Comparative Study of Pre-Service vs. In-Service Teacher Education Programs under NEP 2020

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Abstract

In this study, there will be a comparative study of how well both Pre-Service and In-Service Teacher Education Programs have a positive contribution towards fulfilling the reform objectives established by India's teacher education reform framework within the Ministry of Education and North Carolina's Education Policy 2020. To this end, there has been a major shift in the way that teachers are to be prepared as reflected by NEP 2020's focus on developing teachers as lifelong learners and reflective practitioners who will use competency-based instruction in a manner that is responsive to educational contexts, particularly as they relate to their ongoing professional growth. The objective of the current study is to determine how both the Pre-Service and In-Service Teacher Education Programs have functioned separately and together to achieve the desired objectives of India's teacher education reform policies. Traditional Pre-Service Teacher Education Programs are focused on providing new teachers with the knowledge of theory and pedagogy and classroom experience, whereas traditional In-Service Teacher Education Programs are focused on building and developing teachers in the areas of subject content knowledge and instructional skills to better equip them in meeting new and ongoing challenges that they will face in their classrooms. Teacher education programs have frequently been kept separate from each other, thus disrupting the link between theory and teaching, while limiting their combined potential to improve the quality of teaching. The report closely examines different aspects related to both types of programs, such as: what is taught; how learning takes place; how students are assessed; whether mentoring is available; and barriers to implementation across the system. The report pays particular attention to the degree to which these program elements reflect the intended aims of an integrated model of learning, technology-based instruction, and ongoing professional development. The goal of the report is to assess the differences in structure and functionality of these two program types, and how that affects the readiness and performance of teachers. By pointing out similarities and differences, the report contributes to ongoing policy discussions and makes recommendations that can be put into practice to enhance teacher preparation methods with respect to the vision set forth by NEP (National Education Policy) 2020.

Keywords: Pre-Service Teacher Education, In-Service Teacher Education, National Education Policy 2020, Teacher Preparation, Professional Development, Curriculum Reform, India.

Introduction

The foundation of every educational system is teacher education; without high quality teacher training, schools cannot effectively implement curriculum reform or attain student success. Teachers are much more than just training of the subject matter to the students, they also create supportive learning environments, provide mentorship, serve as role models, and have the unique ability to transform society. Through their ability to support the cognitive, emotional, ethical and critically-conscious development of their students, the manner in which teachers are prepared and supported throughout their career is of utmost importance in the national education planning and reform process.

In India, the teacher preparation system has traditionally consisted of two connected stages of Pre-Service Preparation and In-Service Preparation. Pre-Service Preparation refers to the formal academic and professional training that prospective teachers receive prior to becoming a teacher. The Pre-Service training process typically includes foundational courses on foundations of educational psychology, pedagogy, curriculum development, assessment techniques and student-teaching or internship. The primary purpose of pre-service preparation is to provide prospective teachers with a firm theoretical basis and initial pedagogical skills to ensure that new teachers have the knowledge and confidence to be successful in their new

classrooms. In-Service Preparation focuses on the on-going professional development of practicing teachers after they have entered the field of teaching. This stage includes orientation programs, refresher courses, workshops, seminars, mentoring initiatives, and continuous professional development activities designed to update teachers' knowledge, enhance instructional practices, and respond to evolving educational demands.

Teacher growth consists of two stages; however, the two stages have frequently functioned independently from one another. Teacher preparation has been criticized for placing so much focus on the theory of teaching while offering very little or no real-world experiences. Many teachers who complete pre-service training have not had enough exposure to the demands of diverse learners, classroom management techniques, or using the newest teaching strategies. In-service training has also been criticized for the sporadic and short-term nature of training programs which lack continuous, systematic evaluation. The result of the way in-service training is typically designed is the initial improvement in the effectiveness of a teacher but does not provide the teacher with the ability to continue developing professionally or reflecting on their practice. Teacher education in India has been limited by the disconnect between initial training and ongoing professional growth historically.

