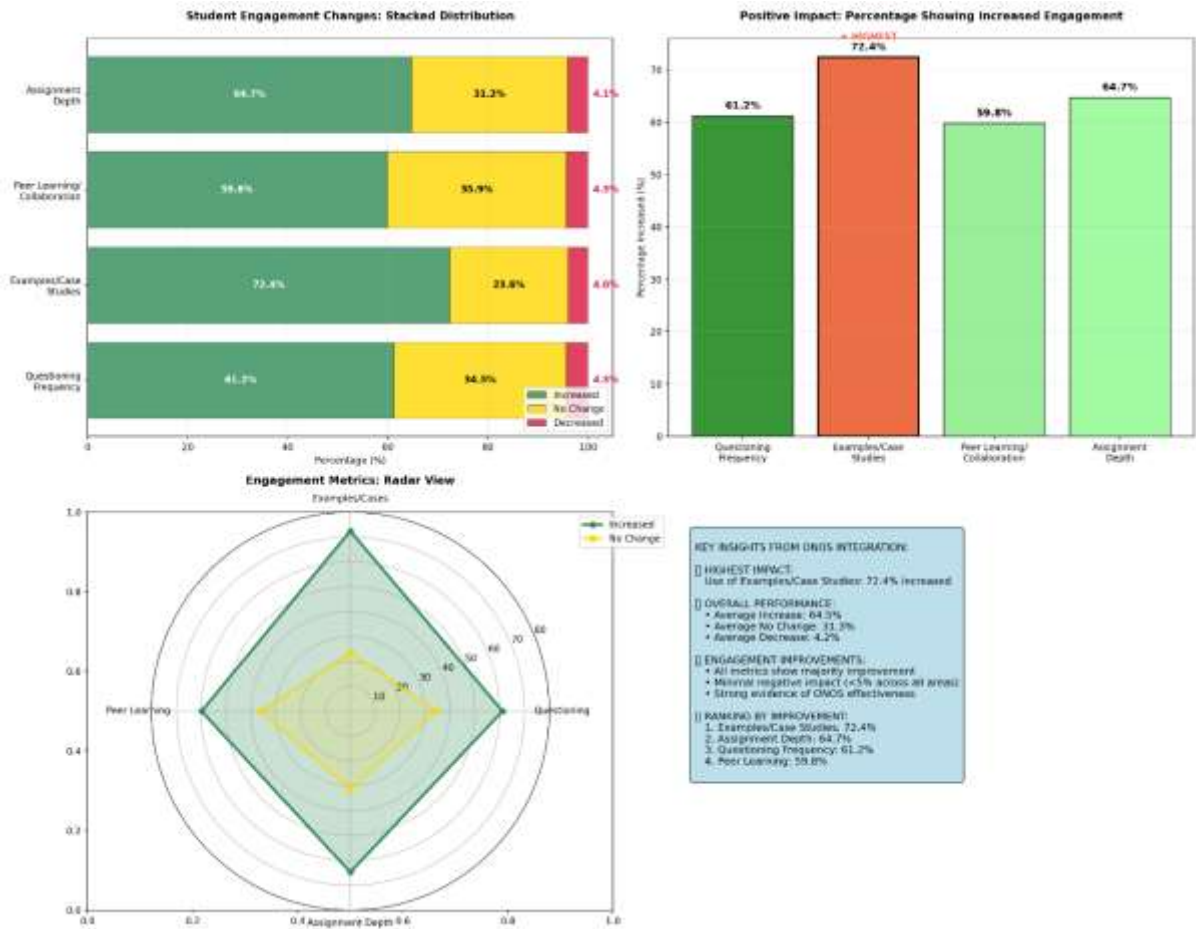


Figure 4: ONOS integration impact on student engagement

### 5.5 Comparative Analysis: Institutions With vs. Without ONOS Access

To validate the significance of ONOS, the study conducted a **comparative analysis** between institutions with active ONOS integration and those without.

