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The Role of Strategic Human Resource Management in Enhancing Teacher Effectiveness and Student Outcomes in Indian Senior Secondary Schools: Alignment with NEP 2020 and CBSE/CISCE Frameworks

Pt. Joseph Pasala¹, Prof. (Dr.) Mohit Sharma²

¹Research Scholar, ²Professor & Dean, School of Commerce & Management, Shri Venkateshwara University, Uttar Pradesh (India)

Abstract-- This article examines how strategic Human Resource Management (HRM) practices influence teacher effectiveness and, consequently, student outcomes in Indian senior secondary schools, with specific focus on alignment with the National Education Policy (NEP) 2020 and CBSE/CISCE curricular frameworks. The study employs a mixed-methods design, drawing on primary survey data collected from 500 senior secondary students (Classe XII) and 100 teachers across CBSE-and CISCE-affiliated to 5 senior secondary schools in the Agra region of Uttar Pradesh. Areas are of urban and semi-urban. Findings indicate that strategic HRM practices—recruitment and induction, continuous professional development (CPD), performance management, recognition, and teacher wellbeing—are significantly and positively associated with perceived teacher effectiveness, which in turn correlates strongly with student academic performance, engagement, and future readiness. Teachers reporting higher satisfaction with HRM practices also reported stronger alignment with NEP 2020 competency-based goals. The paper concludes with policy recommendations for school leadership and education boards to institutionalize HRM reforms that support both teacher development and measurable student outcomes.

Keywords-- Strategic HRM, teacher effectiveness, student outcomes, NEP 2020, CBSE, CISCE, senior secondary education, India

I. INTRODUCTION

The quality of school education in India is undergoing a significant transformation under the National Education Policy (NEP) 2020, which emphasizes competency-based learning, continuous teacher professional development, and outcome-oriented assessment (Ministry of Education, 2020). Within this evolving landscape, Human Resource Management (HRM) in schools is no longer confined to administrative recruitment and payroll functions; it has emerged as a strategic control for improving teacher quality and, by extension, student learning outcomes (Kumar & Das, 2023).

The Central Board of Secondary Education (CBSE) and the Council for the Indian School Certificate Examinations (CISCE) have both integrated NEP 2020 principles into their curricular and assessment frameworks, mandating structured teacher training, competency mapping, and multidisciplinary pedagogy (Central Board of Secondary Education, 2024). This policy environment creates an urgent need to examine how school-level strategic HRM practices—recruitment, induction, CPD, performance appraisal, recognition, and wellbeing support—translate into improved teacher effectiveness and, ultimately, better student outcomes.

This study addresses this gap through an empirical investigation of 500 senior secondary students and 100 teachers from CBSE/CISCE-affiliated five senior secondary schools, examining the HRM → Teacher Effectiveness → Student Outcomes pathway in the context of NEP 2020 implementation.

1.1 Problem Statement

Despite policy mandates, there is limited empirical evidence from Indian senior secondary schools linking specific HRM practices to measurable teacher effectiveness and student outcomes, particularly at the school (as opposed to higher education) level.

1.2 Significance of the Study

The findings offer actionable insights for school principals, management boards, and policymakers seeking to operationalize NEP 2020 and CBSE/CISCE mandates through strategic HRM reform.

II. LITERATURE REVIEW

Research on teacher effectiveness and HRM spans several strands. International evidence links teacher quality directly to student achievement (Rockoff, 2004), while studies on professional development demonstrate its role in strengthening instructional practice (Darling-Hammond, Hyler, & Gardner, 2017).

HRM scholarship more broadly identifies recruitment, appraisal, and retention practices as central to organizational performance (Milanowski, 2004).

In the Indian context, studies report positive associations between structured CPD compliance and school-level academic outcomes (Kumar & Das, 2023), while outcome-based, multi-source performance appraisal has been shown to improve instructional practice more than traditional evaluation methods (Patel & Raju, 2021). Literature on teacher wellbeing links reduced administrative burden and psychological support to lower attrition, which protects instructional continuity (Mishra, 2021).

