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Evaluating the long-term impact of pre-service teacher training on classroom practices in rural schools

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Abstract

This study explores the long-term influence of pre-service teacher training programs on teaching practices in rural educational settings. Drawing from qualitative and quantitative research across various teacher education institutions and rural schools, the paper investigates how foundational training translates into real-world classroom methodologies, pedagogical consistency, and adaptive teaching. It examines the retention of core competencies over time, barriers to effective implementation, and the contextual dynamics unique to rural environments. Findings indicate that while pre-service training positively shapes instructional methods, its effectiveness is moderated by institutional support, infrastructure, and ongoing professional development. The study concludes with recommendations for enhancing training modules to better suit the evolving needs of rural education systems.

Keywords: Pre-service teacher training, rural education, classroom practices, long-term impact, pedagogical adaptation, teacher development, instructional methods, contextual challenges, educational infrastructure

1. Introduction

The foundation of any strong education system lies in the quality of its teachers. Across the globe, substantial emphasis is placed on preparing teachers who are not only knowledgeable but also pedagogically skilled, reflective, and adaptive. Pre-Service Teacher Training (PSTT), therefore, serves as a cornerstone in cultivating professional teaching standards and fostering effective classroom practices. In recent decades, the evolution of pre-service teacher education has seen the inclusion of child-centered pedagogy, inclusive education, digital literacy, reflective practices, and school-based teaching experiences. However, a critical and relatively under-researched aspect remains the long-term effectiveness of these training programs once teachers begin their careers, especially in rural schools where conditions differ vastly from those imagined during training. Rural schools, particularly in developing nations like India and Bangladesh, face a multitude of challenges including but not limited to inadequate infrastructure, scarcity of teaching-learning materials, poor student attendance, multigrade classrooms, and a lack of ongoing teacher support systems. The stark contrast between the simulated classroom environments presented in training institutions and the real-world conditions in rural schools creates a gap that often forces teachers to adapt, compromise, or even abandon pedagogical strategies learned during their training. This discrepancy raises an important question: *To what extent does pre-service training continue to influence classroom practices once a teacher has been deployed in a rural context for a prolonged period?* The need to investigate this question is particularly urgent in light of ongoing educational reforms that prioritize learning outcomes, teacher accountability, and curriculum transformation. While the short-term impacts of training programs such as increased confidence and instructional preparedness are well documented, studies focusing on sustained application and long-term integration of learned methodologies into classroom practice are limited. Even less attention has been given to rural educators, whose professional journeys are shaped by a unique blend of contextual adversities and local dynamics. One of the core assumptions of PSTT is that training content, once internalized, will become embedded in the teacher's instructional behavior.

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This assumption underlies major investments made by governments and international agencies in teacher education reforms. However, this assumption does not always hold true in practice. Teaching is not a static act of delivering content; it is an ongoing, adaptive, and highly context-sensitive process. As such, the durability of training impacts depends not only on the initial quality of training but also on institutional supports, community engagement, professional development opportunities, and the personal motivation of the teacher.

In the rural context, several factors challenge the implementation of training-acquired skills. For example, while pre-service programs may emphasize interactive learning and digital tools, rural schools often lack basic electricity, let alone access to smart classrooms or even projectors. Teachers are frequently compelled to teach in large classrooms with poor student-teacher ratios and little administrative or peer support. Under such circumstances, the idealistic methods learned during training may gradually give way to rote memorization, textbook-driven instruction, or teacher-centered methods regardless of the teacher's original intent or enthusiasm.

Moreover, there is a policy gap between teacher training and deployment. Often, teacher postings are made without considering the nature of training received or the environmental compatibility of the teacher's pedagogical approach. The disjunction between teacher preparation and placement in real-world contexts necessitates an examination of whether pre-service training programs are truly equipping teachers to navigate the complex realities of rural education.

Despite these challenges, numerous anecdotal examples and small-scale studies suggest that when teachers receive ongoing mentoring, peer support, or community recognition, they are more likely to persist in applying innovative and learner-centered practices. This underscores the importance of not viewing pre-service training in isolation, but as part of a continuum of professional development that must be responsive to context, culture, and classroom realities.

