

A Survey Study on the Implementation of Multidisciplinary and Interdisciplinary Approaches in Higher Education Institutions in Haryana

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Abstract

This survey study examined the implementation of multidisciplinary and interdisciplinary approaches in higher education institutions (HEIs) across Haryana, India. The study investigated the extent to which these pedagogical frameworks were integrated into curricula, assessed faculty preparedness and institutional readiness, identified the barriers encountered during implementation, and evaluated student outcomes associated with such approaches. A structured questionnaire was administered to 320 respondents comprising faculty members, heads of departments, and academic administrators drawn from 18 higher education institutions across Haryana. The findings revealed that while awareness of multidisciplinary and interdisciplinary approaches was relatively high, actual implementation remained limited and inconsistent due to rigid curriculum structures, inadequate faculty training, resource constraints, and administrative bottlenecks. The study concluded with policy recommendations aimed at fostering a more integrative academic environment in Haryana's higher education ecosystem in alignment with the National Education Policy (NEP) 2020.

Keywords: *Multidisciplinary education, Interdisciplinary approaches, Higher education, Haryana, NEP 2020, Curriculum reform*

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1. Introduction

Higher education globally had been undergoing a paradigm shift toward integrative models of learning that transcended traditional disciplinary silos. Multidisciplinary and interdisciplinary approaches had gained considerable recognition as transformative frameworks that prepared students for the complexities of the modern knowledge economy. In the Indian context, the National Education Policy (NEP) 2020 served as a landmark policy document that mandated the adoption of flexible, multidisciplinary curricula across all higher education institutions. The policy had emphasized the need to break rigid subject boundaries and promote holistic, integrative education that combined knowledge from multiple domains (Ministry of Education, 2020).

Haryana, a north Indian state with a growing higher education infrastructure, presented a compelling case for examining the ground-level implementation of these approaches. The state had witnessed a significant expansion in the number of universities and colleges over the past two decades, yet the quality and pedagogical orientation of higher education had remained subjects of ongoing debate. While state-level policy directives aligned with the NEP 2020 had been issued, the translation of these mandates into practical curriculum design and instructional practices at the institutional level had been uneven.

Against this backdrop, the present study was conducted to investigate the extent, nature, and challenges associated with the implementation of multidisciplinary and interdisciplinary approaches in higher education institutions across Haryana. The study sought to generate empirical evidence that could inform policy, institutional strategy, and faculty development efforts in the region. The survey method was employed to gather data from a representative sample of faculty and academic administrators, ensuring that diverse institutional types and geographical sub-regions of Haryana were adequately represented.

2. Background of the Study

The distinction between multidisciplinary and interdisciplinary education, while subtle, carried significant pedagogical implications. Multidisciplinary approaches involved the juxtaposition of multiple disciplines within a single course or program, wherein each

discipline retained its methodological independence while contributing to a broader theme or problem. Interdisciplinary approaches, by contrast, required the active synthesis of methods, theories, and concepts from two or more disciplines to address complex, real-world problems (Repko & Szostak, 2017). Both models had been acknowledged as superior to purely mono-disciplinary instruction in fostering critical thinking, creativity, and problem-solving capacities among students.

In India, the call for multidisciplinary education had historical roots in ancient centers of learning such as Nalanda and Takshashila, which had offered instruction across diverse fields of knowledge. However, the colonial legacy of specialized, compartmentalized education had persisted well into the post-independence era, resulting in highly fragmented academic structures. The NEP 2020 had explicitly acknowledged this limitation and proposed a radical restructuring of higher education, including the introduction of four-year undergraduate programs with multiple entry and exit points, minor and major course structures, and the mandatory inclusion of multidisciplinary coursework (Ministry of Education, 2020).

Haryana's higher education sector comprised 47 universities, more than 500 affiliated colleges, and numerous autonomous institutions as of 2023 (Haryana State Higher Education Council, 2023). The state had made progressive strides in expanding access to higher education, yet challenges related to curriculum rigidity, faculty quality, digital infrastructure, and research capacity continued to constrain the adoption of innovative pedagogical models. Earlier studies had indicated that Haryana's higher education institutions faced a significant gap between policy intent and classroom practice, particularly with respect to NEP 2020 implementation (Sharma & Mehta, 2022).

