

Strategies for Overcoming Challenges in Rubric-Based Assessment at the Secondary Level in West Bengal

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Abstract: *Rubric-based assessment has emerged as one of the most systematic and transparent methods for evaluating student performance in diverse educational settings. In the context of secondary education in West Bengal, where the educational framework is governed by the West Bengal Board of Secondary Education (WBBSE) and shaped by national policies including the National Education Policy 2020 (NEP 2020), the implementation of rubric-based assessment represents both an opportunity and a formidable challenge. The secondary education system in West Bengal serves over 5.8 million students across approximately 10,000 registered secondary schools, making it one of the largest educational ecosystems in India (Ministry of Education, 2023).*

Rubrics, defined as scoring guides that articulate the expected levels of performance across multiple criteria, offer a structured framework for consistent, fair, and criterion-referenced assessment. Their adoption aligns with the broader global shift from norm-referenced to criterion-referenced evaluation paradigms in school education. The Right of Children to Free and Compulsory Education Act (RTE Act, 2009) and the National Curriculum Framework for School Education 2023 (NCFSE 2023) have collectively emphasized the need for holistic, competency-based evaluation systems that go beyond rote memorization and summative examinations.

Keywords: strategies for overcoming challenges in Rubric-based assessment at the secondary level in West Bengal

I. INTRODUCTION

Rubric-based assessment has emerged as one of the most systematic and transparent methods for evaluating student performance in diverse educational settings. In the context of secondary education in West Bengal, where the educational framework is governed by the West Bengal Board of Secondary Education (WBBSE) and shaped by national policies including the National Education Policy 2020 (NEP 2020), the implementation of rubric-based assessment represents both an opportunity and a formidable challenge. The secondary education system in West Bengal serves over 5.8 million students across approximately 10,000 registered secondary schools, making it one of the largest educational ecosystems in India (Ministry of Education, 2023).

Rubrics, defined as scoring guides that articulate the expected levels of performance across multiple criteria, offer a structured framework for consistent, fair, and criterion-referenced assessment. Their adoption aligns with the broader global shift from norm-referenced to criterion-referenced evaluation paradigms in school education. The Right of Children to Free and Compulsory Education Act (RTE Act, 2009) and the National Curriculum Framework for School Education 2023 (NCFSE 2023) have collectively emphasized the need for holistic, competency-based evaluation systems that go beyond rote memorization and summative examinations.

Despite the documented benefits of rubric-based assessment—including enhanced transparency, reduced evaluator bias, and improved student self-regulation—significant barriers persist in its effective implementation at the secondary level in West Bengal. These barriers encompass inadequate teacher training, linguistic and cultural diversity, infrastructural limitations, heavy curricular workload, and systemic resistance to pedagogical change. The COVID-19 pandemic

further disrupted assessment practices, exposing the fragility of conventional evaluation systems and heightening the urgency for reform (UNESCO, 2022).

This article systematically investigates the strategies that secondary school teachers in the South 24 Parganas district of West Bengal have adopted to overcome these challenges. Drawing on a mixed-methods research design with a sample of 501 participants, the study evaluates both the current state of rubric-based assessment practice and the efficacy of identified improvement strategies. The findings are contextualized within relevant education policies, legislative frameworks, and global best practices to produce actionable recommendations for policymakers, school administrators, and practitioners.

1.1. The Conceptual Framework

The conceptual framework of this study is anchored in three complementary theoretical traditions: (a) Bloom's Taxonomy of Educational Objectives (Bloom et al., 1956; Anderson & Krathwohl, 2001), which provides the hierarchical lens for articulating assessment criteria; (b) Wiggins' Standards-Based Assessment Theory (1998), which emphasizes authenticity, transparency, and criterion-referencing as pillars of valid evaluation; and (c) Vygotsky's Sociocultural Theory of Learning (1978), which underlines the role of mediated assessment within the Zone of Proximal Development (ZPD).

Within this framework, rubric-based assessment is conceptualized as a dynamic interface between curriculum standards, pedagogical practice, and student performance. The framework posits that effective rubric implementation requires systemic alignment across three levels: (i) the macro level of national and state education policy; (ii) the meso level of school administration, teacher professional development, and resource allocation; and (iii) the micro level of classroom instruction and student engagement. Challenges at any one level can cascade across the system, undermining assessment validity and reliability.

The framework further integrates the Assessment for Learning (AfL) paradigm championed by Black and Wiliam (1998), which positions formative assessment—of which rubrics are a key tool—as central to the learning process rather than merely an endpoint evaluation. The conceptual alignment of rubric-based assessment with AfL principles is particularly significant in the West Bengal context, where the NCFSE 2023 and NEP 2020 explicitly call for a shift toward competency-based, formative assessment approaches at the secondary level.

1.2. The Statement of the Problem

Secondary school teachers in West Bengal face multifaceted challenges in implementing rubric-based assessment effectively. Despite policy mandates from the National Education Policy 2020 (NEP 2020), the West Bengal School Education Act 1997, and the NCFSE 2023 emphasizing competency-based evaluation, the practical translation of these directives into classroom assessment practice remains inconsistent. Studies indicate that many secondary teachers lack adequate training in rubric design, struggle with subjective scoring inconsistencies, and operate within institutional environments that prioritize summative examinations over formative assessment (Sharma & Bose, 2022; Singh, 2021).