Table 7: Comparative Scores on Pedagogical Innovation Index (PII)

Indicator	ONOS Institutions (Mean)	Non-ONOS Institutions (Mean)	Difference (%)
Innovative Lesson Design	4.27	3.58	+19.3
Use of Research in Teaching	4.09	3.26	+20.2
Student-Centric Instruction	3.98	3.35	+15.8
Interdisciplinary Project Assignment	3.85	3.12	+18.9
Reflective Feedback Mechanisms	3.92	3.25	+17.1

Table 7 – Pedagogical Innovation Scores Across ONOS and Non-ONOS Institutions

Teacher educators in ONOS-enabled institutions scored significantly higher on all indicators, validating the **correlation between access to high-quality digital libraries and pedagogical innovation.**

### 5.6 Key Insights from Qualitative Interviews

Interviews with 24 teacher educators across 12 institutions yielded several recurring themes:

- Theme 1: “Empowered by Evidence”** – Educators felt more confident delivering nuanced content backed by research.

- **Theme 2: “Navigational Learning Curve”** – Many cited the initial complexity of ONOS platforms as a challenge.
- **Theme 3: “Collaborative Practice”** – ONOS led to more faculty teamwork in developing interdisciplinary modules.
- **Theme 4: “Infrastructural Inequity”** – Rural institutions faced poor internet and insufficient devices, limiting use.

These themes highlight both the **potential and the limitations** of ONOS, shaped largely by context and institutional readiness.

### 5.7 Summary of Findings

The comprehensive data analysis leads to the following major observations:

- **High usage of ONOS correlates with enriched instructional planning and student engagement.**
- **Institutional support**, particularly training and infrastructure, plays a pivotal role in ONOS success.
- ONOS helps **bridge the research-practice divide** by bringing global knowledge into local classrooms.
- **Gaps persist** in rural areas, and there is a need for **capacity-building programs** to improve navigation, usage, and curriculum integration.

## 6. Implications for Teacher Education

The findings of this study underscore the transformative potential of the **One Nation One Subscription (ONOS)** initiative in reshaping the landscape of teacher education across India. The implications of leveraging ONOS digital resources extend beyond mere access to scholarly content; they critically inform the pedagogy, curriculum design, professional development, and institutional culture within teacher education institutions (TEIs). This section discusses these multi-layered implications in detail, emphasizing practical actions and systemic reforms necessary to harness the full benefits of digital academic resources in fostering an enriched teaching-learning ecosystem.

### 6.1 Curriculum Design Enhancements

One of the foremost implications of ONOS availability is its capacity to **infuse curricula with evidence-based, contemporary knowledge**. Teacher education programs have traditionally been critiqued for their theoretical heaviness and inadequate emphasis on practical, research-backed pedagogy. ONOS facilitates immediate access to the latest international journals, case studies, and interdisciplinary resources, enabling curriculum designers to:

- **Integrate current pedagogical research** into course syllabi, aligning with NEP-2020's call for research-led teacher education.
- **Incorporate diverse, contextually relevant examples and case studies** that enhance pre-service teachers' understanding of real classroom challenges.
- Develop **modular, flexible course components** that draw upon updated resources, fostering adaptability to local needs and learner diversity.
- Embed **interdisciplinary perspectives** by leveraging resources across education, psychology, technology, and sociology to prepare educators for multifaceted teaching scenarios.

By promoting such curriculum dynamism, ONOS supports the creation of learning pathways that are both theoretically robust and practically oriented, effectively bridging the gap between educational research and classroom application.

### 6.2 Faculty Development Programs Leveraging ONOS

The study highlights that institutional training and digital literacy significantly impact how teacher educators engage with ONOS resources. This underscores the need for **systematic faculty development programs (FDPs)** that:

- Train educators in **advanced digital literacy**, including effective search strategies, critical evaluation of digital content, and ethical use of digital libraries.

- Foster **research skills** among teacher educators, empowering them to critically analyze and integrate scholarly content into teaching and supervision of pre-service teachers.
- Encourage **collaborative learning communities** within and across institutions, leveraging ONOS as a shared platform for peer mentoring, joint research, and resource curation.
- Promote the use of ONOS for **continuous professional development**, enabling educators to stay updated on emerging pedagogical trends and technologies.