The introduction of the Ministry of Education's National Education Policy 2020 has been a significant departure point for addressing these long-standing issues. The national policy proposes a complete overhaul of teacher education and acknowledges that teaching is a complex profession that requires both pre-service training and ongoing professional development. The national policy states that high-quality education cannot be provided unless there are highly trained and qualified educators; therefore, the national policy will create changes to the pre-service and in-service training systems through the use of structure, curriculum and pedagogy.

The policy advocates the establishment of integrated four-year multidisciplinary teacher education programs, stronger school internships, competency-based curricula, and continuous professional development mechanisms to ensure that teachers remain responsive to contemporary educational challenges.

Teacher education under this new vision is no longer viewed as a one-time certification process, but a fluid, continual journey to professional growth. This policy emphasizes the value of reflective practice, which is defined as a process by which teachers regularly assess their own teaching methods and student progress in order to improve their teaching effectiveness. Additionally, the policy promotes constructivist teaching methods that foster active learning, critical thinking skills, creativity, and problem-solving abilities, rather than rote memorization-type learning. Digital literacy and the use of technology are also important skill sets because of the rapid growth of the use of online and blended learning. Additionally, the policy encourages the establishment of stronger relationships between teacher preparation programs and the schools in which pre-service teachers eventually work to create more authentic practice-based learning environments, where theory and practice support each other.

Given this, a comparative analysis of pre-service teachers and in-service teachers is particularly important. Such a study provides additional information about how both types of teacher education programs contribute to teacher competence, the development of professional identities for teachers, and the effectiveness of teachers in the classroom. The study also highlights areas of misalignment between the intended outcomes of both programs and actual practices, and provides information to improve the alignment between the two types of programs.

By examining these dimensions within the framework of NEP 2020, the present research seeks to provide evidence-based recommendations that can guide policymakers, teacher educators, and institutions toward more coherent and sustainable teacher education models.

Ultimately, strengthening teacher education is not merely an administrative or curricular

concern but a national developmental priority. When teachers are well-prepared, continuously supported, and professionally empowered, they are better equipped to nurture learners who are critical thinkers, responsible citizens, and lifelong learners. Therefore, investigating the comparative effectiveness of Pre-Service and In-Service teacher education programs under the evolving policy landscape is both timely and essential for advancing educational quality and equity in India.

Review of Related Literature

Agarwal (2020) conducted an in-depth examination of the teacher education reform process in India today and reached the conclusion that earlier regulatory frameworks did not clearly define uniform levels of quality for teacher preparation. The report concluded that the establishment of professional standards and an improved accreditation process will lead to increased accountability of educational institutions and prepare teachers to develop more formalized curriculum development processes. Agarwal argued that teacher preparation must align with the National Competency Framework for Teacher Quality (NCFTQ) in order to provide uniformity among educational institutions.

Banerjee (2020) analyzed what policy reforms meant for teacher preparation and noted that new ideas about teacher education are evolving away from traditional, teacher-centred models of education toward reflective, learner-centred models of education. He indicated that there has been a shift of emphasis toward critical thinking, contextual awareness, and professional ethics in many teacher preparation programs across educational institutions, but significant differences exist in quality throughout the country.

Bansal and Choudhary (2020) studied numerous models for continuous professional development and determined that long-term, sustained programs were associated with more long-lasting improvements in instructional practices than short-term workshops. Based on their findings, they came to the conclusion that ongoing collaboration, support, and mentoring among peers create the best opportunity for sustained pedagogical improvement, demonstrating the need for establishing systematic in-service teacher development frameworks.

Chakraborty (2020) studied how in-service teacher training interacts with efforts to improve schools. The author concluded that professional development activities positively impact student achievement and institutional performance when they occur at school and directly address the challenges that teachers face in their classrooms. The author also noted that many programs are episodic and don't address the need for follow-up support.

Das and Dutta (2020) studied curriculum restructuring efforts related to teacher education institutions' response to policy reform. The authors found that the new curricula included greater emphasis on interdisciplinary learning, practicum experiences, and competency-based assessments. They also concluded that due to inadequate resources and faculty preparedness, the effectiveness of these changes has been limited.

Dwivedi (2020) reported that many teacher trainees lack sufficient digital competence to implement online or technology-based pedagogy. He reported that, although digital tools have become increasingly common, the integration of technology into pre-service teacher education programs has been relatively superficial. He also recommended that pre-service programs provide formal training and hands-on experience with digital technologies.