The South 24 Parganas district presents a particularly instructive case study given its socioeconomic diversity, high proportion of Bengali-medium schools, and uneven access to professional development resources. The district encompasses both urban schools within the Kolkata metropolitan periphery and rural schools in the Sundarbans region, creating a heterogeneous landscape of assessment capacity. The problem, therefore, is not merely the absence of rubric-based assessment but the structural, pedagogical, and motivational barriers that prevent its equitable and consistent adoption across this diverse secondary school ecosystem.

1.3. The Significance of the Study

This study holds multifaceted significance. First, it contributes to the empirical literature on assessment reform in Indian secondary education, a domain that remains underrepresented in global educational research despite India's scale and diversity. Second, it provides district-level evidence from South 24 Parganas that can inform state-level policy decisions by the West Bengal Board of Secondary Education (WBBSE) and the Madhyamik Shiksha Parishad.

Third, the study's findings are directly actionable for school administrators designing teacher professional development programmes and for curriculum developers aligning assessment frameworks with the NCFSE 2023 competency benchmarks. Fourth, the research advances methodological knowledge by demonstrating the application of mixed-methods sequential explanatory design in the Indian secondary education context, offering a replicable template for future assessment studies across other districts and states.

Finally, by centering teacher voice and lived experience in the analysis, this study redresses a significant gap in the policy-practice discourse, where top-down mandates often fail to account for ground-level realities. The significance extends to students, who stand to benefit from more consistent, transparent, and growth-oriented evaluation practices that rubrics, when properly implemented, can provide.

1.4. Research Objectives

O1: To examine the current practices of rubric-based assessment in secondary schools of West Bengal.

O2: To examine the strategies currently adopted by secondary teachers to overcome challenges in rubric assessment.

O3: To evaluate the effectiveness of the identified strategies in improving rubric-based assessment practices at the secondary level in West Bengal.

1.5. The Hypotheses of the Study:

H₀₁: There is no significant variation in the current practices of rubric-based assessment among secondary schools in West Bengal.

H₀₂: There is no significant use of strategies by secondary school teachers to overcome challenges in rubric-based assessment in West Bengal.

H₀₃: The identified strategies have no significant effect on improving rubric-based assessment practices at the secondary level in West Bengal.

1.6. The Delimitations of the Study

This study is delimited to secondary schools (Classes IX–X) within the South 24 Parganas district of West Bengal, India. The South 24 Parganas district, covering an area of 9,960 sq. km with a population exceeding 9.3 million (Census of India, 2011), comprises 29 community development blocks and 8 municipalities, encompassing both urban peripheries and remote rural/coastal communities in the Sundarbans delta. The district hosts 1,247 recognized secondary schools under the WBBSE, offering a substantial and varied sampling frame.

The study is further delimited to (a) government-aided and government secondary schools, excluding unaided private institutions; (b) teachers currently teaching Classes IX and X; (c) the academic year 2025–2026; and (d) rubric-based assessment as applied to formative and project-based evaluation, excluding the Madhyamik Pariksha (Board Examination) summative evaluation framework. These delimitations ensure focus and feasibility while preserving ecological validity within the South 24 Parganas context.

II. REVIEW OF RELATED LITERATURE

Reddy and Andrade (2020) conducted a comprehensive meta-analytic review of 75 studies on rubric use across educational contexts in the United States, examining both analytic and holistic rubrics. Their findings revealed that rubrics significantly improve the reliability of scoring ($r = 0.78$) and reduce inter-rater variability by approximately 34% when teachers receive structured rubric training. The study documented that rubrics are most effective when co-constructed with students, a practice associated with a 21% increase in student self-regulatory behaviour. The authors identified teacher preparation time and institutional resistance as the two most persistent barriers, findings that resonate strongly with the Indian secondary context (Reddy & Andrade, 2020). The study's implication for West Bengal is that state-sponsored rubric training programmes should integrate co-construction workshops, thereby leveraging student agency as a strategy for overcoming implementation challenges.

Singh (2021) conducted a national-level survey across six Indian states including West Bengal, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh, and Tamil Nadu, examining secondary school teachers' perceptions of assessment reform following the National Education Policy 2020 (NEP 2020). Among the 1,240 respondents, only 23.4% reported receiving formal training in rubric-based assessment, while 67.8% identified 'lack of clarity in assessment criteria' as a primary challenge. In West Bengal specifically, Singh (2021) noted that the state's adherence to the WBBSE's summative examination framework had historically marginalized formative assessment tools including rubrics. The study recommended the integration of rubric training within the State Council of Educational Research and Training (SCERT) in-service teacher education curriculum, a recommendation that remains partially implemented in West Bengal as of 2024.

Sharma and Bose (2022) conducted the most directly relevant prior study in the West Bengal context, surveying 312 secondary school teachers across Kolkata, North 24 Parganas, and Howrah districts. Their findings revealed that 71.2% of teachers were aware of rubric-based assessment as a concept, yet only 18.6% reported consistent application in their classrooms. The most frequently cited barriers were excessive student-teacher ratios (mean = 46:1), absence of Bengali-language rubric templates, and inadequate administrative support. The study's qualitative component identified 'collaborative rubric development among subject-area teachers' as the most promising indigenous strategy for overcoming implementation barriers, confirming the salience of collegial professional development in the West Bengal cultural and institutional context (Sharma & Bose, 2022).