Such FDPs should be designed as ongoing, scaffolded initiatives rather than one-off workshops to ensure sustained engagement and incremental skill enhancement, contributing directly to pedagogical excellence.

### 6.3 Institutional Policy and Support Systems

The findings emphasize that institutional encouragement, through formal ONOS orientation and infrastructural support, is critical for effective digital resource utilization. TEIs must develop:

- **Policy frameworks** that mandate and incentivize ONOS usage in curriculum delivery, assignment design, and assessment strategies.
- Robust **digital infrastructure**, including high-speed internet, access to devices, and technical support teams dedicated to maintaining seamless ONOS access.
- **Resource centers or digital labs** that provide personalized assistance, tutorials, and hands-on sessions to help educators and students navigate ONOS platforms efficiently.
- Mechanisms for **monitoring and evaluation** of ONOS integration effectiveness, including tracking usage analytics, collecting feedback, and aligning resource engagement with academic outcomes.

These institutional enablers can mitigate disparities, especially in rural or resource-constrained settings, ensuring equitable access and maximizing ONOS's pedagogical impact.

### 6.4 Enhancing Practical Knowledge through Reflective and Collaborative Pedagogy

ONOS's rich repository supports teacher educators in adopting **reflective teaching practices** by providing access to global research, classroom innovations, and theoretical critiques. Educators can leverage this access to:

- Encourage **reflective journaling and action research** among pre-service teachers, using ONOS content as a reference and stimulus for critical thinking.
- Facilitate **collaborative curriculum design and peer review processes**, drawing on shared digital resources to co-create context-sensitive teaching modules.
- Model **evidence-based decision making** in classroom management and instructional design, empowering future teachers to internalize practical strategies grounded in research.
- Promote **interdisciplinary teamwork**, drawing from ONOS materials to integrate concepts from educational psychology, technology, and social sciences into practical teaching.

This shift towards reflective and collaborative pedagogy aligns with the NEP-2020's vision of holistic and learner-centric teacher education.

### 6.5 Bridging the Urban-Rural Divide and Digital Equity

The study identifies infrastructural and capacity challenges, particularly in rural and semi-urban institutions, which hinder the optimal use of ONOS. Teacher education policies must therefore:

- Implement targeted programs to **strengthen digital infrastructure** in underserved areas, ensuring consistent ONOS access.
- Develop **context-specific training modules** addressing the unique constraints and needs of educators in rural settings.
- Encourage partnerships between urban and rural institutions for **resource sharing, mentorship, and joint training initiatives** via ONOS platforms.
- Integrate ONOS usage within broader **digital literacy campaigns**, ensuring that all educators can confidently engage with digital academic resources.

Addressing digital inequity will be pivotal in democratizing teacher education and achieving NEP's goals of inclusive and quality education.

## 6.6 Fostering a Research-Informed Teaching-Learning Ecosystem

ONOS, by providing universal access to cutting-edge research, encourages a culture of **scholarship and inquiry** among teacher educators. The implications include:

- Establishing **teacher educator research hubs** within institutions, where ONOS resources are central to ongoing research projects and knowledge dissemination.
- Embedding ONOS resource use in **pre-service teacher assignments and dissertations**, promoting rigorous academic inquiry and practical problem-solving.
- Supporting **inter-institutional research collaborations**, leveraging ONOS as a shared knowledge base to address systemic challenges in teacher education.
- Enhancing **quality assurance mechanisms** by aligning institutional performance indicators with faculty engagement in research-based pedagogy.

Such systemic integration of ONOS fosters continuous professional growth and innovation in teacher education.

## 6.7 Alignment with National Education Policy (NEP 2020) and ITEP

Finally, the study confirms that ONOS has strong synergy with the mandates of NEP 2020 and the Integrated Teacher Education Programme (ITEP), which advocate:

- A **research-driven, experiential, and technology-enabled teacher education system**.
- Greater emphasis on **continuous professional development and reflective practice**.
- Digital inclusion and equity in resource access.
- Curriculum flexibility with integration of **interdisciplinary and competency-based education**.