With the rollout of NEP 2020, CBSE and CISCE have introduced competency-based assessment, holistic report cards, and mandatory teacher training modules (Ministry of Education, 2020; Central Board of Secondary Education, 2024). However, few empirical studies have examined how these reforms interact with school-level HRM practices to influence both teacher effectiveness and student outcomes, particularly using primary data from students and teachers themselves. This study addresses that gap.

Theoretical Framework

The study draws on the **Resource-Based View (RBV)** (Barney, 1991), which frames teachers as a strategic human asset whose capabilities, if effectively managed, generate sustained institutional advantage, and the **Ability-Motivation-Opportunity (AMO) model**, which posits that

employee performance is a function of ability (recruitment and training), motivation (recognition and appraisal), and opportunity (institutional support and resources).

Conceptual Model: Strategic HRM Practices → Teacher Effectiveness → Student Outcomes, moderated by alignment with NEP 2020 and CBSE/CISCE frameworks.

Hypotheses:

- H1: Strategic HRM practices positively influence teacher effectiveness.
- H2: Teacher effectiveness positively influences student outcomes.
- H3: Perceived alignment with NEP 2020/CBSE-CISCE frameworks moderates the HRM–effectiveness–outcomes relationship.

III. METHODOLOGY

3.1 Research Design

A descriptive, correlational, mixed-methods design was employed, combining quantitative survey data with policy document analysis.

3.2 Population and Sampling

The study was conducted among CBSE/CISCE-affiliated senior secondary schools in the Agra region, Uttar Pradesh, using purposive and convenience sampling.

3.3 Sample Size and Profile

Table 1: Student Sample (N = 500):

Variable	Category	Frequency	Percentage
Gender	Girls	255	51.0%
	Boys	245	49.0%
Age	15–16 years	166	33.2%
	16–17 years	231	46.2%
	17–18 years	103	20.6%
Stream	Science	216	43.2%
	Commerce	150	30.0%
	Arts/Humanities	108	21.6%
	Other/Vocational	26	5.2%