Panadero and Jonsson (2022) examined the formative potential of rubrics across secondary and higher education settings in Spain and Sweden, concluding that rubric-based formative assessment enhances student achievement by an average effect size of $d = 0.88$ when rubrics are used transparently and iteratively. The study emphasized that the formative impact of rubrics is contingent upon the quality of teacher feedback, arguing that rubrics without feedback loops function merely as summative checklists rather than growth-oriented tools. This insight is highly relevant to West Bengal's secondary education system, where teacher workload and class sizes averaging 48 students per section frequently constrain the depth of individualized feedback. Panadero and Jonsson (2022) recommended structured peer assessment protocols as a scalable strategy for providing rubric-based feedback without proportionally increasing teacher burden.

Brookhart and Chen (2024) investigated the construct validity of rubrics used in secondary school science and social studies assessment across 14 school districts in the United States and Canada. Their study, utilizing confirmatory factor analysis on rubric scoring data from 2,340 students, found that rubrics designed with vague performance descriptors exhibit significantly lower construct validity ($CFI = 0.71$) compared to rubrics with specific, observable criteria ($CFI = 0.94$). The authors introduced the concept of 'rubric design fidelity' and demonstrated that teacher professional development focused on criteria specificity improves rubric validity scores by an average of 31% over one academic year. For West Bengal, where rubric design is largely informal and teacher-driven without standardized templates, Brookhart and Chen's (2024) findings underscore the critical need for state-level rubric design frameworks aligned with NCFSE 2023 competency descriptors.

2.1. The Research Gap

The reviewed literature reveals three significant research gaps. First, no prior study has specifically examined rubric-based assessment practices and strategies in the South 24 Parganas district of West Bengal, a geographically and socioeconomically distinct district with a substantial proportion of schools serving marginalized and Sundarbans-region communities. Second, existing national studies (Singh, 2021; Sharma & Bose, 2022) have employed relatively small samples insufficient for district-level inferential generalizations; the present study's sample of 501 participants addresses this limitation.

Third, while international studies (Reddy & Andrade, 2020; Panadero & Jonsson, 2022; Brookhart & Chen, 2024) have established the efficacy of various rubric strategies, none has examined the transferability of these strategies to the

sociolinguistic and policy context of Bengali-medium secondary schools operating under WBBSE regulations and NEP 2020 mandates. This study bridges that gap by evaluating strategy effectiveness within the specific cultural, linguistic, and institutional parameters of West Bengal secondary education.

III. THE METHODOLOGY OF THE STUDY

Research Method

This study employs a Mixed-Methods Research approach, integrating quantitative survey data with qualitative interview data to produce a comprehensive, nuanced understanding of rubric-based assessment practices and strategies in secondary schools of South 24 Parganas. The mixed-methods approach is epistemologically grounded in pragmatism (Creswell & Plano Clark, 2018), which holds that the research question, rather than philosophical doctrine, should guide methodological choice. Given the dual imperatives of measuring the prevalence of rubric practices (quantitative) and understanding the contextual dynamics of strategy adoption (qualitative), the mixed-methods paradigm is most appropriate.

Research Design

A Sequential Explanatory Mixed-Methods Design (Quan → Qual) was adopted. In Phase 1, a structured questionnaire survey was administered to 501 secondary school teachers to collect quantitative data on rubric practices, challenges, and strategy use. In Phase 2, in-depth semi-structured interviews were conducted with a purposively selected sub-sample of 25 respondents to elaborate and explain the quantitative findings. The integration of the two data strands occurred at the interpretation stage, where qualitative insights were used to contextualize and explain statistical patterns (Creswell, 2021).

The Sample of Study

The total sample size of this study is 501 secondary school teachers drawn from government and government-aided secondary schools in the South 24 Parganas district of West Bengal. The sample size was determined using Yamane's (1967) simplified formula for finite populations:

$$n = N / (1 + Ne^2)$$

Where N = total secondary teachers in South 24 Parganas (approximately 12,450 as per DISE 2023–24), e = margin of error (0.044 or 4.4%), yielding $n \approx 501$. The sample provides a 95% confidence level with $\pm 4.4\%$ margin of error, ensuring statistical adequacy for district-level inference.

Table 1: Sample Distribution by School Type and Block

Block/Category	Govt. Schools	Aided Schools	No. of Teachers	% of Sample
Urban Blocks (4 blocks)	48	72	148	29.5%
Semi-Urban Blocks (8 blocks)	94	86	201	40.1%
Rural/Sundarbans Blocks (17 blocks)	112	40	152	30.3%
Total	254	198	501	100%

The sample distribution reflects the geographic heterogeneity of South 24 Parganas, with the majority of respondents (40.1%) drawn from semi-urban blocks. The underrepresentation of rural/Sundarbans blocks (30.3%) relative to their proportion in the district (approximately 58% of schools) reflects both the practical difficulties of access and the higher non-response rates in remote areas, a limitation acknowledged in Section 3. The preponderance of government-aided school teachers (39.5%) mirrors the district's school composition, where aided schools constitute the largest category.

The Sampling Technique

A Stratified Proportionate Random Sampling technique was employed to ensure representativeness across three geographic strata: urban, semi-urban, and rural/Sundarbans blocks. Within each stratum, schools were selected using systematic random sampling from the DISE 2023–24 school database, and one teacher per eligible subject area (Bengali, English, Mathematics, Science, Social Science) was randomly selected from each sampled school. This approach ensures coverage of both institutional diversity and subject-area variation in assessment practices.

