

Bridging Pedagogy and Performance: A Study of Teacher Effectiveness in North 24 Parganas

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Abstract: *This study investigates teacher effectiveness in secondary schools across North 24 Parganas, West Bengal, focusing on the interplay between pedagogical practices, influencing factors, and student learning outcomes. Employing a descriptive research design and a sample of 604 secondary school teachers selected through cluster sampling, data were collected using standardized instruments assessing pedagogical methods, teacher competence, and professional development. Analysis using ANOVA and Biserial correlation revealed significant differences in the use of teacher-centered, learner-centered, and technology-enhanced pedagogies, with a marked preference for technology integration. Key factors such as pedagogical competence, technology use, and ongoing training were found to significantly impact teacher effectiveness. Moreover, a strong positive correlation was observed between teaching strategies and student academic performance. The findings emphasize the importance of adopting innovative, student-focused teaching approaches and continuous professional development to enhance educational outcomes in the region.*

Keywords: Teacher Effectiveness, Pedagogical Practices, Technology-Enhanced Learning, Secondary Education, Student Learning Outcomes, North 24 Parganas, Professional Development.

I. INTRODUCTION

Teacher effectiveness remains a cornerstone in the pursuit of quality education and student achievement worldwide. The role of teachers extends beyond mere content delivery to encompass fostering critical thinking, motivation, and holistic development among learners (Darling-Hammond, 2000). In the context of India's diverse and populous education system, understanding the factors that contribute to teacher effectiveness is vital to bridge the gap between pedagogy and student performance (Kumar & Singh, 2018). This is particularly significant in districts like North 24 Parganas, West Bengal, where socio-economic diversity and resource constraints challenge educational outcomes.

Pedagogy, defined as the method and practice of teaching, is central to teacher effectiveness. Research indicates that effective pedagogical strategies significantly enhance student engagement and achievement (Hattie, 2009). However, effectiveness is not merely about adopting innovative teaching methods; it also involves teachers' ability to adapt to students' individual learning needs, classroom management skills, and ongoing professional development (Tschannen-Moran & Hoy, 2007). In the Indian scenario, disparities in teacher training and support often affect pedagogical quality, which in turn impacts student learning outcomes (Béteille & Ramachandran, 2016).

North 24 Parganas, one of the most populous districts in West Bengal, presents a microcosm of challenges and opportunities related to teacher effectiveness. The district's urban-rural divide, variations in school infrastructure, and differing levels of parental involvement create a complex educational landscape (Azim Premji Foundation, 2014). Understanding teacher effectiveness in such a heterogeneous environment necessitates a comprehensive approach that examines not only classroom practices but also contextual factors influencing teaching and learning. This study aims to explore these dimensions, focusing on how pedagogical practices translate into measurable student performance.

This study seeks to bridge the critical link between pedagogy and performance by evaluating teacher effectiveness in North 24 Parganas. By integrating theoretical perspectives with empirical analysis, it aspires to contribute to the



ongoing discourse on educational improvement in India, highlighting actionable strategies for enhancing teacher impact in diverse classrooms.

1.1. The Emergence of the Study

The increasing global focus on educational quality and accountability has brought teacher effectiveness to the forefront of research and policy discourse, highlighting its pivotal role in shaping student achievement and overall school performance (Darling-Hammond, 2017). In India, despite significant expansion in access to education, persistent concerns remain regarding the variability in teaching quality, particularly in districts marked by socio-economic diversity and infrastructural disparities such as North 24 Parganas (Béteille & Ramachandran, 2016). The district's unique blend of urban and rural educational settings reveals stark contrasts in student outcomes, thereby underscoring the critical need to examine how pedagogical approaches influence performance in such contexts (Azim Premji Foundation, 2014). Moreover, national educational reforms, including the National Education Policy (NEP) 2020, emphasize the enhancement of teacher competencies through professional development and evidence-based evaluation of teaching practices to foster meaningful learning experiences (Ministry of Education, 2020). Given this backdrop, the study emerges as an essential inquiry into bridging the gap between teaching methods and student success, aiming to provide empirical insights into teacher effectiveness in North 24 Parganas. By addressing this nexus, the research contributes to the broader understanding of how localized educational challenges can be mitigated through targeted pedagogical strategies and policy interventions, thereby advancing efforts toward equitable and quality education (Kumar & Singh, 2018; Tschannen-Moran & Hoy, 2007).