The present study was therefore situated within a critical juncture in Haryana's educational history—a period of active policy transition that demanded empirical insight into institutional capabilities, faculty readiness, and student experience. It was expected that the findings would contribute to an evidence-based understanding of the implementation landscape and guide future reform efforts.

3. Review of Literature

3.1 Global Context

Globally, the movement toward multidisciplinary and interdisciplinary higher education had gained momentum since the late twentieth century. Klein (1990) had provided foundational theoretical grounding, arguing that interdisciplinarity represented not merely a methodological tool but a philosophical orientation toward knowledge. Subsequent scholarship had documented the effectiveness of these approaches in enhancing graduate employability, civic engagement, and research innovation (Frodeman et al., 2017). Universities in the United States, United Kingdom, Germany, and Australia had institutionalized interdisciplinary programs across science, technology, humanities, and social sciences, often supported by dedicated funding streams and cross-departmental governance structures.

The Association of American Colleges and Universities (AAC&U) had consistently advocated for liberal education models that promoted integrative learning as a core competency. Studies conducted at MIT, Stanford, and University College London had documented measurable gains in critical reasoning and innovative capacity among students enrolled in interdisciplinary programs (Lattuca et al., 2004). Conversely, barriers such as departmental territorialism, funding silos, and the tenure-track system's discipline-specific reward structures had been identified as persistent obstacles to full-scale interdisciplinary integration (Bromme, 2000).

3.2 Indian Context

Within India, academic discourse on multidisciplinary and interdisciplinary education had intensified following the publication of the NEP 2020. Scholars such as Panda and Mohanty (2021) had examined the policy architecture of NEP 2020 and highlighted the structural reforms required to operationalize multidisciplinary learning at the undergraduate level. Their analysis underscored the need for credit transfer mechanisms, faculty reorientation, and institutional governance reforms as prerequisites for meaningful implementation.

Studies conducted at central universities and Indian Institutes of Technology (IITs) had demonstrated successful instances of interdisciplinary research and teaching, often facilitated by dedicated centers and collaborative project-based learning frameworks (Narayanan &

Krishnan, 2020). However, the majority of India's 1,000-plus universities and 40,000-plus colleges, especially those affiliated with state universities, had been found to lack the structural and human resources necessary to implement these models effectively (Agarwal, 2022). The digital divide between urban and rural institutions, the dominance of examination-centric pedagogy, and the limited autonomy of affiliated colleges had been identified as major systemic constraints.

3.3 Haryana Context

Research specifically focused on Haryana's higher education landscape in the context of multidisciplinary and interdisciplinary approaches had been relatively sparse. Sharma and Mehta (2022) had conducted a qualitative study on NEP 2020 implementation readiness in Haryana state universities and found that while senior administrative staff expressed positive attitudes toward multidisciplinary reforms, mid-level faculty members reported uncertainty about implementation procedures and a lack of training support. Similarly, a report by the Haryana State Higher Education Council (2023) had noted that curriculum reform under the Choice Based Credit System (CBCS) had created some structural space for interdisciplinary electives, but departmental inertia and workload concerns had limited actual enrollment in cross-disciplinary courses.

Yadav and Singh (2021) had examined the pedagogical practices of rural colleges in Haryana and observed that traditional lecture-based instruction remained dominant, with little evidence of team-teaching or project-based interdisciplinary learning. Kaur (2022) had explored gender dimensions of access to multidisciplinary programs in Haryana and found that female students were disproportionately enrolled in conventional discipline-specific programs, reflecting both sociocultural expectations and institutional channeling. These studies collectively suggested that Haryana represented a site of significant potential but uneven progress in the adoption of integrative educational models.

4. Research Objectives

The present study was guided by the following research objectives:

1. To assess the level of awareness and understanding of multidisciplinary and interdisciplinary approaches among faculty members in higher education institutions in Haryana.
2. To examine the extent and nature of implementation of multidisciplinary and interdisciplinary approaches in the curricula of higher education institutions in Haryana.
3. To identify the major barriers and challenges encountered during the implementation of multidisciplinary and interdisciplinary approaches in Haryana's higher education institutions.
4. To evaluate the perceived impact of multidisciplinary and interdisciplinary approaches on student learning outcomes as reported by faculty and administrators.