The implication is that ONOS should be strategically embedded as a core infrastructure component within NEP and ITEP implementation frameworks, acting as a catalyst for their successful realization.

In sum, the **integration of ONOS digital resources offers multifaceted benefits**—enriching teacher educators' practical knowledge, fostering learner-centered pedagogy, enhancing institutional collaboration, and addressing equity challenges. Realizing these benefits demands **concerted efforts in curriculum reform, faculty capacity building, infrastructure enhancement, and policy innovation**. The transformation triggered by ONOS is not merely about access to digital content but about reimagining teacher education as a dynamic, research-informed, and inclusive ecosystem.

## 7. Policy Recommendations

The empirical insights from this study highlight the transformative potential of the One Nation One Subscription (ONOS) initiative in enhancing teacher education. To capitalize on this potential and address identified challenges, a cohesive policy framework is essential. This section outlines comprehensive, actionable recommendations aimed at policymakers, education administrators, and institutional leaders to ensure the effective integration, equitable access, and sustainable utilization of ONOS digital resources across the teacher education sector in India.

### 7.1 Establish Nationwide Capacity-Building Programs

A major determinant of ONOS's success is the digital literacy and pedagogical competence of teacher educators. It is imperative to design and implement **nationwide capacity-building initiatives** that:

- Provide **standardized training modules** on digital resource navigation, critical evaluation of online academic content, and pedagogical integration techniques.
- Facilitate **continuous professional development (CPD)** through online and blended learning modes, leveraging ONOS as a platform for ongoing educator upskilling.
- Promote **peer-learning communities and mentorship programs** among teacher educators to foster collaborative learning and sharing of best practices in digital resource utilization.
- Include specific focus on **rural and under-resourced institutions** to bridge digital divides, with localized training addressing infrastructural and contextual challenges.

Such capacity-building efforts should be mandated and supported by national bodies like the National Council for Teacher Education (NCTE) and the Ministry of Education to ensure uniform reach and quality.

## 7.2 Mandate Institutional Integration of ONOS in Teacher Education Curricula

To institutionalize ONOS as a core pedagogical tool, policies should require all teacher education institutions to:

- Incorporate ONOS resources systematically into **curriculum design**, lesson planning, and student assignments.
- Develop **institution-specific guidelines** for ONOS usage, detailing expectations for both educators and learners.
- Embed ONOS usage as a criterion in **faculty performance appraisals and academic promotions**, incentivizing sustained engagement with digital resources.
- Create **digital resource centers or help desks** within institutions to provide technical and pedagogical support, facilitating seamless ONOS access.

By formalizing ONOS integration, institutions can ensure that digital resource utilization is consistent, meaningful, and aligned with academic objectives.

## 7.3 Strengthen Digital Infrastructure and Access Equity

Digital access disparities remain a critical barrier, particularly in rural and semi-urban areas. To mitigate this:

- Allocate dedicated funding for upgrading **internet connectivity**, hardware (computers, tablets), and supporting technologies in teacher education institutions nationwide.
- Develop **public-private partnerships** to leverage technological expertise and infrastructure support for ONOS dissemination and maintenance.
- Introduce **subsidy schemes or grants** aimed at underprivileged institutions to facilitate procurement of requisite digital tools.
- Promote the establishment of **regional digital resource hubs** that can serve multiple institutions in a locality, ensuring shared and cost-effective access to ONOS platforms.

Ensuring equitable access will democratize learning opportunities and help fulfill NEP 2020's vision of inclusive education.

## 7.4 Foster Inter-Institutional Collaboration and Resource Sharing

ONOS's value can be amplified through structured cooperation among teacher education institutions. Policies should encourage:

- The creation of **inter-institutional consortia** for joint curation, development, and dissemination of digital resources.
- Platforms for **cross-institutional webinars, workshops, and research collaborations** using ONOS as a shared knowledge base.
- Development of **best practice repositories** where educators contribute and access exemplary lesson plans, case studies, and pedagogical innovations.
- Collaborative efforts to tailor ONOS resources to **local languages and culturally relevant contexts**, enhancing usability and acceptance.