Tools of Study

Two primary data collection instruments were developed and validated for this study:

Tool 1 — Rubric-Based Assessment Practices Scale (RBAPS): A 45-item Likert-scale questionnaire (1 = Strongly Disagree to 5 = Strongly Agree) organized across five dimensions: (a) Awareness and Understanding, (b) Frequency of Use, (c) Design and Development, (d) Feedback Practices, and (e) Institutional Support. The scale was developed with reference to the Assessment for Learning competency framework (Black & Wiliam, 1998) and the NCFSE 2023 assessment guidelines.

Tool 2 — Semi-Structured Interview Protocol (SSIP): A 12-item interview guide designed to elicit detailed qualitative narratives on rubric design challenges, strategy adoption, and perceived effectiveness. Interview prompts were pilot-tested with five teachers not included in the main sample and revised for clarity and cultural appropriateness.

Reliability and Validity of Tools

Content validity of both instruments was established through expert review by five educational measurement specialists, three SCERT West Bengal academic consultants, and two secondary school headmasters. A Content Validity Index (CVI) of 0.87 was achieved for the RBAPS, exceeding the recommended threshold of 0.80 (Lynn, 1986).

Table 2: Reliability Coefficients of Research Instruments

Instrument / Dimension	No. of Items	Cronbach's Alpha (α)	Split-Half Reliability
RBAPS — Full Scale	45	0.913	0.891
Dimension 1: Awareness & Understanding	9	0.876	0.854
Dimension 2: Frequency of Use	8	0.869	0.841
Dimension 3: Design & Development	10	0.892	0.873
Dimension 4: Feedback Practices	9	0.881	0.862
Dimension 5: Institutional Support	9	0.857	0.838
Semi-Structured Interview Protocol	12 items	Inter-rater $r = 0.89$	—

The Cronbach's alpha coefficient of 0.913 for the full RBAPS scale indicates excellent internal consistency, well above the acceptable threshold of 0.70 (Nunnally, 1978) and above the 'good' threshold of 0.80. The sub-dimension alphas ranging from 0.857 to 0.892 confirm that each dimensional cluster is internally coherent. The inter-rater reliability coefficient of 0.89 for the qualitative interview protocol demonstrates strong agreement between the two independent coders, validating the robustness of the qualitative findings. These reliability values justify confidence in the conclusions drawn from both quantitative and qualitative data strands.

IV. THE ANALYSIS AND INTERPRETATION

4.1. Analysis of Current Rubric-Based Assessment Practices (Objective O1)

Descriptive statistical analysis was conducted on RBAPS responses from all 501 teachers. One-way ANOVA was employed to test H_{01} (no significant variation in rubric practices among secondary schools). The following tables present the key findings organized by analytical dimension.

Table 3: Descriptive Statistics of RBAPS Dimensions

Dimension	N	Mean	SD	Min	Max
D1: Awareness & Understanding	501	3.62	0.71	1.44	5.00
D2: Frequency of Use	501	2.34	0.89	1.00	4.88
D3: Design & Development	501	2.61	0.84	1.00	4.90
D4: Feedback Practices	501	2.48	0.92	1.00	4.95
D5: Institutional Support	501	2.19	0.94	1.00	4.80
Composite RBAPS Score	501	2.65	0.76	1.22	4.91

The descriptive data reveal a pronounced and analytically significant disparity between teachers' awareness of rubric-based assessment ($M = 3.62$, $SD = 0.71$, indicating moderate-to-high awareness) and their actual frequency of use ($M = 2.34$, $SD = 0.89$) and institutional support ($M = 2.19$, $SD = 0.94$). This awareness-practice gap is a defining feature of rubric implementation in South 24 Parganas and corroborates Sharma and Bose's (2022) finding that 71.2% of West Bengal secondary teachers were rubric-aware yet only 18.6% applied them consistently. The low mean for Institutional Support ($M = 2.19$) indicates that teachers are operating largely without administrative scaffolding, creating conditions where even motivated teachers struggle to sustain rubric practice. These findings are consistent with Singh's (2021) national survey documenting systemic underinvestment in formative assessment infrastructure across Indian secondary schools, and underscore the urgency of NEP 2020 implementation directives regarding institutional assessment culture reform (Ministry of Education, 2020).

Table 4: One-Way ANOVA Results — Variation in Rubric Practices by School Type

Source of Variation	SS	df	MS	F-value	p-value
Between Groups (School Types)	47.82	2	23.91	39.64	< .001***
Within Groups (Error)	299.74	498	0.602	—	—
Total	347.56	500	—	—	—

Note: *** $p < .001$; df = degrees of freedom; SS = Sum of Squares; MS = Mean Square. Post-hoc Tukey HSD analysis confirmed significant pairwise differences between Urban and Rural/Sundarbans schools ($p < .001$) and between Government and Government-Aided schools ($p < .003$).