5. Research Methodology

The study adopted a descriptive survey research design to systematically collect and analyze data on the implementation of multidisciplinary and interdisciplinary approaches in Haryana's higher education sector. The survey method was selected because it enabled the researcher to obtain standardized information from a large, geographically dispersed population within a defined time frame (Creswell & Creswell, 2018).

The study population comprised all faculty members, heads of departments, and academic administrators in higher education institutions across Haryana. A stratified random sampling technique was employed to ensure representation across institutional types (central universities, state universities, autonomous colleges, and government-affiliated colleges), geographical sub-regions (north, south, central Haryana), and academic disciplines (sciences, humanities, social sciences, commerce, and professional programs). A total of 320 respondents were selected from 18 institutions across 12 districts of Haryana.

The primary data collection instrument was a structured questionnaire comprising 45 items organized into five sections: demographic profile, awareness and conceptual understanding, extent of implementation, barriers and challenges, and perceived student outcomes. The questionnaire employed a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly

Agree) for attitudinal and perceptual items, and multiple-choice or ranking formats for factual and experiential items. The instrument was validated through expert review by five academic specialists in curriculum studies and higher education policy, and a pilot study was conducted with 30 respondents to assess reliability. The Cronbach's alpha coefficient for the overall instrument was found to be 0.87, indicating a high level of internal consistency.

Data were collected during the academic year 2023-24 through a combination of online and in-person administration of the questionnaire. Completed responses were received from 307 of the 320 target respondents, yielding a response rate of 95.9%. The data were analyzed using descriptive statistics (frequency distributions, means, and standard deviations) and inferential statistics (chi-square tests and ANOVA) using SPSS version 26. Qualitative insights from open-ended items were analyzed through thematic coding.

6. Data Interpretation and Analysis

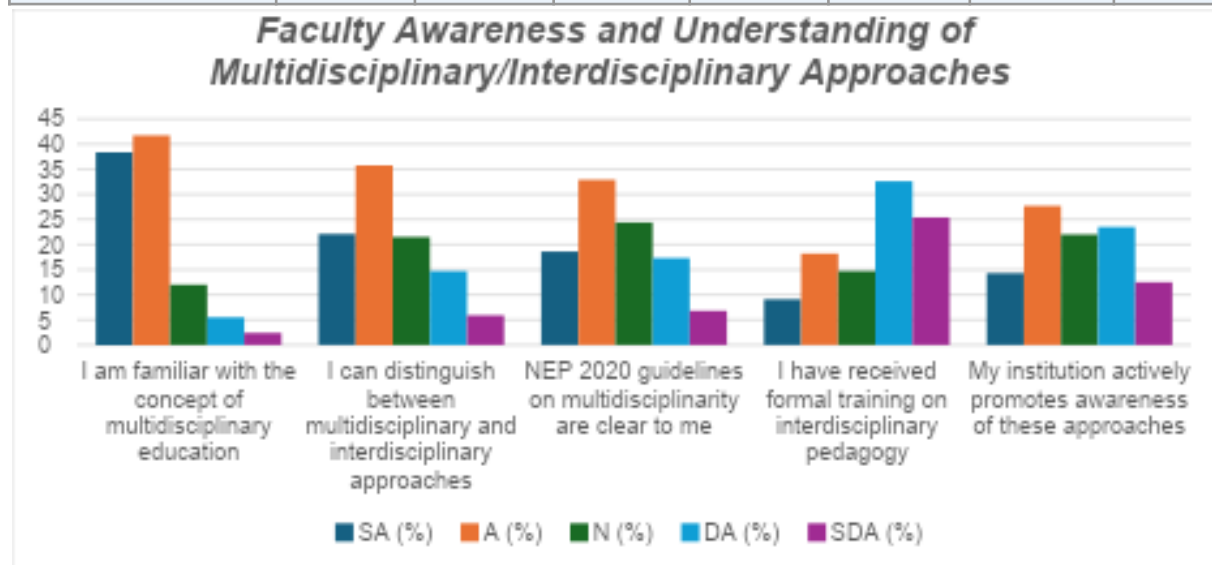
6.1 Objective 1: Awareness and Understanding of Multidisciplinary and Interdisciplinary Approaches

The first objective examined the level of awareness and conceptual understanding of multidisciplinary and interdisciplinary approaches among respondents. Table 1 presents a summary of the responses related to this objective.