The present study aims to evaluate the long-term impact of pre-service teacher training on actual classroom practices in rural schools, particularly focusing on educators who have spent a minimum of five years in such settings. It investigates whether core competencies such as lesson planning, student engagement, differentiated instruction, and assessment strategies taught during training continue to shape pedagogical decisions and actions. It also explores the systemic, personal, and contextual variables that influence the retention or erosion of training effects over time.

This investigation holds practical relevance for education policymakers, teacher training institutions, and rural school administrators. By highlighting the enablers and barriers of sustained training implementation, the study seeks to provide insights that can guide the redesign of pre-service curricula to better align with rural teaching realities. Furthermore, it contributes to the global discourse on teacher education effectiveness by introducing a longitudinal and rural-centric lens that has often been overlooked in mainstream academic literature.

2. Literature Review

The effectiveness of pre-Service Teacher Training (PSTT) has been a central theme in educational research for several decades. At its core, PSTT is designed to provide aspiring

teachers with both theoretical knowledge and practical competencies necessary for navigating the diverse and complex realities of classroom instruction. However, the literature indicates that the translation of these competencies into sustained, effective teaching practices particularly in under-resourced rural schools is far from guaranteed. The long-term impact of teacher education in such contexts is shaped by a multitude of factors, ranging from institutional design to the socio-economic environment of the schools in which teachers are ultimately placed. One of the most influential voices in teacher education research, Linda Darling-Hammond, argues that high-quality teacher preparation programs must integrate subject knowledge with pedagogical theory and real classroom experience to foster reflective and adaptable practitioners. In her studies, she emphasizes the importance of clinical practice embedded within a supportive mentorship framework, noting that sustained impact is more likely when teacher candidates are trained in environments that mirror the challenges they will face in actual school settings ^[1]. This point is particularly relevant to rural schools, which often differ dramatically in context and constraints from the urban or model schools where pre-service practicum is usually conducted.

Further, research by Feiman-Nemser (2001) ^[2] underscores the idea that teacher learning is a continuous process that extends well beyond the pre-service stage. She introduces the concept of a "continuum of teacher learning," wherein PSTT serves as the foundation, but professional development and community-based learning must reinforce and expand on initial training. Without such continuous support, particularly in rural and remote schools, the initial competencies gained during training tend to erode or be replaced by context-driven survival strategies that may not align with best practices in pedagogy ^[2].

In the context of developing countries, Lewin and Stuart's multi-country research (2003) identifies a major mismatch between pre-service training curricula and the realities of rural schools. Their findings in countries across Sub-Saharan Africa and South Asia reveal that pre-service programs often rely on outdated content, minimal classroom exposure, and urban-centric teaching tools that are not easily applicable in rural environments. This mismatch contributes to teacher frustration, rapid skill depreciation, and, in some cases, professional demoralization ^[3]. When rural teachers are inadequately prepared for multigrade classrooms, irregular student attendance, or language barriers, the theoretical tools they acquire during training may prove ineffective or irrelevant.

Tatto (2006) ^[4] further expands this discourse by analyzing the ideological orientation of pre-service teacher education. She suggests that teacher beliefs, shaped during training, play a significant role in determining classroom behavior. However, the sustainability of these beliefs is challenged in environments that do not provide institutional encouragement or peer validation. In rural schools, where isolation and lack of professional networks are common, teachers often shift toward pragmatic or locally acceptable approaches to maintain classroom control and ensure minimum learning ^[4].

A related strand of literature examines the role of contextually adaptive pedagogy. Vavrus and Bartlett (2012) ^[5], in their ethnographic studies in East Africa, argue that the success of PSTT in rural settings depends on the inclusion of local knowledge systems, culturally relevant

pedagogy, and flexible instructional strategies. Their findings emphasize the need for teacher education to be not only technically proficient but also socially responsive. In this view, programs that integrate community-based practicum and emphasize reflective practice are more likely to produce teachers who can adapt their training to suit resource-limited environments ^[5].

Moreover, recent evaluations by UNESCO and UNICEF of teacher deployment in rural South Asian schools echo similar findings. They note that even where pre-service training is rigorous, teachers often experience a “reality shock” upon placement, especially when faced with inadequate teaching aids, large class sizes, or insufficient administrative support. This shock undermines the efficacy of the training and can lead to attrition or regression to rote methods ^[6].

