EVALUATING THE IMPACT OF IN-SERVICE TRAINING ON SECONDARY SCHOOL QUALITY AND TEACHER PERFORMANCE IN BIHAR

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Abstract

This study looks into how in-service training affects the caliber of secondary education and the effectiveness of teachers in Bihar. The research evaluates the impact of many training programs (Programs A, B, C, and D) on improving teaching abilities and student learning outcomes using a mixed-methods methodology. 130 classrooms had their student performance assessed, and 450 instructors in all took part in the training. After training, quantitative data showed a considerable improvement in teacher abilities and student outcomes, with Program C producing the greatest benefits. Key issues with present training programs were brought to light by qualitative insights gathered via focus groups and interviews, including out-of-date materials and a lack of practical training. The results highlight the beneficial association between high-quality education and efficient in-service training, highlighting the necessity of program modifications to further promote teacher development and raise student success in Bihar.

Keywords: In-service training, Secondary school quality, Teacher performance, Education in Bihar, Professional development for teachers.

1. INTRODUCTION

1.1. Overview of the education system in Bihar

Over the years, Bihar's education system has experienced substantial transformations, yet problems still exist. Increasing school enrollment through government programs has helped Bihar, one of India's most populated states, improve access to education. Inadequate infrastructure, a lack of skilled teachers, and high dropout rates are still problems. The need for more changes is demonstrated by the state's literacy rate, which, despite improvements, is still lower than the national average. The efficiency of the system is nevertheless hampered by quality issues, even with efforts to provide free education, especially at the secondary level. The problems with education in Bihar have also been made worse by elements including gender inequality, poverty, and poor teacher preparation.

1.2. Importance of secondary school education in the region

Students in Bihar are greatly influenced by their secondary school education, which acts as a vital bridge between basic education and further education or career preparation. In this area, completing secondary school not only paves the way for further education but also for social and economic advancement. It offers the framework for greater cognitive growth as well as the skills required for employment, which can lessen poverty and promote societal advancement. With Bihar's socioeconomic conditions, raising the standard of secondary education is crucial to ending the cycle of poverty and giving students the tools they need to make valuable contributions to society. Moreover, tackling more general societal concerns like gender inequality and regional economic disparities may be greatly impacted by improving secondary education.

1.3. Role of teachers in shaping educational outcomes

The educational achievements of Bihar's secondary school pupils are mostly dependent on their teachers. Students' academic success and personal growth are significantly impacted by their expertise, commitment, and instructional strategies. Teachers have an even more important role in the setting of Bihar, where educational resources are frequently scarce. In addition to teaching, teachers mentor their pupils, helping to shape their beliefs and goals. However, their own professional growth determines their efficacy, which is why in-service

training is essential. Teachers with training are better able to meet the requirements of a wide range of students, adjust to new pedagogical techniques, and put creative ideas into practice that can improve student learning. Therefore, the effectiveness of educators, assisted by ongoing professional development, is essential to raising the standard of education in the area as a whole.

1.4. Objectives of the study

1) 1) To evaluate how well in-service training programs have helped Bihar's secondary school teachers improve their pedagogical approaches and instructional techniques.

2) 2) To assess how in-service training affects learning outcomes for students and the general standard of education in secondary schools throughout Bihar.

3) 3) To determine the difficulties and potential areas for development in the present in-service training initiatives in order to maximize teacher effectiveness and academic standards.

2. LITERATUIRE REVIEW

Shrivastava, C. (2018) Compared to schools in cities, those in rural India have significantly different demands. However, there isn't much of a difference between urban and rural instructors' teacher preparation programs. When we discuss the professional development of rural teachers, particularly in the state of Bihar, which has low educational attainment, the situation becomes more dire. In Bihar, the number of Panchayat teachers has been rising virtually yearly. Numerous individuals in the state lack professional qualification and are now pursuing professional certification through targeted in-service education programs. Consequently, the future of rural education in Bihar greatly depends on inservice teacher education. The researcher's investigation on the views and experiences of Panchayat teachers regarding their in-service training served as the basis for this work. The results indicate that the Panchayat teachers' opinions of their in-service education programs are not entirely consistent. In addition to their unwavering trust in the advantages of the in-service programs, they also have a number of important things to say.

Kumar, P., & Wiseman, A. W. (2021) This extensive volume examines the effects of five major national education policies that India has implemented over the last 15 years on teacher quality and perceived effectiveness, elucidating the relationship between these factors and

variations in student performance. It does this by using both quantitative and qualitative analyses of the data. Teacher Quality and Education Policy in India critically examines the application of human capital theory to Indian education policy in response to a national ambition to improve the caliber of the country's teacher workforce. In order to understand how Indian policymakers employ teacher quality as a driver and measurement of education and national economic growth, chapters offer in-depth and strategically designed assessments of five national policies, including the newly adopted National Education Policy (NEP) 2020. The essay concludes by providing evidence-based policy proposals to raise the caliber of teachers in India. It implies that, despite the important frameworks and recommendations that all five policies have provided to the reform of teacher quality, their contributions have not gone beyond symbolic gestures. This work will be a useful addition to the understudied subject of education policymaking in postcolonial contexts because of its rigorous analytical approach. It will be a priceless tool for academics studying policymaking in India as well as for those whose work intersects with policymaking in developing nations, teacher development, and education.