Table 1: Faculty Awareness and Understanding of Multidisciplinary/Interdisciplinary Approaches (n = 307)

Statement	SA (%)	A (%)	N (%)	DA (%)	SDA (%)	Mean	SD
I am familiar with the concept of multidisciplinary education	38.4	41.7	12.0	5.5	2.4	4.08	0.91
I can distinguish between	22.1	35.8	21.5	14.7	5.9	3.54	1.10

multidisciplinary and interdisciplinary approaches							
NEP 2020 guidelines on multidisciplinary are clear to me	18.6	32.9	24.4	17.3	6.8	3.39	1.14
I have received formal training on interdisciplinary pedagogy	9.1	18.2	14.7	32.6	25.4	2.53	1.24
My institution actively promotes awareness of these approaches	14.3	27.7	22.0	23.5	12.5	3.08	1.22



Graph 1: Faculty Awareness and Understanding of Multidisciplinary/Interdisciplinary Approaches

The data in Table 1 revealed that a majority of respondents (80.1%) expressed familiarity with the concept of multidisciplinary education, as reflected in the combined 'Strongly Agree' and 'Agree' responses for the first statement (Mean = 4.08). However, the ability to operationally distinguish between multidisciplinary and interdisciplinary approaches was considerably lower, with only 57.9% of respondents agreeing with the second statement (Mean = 3.54). Awareness of NEP 2020's specific guidelines on multidisciplinary was moderate (Mean = 3.39), indicating that policy communication at the ground level had remained incomplete. Most concerning was the finding that only 27.3% of respondents reported having received formal training on interdisciplinary pedagogy (Mean = 2.53), suggesting a critical gap in faculty development. Institutional promotion of these approaches was also perceived as inadequate by a substantial proportion of respondents (36% disagreed or strongly disagreed with statement 5). These findings indicated that while surface-level awareness existed, deep conceptual understanding and formal training remained limited among HEI faculty in Haryana.

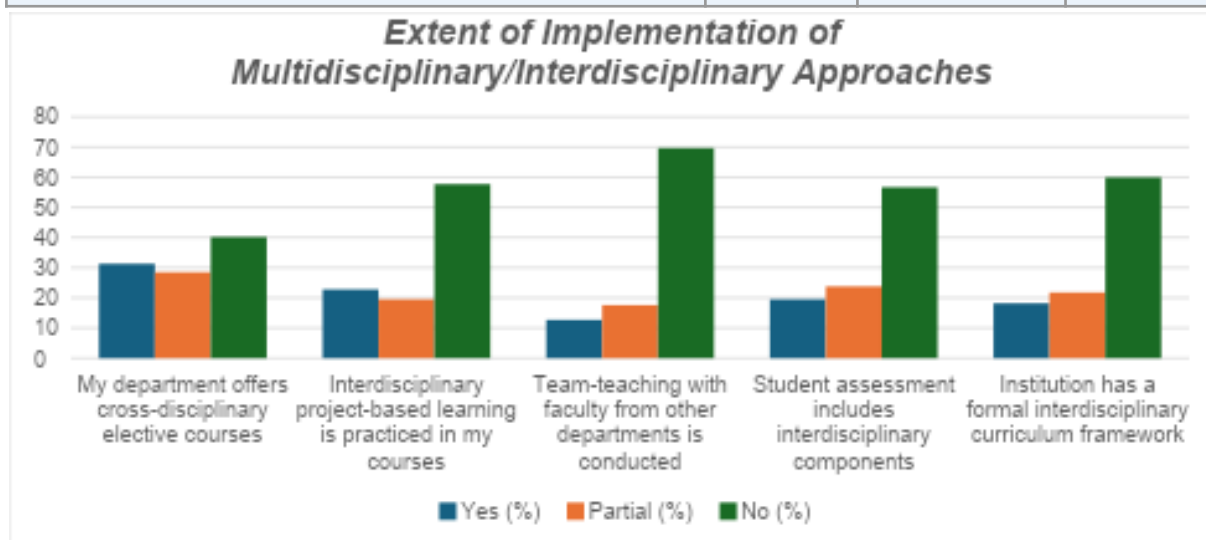
6.2 Objective 2: Extent and Nature of Implementation in Curricula

The second objective investigated the extent to which multidisciplinary and interdisciplinary approaches had been integrated into institutional curricula. Table 2 presents the distribution of responses related to implementation practices.