The ANOVA result ($F(2, 498) = 39.64$, $p < .001$) is highly statistically significant, leading to the rejection of H_{01} . There are substantial and statistically meaningful variations in rubric-based assessment practices among secondary schools in South 24 Parganas. The F-value of 39.64 is strikingly large, indicating that the variance between school groups is approximately 40 times greater than the variance within groups—a finding that points to structural rather than individual-level explanations for practice differences. Post-hoc Tukey HSD analysis reveals that Urban schools significantly outperform Rural/Sundarbans schools in rubric practice scores, reflecting differential access to

professional development resources, better teacher-student ratios, and stronger administrative support structures in urban areas. These findings align with the DISE 2023–24 data showing that rural schools in South 24 Parganas have teacher vacancy rates averaging 23%, creating conditions fundamentally uncondusive to pedagogical innovation. The implications for policy are clear: uniform implementation mandates are insufficient; differentiated support strategies are needed for different school contexts.

4.2. Analysis of Strategies Adopted by Teachers (Objective O2)

Teachers were asked to indicate the frequency with which they employed each of 15 identified strategies for overcoming rubric implementation challenges, using a 5-point scale (1 = Never to 5 = Always). The following table presents the mean scores and rankings of all 15 strategies.

Table 5: Teacher-Reported Strategy Adoption Rates (N = 501)

Strategy	Mean	SD	% Frequently Using	Rank
Collaborative rubric design with colleagues	3.89	0.74	74.2%	1
Use of simplified Bengali-language rubric templates	3.71	0.81	68.5%	2
Student orientation sessions on rubric criteria	3.64	0.88	65.1%	3
Peer assessment using teacher-designed rubrics	3.42	0.91	58.7%	4
SCERT/WBBSE workshop participation	3.38	0.96	56.3%	5
Digital rubric tools (Google Forms, mobile apps)	2.94	1.12	43.1%	6
Adapting CBSE rubric frameworks to WBBSE context	2.88	1.04	41.7%	7
Portfolio-based rubric assessment	2.71	1.08	37.9%	8
Moderation meetings for inter-rater reliability	2.68	1.01	36.5%	9
Video-based exemplar materials for criteria clarity	2.44	1.14	29.3%	10
Self-assessment protocols for students	2.38	1.09	27.8%	11
Project-based rubric integration (NEP 2020 projects)	2.31	1.16	25.1%	12
Parental orientation on rubric-based feedback	2.14	1.19	21.6%	13
Action research on rubric design effectiveness	1.92	1.08	15.4%	14
Online community of practice for rubric sharing	1.78	1.02	12.8%	15

The data in Table 5 paint a nuanced portrait of strategy adoption in South 24 Parganas secondary schools. The most frequently utilized strategies cluster around interpersonal and low-technology approaches: collaborative rubric design with colleagues ($M = 3.89$, 74.2%) ranks first, reflecting a culturally embedded preference for collegial problem-solving over individually driven reform. This finding corroborates Sharma and Bose (2022), who identified collaborative development as the most promising indigenous strategy in the West Bengal context. The second-ranked strategy—use of simplified Bengali-language rubric templates ($M = 3.71$, 68.5%)—underscores the critical role of linguistic accessibility in rubric adoption; the overwhelming Bengali-medium orientation of South 24 Parganas secondary schools makes language-adapted materials not merely helpful but foundational to implementation. The comparatively low adoption of technology-mediated strategies (Digital rubric tools, $M = 2.94$; Video exemplars, $M = 2.44$; Online community of practice, $M = 1.78$) reflects the digital divide documented in the district's school infrastructure data, where only 34.7% of rural secondary schools have functional computer labs (DISE, 2023–24). The F-test for strategy use (conducted separately, $F(14, 7000) = 18.23$, $p < .001$) confirms significant variation in strategy adoption, leading to rejection of H_{02} . Teachers are actively employing multiple strategies, but access to and awareness of higher-order strategies remain constrained by infrastructure and professional development limitations.

4.3. Evaluation of Strategy Effectiveness (Objective O3)

To evaluate the effectiveness of identified strategies in improving rubric-based assessment practices (Objective O3), a pre-post quasi-experimental design was embedded within the study, using RBAPS scores from a sub-sample of 180 teachers who participated in structured strategy intervention workshops conducted over 12 weeks during the academic year 2025–2026. Paired-samples t-tests were conducted for each strategy group.

Table 6: Pre-Post RBAPS Score Comparison Across Strategy Intervention Groups

Strategy Intervention Group	n	Pre-M	Post-M	Mean Diff.	t-value	p
Collaborative Rubric Design	36	2.48	3.74	+1.26	14.32	<.001
Bengali Template Use	32	2.31	3.56	+1.25	13.87	<.001
Student Orientation Sessions	28	2.54	3.62	+1.08	11.41	<.001
Peer Assessment Protocol	26	2.42	3.48	+1.06	10.94	<.001
SCERT Workshop + Rubric Training	30	2.38	3.81	+1.43	15.62	<.001
Digital Rubric Tools Training	18	2.29	3.14	+0.85	7.23	<.001
Control Group (No Intervention)	30	2.61	2.67	+0.06	0.74	.463

The pre-post comparison data in Table 6 provide compelling evidence for the effectiveness of multiple rubric-based assessment strategies, leading to the rejection of H_{03} . All six intervention groups showed highly significant improvements in RBAPS scores (all $p < .001$), while the control group (no intervention) showed no significant change ($t = 0.74$, $p = .463$), confirming that observed gains are attributable to the interventions rather than maturation or testing effects. The SCERT Workshop + Rubric Training group yielded the largest mean difference (+1.43), suggesting that structured, externally facilitated professional development delivers the highest effect on rubric practice improvement. This finding aligns with Brookhart and Chen's (2024) conclusion that targeted professional development improves rubric design quality by an average of 31%. The Collaborative Rubric Design (+1.26) and Bengali Template Use (+1.25) groups produced nearly equivalent gains, reinforcing the importance of culturally and linguistically adapted, collegially supported strategies in the West Bengal context. Notably, the Digital Rubric Tools group showed the smallest mean gain (+0.85) despite significant improvement, reflecting both the infrastructure barriers that constrain

digital strategy adoption and the need for prerequisite digital literacy training before technology-mediated rubric tools can be effectively deployed. These effect sizes collectively indicate that rubric-based assessment practices can be meaningfully and rapidly improved within a single academic semester through targeted strategy interventions.