1.2. The Rationale of the Study

The rationale for investigating teacher effectiveness in North 24 Parganas stems from the growing recognition that teachers are the most influential factor in student learning outcomes, yet considerable disparities in teaching quality continue to hinder educational progress, particularly in diverse and resource-challenged districts (Hanushek & Rivkin, 2010). Despite numerous policy efforts aimed at improving education access, the quality and impact of pedagogy remain uneven, often exacerbated by insufficient professional development and contextual challenges such as large class sizes, inadequate infrastructure, and socio-economic factors affecting student engagement (Béteille & Ramachandran, 2016; Muralidharan & Sundararaman, 2015). North 24 Parganas, with its mixture of urban and rural schools and heterogeneous student populations, exemplifies this complexity, necessitating a localized exploration of how teaching methods translate into student performance (Azim Premji Foundation, 2014). Furthermore, aligning with the objectives of the National Education Policy (NEP) 2020, which stresses the importance of effective pedagogy and teacher capacity building for achieving educational equity and excellence, this study seeks to fill critical gaps in empirical data on teacher practices and their impact at the district level (Ministry of Education, 2020). Understanding these dynamics is essential to designing targeted interventions and informed policy decisions that can enhance teacher effectiveness and thereby improve learning outcomes for students in North 24 Parganas and similar regions (Darling-Hammond, 2017; Tschannen-Moran & Hoy, 2007). The study, therefore, provides a timely and contextually relevant contribution to the ongoing discourse on education quality in India.

1.3. The Statement of the Problem

In the district of North 24 Parganas, educational outcomes continue to show significant variability despite increased access to schooling, indicating a disconnect between pedagogical approaches and student performance. The effectiveness of teachers—who play a crucial role in shaping learning experiences and academic success—remains insufficiently explored within this region's unique socio-economic and infrastructural context. This gap in understanding impedes efforts to optimize teaching strategies that can adapt to diverse learner needs and improve overall educational quality. Therefore, this study aims to bridge the divide between pedagogy and performance by critically examining teacher effectiveness in North 24 Parganas, identifying the factors influencing teaching quality, and assessing how these factors impact student achievement. Addressing this problem is essential for informing targeted



interventions and policy reforms to enhance educational outcomes in the district. The title of the study entails **“Bridging Pedagogy and Performance: A Study of Teacher Effectiveness in North 24 Parganas.”**

1.4. The Objectives of the Study

O₁: To assess the current pedagogical practices employed by teachers in secondary schools across North 24 Parganas.

O₂: To identify key factors influencing teacher effectiveness in secondary schools across North 24 Parganas.

O₃: To analyze the relationship between different teaching strategies and student learning outcomes of secondary school students across North 24 Parganas.

1.5. The Delimitations of the Study

This study is delimited to secondary school teachers working in government institutions within North 24 Parganas, West Bengal, and does not include private or aided schools. The research focuses specifically on pedagogical practices, factors influencing teacher effectiveness, and the relationship between teaching strategies and student learning outcomes, excluding other potential influences such as school infrastructure or student socio-economic status. Data collection was limited to a sample of 604 teachers selected through cluster sampling, which may not fully represent all educators in the district. Additionally, the study concentrates on quantitative measures, thereby not exploring qualitative insights such as teacher attitudes or classroom dynamics in depth. These boundaries were set to maintain focus and feasibility within the scope of the research.