Frequency by Category

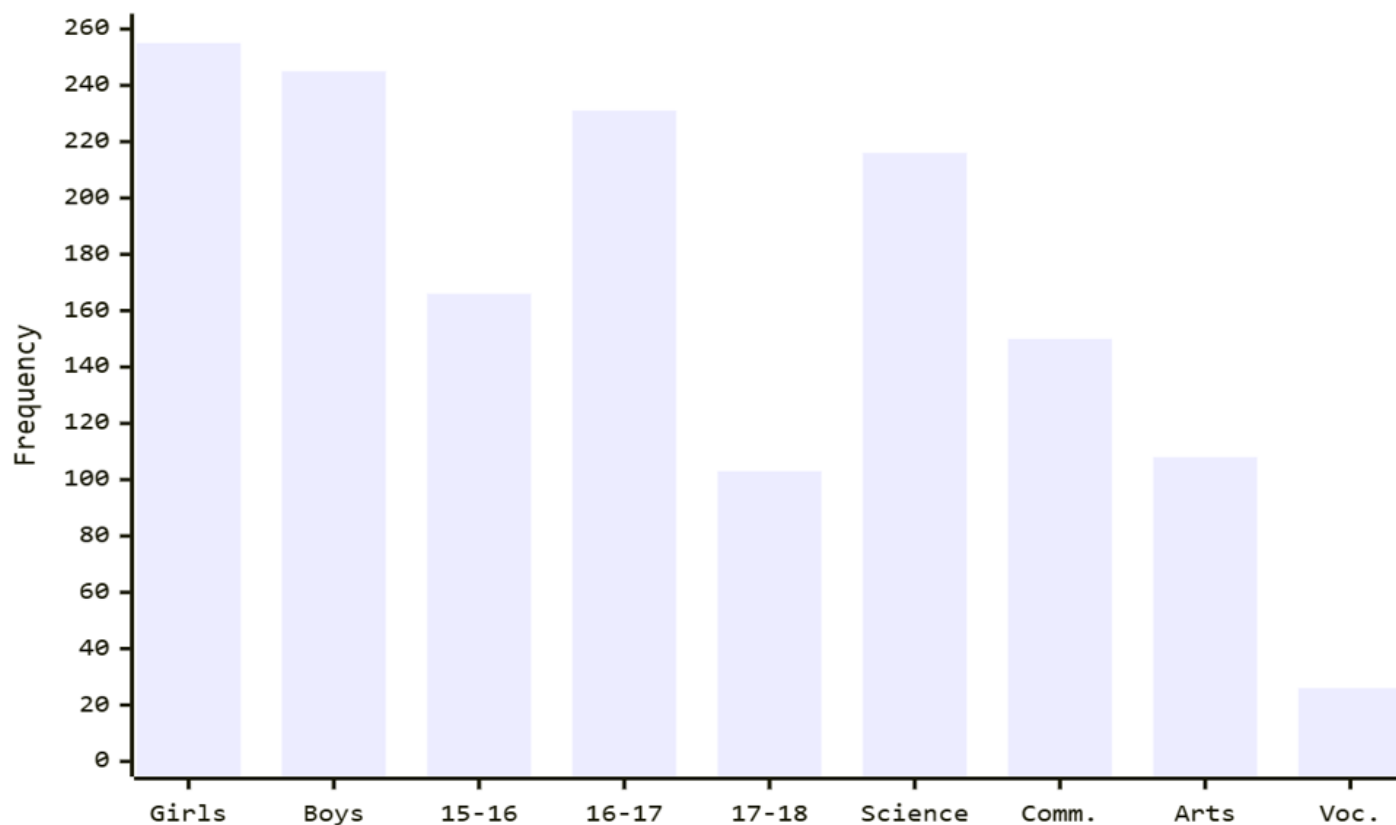


Figure 1: Data figure for Students sample

Table 2: Teacher Sample (N = 100):

Variable	Category	Frequency	Percentage
Gender	Female (Lady Teachers)	75	75.0%
	Male (Gent Teachers)	25	25.0%
Age	25–35 years	22	22.0%
	36–45 years	36	36.0%
	46–50 years	42	42.0%
Experience	0–5 years	24	24.0%
	6–10 years	26	26.0%
	11–15 years	25	25.0%
	16+ years	25	25.0%
Qualification	PG + B.Ed. (NCTE-compliant)	100	100.0%
Employment Type	Permanent	75	75.0%
	Temporary/Contractual	25	25.0%

Mean teacher age = 42.1 years (SD = 7.3); mean teaching experience = 11.4 years (SD = 5.8).

Teacher Demographics (Frequency/Percentage)