4.4. Chi-Square Analysis of Teacher Demographics and Rubric Adoption

Table 7: Chi-Square Test — Relationship Between Teacher Qualification and Rubric Use Frequency

Qualification	Never/Rarely (1–2)	Sometimes (3)	Frequently (4)	Always (5)	Total
B.Ed. only	98 (44.9%)	72 (33.0%)	36 (16.5%)	12 (5.5%)	218
M.Ed. / M.A. in Education	41 (27.3%)	55 (36.7%)	38 (25.3%)	16 (10.7%)	150
Ph.D. / Research Degree	8 (18.6%)	12 (27.9%)	14 (32.6%)	9 (20.9%)	43
B.Ed. + SCERT Training	18 (19.8%)	34 (37.4%)	28 (30.8%)	11 (12.1%)	91
Total	165 (32.9%)	173 (34.5%)	116 (23.2%)	48 (9.6%)	501

Chi-Square (χ^2) = 48.73, df = 9, $p < .001$, Cramér's V = 0.31 (Moderate Association)

The chi-square analysis ($\chi^2(9) = 48.73$, $p < .001$) reveals a statistically significant and moderately strong association (Cramér's V = 0.31) between teacher qualification level and frequency of rubric use. Teachers with B.Ed. qualifications only are the largest non-user group, with 44.9% reporting never or rarely using rubrics, compared to only 18.6% among PhD/research-qualified teachers. This pattern strongly suggests that advanced education qualification correlates with greater familiarity with assessment theory and practice, including rubric-based approaches. The notably high rubric use among B.Ed. + SCERT Training teachers (30.8% frequent use, 12.1% always) compared to B.Ed.-only teachers (16.5% and 5.5% respectively) is particularly policy-relevant: it indicates that targeted state-level training, even without additional academic qualification, can substantially elevate rubric practice to levels approaching those of M.Ed. holders. This finding provides empirical justification for scaling up the SCERT's in-service teacher training programme in West Bengal as a cost-effective strategy for system-wide rubric implementation improvement, aligning with NEP 2020's emphasis on continuous professional development (Ministry of Education, 2020) and the National Mission for Quality Education mandate.

Table 8: Policy Framework and Rubric-Based Assessment Alignment Matrix

Policy / Act	Year	Key Provision	Implication for Rubric Assessment	Status in WB
NEP 2020 (MoE)	2020	Holistic, competency-based formative assessment	Mandates shift from rote testing to criteria-based evaluation using rubrics	Partial
RTE Act 2009	2009	No-detention policy; CCE mandate	Rubrics as core tool for Continuous Comprehensive Evaluation (CCE)	Active
NCFSE 2023	2023	Competency indicators at each stage	Rubric criteria must align with NCFSE stage competencies	Under adoption
WB School Education Act	1997	State-level	Empowers WBBSE to	Active

Policy / Act	Year	Key Provision	Implication for Rubric Assessment	Status in WB
1997		curriculum governance	mandate assessment formats including rubrics	
NIPUN Bharat 2021	2021	Foundational Literacy & Numeracy goals	Assessment rubrics for literacy/numeracy competency milestones	Active
SSA / RMSA	2001/2009	Universal secondary education access	Equitable rubric assessment for all student categories	Active

Table 8 reveals that the policy environment in West Bengal is broadly supportive of rubric-based assessment, with multiple national and state-level frameworks either mandating or strongly implying criterion-referenced evaluation approaches. The Right of Children to Free and Compulsory Education Act (2009) explicitly mandated Continuous Comprehensive Evaluation (CCE), for which rubrics are the operationally ideal tool, yet its status as 'Active' belies variable quality of implementation. The NCFSE 2023 (Government of India, 2023), the most contemporaneous policy framework, is still 'Under adoption' in West Bengal, representing a window of opportunity for WBBSE to embed rubric design standards into the state's curricular adaptation process. The partial implementation status of NEP 2020 in West Bengal, reflecting both resource constraints and the administrative complexity of transitioning a large system, identifies the most critical policy-practice gap. The convergence of multiple active policies (RTE 2009, SSA/RMSA, NIPUN Bharat) toward competency-based assessment creates a strong legislative mandate that school administrators and SCERT curriculum developers can leverage to institutionalize rubric-based assessment as standard practice rather than an individual teacher's innovation.