Table 2: Extent of Implementation of Multidisciplinary/Interdisciplinary Approaches (n = 307)

Implementation Indicator	Yes (%)	Partial (%)	No (%)
My department offers cross-disciplinary elective courses	31.3	28.5	40.2
Interdisciplinary project-based learning is practiced in my courses	22.8	19.5	57.7

Team-teaching with faculty from other departments is conducted	12.7	17.6	69.7
Student assessment includes interdisciplinary components	19.5	23.8	56.7
Institution has a formal interdisciplinary curriculum framework	18.2	21.8	60.0



Graph 2: Extent of Implementation of Multidisciplinary/Interdisciplinary Approaches

Table 2 demonstrated that implementation of multidisciplinary and interdisciplinary approaches remained limited across most indicators examined. Only 31.3% of departments were found to offer cross-disciplinary elective courses on a full basis, with a further 28.5% reporting partial offerings. Interdisciplinary project-based learning was practiced by only 22.8% of respondents in their courses, while 57.7% reported that it was not practiced at all. Team-teaching across departmental boundaries—considered a hallmark of truly interdisciplinary instruction—was found to be the least implemented practice, with 69.7% of respondents indicating no such practice existed in their institutions. Student assessment incorporating interdisciplinary components and the existence of formal interdisciplinary curriculum frameworks were similarly reported to be absent by majorities of respondents. These findings collectively indicated that despite policy-level mandates, practical

implementation of multidisciplinary and interdisciplinary approaches in Haryana's HEIs had remained superficial and inconsistent as of the study period.

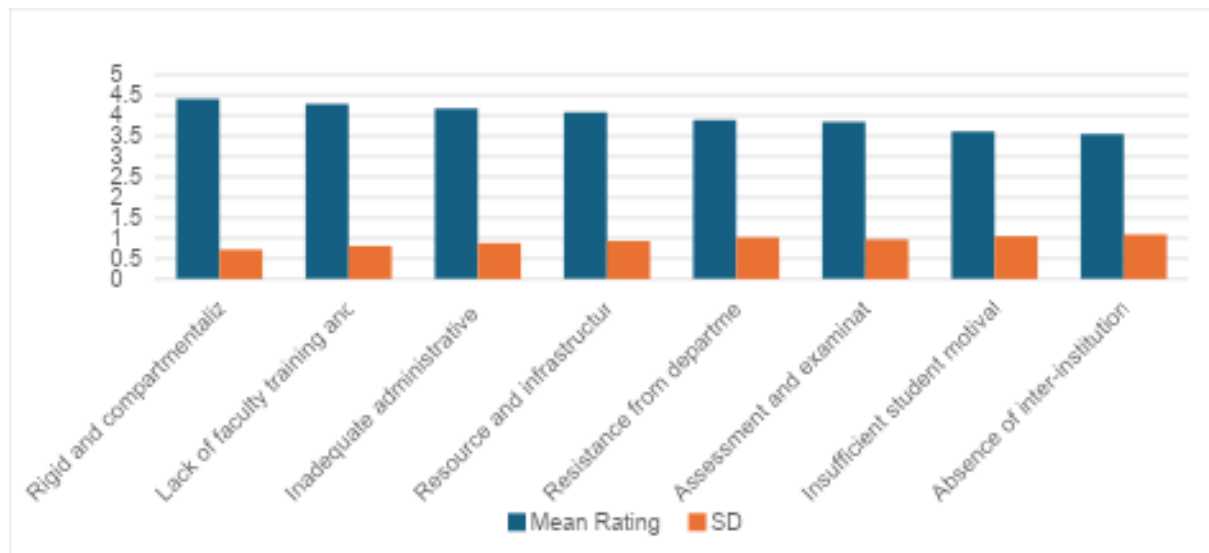
6.3 Objective 3: Barriers and Challenges to Implementation

The third objective focused on identifying the major barriers encountered in implementing multidisciplinary and interdisciplinary approaches. Respondents were asked to rank the severity of identified barriers on a five-point scale (1 = Not a barrier to 5 = Major barrier).