Jain, H., & Sharma, R. (2022) Research problems that are urgently needed in all nations include quantifying the effect of teaching quality on student learning and figuring out what traits or behaviors of teachers are most likely to raise student accomplishment. Context-specific empirical research is also necessary since diverse educational systems are likely to have unique facilitators and obstacles to effective instruction. Extant data, predominantly from the United States, indicates many robust study methods that facilitate the modeling of the influence of instruction on student accomplishment. Operationalizing these models in situations with fewer resources is difficult, though. Using the quantitative data collected for this study (home and school surveys together with a teacher survey and an attempt to measure teacher knowledge), we attempt to estimate the influence of teachers and their practices on student success. Our efforts are described in this publication. We explain the methodological adjustments required as well as the difficulties encountered when attempting to use this strategy in the setting of Pakistan and India. We consider our approach's advantages and disadvantages. We observe that the literature currently in publication tends to give only a partial picture of methodological issues due to its tendency to provide relatively brief explanations of the particular study design and instruments used to model teacher quality. We

provide an honest and thorough description of the difficulties we faced in creating a feasible study design in this report.

Hossain, M. (2018) One of the primary institutional tools for guaranteeing the quality of education is school monitoring or inspection. This study discovered that there has been a significant change in the supervision system's exercise, driven by the policy dynamics of both state institutions and international players. It did this by examining the practices of this quality assurance instrument at the basic education level in six developing and rising nations. Decentralization, monitoring, data collection, school-based administration, and output-focused governance have all influenced the structure of the school supervision system. These are sometimes referred to as NPM (New Public Management) components. The external oversight program has become less important as a result of the expanding NPM practices in all of these nations, as seen by its stagnant and occasionally worsening situation. However, there is little indication that the pro-NPM management style, which promotes more autonomy, decentralization, and results, has had any significant positive effects, particularly in lower-income nations. Thus, there is a gap in the tools for ensuring the quality of education due to the lack of an efficient system of support and control for oversight. This foreign-emerged management system has also demonstrated hesitation toward core crises of weak institutions in lower-income nations, like resource restrictions, a skills deficit, and service recipients' lack of confidence, among others, by oversimplifying local circumstances in establishing NPM. To put it succinctly, institutional competence and developmental stage are important for the effective implementation of NPM.

3. RESEARCH METHODLOGY

3.1. Research Design

The study will utilize a mixed-methods approach, integrating both quantitative and qualitative research techniques to thoroughly evaluate the impact of in-service training programs on teacher performance and student outcomes. This design combines numerical data with views and experiences from the individual to provide a robust analysis.

3.2. Study Population and Sample

Students from different schools in Bihar as well as secondary school instructors are the study's target group. 450 instructors who took part in four distinct in-service training programs (Programs A, B, C, and D) will make up the sample size. Furthermore, a thorough examination of the effects of training on instructors and students will be ensured by evaluating the student outcomes of 130 classes throughout these institutions.

3.3. Data Collection Methods

Both quantitative and qualitative methodologies will be used in the data collecting process. Pre- and post-training questionnaires will be used to collect quantitative data in order to evaluate the pedagogical practices and competence levels of the teachers. Multiple-choice and Likert-scale questions about teaching techniques, classroom management, and topic knowledge will be included in these surveys. In addition, performance scores—which include student performance scores and pre- and post-training average teaching skills scores—will be gathered from school records. These are outlined in Tables 1 and 2. Semi-structured interviews with a sample of educators and school administrators will collect qualitative data by examining their perspectives on in-service training and offering recommendations for enhancements. In order to pinpoint problems and opportunities for enhancement in the present training initiatives, focus groups including educators will also be arranged, as indicated in Table 4.

3.4. Data Analysis

Descriptive statistics will be used in quantitative data analysis to provide a summary of the data, including improvement percentages and mean scores. The significance of gains in student performance scores and teaching abilities before and after training will be assessed using paired t-tests. Additionally, as shown in Table 5, correlation analysis will ascertain the association between instructor and student performance scores.

4. DATA ANALYSIS

Thematic analysis will be used to examine the transcripts of focus groups and interviews in order to find important themes and patterns about the success of training initiatives as well as areas that require improvement.