V. THE FINDINGS OF THE STUDY

5.1. Major Quantitative Findings

The following major findings emerge from the analysis of data collected from 501 secondary school teachers in the South 24 Parganas district of West Bengal:

Table 9: Summary of Major Findings Across Research Objectives and Hypotheses

Obj./H ₀	Dimension	Key Finding	Statistical Result	Decision
O1/H ₀₁	Current Practices	Significant variation in rubric practices by school type, location, and teacher qualification	$F(2,498)=39.64, p<.001$	Reject H ₀₁
O2/H ₀₂	Strategy Use	Significant differential use of 15 strategies; top strategies are collaborative and language-adapted	$F(14,7000)=18.23, p<.001$	Reject H ₀₂
O3/H ₀₃	Strategy Effectiveness	All six strategy interventions significantly improved RBAPS scores; SCERT training most effective (+1.43)	t-values 7.23–15.62, all $p<.001$	Reject H ₀₃
Additional	Qualification Effect	Higher qualification and SCERT	$\chi^2(9)=48.73, p<.001,$	Significant

Obj./H ₀	Dimension	Key Finding	Statistical Result	Decision
		training significantly predict rubric use frequency	V=0.31	
Additional	Awareness-Practice Gap	High awareness (M=3.62) vs. low use (M=2.34) and low institutional support (M=2.19)	RBAPS descriptive data	Confirmed

The summary table consolidates the study's analytical trajectory across all three research objectives and four hypotheses. The uniform rejection of all three null hypotheses constitutes the study's most important methodological finding: rubric-based assessment practices in South 24 Parganas secondary schools are not random or uniform but are systematically patterned by school type, location, teacher qualification, and access to professional development—conditions that are structurally determined and therefore policy-amenable. The large F-values and significant t-statistics indicate that the observed differences are not artefacts of sampling variation but reflect genuine systemic patterns, strengthening the study's claims to ecological validity despite its delimitation to a single district.

Table 10: Barriers to Rubric Implementation — Frequency Distribution (N = 501)

Barrier	Strongly Agree	Agree	Neutral	Disagree/SD	Rank
Insufficient training in rubric design	187 (37.3%)	214 (42.7%)	58 (11.6%)	42 (8.4%)	1
High student-teacher ratio (> 45:1)	173 (34.5%)	198 (39.5%)	71 (14.2%)	59 (11.8%)	2
Absence of Bengali-language rubric resources	168 (33.5%)	189 (37.7%)	83 (16.6%)	61 (12.2%)	3
Excessive curriculum and exam pressure	161 (32.1%)	194 (38.7%)	74 (14.8%)	72 (14.4%)	4
Lack of administrative/HM support	154 (30.7%)	183 (36.5%)	91 (18.2%)	73 (14.6%)	5
Inadequate technology infrastructure	142 (28.3%)	171 (34.1%)	88 (17.6%)	100 (20.0%)	6
Resistance from students and parents	98 (19.6%)	143 (28.5%)	112 (22.4%)	148 (29.5%)	7

Table 10 presents the hierarchy of barriers as perceived by teachers themselves, a crucial source of bottom-up evidence that complements the top-down policy analysis. The most significant barrier is 'Insufficient training in rubric design' (80.0% agreeing or strongly agreeing), which maps directly onto the SCERT's historically limited focus on formative assessment methodology in its pre-service and in-service teacher education programmes. This finding carries a clear policy recommendation: the SCERT West Bengal should revise its B.Ed. and D.El.Ed. curricula to include a dedicated module on rubric design and criterion-referenced assessment, consistent with the NCFSE 2023's emphasis on teacher capacity building. The second-ranked barrier—high student-teacher ratios (74.0% agreeing or strongly agreeing)—reflects a structural challenge documented across Indian secondary education but particularly acute in South 24 Parganas, where the Samagra Shiksha Abhiyan data indicate teacher vacancy rates exceeding 20% in rural blocks. Notably, 'resistance from students and parents' ranks lowest (48.1% agreeing), challenging the assumption that societal

attitudes are a primary constraint; the data suggest that teacher capacity and institutional support are far more critical leverage points for policy intervention than demand-side persuasion campaigns.

5.2. Major Qualitative Findings

Thematic analysis of the 25 semi-structured interviews yielded four primary themes that elaborate and contextualize the quantitative findings.

Table 11: Thematic Summary — Semi-Structured Interview Analysis (n = 25)

Theme	Description	Representative (paraphrased) Quote	Frequency (n/25)
T1: Structural Constraints	Systemic barriers including workload, class size, resource scarcity impeding rubric adoption	"With 60 students and 7 periods daily, designing individual rubric feedback is an aspiration, not a reality."	23/25
T2: Collegial Agency	Peer collaboration as the primary mechanism for rubric innovation in resource-constrained settings	"When we sit together as subject teachers and build the rubric, it becomes part of our shared teaching practice."	21/25
T3: Language and Culture	Bengali-medium instruction context requiring culturally resonant, linguistically accessible rubric design	"An English rubric format is meaningless for my students in Canning. Everything must be in Bengali."	20/25
T4: Policy-Practice Disconnect	Awareness of NEP 2020 mandates without corresponding institutional support or resource provision	"NEP says formative assessment but WBBSE still rewards rote learning in the Madhyamik. We are caught between two worlds."	19/25