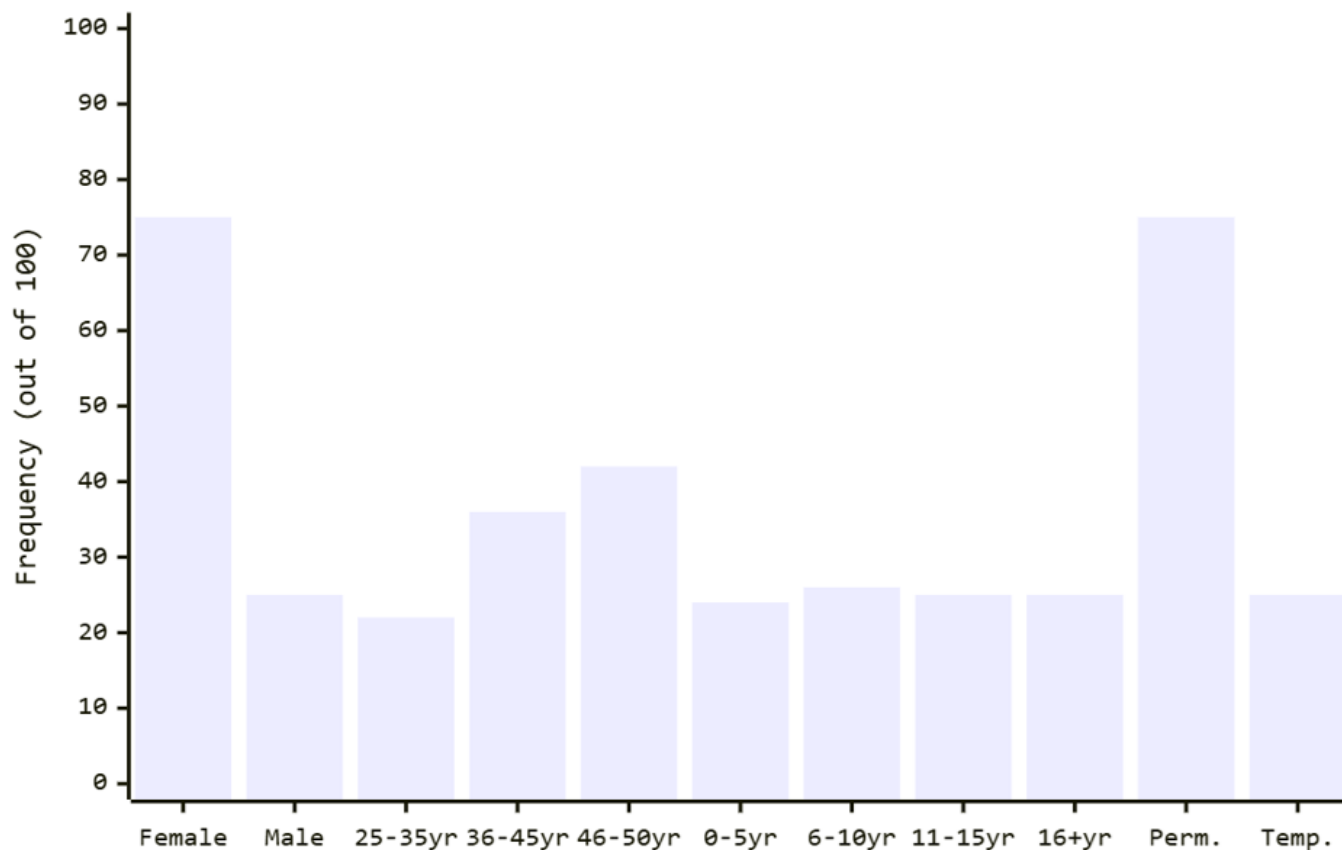