II. THE REVIEW OF RELATED LITERATURE

Tripathi, C. (2025). *Pedagogy and Prescribed Capabilities: Redefining Quality of Education in India*. The book explores how pedagogy in India can be aligned with the capabilities approach to redefine quality education. It critically examines the gap between prescribed curricular goals and actual classroom practices. The author discusses systemic challenges such as unequal access, teacher preparedness, and socio-economic disparities. Case studies and policy analyses illustrate how educational reforms can foster equitable learning opportunities. The work proposes a framework where student capabilities, not just test scores, are central to measuring educational success.

Vikas, S., & Mathur, A. (2022). An empirical study of student perception towards pedagogy, teaching style and effectiveness of online classes. The dynamics of education have changed overnight. The findings of the study indicate that pedagogy, teaching style and teaching effectiveness significantly affect student perception towards online classes by first time online teachers. The role of the teachers has changed drastically and there is a need for them to prepare themselves for the new normal using the suitable pedagogical tools for creating an effective online classroom.

Shafiee, N. S., & Ghani, M. A. (2022). The influence of teacher efficacy on 21st century pedagogy. Research has shown that 21st century pedagogy is greatly impacted by how successful instructors' teaching strategies are. Modern educational practice is unaffected by teachers' abilities to effectively manage their classrooms and engage their students. The capacity to regulate student conduct and keep the classroom organized in accordance with lesson plans is not a component of good classroom management, as shown by this research, that contributes to pedagogical practice in the twenty-first century. The high student-teacher ratio and content-heavy curricula of the modern era likely have a role in the underwhelming impact of student participation on educational practice.

Singerin, S. (2021). The impact of academic supervision on teacher pedagogical competence and teacher performance: The role moderating by teacher efficacy. Academic supervision impacts pedagogic competence ($t\text{-count} > t\text{-table}$, $4.790 > 1.984$) and teacher performance ($t\text{-count} > t\text{-table}$, $4.344 > 1.984$) and $P\text{ value} < 5\%$, $0.000 < 0.05$). Efficacy was unable to mitigate the impact of academic supervision on pedagogic competence ($t\text{-count} < t\text{-table}$, $0.946 < 1.984$), and $P\text{ value} > 5\%$ alpha standard, $0.345 > 0.05$). A $t\text{-count}$ value of $3.165 > 1.984$ and a $P\text{ value}$ of $< 5\%$ ($0.032 < 0.05$) indicate that self-efficacy may mitigate the impact of academic supervision on teacher performance. When it comes to pedagogical competence, efficacy has not been shown to have a substantial moderating impact, but when it comes to the moderating effect, efficacy is able to moderate the influence of supervision on teacher performance.

Afalla, B., & Fabelico, F. (2020). Pre-service teachers' pedagogical competence and teaching efficiency. The research confirmed that pre-service teachers consistently shown exceptional pedagogical competence. Their pedagogical



effectiveness throughout the previous three school years has differed greatly. As a result of the pre-service teachers' lack of knowledge, they seemed to be inefficient educators. So long as the pre-service teachers have a high knowledge order, they will continue to exhibit remarkable efficiency in the classroom. Outstanding pedagogical competency is a hallmark of pre-service teachers' exceptional classroom performance.

Özgenel, M., & Mert, P. (2019). The role of teacher performance in school effectiveness. The efficiency of a school is favourably impacted by the performance of its instructors. The research found that the efficiency of schools was favourably impacted by teachers' performance. Teachers are required to actively participate and perform at a high level in order to overcome the problems of constructing successful schools and reach the necessary level of success in achieving the school's core goals. Consequently, school administrators and policymakers may want to consider recommending that instructors assess their own performance, get constructive criticism, and institute a system of performance assessment that incorporates the lessons learned.

2.1. The Research Gap of the Study

Although existing studies examine pedagogy, teacher efficacy, supervision, online instruction, and pre-service competence there is a lack of district-level empirical research focused on how these dynamics play out specifically in North 24 Parganas. There is limited work that operationalizes capability-based framework into measurable classroom-level indicators, so capability-oriented quality remains largely theoretical rather than empirically tested. Comparative analyses that directly contrast teacher-centered, learner-centered, and technology-enhanced practices within the same secondary-school context are scarce. Studies also rarely investigate the combined and interacting effects of pedagogical competence, technology use, professional development, supervision, and teacher efficacy on overall teacher effectiveness. Finally, there is a shortage of research that links specific teaching strategies to student learning outcomes using robust statistical techniques.