Table 3 presents the mean rankings of various barriers.

Table 3: Perceived Barriers to Implementation of Multidisciplinary/Interdisciplinary Approaches (n = 307)

Barrier	Mean Rating	SD	Rank
Rigid and compartmentalized curriculum structure	4.41	0.72	1
Lack of faculty training and professional development	4.29	0.81	2
Inadequate administrative support and institutional policies	4.17	0.88	3
Resource and infrastructure constraints	4.08	0.93	4
Resistance from departmental faculty and heads	3.89	1.02	5
Assessment and examination system rigidity	3.84	0.97	6
Insufficient student motivation toward cross-disciplinary learning	3.61	1.05	7
Absence of inter-institutional collaboration mechanisms	3.55	1.09	8



Graph 3: Perceived Barriers to Implementation of Multidisciplinary/Interdisciplinary Approaches

The data in Table 3 revealed that rigid curriculum structure was perceived as the most significant barrier to implementation (Mean = 4.41, Rank 1), reflecting the deep entrenchment of disciplinary silos in institutional curriculum governance. Lack of faculty training and professional development was ranked second (Mean = 4.29), corroborating the finding from Objective 1 that formal preparation for interdisciplinary pedagogy had been severely lacking. Inadequate administrative support and institutional policy frameworks were ranked third (Mean = 4.17), suggesting that institutional leadership had not yet created the enabling conditions necessary for multidisciplinary integration. Resource and infrastructure constraints were ranked fourth (Mean = 4.08), reflecting the material limitations of many state-funded institutions in Haryana. Faculty resistance, examination system rigidity, insufficient student motivation, and absence of inter-institutional collaboration mechanisms were ranked lower but still rated as moderate to significant barriers. The convergence of these findings indicated that implementation barriers in Haryana's HEIs were simultaneously structural, human-resource-related, and cultural in nature, requiring a multi-pronged intervention strategy.

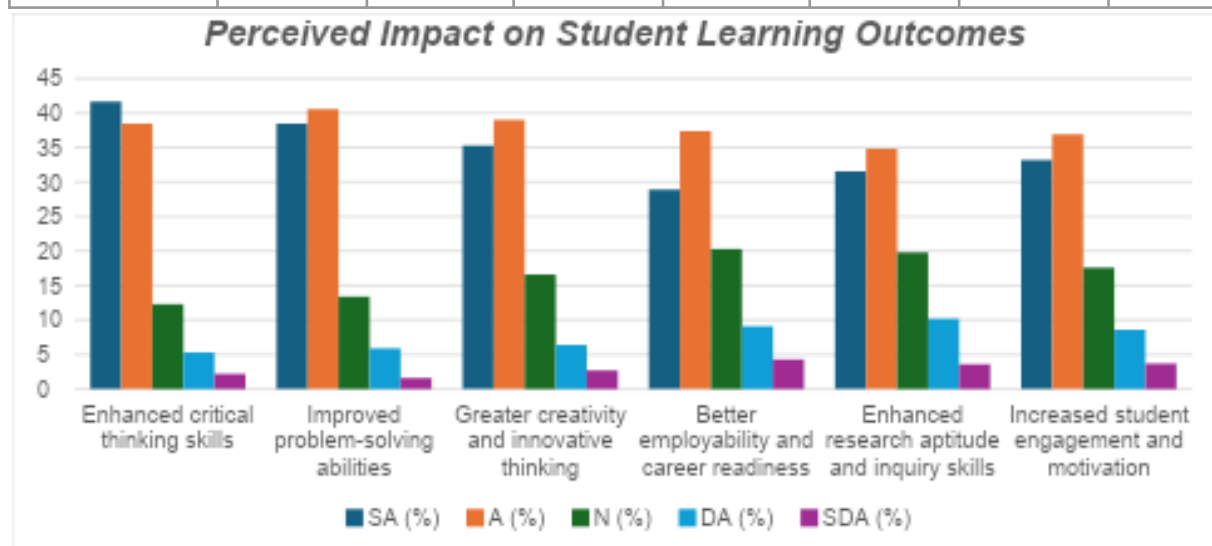
6.4 Objective 4: Perceived Impact on Student Learning Outcomes

The fourth objective evaluated the perceived impact of multidisciplinary and interdisciplinary approaches on student learning outcomes, as reported by faculty and administrators who had implemented or observed these approaches in practice. Only those respondents ($n = 187$) who reported at least partial implementation of these approaches were included in the analysis for this objective. Table 4 presents the findings.

