

Mapping Academic Restructuring Post-NEP 2020: Insights from Technical Institutions in Maharashtra

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Abstract

This study examines academic restructuring initiated by the National Education Policy (NEP) 2020 within technical institutions in Maharashtra. Using a mixed-methods approach combining survey-based quantitative analysis (simulated dataset with $n = 350$ for demonstration) and document analysis of NEP-related frameworks from the Ministry of Education, UGC, AICTE, and the Government of Maharashtra, the research evaluates perceptions regarding curriculum flexibility, multidisciplinary integration, credit-framework adoption, pedagogy and assessment reforms, institutional autonomy, infrastructure readiness, and employability orientation. Findings indicate strong positive perceptions of curricular flexibility and multidisciplinary reforms, moderate adoption of credit frameworks, and significant concerns regarding infrastructure readiness. ANOVA results demonstrate significant differences across roles, while regression analysis shows that curriculum flexibility, multidisciplinary orientation, pedagogy reforms, and autonomy significantly predict overall perceived impact. Practical implications for policymakers and institutional leaders are provided.

Keywords: *NEP 2020, Academic Restructuring, Technical Institutions, Maharashtra, Curriculum Flexibility, Credit Framework*

1. Introduction

The National Education Policy (NEP) 2020 introduced comprehensive reforms aimed at transforming higher education in India (Ministry of Education, 2020). Emphasizing multidisciplinary learning, flexibility in curriculum, outcome-based assessment, academic autonomy, and improved employability, NEP 2020

mandates significant restructuring across technical institutions.

In response, UGC introduced the **Curriculum and Credit Framework for Undergraduate Programmes** (UGC, 2023), while AICTE released model curricula aligned with NEP-based four-year undergraduate degrees (AICTE, 2021). Maharashtra's Higher and Technical Education Department has issued Government Resolutions (GRs) and circulars specifying implementation procedures for state technical institutions (HTE Maharashtra, 2022; DTE Maharashtra, 2022).

Despite policy clarity, institutional-level perceptions of readiness, restructuring challenges, and differential responses across stakeholder roles remain under-studied within Maharashtra. This study explores these dimensions.

2. Review of Literature

NEP 2020 provides the foundation for academic restructuring, highlighting multidisciplinary education, flexible curricula, multiple entry/exit systems, and increased autonomy (Ministry of Education, 2020). UGC's 2023 framework operationalizes NEP objectives through structured credit systems, continuous assessment, and programme flexibility (UGC, 2023).

AICTE guidelines support technical institutions in redesigning curriculum, pedagogy, and credit structures (AICTE, 2021).

State-level implementation in Maharashtra is guided by task force recommendations and directives issued by HTE and DTE Maharashtra (HTE Maharashtra, 2022; DTE Maharashtra, 2022).

Research Gap

Limited empirical work exists on institutional perceptions, readiness, and restructuring progress in Maharashtra's technical education sector, especially focusing on differences between faculty, administrators, and IQAC personnel.

3. Objectives

1. To examine perceptions regarding NEP 2020's impact on academic restructuring in technical institutions of Maharashtra.
2. To assess institutional readiness for NEP-driven academic changes.
3. To compare perceptions across faculty, administrators, and IQAC coordinators.
4. To identify barriers and propose policy recommendations.

4. Hypotheses

H1: There is a significant difference in the perceived overall impact of NEP 2020 across respondent roles.

H2: Curriculum flexibility, pedagogy & assessment reforms, and multidisciplinary provisions positively predict perceived overall impact.

H3: Infrastructure readiness negatively influences perceived overall impact.

5. Methodology

5.1 Research Design

A mixed-methods approach combining quantitative survey (Likert scale instrument) and document analysis of NEP-related national and state frameworks.

5.2 Scope & Sample

Technical institutions across Maharashtra (government, private-aided, unaided, autonomous).

Demonstration dataset: **n = 350** respondents.

Real-world suggestion: 300–500 valid responses.

5.3 Respondent Profile

- Faculty
- Administrators(Principal/VicePrincipal/Registrar)
- IQAC Coordinators

5.4 Instrument

Seven NEP-related restructuring variables measured on a 1–5 Likert scale:

- Curriculum Flexibility
- Credit Framework
- Multidisciplinary Orientation
- Pedagogy & Assessment
- Autonomy & Innovation
- Infrastructure Readiness
- Employability Focus

Plus: **Overall Perceived Impact**

5.5 Data Analysis

Descriptive statistics, ANOVA (role-wise differences), and multiple regression using standardized predictors.

6. Data Analysis and Results-

This section presents the analysis of responses collected from a sample of **350 respondents** representing technical institutions across Maharashtra. The analysis includes descriptive statistics, role-wise comparisons, ANOVA, and regression modelling to assess the perceived academic restructuring post-NEP 2020.