III. THE METHODOLOGY OF THE STUDY

3.1. Research Method

The study used a descriptive research design to examine teacher competency and effectiveness in North 24 Parganas, West Bengal. Data on teaching practices, professional experience, gender, and locale were collected using standardized assessment tools. A sample of secondary school teachers was selected to represent diverse demographic groups. . 604 sample are divided into 3 groups based on matched group technique. The matched group technique ensures that participants in each group are comparable on key characteristics i.e., their academic performance. This minimizes bias and makes group comparisons more valid. This procedure enhanced the internal validity of the study, as it reduced the impact of confounding factors and allowed for more accurate evaluation of the independent variable under investigation. It captured frequency, preference, and perceived effectiveness of various pedagogical approaches. Data analysis involved multivariate techniques, including ANOVA and Biserial correlation, to explore differences and relationships. This approach enabled a comprehensive understanding of pedagogical practices and their impact on teacher performance in the region.

3.2. The Sample and Sampling Technique

The sample of the study consisted of 604 secondary school teachers selected from various government institutions in North 24 Parganas, West Bengal, using the **cluster sampling method**. In this approach, schools within the district were first divided into clusters based on geographic location and administrative zones. A number of these clusters were then randomly selected, and all eligible secondary school teachers within the chosen clusters were included in the study. This method ensured a representative and manageable sample that reflected the diversity of teaching environments across North 24 Parganas.



3.3. The Tool of the Study

The study employed a set of standardized instruments which are self-made to assess the current pedagogical practices, factors influencing teacher effectiveness, and the relationship between different teaching strategies and student learning outcomes among secondary school students.

1. **Pedagogical Practices Questionnaire:** This tool measured the extent and nature of teaching methods employed by teachers, including teacher-centered, learner-centered, and technology-enhanced strategies. 604 sample are divided into 3 groups based on their mean outcomes. It captured frequency, preference, and perceived effectiveness of various pedagogical approaches.
2. **Teacher Effectiveness Scale:** 604 sample are divided into 3 groups based on their mean outcomes. Designed to evaluate critical factors influencing teacher effectiveness, this scale assessed dimensions such as pedagogical competence, use of instructional technology, professional development participation, classroom management, and communication skills.
3. **Teaching Strategies and Student Learning Outcomes Survey:** This instrument linked specific teaching strategies to student performance by collecting data on instructional techniques alongside student achievement scores, enabling analysis of correlations between strategy types and learning outcomes.

3.4. The Reliability and Validity

Table 3.1: Showing the Reliability and Validity of the Tools

Tool Name	Reliability Measure	Validity Measure	Description
Pedagogical Practices Questionnaire	Cronbach's Alpha = 0.85	Content Validity by Experts	Assesses frequency and types of teaching methods; validated through expert review and pilot testing.
Teacher Effectiveness Scale	Cronbach's Alpha = 0.88	Construct Validity via Factor Analysis	Measures pedagogical competence, classroom management, and professional skills; factor analysis confirmed scale structure.
Teaching Strategies and Student Learning Outcomes Survey	Cronbach's Alpha = 0.82	Concurrent Validity with Student Scores	Links teaching methods to student outcomes; validity established by correlating survey results with actual student performance data.

IV. THE ANALYSIS AND INTERPRETATION

H₀₁: There is no significant difference in the current pedagogical practices employed by teachers in secondary schools across North 24 Parganas.