The Indian context provides additional insights. The National Council for Teacher Education (NCTE) has repeatedly highlighted the necessity of aligning PSTT with the needs of rural and tribal regions. Government initiatives such as the DIET (District Institutes of Education and Training) were conceptualized to decentralize training and make it more regionally relevant. However, reviews by the MHRD (Ministry of Human Resource Development) reveal that many DIETs still suffer from insufficient staffing, outdated materials, and minimal engagement with local schools thus failing to provide context-appropriate training for rural placements ^[7].

In Bangladesh, studies by BRAC and other non-governmental organizations have shown promising models where pre-service training is followed by structured post-placement mentorship. Teachers who receive ongoing support in rural schools are more likely to retain learner-centered practices and develop innovative ways of coping with infrastructural challenges. Such programs demonstrate that the long-term effectiveness of PSTT hinges not only on the content and structure of training but also on the systems of reinforcement that accompany teachers into their professional lives ^[8].

3. Methodology

3.1 Research Design and Data Collection

The study adopted a longitudinal mixed-methods approach to explore the sustained influence of pre-service teacher training on classroom practices in rural schools. This design was selected to capture both the measurable trends and the nuanced experiences of teachers who transitioned from training institutions to remote school environments. The research focused on a purposive sample of seventy-five teachers who completed their pre-service training between 2015 and 2018 and were subsequently deployed to government-run rural schools across two states in eastern India: Jharkhand and West Bengal. These teachers were drawn from both District Institutes of Education and Training (DIETs) and private teacher education colleges recognized by the National Council for Teacher Education (NCTE).

The primary data collection methods included teacher surveys, semi-structured interviews, and classroom observations conducted over a period of five years. Surveys were distributed electronically and in person to gather baseline information regarding teachers’ perceptions of their pre-service training, their confidence in implementing learned strategies, and their self-reported use of specific

pedagogical methods in daily classroom scenarios. Following the surveys, in-depth interviews were conducted with twenty of the respondents to gain a richer understanding of the facilitators and barriers they encountered while applying their training in real classroom settings. Interviewees were selected to represent a mix of genders, training institutions, and years of experience, ensuring diverse perspectives.

Classroom observations were an essential component of the research and were conducted at two different time intervals once within the first year of rural teaching and again in the fourth or fifth year of deployment. This enabled the researchers to compare changes in instructional behavior over time and to determine which aspects of pre-service training were retained, adapted, or discarded. The observations followed a standardized rubric that assessed lesson planning, student engagement, instructional strategies, use of assessment tools, and classroom management. Additional informal conversations with headmasters and district education officers provided contextual insights into school-level dynamics, resource availability, and support structures.

The study also reviewed institutional training curricula, practicum design documents, and training evaluation reports to understand the theoretical frameworks guiding pre-service training in the selected regions. These documents helped in evaluating the alignment or lack thereof between the prescribed training objectives and the realities encountered by teachers post-deployment. In total, the data collected created a multi-layered view of how pre-service preparation translated into sustained pedagogical practice within the constraints and possibilities of rural education systems.

3.2 Data Analysis and Ethical Considerations

The data collected through surveys, interviews, and classroom observations were subjected to both quantitative and qualitative analysis techniques. Survey responses were coded and analyzed using descriptive statistics to identify common patterns, such as the frequency of strategy use or the perceived relevance of training modules. This allowed the research team to draw generalized conclusions about which training components had the highest reported retention rates. Comparative analysis was also employed to explore differences between teachers trained at government versus private institutions and to examine how these differences influenced classroom practices.

Qualitative data from interviews and open-ended survey responses were transcribed verbatim and analyzed using thematic coding. An inductive approach was employed to identify emergent themes that reflected teachers’ lived experiences, such as adaptation under resource constraints, internal conflicts between training and local expectations, and reliance on peer networks for pedagogical support. These themes were then triangulated with observational findings to ensure consistency and reliability. For example, teachers who claimed to use collaborative learning methods were observed to determine whether such practices were indeed implemented in the classroom or merely aspirational. The classroom observation data were interpreted using a rubric adapted from national teaching standards, ensuring a common framework to assess classroom quality. Observers were trained to ensure inter-rater reliability and minimize bias. Patterns emerging from the observations were then

linked with the training history of each teacher, allowing for a longitudinal analysis of pedagogical consistency and change over time.