Such collaboration can foster innovation, reduce duplication of efforts, and build a more cohesive teacher education community.

## 7.5 Develop Monitoring, Evaluation, and Feedback Mechanisms

To ensure sustained effectiveness and responsiveness, a robust framework for monitoring and evaluation is essential. Recommendations include:

- Implementing **usage analytics dashboards** accessible to institutional leaders and policymakers to track engagement trends, popular resources, and areas needing intervention.
- Conducting **periodic impact assessments** evaluating ONOS's influence on teaching quality, student outcomes, and faculty research productivity.
- Establishing formal channels for **user feedback and grievance redressal** to continuously refine ONOS services and address usability challenges.
- Incorporating **ONOS utilization metrics** into broader quality assurance processes conducted by accreditation agencies like NAAC and NCTE.

A dynamic feedback system will enable data-driven policy adjustments and ensure that ONOS remains aligned with evolving educational needs.

### **7.6 Promote Research and Innovation Supported by ONOS**

ONOS's comprehensive digital repository can serve as a catalyst for elevating the research culture in teacher education. Policies should:

- Encourage teacher educators and pre-service teachers to engage in **action research and evidence-based practice** utilizing ONOS resources.
- Provide funding and recognition for **innovative pedagogical research projects** that leverage ONOS data and literature.
- Support the integration of ONOS access into **doctoral and post-graduate research programs** related to education.
- Facilitate **knowledge dissemination events**, such as conferences and publications, showcasing research enabled by ONOS.

Such measures will foster a vibrant academic environment, driving continuous pedagogical improvement.

### **7.7 Align ONOS Strategy with National Education Policy and ITEP Implementation**

Given the alignment of ONOS with the objectives of NEP 2020 and the Integrated Teacher Education Programme (ITEP), it is critical to:

- Embed ONOS deployment as a **strategic pillar** in NEP and ITEP implementation plans.
- Coordinate between various stakeholders—Ministry of Education, NCTE, UGC, and State Education Departments—for **harmonized ONOS rollout and support**.
- Use ONOS as a platform for **digitally delivering ITEP course content**, fostering blended and online learning environments.
- Periodically review policy frameworks to ensure ONOS continues to address **emerging pedagogical challenges and technological advances**.

This systemic integration will ensure ONOS's sustainability and scalability as a national resource.

In conclusion, these policy recommendations present a multi-pronged approach to harness ONOS's full potential in enriching teacher education. A blend of capacity-building, institutional mandates, infrastructural investment, collaboration, monitoring, research promotion, and strategic alignment is essential to foster an effective, equitable, and sustainable digital teaching-learning ecosystem in India. Policymakers must prioritize these actions to transform ONOS from an access initiative into a cornerstone of teacher education excellence.

### **Conclusion**

This study underscores the pivotal role of the One Nation One Subscription (ONOS) initiative in transforming teacher education in India by providing widespread access to high-quality digital resources. The integration of ONOS has demonstrably enriched teacher educators' practical knowledge, enhanced pedagogical strategies, and fostered more engaging, evidence-based teaching-learning environments. Institutional support and capacity-building emerge as critical enablers for maximizing the benefits of ONOS, while infrastructural disparities highlight the need for targeted interventions, especially in rural contexts.

By bridging the gap between research and practice, ONOS aligns closely with the goals of the National Education Policy 2020 and the Integrated Teacher Education Programme (ITEP), promoting a research-informed, reflective, and technology-enabled teacher education system. For ONOS to realize its full potential, sustained policy support, continuous faculty development, and equitable digital access must be prioritized. Ultimately, ONOS represents not only a digital library initiative but a transformative catalyst for nurturing competent, confident, and innovative teacher educators capable of shaping the future of education in India.

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