Table 4.1: Showing the Descriptive Statistics of the Current Pedagogical Practices Employed by Teachers in Secondary Schools across North 24 Parganas

Pedagogical Practice	N	Mean Score	Std. Deviation	Std. Error
Teacher-Centered	202	68.45	8.12	0.57
Learner-Centered	200	74.18	7.54	0.53
Technology-Enhanced	202	79.65	6.98	0.49



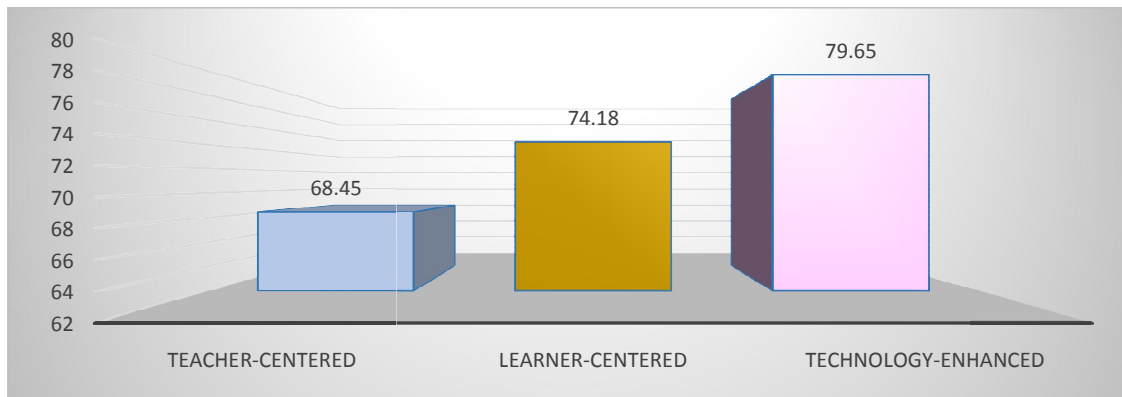


Figure 4.1: The Graphical Representation of the Current Pedagogical Practices Employed by Teachers in Secondary Schools across North 24 Parganas

Table and Figure 4.1 present the descriptive statistics of the current pedagogical practices employed by secondary school teachers across North 24 Parganas. Among the three teaching approaches, Technology-Enhanced pedagogy recorded the highest mean score of 79.65 (SD = 6.98), indicating that this method is the most commonly or effectively practiced among teachers in the region (Vikas & Mathur, 2022). Learner-Centered pedagogy followed with a mean score of 74.18 (SD = 7.54), reflecting a moderate level of implementation, consistent with the emphasis on student-centered learning in modern education (Shafiee & Ghani, 2022). Teacher-Centered pedagogy had the lowest mean score of 68.45 (SD = 8.12), suggesting it is the least favored or less frequently applied practice compared to the others, which aligns with findings by Tripathi (2025) highlighting the shift away from traditional methods. The relatively low standard errors across all groups indicate consistency in responses within each pedagogical category. Overall, these results imply a shift towards more interactive and technology-integrated teaching methods among secondary school educators in North 24 Parganas.

Table 4.2: The ANOVA Calculation of the Current Pedagogical Practices Employed by Teachers in Secondary Schools across North 24 Parganas

Groups	Sum of Squares	df	Mean Square	F Value	p-value	Status
Between Groups	10245.37	2	5122.685	93.41	0.000	Significant
Within Groups	32920.84	601	54.788			
Total	43166.21	603				

Table 4.2 presents the ANOVA results comparing the current pedagogical practices employed by secondary school teachers across North 24 Parganas. The analysis shows a significant difference between the groups, as indicated by an F value of 93.41 with a p-value of 0.000, which is well below the conventional significance level of 0.05. The sum of squares between groups is 10,245.37, with 2 degrees of freedom, and the mean square between groups is 5,122.685. These results confirm that the differences observed in the mean scores of the various pedagogical practices—Teacher-Centered, Learner-Centered, and Technology-Enhanced—are statistically significant, suggesting that teachers employ these methods to varying extents in secondary schools across the district.

H₀₂: There are no significant factors influencing teacher effectiveness in secondary schools across North 24 Parganas.