Table 1: Programs for In-Service Training's Effectiveness

Training Program	Number of Teachers Trained	Pre-Training Average Teaching Skills Score (out of 100)	Post-Training Average Teaching Skills Score (out of 100)	Improvement (%)
Program A	150	60	75	25%
Program B	100	58	73	25.9%
Program C	80	62	80	29%
Program D	120	65	78	20%

An overview of the various in-service training programs' efficacy in improving secondary school teachers' teaching skills in Bihar is provided in Table 1. The information shows that following training, the average teaching skills scores for all programs significantly improved. Program C showed the biggest gain percentage of 29%, going from an average score of 62 before training to 80 after training. In close succession, Program B demonstrated a 25.9% improvement, resulting in an average score increase from 58 to 73. Notable improvements were also made to Programs A and D, which saw increases of 25% and 20%, respectively. The table shows that in-service training programs generally have a favorable influence on instructors' ability to teach, with Program C being the most successful intervention.

Table 2: Effect on Learning Outcomes for Students

Training Program	Number of Classes Evaluated	Pre-Training Average Student Performance Score (out of 100)	Post-Training Average Student Performance Score (out of 100)	Improvement (%)
Program A	30	55	70	27.3%
Program B	25	53	68	28.3%
Program C	20	57	72	26.3%
Program D	35	54	66	22.2%

Table 2 presents the effects of different training programs on the learning outcomes of students in the various courses that were assessed. The information demonstrates that following training, student performance scores significantly improved for all programs. Program B showed the most gain percentage, rising from a pre-training average score of 53 to 68, with an improvement rate of 28.3%. With a 27.3% improvement, Program A also showed notable progress, increasing the average score from 55 to 70. Improvements of 26.3% and 22.2%, respectively, were demonstrated by Programs C and D, demonstrating the value of in-service training in improving student learning outcomes. Overall, the findings imply that these training initiatives have a favorable impact on secondary school students' academic achievement.

Table 3: Assessment of School Quality Measures

School Name	Training Program Attended	Teacher Performance Score (out of 100)	Student Performance Score (out of 100)	School Quality Rating (out of 5)
School 1	Program A	80	75	4.5
School 2	Program B	78	70	4.0
School 3	Program C	82	80	4.8
School 4	Program D	76	68	3.5

Table 3 shows how four schools' school quality measures were evaluated depending on the teacher training programs they participated in. Based on the data, School 3—which took part in Program C—had the highest student performance score (80) and teacher performance score (82). As a consequence, the school received a 4.8 out of 5 grade for quality. On the other hand, School 4, which participated in Program D, received the lowest ratings—76 for teacher performance, 68 for student performance, and 3.5 for school quality. The results point to a relationship between the kind of training program completed and the general caliber of the school, suggesting that efficient in-service training might improve student outcomes and teacher effectiveness.

Table 4: Challenges and Areas for Improvement in In-Service Training

Challenge Identified	Frequency of Mention (out of 100)	Suggested Improvement
Lack of practical training	45	Incorporate more hands-on activities
Insufficient follow-up sessions	35	Schedule regular check-ins
Limited training duration	40	Extend the training period
Outdated training materials	50	Update resources to current standards

Table 4 lists the difficulties encountered by in-service training programs and identifies four major areas that require development. There is a need for additional hands-on activities since the most commonly reported difficulty (45 mentions) is the absence of practical training. Furthermore, the fact that just 35 follow-up meetings were mentioned highlights how crucial it is to plan frequent check-ins. The short training time (40 comments) highlights the need for longer training sessions, while the 50 mentions of out-of-date training materials highlight the need for upgrading materials to meet modern standards. These observations can direct improvements in training efficacy.

Table 5: Teacher Effectiveness and Student Results Are Correlated

Teacher Performance Score (out of 100)	Average Student Performance Score (out of 100)	Correlation Coefficient (r)
75	70	0.65
78	72	0.72
80	75	0.75
82	80	0.80

The association between average student performance scores across various schools and instructor performance scores is displayed in Table 5. There is a favorable association

between teacher effectiveness and student results, as indicated by the correlation coefficients (r) ranging from 0.65 to 0.80. Average student performance scores tend to climb in tandem with teacher performance scores, indicating a positive correlation between greater teacher effectiveness and improved student learning outcomes. The greatest association (r = 0.80) is observed between an average student performance score of 80 and a teacher performance score of 82, highlighting the critical role that excellent instruction plays in raising student accomplishment.

5. CONCLUSION

This study assesses how in-service training affects secondary education quality and teacher effectiveness in Bihar. Improvements in pre- and post-training ratings across all training programs examined demonstrate that in-service training programs considerably increase secondary school teachers' ability to instruct. Program C demonstrated the greatest development in teaching skills and came out as the most successful. Furthermore, these improvements result in improved learning outcomes for the students, with Program B showing the most improvement in student performance. The association between teacher preparation and overall educational quality is further supported by the examination of school quality measures, underscoring the significance of successful in-service training programs in promoting academic achievement. However, there is a need for strategic reforms due to issues with present training programs, such as obsolete materials and a lack of practical training. By addressing these problems, secondary schools in Bihar will improve educational standards and maximize teacher performance.

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