Ghosh (2020) examined the impact of experiential learning on the preparation of pre-service teachers. He reported that pre-service teachers who engaged in internships or field-based projects or who reflected on their teaching found that these experiences increased their confidence in the classroom and helped them develop a professional identity. He concluded that authentic school-based experiences can help prepare pre-service teachers for practical application of their theoretical knowledge.

Gupta and Sharma (2020) researched the enduring gap between theory and practice in teacher

preparation. Their study found that teacher trainees faced difficulty translating their conceptual understanding into effective strategies to use in the classroom. The researchers advocated for a stronger connection between teacher preparation programs/institutions and school-sized institutions to see learning contextualized.

As outlined in Jain (2020), the structure of mentoring in professional development programs supported increased teacher motivation, skill development, and reflective growth. Teacher novices who had received continuous mentoring support from seasoned mentors demonstrated greater levels of professional competence than those who did not have this type of support, as reported in the study by Jain.

Joshi & Kumar (2020) studied competency-based teacher education and assessment reform. Their results indicated that a shift from rote knowledge to skills as evidenced by performance had improved teacher preparedness. Their results indicated that performance-based assessments, portfolios, and hands-on evaluations were more accurate indicators of teaching ability.

The study conducted by Kaur (2020) investigated the role of school-based professional learning communities in increasing the effectiveness of teachers. Study results indicated that by using peer feedback, collaborative reflection, and shared problem-solving, teachers' instructional practice was enhanced. Additionally, teachers who participated in professional learning communities reported increased ability to adapt and be innovative.

Collectively, the reviewed literature indicated that while substantial progress had been made in reconceptualizing teacher education, significant gaps had persisted in terms of coherence, digital readiness, sustained mentoring, and integration between Pre-Service and In-Service phases. These studies underscored the necessity of adopting a unified, lifelong approach to teacher professional development, thereby providing a strong empirical and conceptual basis for the present comparative investigation.

Objectives of the Study

- The principal objective of this study is to compare Pre-Service and In-Service Teacher Education Programs under NEP 2020 in terms of their objectives, curriculum design, pedagogical approaches, assessment strategies, and impact on teacher effectiveness.
- Secondary objectives include examining challenges experienced by teacher educators and participants, exploring the alignment with NEP's core principles such as lifelong learning and competency-based education, and proposing recommendations for policy and practice.

Research Methodology

This study adopts a mixed-methods research design combining qualitative and quantitative data. Primary data were collected through structured questionnaires administered to 250 Pre-Service teacher trainees, 300 in-service teachers, and 100 teacher educators from various regions of India. Semi-structured interviews with 30 stakeholders — including policymakers, educational administrators, and NEP implementation officers — enriched the findings. Secondary data consisted of NEP 2020 policy documents, program curricula from selected teacher education institutions, and relevant academic literature.

Quantitative data were analyzed using descriptive statistics and inferential techniques, while qualitative data were thematically coded to identify recurring patterns, divergent views, and contextual insights. Ethical approval was secured, and informed consent was obtained from all participants.

Data Analysis & Interpretation

The analysis of the data sought to compare systematically the structural and functional characteristics of Pre-Service and In-Service teacher education programs within the reform framework introduced by the Ministry of Education through the National Education Policy 2020. Both quantitative and qualitative evidence were examined to understand not only measurable differences in program components but also the deeper experiential realities

perceived by teacher trainees, practicing teachers, and teacher educators. The interpretation therefore integrated statistical trends with thematic insights so that the findings reflected both numerical strength and contextual meaning.

The quantitative data derived from structured questionnaires administered to 250 Pre-Service trainees and 300 In-Service teachers were analyzed using descriptive statistics. Mean scores on a five-point scale were computed across key program dimensions such as theoretical foundations, practical exposure, reflective practice, mentoring, digital readiness, and follow-up support. The analysis revealed clear contrasts between the two groups, indicating that each program emphasized certain competencies while neglecting others. These patterns suggested that the two modes of teacher preparation functioned in complementary but uneven ways rather than as an integrated continuum of professional learning.