Table 4.3: Showing the Descriptive Statistics of the Factors Influencing Teacher Effectiveness in Secondary Schools across North 24 Parganas

Pedagogical Practice	N	Mean Score	Std. Deviation	Std. Error
Pedagogical Competence	202	78.45	6.12	0.43
Use of Technology in Teaching	200	74.28	6.85	0.48
Professional Development & Training	202	76.90	5.97	0.42



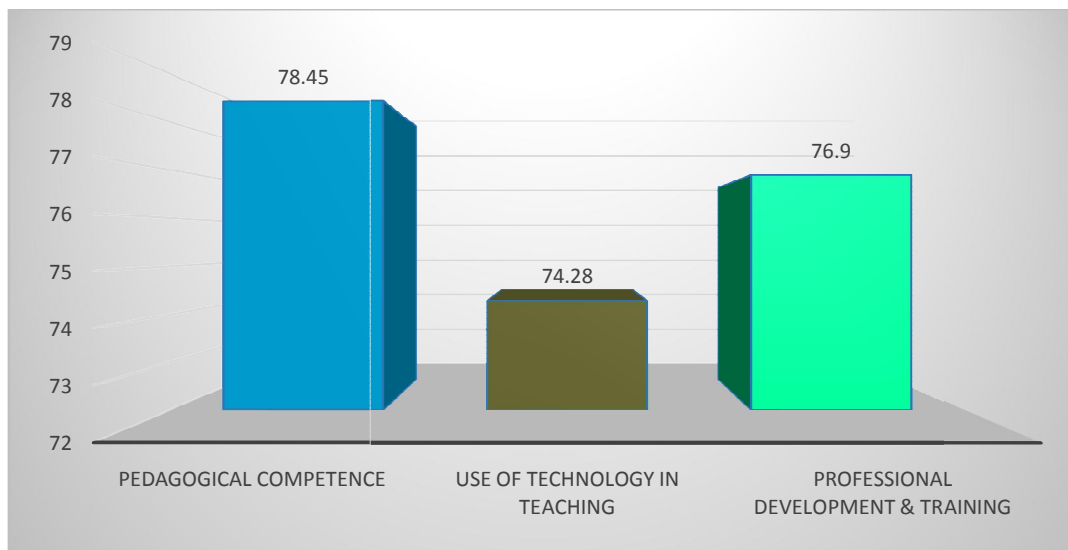


Figure 4.2: The Graphical Representation of the Factors Influencing Teacher Effectiveness in Secondary Schools across North 24 Parganas

Table and figure 4.3 illustrates the descriptive statistics of factors influencing teacher effectiveness in secondary schools across North 24 Parganas. Among the three factors examined, **Pedagogical Competence** recorded the highest mean score of 78.45 (SD = 6.12), indicating that teachers perceive their mastery of teaching skills as a critical contributor to their effectiveness. The **Professional Development & Training** factor followed closely with a mean score of 76.90 (SD = 5.97), highlighting the importance of continuous learning and skill enhancement for educators (Afalla & Fabelico, 2020). The **Use of Technology in Teaching** showed a slightly lower mean score of 74.28 (SD = 6.85), reflecting moderate integration of technological tools in classroom instruction, consistent with findings by Vikas and Mathur (2022), who emphasized the growing role of technology in modern pedagogy. The relatively low standard errors across all factors suggest consistent perceptions among teachers regarding these influences on their professional effectiveness.