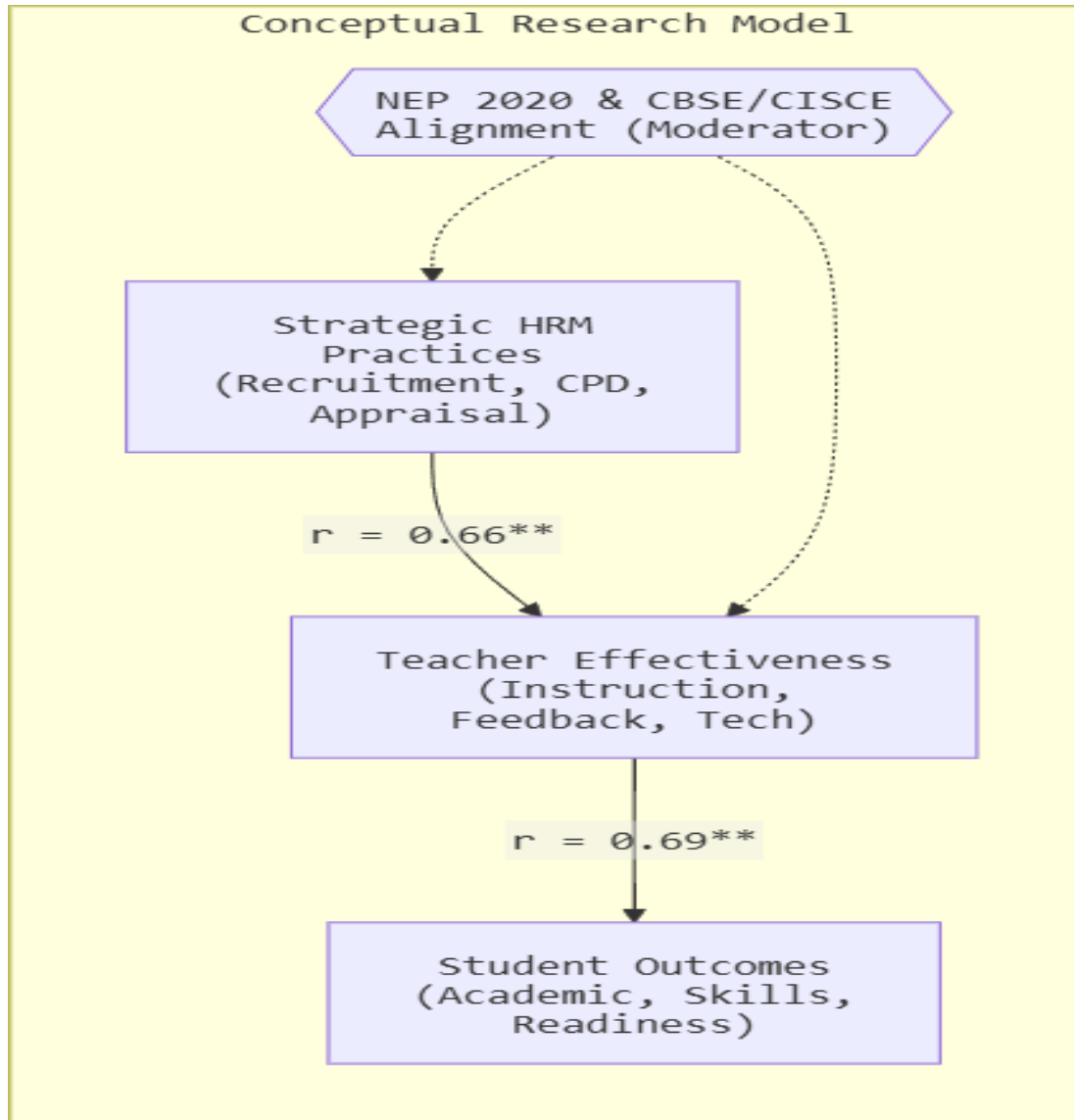