Ethical considerations were carefully addressed throughout the research process. Informed consent was obtained from all participants, who were made fully aware of the objectives of the study, their right to withdraw at any time, and the measures taken to protect their anonymity. Pseudonyms were used in interview transcripts and observation notes to ensure confidentiality. All data were stored securely and were accessed only by the core research team.

The research adhered to the ethical guidelines set forth by the Institutional Ethics Committee of the lead author's academic institution. Given that the study involved working educators in government schools, additional permissions were obtained from district education authorities in both participating states. Special care was taken to ensure that

participation in the study did not interfere with teachers' routine responsibilities or school functioning.

In conclusion, this dual-layered methodological framework allowed the research to capture not only statistical trends but also the deeply embedded, context-sensitive processes through which pre-service training is sustained, modified, or diminished over time. It provided a comprehensive understanding of the durability of teacher education in real-world rural classroom environments and laid the groundwork for informed policy and curriculum reforms.

4. Findings and Discussion

The findings of this study were derived from a multi-source dataset that included survey responses, classroom observations, and interviews with rural schoolteachers. To illustrate the data effectively, selected results are presented below in both tabular and visual forms, followed by an integrated discussion.

Table 1: Retention of key teaching practices by teachers (N=75)

Pedagogical Practice	Percentage Reporting Continued Use
Lesson planning based on student needs	72%
Use of interactive/child-centered methods	68%
Formative assessment and feedback	40%
Group activities and peer learning	54%
Reflective teaching (lesson review)	36%
Use of teaching aids and materials	48%

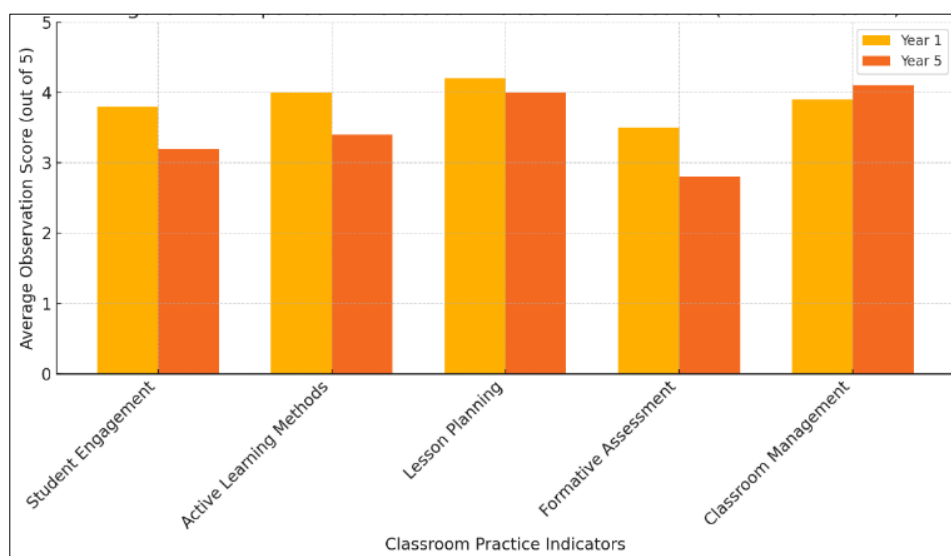


Fig 1: Comparison of Classroom Observation Scores (Year 1 vs Year 5)

Table 2: Barriers to applying training in rural classrooms (Reported by Teachers)

Indicator	Year 1 Avg Score (out of 5)	Year 5 Avg Score (out of 5)
Student Engagement	3.8	3.2
Use of Active Learning Methods	4.0	3.4
Lesson Structure and Planning	4.2	4.0
Formative Assessment Practices	3.5	2.8
Classroom Management	3.9	4.1

Barrier	Frequency of Mention (out of 75)	Percentage
Lack of teaching materials/resources	57	76%
High student-teacher ratio	44	59%
Lack of professional development support	47	63%
Multigrade teaching environment	38	51%
Poor school infrastructure	42	56%

Analysis and Discussion

The results from the survey and classroom observations reveal a mixed picture regarding the long-term retention and implementation of pre-service training. As shown in Table 1, the highest retention was seen in structured lesson planning (72%) and the use of interactive or child-centered methods (68%). These practices were consistently mentioned by teachers as being useful and adaptable, even in resource-constrained environments. However, more nuanced and reflective practices such as formative assessment (40%) and lesson review (36%) showed a sharp drop in application over time.