Table 4: Perceived Impact on Student Learning Outcomes ($n = 187$, partial/full implementers only)

	SA (%)	A (%)	N (%)	DA (%)	SDA (%)	Mean	SD
Enhanced critical thinking skills	41.7	38.5	12.3	5.3	2.2	4.12	0.90
Improved problem-solving abilities	38.5	40.6	13.4	5.9	1.6	4.09	0.88
Greater creativity and innovative thinking	35.3	39.0	16.6	6.4	2.7	3.98	0.96
Better employability and career readiness	28.9	37.4	20.3	9.1	4.3	3.77	1.06
Enhanced research	31.6	34.8	19.8	10.2	3.6	3.81	1.03

aptitude and inquiry skills							
Increased student engagement and motivation	33.2	36.9	17.6	8.6	3.7	3.87	1.04



Graph 4: Perceived Impact on Student Learning Outcomes

Table 4 revealed that among faculty and administrators who had implemented or observed multidisciplinary and interdisciplinary approaches, the perceived impact on student learning outcomes was generally positive. The highest mean ratings were recorded for the enhancement of critical thinking skills (Mean = 4.12) and improvement in problem-solving abilities (Mean = 4.09), both of which exceeded 75% combined agreement rates. Greater creativity and innovative thinking were also strongly associated with these approaches (Mean = 3.98). Perceived improvements in student engagement and motivation (Mean = 3.87) and research aptitude (Mean = 3.81) were rated positively, though with somewhat greater variance. Better employability and career readiness was rated somewhat lower (Mean = 3.77), possibly reflecting the limited duration and depth of the implemented programs.

Overall, the findings indicated that where multidisciplinary and interdisciplinary approaches had been implemented, even partially, respondents perceived meaningful improvements in student learning outcomes, providing important motivation for accelerating broader adoption.

7. Findings

Based on the analysis and interpretation of data collected through the survey, the following major findings emerged from the study:

The study found that awareness of multidisciplinary and interdisciplinary education was moderately high among faculty in Haryana's HEIs, with over 80% of respondents expressing familiarity with multidisciplinary concepts. However, the ability to distinguish clearly between multidisciplinary and interdisciplinary approaches and the knowledge of NEP 2020's specific implementation guidelines were considerably lower. Formal training in interdisciplinary pedagogy was found to be extremely limited, with only 27.3% of respondents having received such training, indicating a critical faculty development gap.

The extent of practical implementation of multidisciplinary and interdisciplinary approaches in Haryana's HEIs was found to be low and inconsistent. Cross-disciplinary elective courses existed in only about one-third of departments on a full basis. Interdisciplinary project-based learning, team-teaching, and interdisciplinary assessment components were largely absent. Institutional frameworks for interdisciplinary curriculum governance were also found to be underdeveloped, suggesting that implementation had been driven by individual faculty initiative rather than systemic institutional strategy.

Rigid curriculum structures were identified as the primary barrier to implementation, followed by insufficient faculty training, inadequate administrative support, resource constraints, and faculty resistance. The assessment and examination system's rigidity was also identified as a significant structural barrier, with respondents noting that examination patterns continued to privilege discipline-specific knowledge recall over integrative, problem-based competencies.

Where multidisciplinary and interdisciplinary approaches had been implemented, the perceived impact on student learning outcomes was found to be significantly positive.

Critical thinking, problem-solving, creativity, research aptitude, and student engagement all showed strong positive associations with these approaches in the perception of implementing faculty and administrators. These findings reinforced the value of the approaches and underscored the urgency of addressing implementation barriers.