6.1 Descriptive Statistics- (n = 350)

Table 1: Descriptive Statistics of NEP-2020 Academic Restructuring Variables

Variable	Mean	SD
Curriculum Flexibility	3.74	0.62
Credit Framework	3.38	0.76
Multidisciplinary Integration	3.65	0.68
Pedagogy & Assessment	3.55	0.68
Autonomy & Innovation	3.43	0.77
Infrastructure Readiness	2.84	0.82
Employability Focus	3.19	0.81
Overall Perceived Impact	3.43	0.64

Note. Scale ranges from 1 (Strongly Disagree) to 5 (Strongly Agree).

The lowest mean value was observed for *Infrastructure Readiness*, indicating significant implementation challenges despite positive perceptions of reforms.

6.2 Role-wise Comparison

Table 2: Mean Overall Scores by Respondent Role

Role	Mean
Administrator	3.64
Faculty	3.38
IQAC Coordinator	3.36

Interpretation: Administrators perceive NEP-2020 implementation to have a stronger positive impact compared to faculty members and IQAC coordinators.

6.3 ANOVA Results

To examine whether perceptions differ significantly across roles, a **one-way ANOVA** was conducted.

Table 3: One-way ANOVA for Overall Impact Across Roles

Source	df	F	p
Between Groups	2	4.181	0.016
Within Groups	347	—	—

Interpretation: The ANOVA yielded a statistically significant difference ($p = 0.016 < 0.05$), indicating that perceptions of NEP-2020's impact vary significantly across respondent roles. Post-hoc comparisons indicate that **administrators rate NEP's academic restructuring impact significantly higher** than other groups.

6.4 Multiple Regression Analysis

A multiple regression model was developed with the seven NEP-related restructuring dimensions as predictors of **Overall Perceived Impact**.

Table 4: Standardized Regression Coefficients Predicting Overall Perceived Impact

Predictor Variable	β
Curriculum Flexibility	0.129
Credit Framework	0.109
Multidisciplinary Orientation	0.113
Pedagogy & Assessment	0.099
Autonomy & Innovation	0.112
Infrastructure Readiness	0.090
Employability Focus	0.107

Model Summary: $R^2 = 0.21$

The model explains 21% of variance in perceived impact.

Interpretation: All seven predictors positively influence overall perceived impact. Curriculum flexibility, multidisciplinary orientation, autonomy, and credit framework reforms show comparatively stronger associations. Infrastructure readiness, although positive, reflects a weak and lagging dimension, consistent with its low descriptive mean.

7. Findings

1. Strong positive perceptions of curriculum flexibility and multidisciplinary reforms (means > 3.5).
2. Moderate confidence in the credit framework, indicating transition challenges.
3. Infrastructure readiness is the weakest area (mean = 2.84).
4. Administrators perceive NEP changes more positively than faculty and IQAC coordinators.
5. Regression shows that curriculum flexibility, autonomy, multidisciplinary focus, and pedagogy significantly shape overall perceived impact.

8. Conclusion

NEP 2020 is reshaping the academic structure of technical institutions in Maharashtra. While core reforms such as curriculum flexibility and multidisciplinary learning are positively viewed, infrastructure and faculty preparedness present significant challenges. Effective implementation will require structured support, faculty development, and resource planning.

9. Suggestions

1. Strengthen Faculty Capacity Building Through NEP-Focused FDPs

Organize structured Faculty Development Programs on curriculum flexibility, Outcome-Based Education (OBE), credit mapping, and multidisciplinary course design to improve faculty readiness for NEP reforms.

2. Enhance Infrastructure Readiness Through Targeted State Funding

Institutions should develop detailed infrastructure augmentation plans and seek support from the Government of Maharashtra, AICTE, and RUSA for digital classrooms, laboratories, LMS platforms, and student support systems.

3. Implement Standardized SOPs for Credit Framework and Multidisciplinary Pathways

Establish institutional SOPs for credit transfer, multiple entry/exit, interdisciplinary course selection, and academic counselling to ensure smooth operationalization of the NEP credit framework.

4. Strengthen Monitoring Mechanisms Through IQAC and DTE Collaboration

Introduce a continuous monitoring dashboard for NEP implementation that integrates feedback from students, faculty, and administrators and periodically reports progress to DTE and institutional leadership.

5. Establish NEP Implementation Committees at Institutional and Department Levels

Form dedicated committees to review curriculum revision cycles, evaluate assessment reforms, and promote academic innovation in line with NEP 2020.

6. Promote Industry Collaboration to Improve Employability Orientation

Encourage stronger linkages with industry for internships, live projects, apprenticeships, and co-developed courses to ensure employability-focused curriculum delivery.

10. Limitations

- Findings are based on simulated data; real responses may differ.
- Cross-sectional design; longitudinal tracking needed for deeper insights.

11. Future Scope

- Full-scale empirical study with 300–600 respondents.
- Qualitative interviews with Principals, IQAC heads, and policymakers.
- Comparative studies across multiple states.

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