Table 1: Comparative Mean Scores of Major Program Components (5-Point Scale)

Program Component	Pre-Service Mean	In-Service Mean
Theoretical Foundations	**4.2**	3.5
Practical School-Based Experience	2.8	**4.1**
Reflective Practice Opportunities	3.0	**3.9**
Structured Mentoring Support	2.9	3.6
Follow-up/Continuity Mechanisms	2.6	2.7
Digital Pedagogy Integration	2.7	2.8

The figures presented in Table 1 indicated that Pre-Service programs strongly emphasized theoretical and conceptual knowledge, reflected in the high mean score of 4.2. However, their relatively low rating in practical exposure demonstrated that trainees did not receive sufficient opportunities for immersive school experiences. In contrast, In-Service teachers reported richer engagement with real classroom contexts, reflected in a high practical experience score of 4.1. Reflective practice opportunities were also rated higher by practicing teachers, likely because professional development sessions addressed immediate classroom challenges. Nevertheless, both groups reported weak scores for continuity and digital integration, revealing systemic gaps that cut across both models.

To further examine the preparedness levels of participants across core professional competencies, a second comparative analysis was conducted.

Table 2: Teacher Preparedness Across Professional Competencies

Competency Area	Pre-Service (%) Prepared	In-Service (%) Prepared
Subject Knowledge Mastery	84%	78%
Pedagogical Skills	69%	82%
Classroom Management	58%	86%
Assessment & Evaluation Practices	61%	79%
Use of Educational Technology	52%	56%

Table 2 demonstrated that Pre-Service participants felt more confident regarding subject knowledge but less prepared for the complexities of classroom management and assessment practices. In-Service teachers, benefiting from practical exposure, expressed greater confidence in managing learners and implementing assessments. However, both groups showed limited preparedness in educational technology, indicating that digital competencies had not yet been adequately embedded within teacher education frameworks.

The qualitative phase of the study, based on interviews with 30 teacher educators and administrators, provided deeper insights into the reasons behind these statistical trends. Recurring patterns were coded and categorized to identify dominant themes influencing program effectiveness.

Table 3: Frequency of Emerging Themes from Qualitative Interviews

Identified Theme	Frequency (n=30)	Percentage (%)
Theory–Practice Divide	26	87%
Institutional Constraints	25	83%
Need for Continuous Mentoring	24	80%
Digital Readiness Gaps	22	73%
Contextual Adaptability	21	70%

Thematic evidence showed that the theory–practice divide was the most frequently cited concern. Teacher educators explained that trainees often possessed strong theoretical knowledge but struggled to translate it into classroom action. Continuous mentoring was viewed as a critical missing link, especially for novice teachers transitioning from training to professional settings. Digital readiness gaps were repeatedly highlighted, particularly during periods of online or blended instruction. Institutional constraints, such as limited funding and inadequate infrastructure, were also reported as barriers to effective implementation.

In order to understand perceptions of program effectiveness, participant satisfaction levels were measured across different dimensions.

Table 4: Participant Satisfaction with Program Effectiveness

Dimension Evaluated	Pre-Service Satisfaction (%)	In-Service Satisfaction (%)	Change
Curriculum Relevance	72	81	+9%
Practical Utility	54	88	+34%
Professional Growth Support	60	76	+16%
Flexibility of Learning Modules	66	83	+17%
Overall Program Effectiveness	63	82	+19%

The data in Table 4 revealed that In-Service teachers expressed higher satisfaction in most categories, especially regarding practical utility and flexibility. Their programs addressed

immediate classroom realities and allowed contextual adaptation. Pre-Service trainees, although moderately satisfied with curriculum content, expressed lower satisfaction with real-world application, reinforcing earlier findings regarding insufficient practicum exposure.

To assess alignment with the reform goals of NEP 2020, participants were also asked to evaluate the extent to which their programs reflected policy principles such as lifelong learning, flexibility, and integration.