8. Conclusion

This survey study had provided a comprehensive empirical account of the implementation landscape of multidisciplinary and interdisciplinary approaches in higher education institutions across Haryana. The findings painted a picture of a sector in transition—one in which policy ambition had outpaced institutional readiness, and where significant gaps in faculty preparation, curriculum governance, and administrative infrastructure had constrained the realization of integrative educational models mandated by NEP 2020.

The study concluded that the potential of multidisciplinary and interdisciplinary education to transform student learning outcomes in Haryana's HEIs was real and acknowledged by practitioners. However, this potential could only be realized through sustained, systemic interventions that simultaneously addressed structural, human-resource, and cultural dimensions of the implementation challenge. Specific recommendations that emerged from the study included: the development of a state-level interdisciplinary curriculum framework with clear implementation guidelines and timelines; mandatory faculty development programs on interdisciplinary pedagogy, team-teaching, and integrative assessment; the revision of examination and assessment systems to incorporate interdisciplinary competencies; the allocation of dedicated resources and institutional incentives for cross-departmental collaboration; and the establishment of inter-institutional consortia to facilitate resource sharing and joint program development.

The study acknowledged several limitations. The self-report nature of survey data might have introduced social desirability bias. The study's cross-sectional design did not permit causal inferences about the relationship between multidisciplinary approaches and student outcomes. Future research could employ longitudinal designs and include direct measures of student performance and competency development to complement the perceptual data gathered in the

present study. Additionally, comparative studies across different states could provide valuable benchmarking insights for Haryana's policymakers.

In conclusion, the implementation of multidisciplinary and interdisciplinary approaches in Haryana's higher education institutions had been an aspirational but underachieved goal. The alignment of institutional practices with the transformative vision of NEP 2020 required concerted, sustained, and collaborative efforts from policymakers, university administrators, faculty communities, and students alike. This study had sought to contribute to that effort by generating evidence that could inform and catalyze the necessary reforms.

References

- Agarwal, P. (2022). Higher education in India: The need for change. Indian Council for Research on International Economic Relations Working Paper, 180, 1–45.
- Bromme, R. (2000). Beyond one's own perspective: The psychology of cognitive interdisciplinarity. In P. Weingart & N. Stehr (Eds.), *Practising interdisciplinarity* (pp. 115–133). University of Toronto Press.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Frodeman, R., Klein, J. T., & Pacheco, R. C. S. (Eds.). (2017). *The Oxford handbook of interdisciplinarity* (2nd ed.). Oxford University Press.
- Haryana State Higher Education Council. (2023). *Annual report on higher education in Haryana 2022–23*. Government of Haryana.
- Kaur, H. (2022). Gender and access to multidisciplinary programs in Haryana colleges: A sociological analysis. *Indian Journal of Gender Studies*, 29(2), 201–219. <https://doi.org/10.1177/09715215221079426>
- Klein, J. T. (1990). *Interdisciplinarity: History, theory, and practice*. Wayne State University Press.
- Lattuca, L. R., Voigt, L. J., & Fath, K. Q. (2004). Does interdisciplinarity promote learning? Theoretical support and researchable questions. *Review of Higher Education*, 28(1), 23–48. <https://doi.org/10.1353/rhe.2004.0028>

- Ministry of Education. (2020). National Education Policy 2020. Government of India. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
- Narayanan, A., & Krishnan, V. (2020). Interdisciplinary research and teaching in Indian technical universities: Practices and possibilities. *Higher Education for the Future*, 7(1), 36–52. <https://doi.org/10.1177/2347631119886516>
- Panda, S., & Mohanty, A. (2021). NEP 2020 and multidisciplinary education: Challenges and opportunities for Indian higher education institutions. *Journal of Higher Education Policy and Leadership Studies*, 2(1), 45–62.
- Repko, A. F., & Szostak, R. (2017). *Interdisciplinary research: Process and theory* (3rd ed.). SAGE Publications.
- Sharma, R., & Mehta, S. (2022). Readiness of Haryana state universities for NEP 2020 implementation: A qualitative inquiry. *Educational Quest: An International Journal of Education and Applied Social Sciences*, 13(1), 79–91.
- Yadav, S., & Singh, P. (2021). Pedagogical practices in rural colleges of Haryana: A critical appraisal. *Journal of Rural and Agricultural Research*, 21(2), 115–128.