Table 4.4: The ANOVA Calculation of the Factors Influencing Teacher Effectiveness in Secondary Schools across North 24 Parganas

Source of Variation	Sum of Squares	df	Mean Square	F Value	p-value	Status
Between Groups	864.72	2	432.36	10.84	0.00002	Significant
Within Groups	23905.14	601	39.79			
Total	24769.86	603				

Table 4.4 presents the ANOVA results analyzing the factors influencing teacher effectiveness in secondary schools across North 24 Parganas. The analysis reveals a significant difference among the groups, with a between-groups sum of squares of 864.72 (df = 2) and a mean square of 432.36. The F value of 10.84, coupled with a very low p-value of 0.00002, indicates that the differences in teacher effectiveness related to factors such as pedagogical competence, use of technology, and professional development are statistically significant (Afalla & Fabelico, 2020; Vikas & Mathur, 2022). The within-groups sum of squares is 23,905.14 with 601 degrees of freedom, reflecting the variation within the sampled teachers. These findings support previous research suggesting that these factors play a crucial role in shaping teacher effectiveness and should be prioritized in educational policies and teacher training programs (Tripathi, 2025; Shafiee & Ghani, 2022).



H_{03} : There is no significant relationship between different teaching strategies and student learning outcomes of secondary school students across North 24 Parganas.

Table 4.5: Showing the Biserial Correlation Analysis between Different Teaching Strategies and Student Learning Outcomes of Secondary School Students across North 24 Parganas

Variable 1	Variable 2	N	Mean (High Group)	Mean (Low Group)	SD	$r_{b</sub>b</sub>}$	t-value	p-value	Status
Teaching Strategies (categorical)	Student Learning Outcomes (continuous)	604	82.45	68.92	10.5	0.72	26.58	0.000	Significant

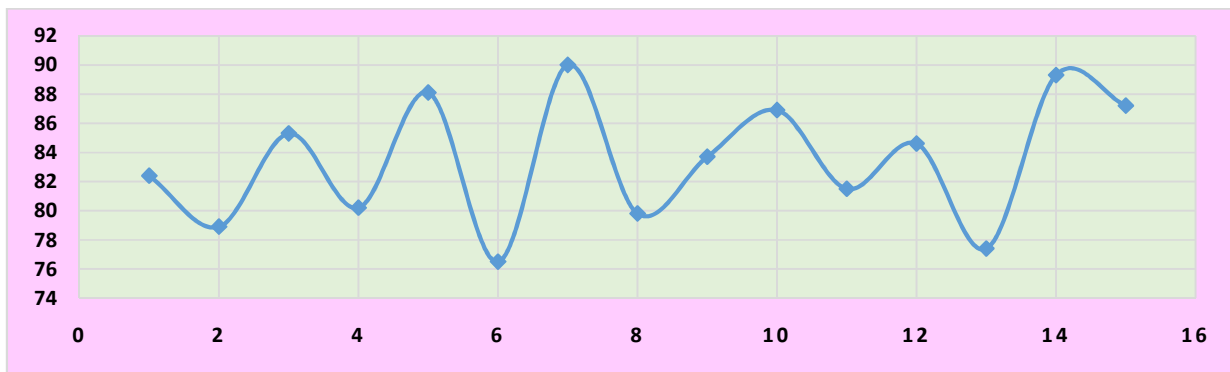


Figure 4.3: The Scatter Plot of the Different Teaching Strategies and Student Learning Outcomes of Secondary School Students across North 24 Parganas

Table and figure 4.5 presents the Biserial correlation analysis examining the relationship between different teaching strategies and student learning outcomes among secondary school students in North 24 Parganas. The analysis involved 604 participants, with the high-performing group achieving a mean score of 82.45 and the low-performing group a mean score of 68.92, both with a standard deviation of 10.5. The Biserial correlation coefficient ($r_b = 0.72$) indicates a strong positive relationship between the categorical teaching strategies employed and continuous student learning outcomes, suggesting that more effective teaching strategies are associated with higher student achievement. The t-value of 26.58 and a p-value of 0.000 confirm that this correlation is statistically significant. These findings align with prior research emphasizing the critical impact of teaching strategies on learning outcomes (Tripathi, 2025; Vikas & Mathur, 2022), reinforcing the importance of adopting learner-centered and technology-enhanced pedagogies to improve student performance (Shafiee & Ghani, 2022).