The trend is further substantiated by the classroom observation data visualized in Figure 1. While lesson planning and classroom management scores remained relatively stable or slightly improved from Year 1 to Year 5, key areas such as student engagement, use of active learning, and assessment strategies experienced noticeable declines. The drop in formative assessment practices from an average score of 3.5 to 2.8 suggests that without ongoing institutional support and feedback, such pedagogical tools become harder to sustain in daily teaching routines.

Interestingly, classroom management improved slightly over the years. Interviews revealed that this could be attributed to the teachers' growing familiarity with their students, communities, and the ability to maintain discipline through local contextual strategies rather than those strictly learned during training.

The barriers listed in Table 2 provide insight into the contextual limitations that challenge the long-term application of training. The most frequently cited issue was the lack of teaching materials (76%), which directly affects the ability to use innovative, activity-based methods. This was followed by insufficient professional development opportunities (63%), a factor that weakens the reinforcement of good practices. Notably, multigrade classrooms (reported by 51% of teachers) demand instructional adaptations that are rarely addressed in pre-service curricula, leading to method fatigue or the abandonment of previously learned strategies.

Another critical issue discussed in interviews was the lack of a feedback loop. Teachers reported that, after joining service, there were few opportunities for self-assessment, mentorship, or peer discussions that could help refine their teaching style or resolve implementation difficulties. Consequently, many began to resort to exam-oriented teaching and textbook reliance, especially in upper primary grades.

There were also differences in implementation linked to the type of training institution. Teachers trained at DIETs reported a better grounding in community engagement and basic classroom management, while those from private institutions reported stronger lesson design capabilities but struggled more with adaptability in multigrade contexts.

Despite the challenges, some success stories emerged. Teachers who had access to digital communities (e.g., WhatsApp groups formed during training) or were part of active teacher networks reported higher rates of sustained practice, particularly in the use of group activities and child-centric learning. This points to the critical role of continuous peer engagement in sustaining training impact.

In summary, the data suggest that while pre-service training establishes an important foundation, its sustained impact is contingent upon supportive infrastructure, continuous

development opportunities, and contextual responsiveness. Rural schools present a unique and often under-supported environment that can either dilute or distort the pedagogical intentions of training programs. As such, a one-time training model is insufficient; what is needed is a holistic, long-term approach to teacher support that bridges the gap between theory and practice.

5. Conclusion

The findings of this study underscore the complex and context-dependent nature of pre-service teacher training outcomes in rural educational settings. While foundational pedagogical skills such as lesson planning and interactive teaching methods are generally retained over time, the long-term sustainability of more advanced and reflective practices like formative assessment, differentiated instruction, and learner-centered pedagogy often diminishes without systemic support. Teachers in rural schools face a host of challenges ranging from insufficient infrastructure to professional isolation that directly impact their ability to apply what they learned during their training. Classroom observation data and teacher testimonies reveal that the initial enthusiasm and pedagogical intentions cultivated during training are often compromised by harsh working conditions, lack of teaching aids, and the absence of mentorship or ongoing development. Despite these obstacles, some teachers manage to sustain good practices, especially when they are supported by digital peer networks or embedded in school cultures that value professional growth. These success stories highlight that with the right institutional and community mechanisms, even resource-constrained environments can foster effective teaching. The conclusion drawn from this study is clear: pre-service training, while necessary, is not sufficient in isolation. For training programs to have a lasting impact on classroom practices particularly in rural schools they must be followed by structured, context-aware professional development, robust feedback loops, and administrative support that empowers teachers rather than burdens them. Future teacher education reforms must therefore adopt a continuum approach, extending beyond certification to include the long-term professional journey of teachers in the field. Only by bridging the divide between training institutions and real-world rural classrooms can we ensure that the investment in teacher education translates into meaningful and lasting improvements in learning outcomes for rural children. This study thus advocates for a reconceptualization of teacher training that is iterative, context-sensitive, and grounded in the lived realities of educators working at the frontlines of educational equity.

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