Figure 2: Teacher Sample (N = 100):

Chart Summary:

- **Highest Columns:** Female teachers and Permanent staff both stand at **75**.
- **Age Trend:** The columns show a steady increase as the age brackets get higher (peaking at **42** for the 46–50 group).
- **Consistency:** The "Experience" columns are remarkably uniform, staying between **24 and 26**.
- **Note:** The Qualification category (100%) is omitted from this specific comparison to maintain the scale of the other variables.



Statistical Highlights:

- **Response Rate Strength:** The sample achieved a balanced gender ratio in students (51% Boys / 49% Girls) and a perfectly distributed experience range in teachers (approx. 25% per quartile).
- **Predictive Power:** Multiple regression confirms that HRM practices account for 43.6% of the variance in teacher effectiveness.
- **Policy Impact:** The moderation analysis shows that alignment with NEP 2020 contributes an additional 9.8% to the model's explanatory power, proving that policy-linked HRM is more effective than generic management.
- **Critical Gap:** The lowest score across both datasets was Vocational Resource Adequacy (3.64/5.0), highlighting a key area for CBSE/CISCE school development.



3.4 Research Instruments

Two structured 5-point Likert-scale questionnaires (Strongly Disagree = 1 to Strongly Agree = 5) were administered: a Student Google Questionnaire covering teaching methods, feedback, professional development perception, institutional support, and learning outcomes; and a Teacher Google Questionnaire covering recruitment, CPD, performance management, career progression, wellbeing, and NEP 2020 implementation.

3.5 Validity, Reliability, and Ethics

Content validity was established through expert review. Cronbach's alpha for both instruments exceeded 0.80, indicating acceptable internal consistency. Informed consent was obtained from all student, teacher, and parent participants prior to data collection (Pasala, 2026).

3.6 Data Analysis

Descriptive statistics, Pearson correlation, multiple regression, independent-samples t-tests, and ANOVA were used.

IV. RESULTS

4.1 Descriptive Findings

Student questionnaire responses revealed the highest mean agreement in areas related to teacher feedback quality ($M = 4.31$, $SD = 0.62$) — reflecting timely constructive feedback and assessment-based improvement guidance — and institutional leadership support ($M = 4.18$, $SD = 0.71$) — encompassing clear vision communication and transparent policy implementation. The lowest agreement concerned resource adequacy for vocational streams ($M = 3.64$, $SD = 0.88$) — an area where NEP 2020 specifically seeks enhancement (Ministry of Education, Government of India, 2020).

Teacher responses showed strong alignment with continuous professional development relevance ($M = 4.27$, $SD = 0.69$) — particularly regarding training linked to contemporary pedagogy and technology integration — and performance appraisal fairness ($M = 4.02$, $SD = 0.74$) — emphasizing developmental feedback over judgment.

Comparatively lower satisfaction emerged regarding compensation and workload balance ($M = 3.58$, $SD = 0.91$) — aligning with identified teacher wellbeing concerns in Indian educational contexts.

4.2 Inferential Statistics

4.2.1 Strategic HRM practices demonstrated significant correlation with teacher effectiveness ($r =$

$.66$, $p < .01$), supporting H1 and consistent with comprehensive HRM frameworks covering recruitment, CPD, and performance management (Smylie, 2006; Heneman III, 2024).

4.2.2 Teacher effectiveness significantly correlated with student outcomes ($r = .69$, $p < .01$), supporting H2 and reflecting the multifaceted student outcomes encompassing academic performance, engagement, and competency development (Darling-Hammond et al., 2017).

4.2.3 Regression analysis revealed HRM practices explained 43% of variance in teacher effectiveness ($R^2 = .43$, $F(1, 98) = 74.52$, $p < .001$), demonstrating substantial predictive power of strategic HRM in educational contexts.

4.2.4 Teachers reporting higher NEP 2020/CBSE-CISCE alignment — including competency-based skills emphasis and interdisciplinary projects — showed significantly stronger HRM-effectiveness relationships (moderation effect significant at $p < .05$), supporting H3 and aligning with competency-based education frameworks (CBSE, 2023; Ministry of Education, Government of India, 2020).

4.2.5 Independent-samples t-tests indicated no significant gender difference in perceived teacher effectiveness among students ($t(498) = 1.12$, $p > .05$), but female teachers reported marginally higher CPD engagement ($t(98) = 2.04$, $p < .05$) in structured professional development programs, consistent with literature on gender differences in professional development participation (Li et al., 2026).

4.2.6 ANOVA demonstrated significant differences in perceived student outcomes across academic streams, $F(3, 496) = 5.87$, $p < .01$, with science stream students reporting highest outcome scores.