The four qualitative themes provide the interpretive architecture that explains the quantitative patterns identified in Tables 3–10. Theme 1 (Structural Constraints, n = 23/25) confirms that barriers are primarily institutional and systemic rather than dispositional—teachers are not resistant to rubric use but are operating within conditions that make it structurally difficult. This finding challenges simplistic narratives of teacher inertia and instead points to the need for systemic capacity building and workload rationalization. Theme 2 (Collegial Agency, n = 21/25) resonates powerfully with the quantitative finding that collaborative rubric design ranked first among adopted strategies (Table 5, M = 3.89). The interview data reveal why: collegial collaboration functions as an informal professional learning community that distributes the cognitive and temporal costs of rubric development across subject teams, making innovation viable within existing workload constraints. Theme 3 (Language and Culture, n = 20/25) provides crucial depth to the quantitative finding on Bengali-language templates (Table 5, Rank 2), demonstrating that linguistic access is not merely a logistical convenience but a fundamental condition of assessment validity in a Bengali-medium educational context (Sharma & Bose, 2022). Theme 4 (Policy-Practice Disconnect, n = 19/25) is perhaps the most significant for policy audiences: teachers are acutely aware of NEP 2020's formative assessment mandates but perceive a fundamental contradiction between these mandates and the WBBSE's continued emphasis on summative Madhyamik Pariksha performance as the primary accountability metric. Resolving this contradiction requires a systemic policy coherence intervention at the WBBSE level.

VI. CONCLUSION

This study has systematically investigated the strategies for overcoming challenges in rubric-based assessment at the secondary level in West Bengal, with specific reference to secondary schools in the South 24 Parganas district. Drawing on mixed-methods data from 501 teachers, the study has generated four principal conclusions of theoretical, empirical, and policy significance.

First, rubric-based assessment practices in South 24 Parganas secondary schools are characterized by a substantial and structurally determined awareness-practice gap. While teachers demonstrate moderate-to-high awareness of rubric approaches ($M = 3.62$ on a 5-point scale), actual frequency of use ($M = 2.34$) and institutional support ($M = 2.19$) remain critically low. The ANOVA results ($F(2, 498) = 39.64, p < .001$) confirm that this gap is not randomly distributed but reflects systematic disparities between urban and rural schools, government and aided institutions, and teachers with differential qualification and training profiles.

Second, the study identifies a hierarchy of effective strategies, with collaborative rubric design ($M = 3.89$), Bengali-language template use ($M = 3.71$), and student orientation sessions ($M = 3.64$) emerging as the most widely adopted and culturally resonant approaches. Crucially, these strategies share a common logic: they minimize individual teacher burden by distributing design responsibility collegiately, lower linguistic barriers through mother-tongue adaptation, and invest in student metacognitive preparedness. These features make them pragmatically suited to the South 24 Parganas context, where resource constraints, high student-teacher ratios, and Bengali-medium instruction are defining conditions.

Third, the pre-post effectiveness evaluation provides robust empirical evidence that rubric-based assessment practices can be meaningfully improved within a single academic semester through targeted strategy interventions. The SCERT Workshop + Rubric Training group achieved the largest mean improvement ($+1.43$ RBAPS points, $t = 15.62, p < .001$), establishing structured professional development as the single highest-leverage intervention available to policymakers. This finding aligns with the global evidence base (Brookhart & Chen, 2024; Reddy & Andrade, 2020) and provides specific, actionable evidence for SCERT West Bengal and the Department of School Education regarding the design of teacher professional development programmes.

Fourth, the study reveals a critical policy-practice disconnect: teachers operate at the intersection of NEP 2020's progressive assessment mandates and the WBBSE's examination-focused accountability structure, creating structural contradictions that undermine rubric adoption irrespective of individual teacher motivation. Resolving this requires a multi-level policy coherence intervention: at the state level, WBBSE must integrate rubric-based formative assessment into its official evaluation frameworks; at the district level, Sub-Inspectors of Schools and Block Resource Coordinators must actively facilitate rubric implementation through monitoring and support; and at the school level, Headmasters/Headmistresses must create institutional cultures that value and reward formative assessment innovation.

VII. RECOMMENDATIONS

Based on the findings, the following evidence-based recommendations are advanced for consideration by policymakers, practitioners, and researchers:

The SCERT West Bengal should develop and disseminate a standardized Bengali-language rubric design toolkit aligned with NCFSE 2023 competency descriptors, making it freely available to all secondary school teachers in the state.

The WBBSE and Department of School Education should establish a Rubric-Based Assessment Integration Policy that creates formal expectations, timelines, and monitoring mechanisms for rubric adoption across all secondary schools in West Bengal.

District-level Subject Teacher Learning Communities (STLCs) should be established in South 24 Parganas under the Samagra Shiksha Abhiyan framework, providing structural support for the collaborative rubric design practices that have emerged organically as the most widely adopted strategy.

Pre-service B.Ed. and D.El.Ed. programmes at state universities should incorporate a dedicated practicum component on rubric design, co-construction, and student orientation, ensuring that new teachers enter the profession with rubric competency as a baseline skill.

Future research should extend this study's mixed-methods framework to other districts of West Bengal, including North 24 Parganas, Murshidabad, and Bankura, to examine whether the patterns identified in South 24 Parganas generalize across the state's diverse geographic and socioeconomic contexts.

In sum, rubric-based assessment represents a pedagogically sound and policy-aligned approach to secondary school evaluation that is within reach for West Bengal's secondary school system. The challenges are real but surmountable. The strategies documented in this study—particularly collaborative design, language adaptation, and structured professional development—offer a credible, evidence-based pathway toward a more equitable, transparent, and growth-oriented assessment culture in the secondary schools of South 24 Parganas and, by extension, West Bengal as a whole.

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