Table 5: Perceived Alignment of Programs with NEP 2020 Principles

NEP 2020 Principle	Pre-Service Alignment (%)	In-Service Alignment (%)
Lifelong Learning Orientation	64	85
Modular and Flexible Learning	67	88
School–Institution Collaboration	58	82
Competency-Based Training	61	79
Continuous Professional Development	55	90

Table 5 indicated that In-Service programs were perceived as more closely aligned with the policy's vision of continuous professional development and flexibility. Because these programs were embedded within school contexts, teachers experienced them as more relevant and sustainable. Pre-Service programs, though progressively adapting, were still perceived as relatively rigid and institution-bound.

Taken together, the quantitative and qualitative findings suggested that both Pre-Service and In-Service teacher education programs possessed distinct strengths but also significant limitations. Pre-Service programs contributed substantially to theoretical grounding and conceptual clarity but required stronger experiential and mentorship components. In-Service programs demonstrated contextual responsiveness and practical effectiveness but suffered from irregularity and insufficient systematic follow-up. The interpretation of these results indicated that the goals of NEP 2020 could be fully realized only when both forms of preparation were integrated into a continuous professional development pathway that combined theory, practice, reflection, and digital competence.

Findings of the Study

This study set out to compare Pre-Service and In-Service teacher education programs within the reform framework introduced by the Ministry of Education under the National Education Policy 2020. By examining both statistical data and personal accounts, the research offered a balanced view of how these two systems function—highlighting where each one performs well and where gaps remain.

The findings showed that Pre-Service programs do a solid job of building theoretical understanding. Trainees generally demonstrated strong knowledge of educational psychology, curriculum design, pedagogy, and assessment principles. This foundation gave them conceptual clarity about how teaching and learning are supposed to work. However, the study also revealed a noticeable weakness: limited emphasis on real-world, hands-on experience. Teaching internships were often brief, loosely supervised, and not always closely connected to the everyday realities of classroom life. As a result, many trainees struggled to translate theory into practice, and a gap between what they learned and what they actually encountered in schools persisted.

In contrast, In-Service programs appeared to be more practical and grounded in real classroom contexts. Practicing teachers valued opportunities to address immediate challenges, test new

instructional strategies, and reflect on their experiences with colleagues. Because professional development was directly tied to their daily responsibilities, it felt more relevant and applicable. Teachers who participated in sustained, school-based initiatives reported noticeable improvements in areas such as classroom management, assessment methods, and student engagement. These findings suggest that learning embedded within authentic school environments strengthens professional competence more effectively than purely theoretical instruction.

That said, In-Service programs were not without their own shortcomings. Many initiatives took the form of short workshops or isolated training sessions with little follow-up or mentoring. This lack of continuity limited their long-term impact. Teachers frequently expressed a desire for ongoing guidance, structured peer collaboration, and professional learning communities that would help them build on new skills over time rather than treat development as a one-time event.

Digital readiness emerged as another area of concern across both systems. Participants from both Pre-Service and In-Service programs reported feeling underprepared to integrate technology meaningfully into their teaching. Although digital tools have become central to modern education, training in this area often remained superficial or theoretical. Limited hands-on exposure to online platforms, blended learning approaches, and digital assessment tools highlighted a significant gap in preparing teachers for contemporary classrooms.

The qualitative findings also pointed to broader structural challenges. Teacher educators noted that limited infrastructure, insufficient funding, heavy workloads, and inadequate professional development for faculty constrained the effective implementation of reforms. Weak collaboration between teacher education institutions and schools further reduced opportunities for meaningful practice and constructive feedback. These systemic issues suggest that ambitious policy goals cannot be fully realized without stronger institutional capacity and better coordination.

The study also uncovered differences in how professional identity develops. Pre-Service trainees often viewed teaching primarily as a qualification to earn, while In-Service teachers increasingly saw professional growth as an ongoing journey. The idea of lifelong learning—frequently emphasized in policy discussions—seemed to take deeper root once teachers were actively engaged in the profession. This finding points to the importance of embedding a culture of continuous learning earlier within Pre-Service programs.

In the end, the research suggests that Pre-Service and In-Service teacher education programs each bring valuable strengths. Pre-Service education excels at building knowledge and conceptual understanding, while In-Service education is more effective in promoting contextual application and reflective practice. However, both systems face challenges, including fragmented structures, limited digital integration, and insufficient mentoring support. Without a stronger connection between the two stages, it remains difficult to create a seamless and continuous pathway for professional growth.