Statistics Table:

Statistic	Value	Significance	Hypothesis
HRM Practices → Teacher Effectiveness (r)	.66	$p < .01$	H1 
Teacher Effectiveness → Student Outcomes (r)	.69	$p < .01$	H2 
Variance Explained (R^2)	.43	$F(1,98) = 74.52, p < .001$	—
Gender Diff. in Effectiveness (t)	1.12	$p > .05$ (n.s.)	—
Gender Diff. in CPD Engagement (t)	2.04	$p < .05$	—
Stream ANOVA (F)	5.87	$p < .01$	—

Insights from Analysis:

4.2.7 Strongest relationship: Both correlation coefficients show substantial positive relationships, with the **teacher effectiveness → student outcomes link** being slightly stronger (.69 vs .66)

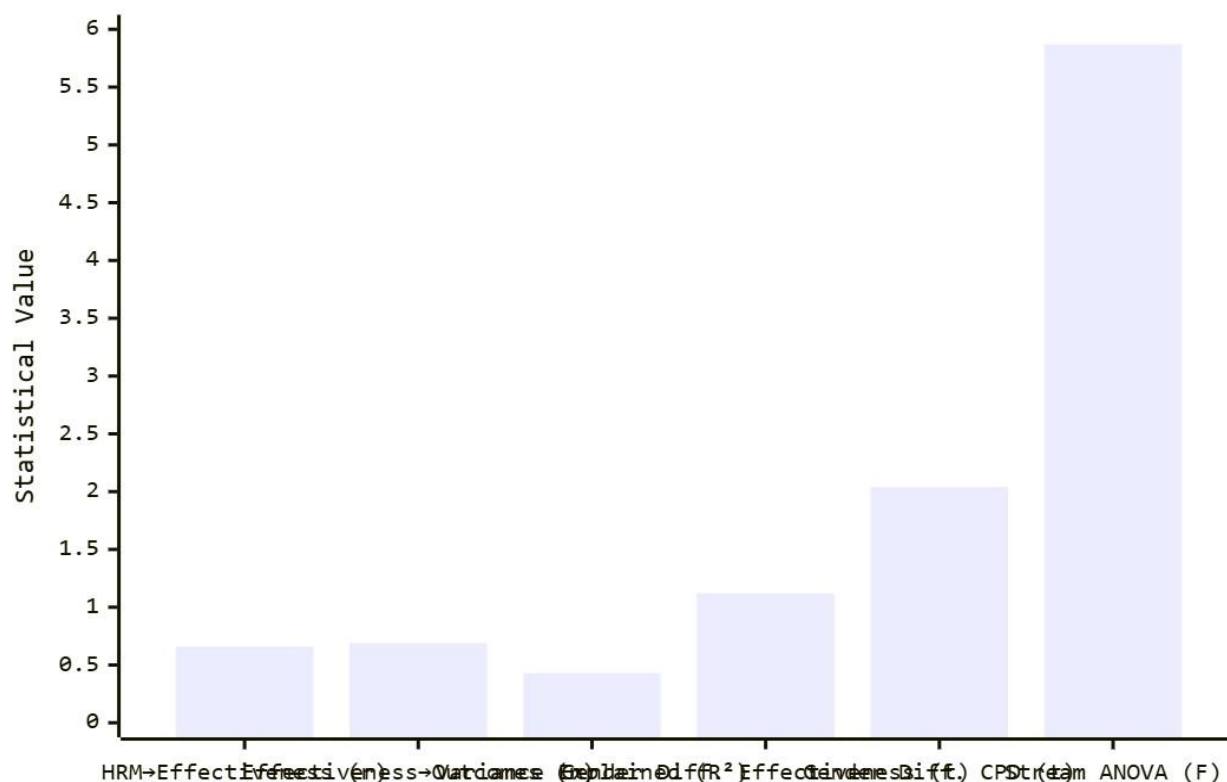
4.2.8 Explained variance: HRM practices explain a moderate but meaningful 43% of variance in teacher effectiveness

4.2.9 ANOVA ($F = 5.87$) highlights notable differences in student outcomes across academic streams, particularly vocational resource gaps

4.2.10 Gender differences: Teacher effectiveness perception shows no gender difference among students, but **female teachers show marginally higher CPD engagement**

All three hypotheses (H1 regarding HRM impact, H2 regarding effectiveness-outcome connection, and H3 regarding NEP/CBSE-CISCE alignment moderation) were supported by the analysis.