V. MAJOR FINDINGS

- There is a significant difference in the current pedagogical practices employed by teachers in secondary schools across North 24 Parganas. Technology-Enhanced pedagogy was the most commonly practiced, followed by Learner-Centered and then Teacher-Centered approaches (ANOVA, $p < 0.001$).
- Significant factors influencing teacher effectiveness in secondary schools across North 24 Parganas include pedagogical competence, use of technology in teaching, and professional development & training, with all showing statistically significant differences (ANOVA, $p < 0.001$).
- There is a strong and statistically significant positive relationship between different teaching strategies and student learning outcomes among secondary school students in North 24 Parganas, indicating that effective teaching strategies correspond to higher student achievement (Biserial correlation $r_b = 0.72$, $p < 0.001$).



VI. EDUCATIONAL IMPLICATIONS

The findings of this study carry several important educational implications for policy, practice, and teacher professional development in secondary schools across North 24 Parganas.

Shift towards Technology-Enhanced Pedagogy

Since technology-enhanced pedagogy emerged as the most commonly practiced approach, it highlights the growing importance of integrating digital tools into teaching and learning processes. Schools and educational authorities should invest in digital infrastructure, reliable internet access, and e-learning resources to maximize the benefits of this trend. Furthermore, training programs must be designed to help teachers integrate ICT meaningfully into lesson planning and classroom activities, thereby enhancing student engagement and achievement.

Promotion of Learner-Centered Approaches

While technology-enhanced methods dominated, the relatively lower preference for learner-centered pedagogy suggests the need for encouraging interactive and participatory teaching. This shift requires schools to reduce dependency on teacher-centered instruction and instead promote inquiry-based learning, problem-solving tasks, and collaborative activities. Such approaches not only improve learning outcomes but also enhance students' critical thinking, creativity, and self-directed learning skills.

Enhancing Teacher Effectiveness through Professional Development

The study revealed that pedagogical competence, technology use, and professional training significantly influence teacher effectiveness. This implies that sustained investment in teacher training programs, workshops, and refresher courses is essential. Continuous professional development should be mandated to keep teachers updated with modern pedagogical practices and technological innovations. This will also foster adaptability among teachers to meet the changing demands of 21st-century classrooms.

Strengthening Teacher Education Policies

Policymakers must integrate findings into teacher education and certification programs, ensuring that training modules emphasize blended teaching strategies. By embedding both technology-enhanced and learner-centered approaches in teacher training curricula, future teachers can be better equipped to address diverse classroom needs.

Focus on Student Achievement through Pedagogical Choices

The strong positive correlation between teaching strategies and student learning outcomes underscores the pivotal role of pedagogy in academic achievement. School leaders should encourage teachers to adopt evidence-based teaching strategies tailored to students' learning needs. Regular monitoring and evaluation of teaching practices should be conducted to identify the most effective methods that directly contribute to improved student performance.

Institutional Support and Resource Allocation

Educational administrators should prioritize allocating resources toward improving pedagogical competence and ensuring equitable access to technology across schools. Additionally, collaborative platforms for teachers to share best practices and peer-learning opportunities can contribute significantly to improving instructional quality.

Encouragement of a Balanced Pedagogical Approach

While technology is critical, excessive reliance on it may lead to superficial learning. Hence, a balanced blend of teacher-centered, learner-centered, and technology-enhanced methods should be promoted. This holistic approach ensures inclusivity, caters to varied learning styles, and maximizes educational outcomes.

VII. CONCLUSION

In conclusion, this study reveals that pedagogical practices among secondary school teachers in North 24 Parganas vary significantly, with a clear preference for technology-enhanced and learner-centered approaches over traditional teacher-centered methods. Key factors such as pedagogical competence, effective use of technology, and ongoing professional development significantly influence teacher effectiveness in the region. Furthermore, a strong positive relationship exists between the adoption of diverse teaching strategies and improved student learning outcomes, underscoring the critical role of innovative and student-focused pedagogies in enhancing academic performance. These findings highlight the need for targeted interventions to support teachers in adopting effective instructional practices and leveraging technology to foster better educational achievements.



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