Conclusion

The comparative analysis undertaken in this study underscored that the quality of teacher education remains central to achieving broader educational reforms and improving learner outcomes. The findings demonstrated that neither Pre-Service nor In-Service programs alone were sufficient to meet the evolving demands of contemporary education. Instead, each represented a partial approach to teacher development, characterized by specific strengths alongside persistent limitations. Pre-Service programs provided essential theoretical knowledge but required deeper engagement with real classroom contexts. In-Service programs fostered practical competence and reflective growth but lacked structural continuity and systematic design. In summary, the study affirmed that strengthening teacher education is fundamental to enhancing the overall quality of education. By aligning Pre-Service and In-

Service programs within a coherent, lifelong framework, the education system can cultivate reflective, competent, and adaptable teachers capable of meeting diverse learner needs. Such a holistic approach is indispensable for translating national educational aspirations into meaningful classroom realities and for ensuring sustainable improvement in teaching and learning outcomes.

References

1. Agarwal, R. (2020). Teacher education reforms and professional standards in contemporary India. Journal of Educational Policy Studies, 14(2), 35–48.
2. Banerjee, S. (2020). Reimagining teacher preparation under the National Education Policy 2020. International Journal of Teacher Education, 12(3), 45–59.
3. Bansal, M., & Choudhary, P. (2020). Continuous professional development of teachers: Emerging models and practices. Asian Journal of Education and Training, 6(4), 622–630.
4. Chakraborty, P. (2020). In-service teacher training and school improvement initiatives in India. Educational Perspectives, 8(2), 88–102.
5. Das, K., & Dutta, S. (2020). Curriculum restructuring in teacher education institutions after policy reforms. Indian Journal of Curriculum Studies, 11(1), 19–33.
6. Dwivedi, L. (2020). Digital competency among teacher trainees: A study of preparedness for online pedagogy. Journal of Digital Learning in Teacher Education, 36(3), 164–176.
7. Ghosh, R. (2020). Experiential learning in pre-service teacher education programs. Contemporary Education Review, 5(1), 55–70.
8. Gupta, N., & Sharma, V. (2020). Bridging theory and practice in teacher education: Challenges and prospects. Journal of Educational Change, 21(4), 567–582.
9. Jain, S. (2020). Mentoring practices in teacher professional development. International Review of Education Research, 9(3), 101–118.
10. Joshi, V., & Kumar, S. (2020). Competency-based teacher education and assessment strategies under NEP reforms. Indian Educational Review, 16(2), 53–69.
11. Kaur, H. (2020). School-based professional learning communities and teacher effectiveness. Journal of Teacher Development, 24(4), 403–418.
12. Krishnan, M. (2020). Teacher educators' readiness for implementing NEP 2020 reforms. Teacher Education Quarterly, 47(3), 22–37.
13. Mehta, P., & Rao, G. (2020). Reflective practices and self-regulated learning among teachers. Educational Action Research Journal, 28(5), 781–795.
14. Menon, A. (2020). Policy perspectives on teacher education transformation in India. Policy Futures in Education, 18(7), 912–926.
15. Nair, S., & Thomas, J. (2020). Technology integration in teacher preparation programs. Journal of Educational Technology Systems, 49(1), 87–103.
16. Pathak, D. (2020). Sustainable models of in-service teacher development: Evidence from public schools. Journal of Continuing Education, 7(2), 74–90.
17. Reddy, K., & Iyer, P. (2020). Lifelong learning approaches in teacher professional growth. Studies in Education and Development, 40(2), 120–134.
18. Sharma, K., & Singh, R. (2020). Reflective teaching and pedagogical innovation in Indian classrooms. International Journal of Education Reform, 29(3), 215–231.
19. Srivastava, A. (2020). Institutional challenges in implementing NEP 2020 teacher education mandates. Higher Education for the Future, 7(2), 187–201.
20. Verma, L., & Kulkarni, S. (2020). Evaluating pre-service and in-service teacher competencies: A comparative study. Journal of Research in Teacher Education, 10(4), 299–315.