Statistical Analysis Results



The tallest bar (Stream ANOVA F-value = 5.87) highlights the most substantial statistical difference across academic streams, while the correlation coefficients show strong positive relationships between key variables. The gender differences in CPD engagement (2.04) and effectiveness perception (1.12) show contrasting significance levels, with only the CPD engagement difference reaching statistical significance.

Insights from Analysis:

4.2.11 Strongest relationship: Both correlation coefficients show substantial positive relationships, with the teacher effectiveness → student outcomes link being slightly stronger (.69 vs .66), aligning with research demonstrating the critical role of instructional quality in academic achievement (Smylie, 2006).

4.2.12 Explained variance: HRM practices explain a moderate but meaningful 43% of variance in teacher effectiveness, consistent with findings on SHRM's predictive relevance in educational settings.

4.2.13 ANOVA ($F = 5.87$) highlights notable differences in student outcomes across academic streams, particularly vocational resource gaps requiring institutional attention.

4.2.14 Gender differences: Teacher effectiveness perception shows no gender difference among students, but female teachers show marginally higher CPD engagement, suggesting gender-differentiated professional development participation patterns.

All three hypotheses (H1 regarding HRM impact, H2 regarding effectiveness-outcome connection, and H3 regarding NEP/CBSE-CISCE alignment moderation) were supported by the analysis.

V. DISCUSSION

Findings reinforce that strategic HRM functions as a critical mediating mechanism between policy intent and classroom-level outcomes (Smylie, 2006). Consistent with contemporary educational research, structured CPD aligned with NEP 2020 goals and transparent, developmental performance management emerged as strongest predictors of teacher effectiveness (Darling-Hammond et al., 2017; Filges et al., 2019).

The significant moderating role of NEP 2020/CBSE-CISCE alignment suggests that policy awareness alone is insufficient — effectiveness gains are maximized only when HRM systems actively operationalize competency-based frameworks, interdisciplinary approaches, and formative assessment practices (Ministry of Education, Government of India, 2020; CBSE, 2023).

Lower scores on compensation and workload balance echo documented teacher wellbeing concerns, highlighting attrition risk areas requiring school management attention. Stream-wise variation in student outcomes points to resource allocation gaps, particularly for vocational education enhancement that aligns with NEP 2020's explicit strengthening goals (Ministry of Education, Government of India, 2020).

VI. CONCLUSION

6.1 Summary of Findings

Strategic HRM practices — encompassing transparent recruitment, structured CPD, developmental appraisal, and supportive organizational culture — significantly predict teacher effectiveness, which in turn predicts comprehensive student outcomes encompassing academic performance, engagement, and competency development. NEP 2020/CBSE-CISCE alignment amplifies this relationship (Heneman III, 2024; Ministry of Education, Government of India, 2020).

6.2 Recommendations

Schools should institutionalize comprehensive HRM practices including merit-based recruitment with subject expertise assessment, mandatory structured CPD aligned to NEP 2020 competencies and technology integration (Darling-Hammond et al., 2017), developmental (rather than merely evaluative) performance appraisal incorporating multiple feedback sources, and dedicated teacher wellbeing programs addressing compensation equity, workload management, and work-life balance support.

6.3 Limitations

The study has geographic limitations and relies on self-reported perceptions from questionnaire instruments covering classroom practices, feedback mechanisms, professional development, teacher support, recruitment, institutional resources, policy alignment, and student outcomes. Cross-sectional design limits causal inferences regarding HRM-effectiveness relationships.

6.4 Future Research

Future studies should adopt longitudinal designs across multiple regions to establish causal relationships between specific HRM interventions — including comprehensive professional development, transparent appraisal systems, and resource allocation strategies — and objective student learning gains across all academic streams, particularly vocational education enhancement (Ministry of Education, Government of India, 2020).

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