International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Multidisciplinary Education and Research in Indian Higher Educational Institutions: A Review from the National Education Policy 2020 Perspective

Vinod Kumar Roy[1], Arun Kumar[2], Praveen Deepak[3]

[1]Assistant Professor, Postgraduate Department of Sanskrit, S. S. College, Jehanabad. – 804408, Bihar, India
[2]Assistant Professor, Department of Zoology, A. N. S. College, Nabinagar, Aurangabad – 804302, Bihar, India
[3]Assistant Professor, Department of Zoology, Postgraduate Department of Zoology, S. S. College, Jehanabad. – 804408, Bihar, India

Abstract

The National Education Policy 2020, released by the Government of India, emphasizes the importance of promoting multidisciplinary education and research in higher educational institutions. This research paper aims to review the guidelines suggested by the Government in the NEP-2020 policy document regarding the integration of multidisciplinary education and research, their necessity, and significance in the context of revolutionizing research and education in higher educational institutions in India. It examines the potential of multidisciplinary education, such as the improvement in critical thinking, problem-solving skills, and the enhancement of innovation for entrepreneurship and skill development based on innovative practices.

The paper summarizes the key points outlined in the multidisciplinary education and research, and proposes the necessity of such a method of teaching and learning in higher educational institutions in India. It reviews the potential benefits of multidisciplinary education, including the promotion of critical thinking, problem-solving ability, and the enhancement of innovation. It examines various challenges and obstacles to implementing multidisciplinary initiatives, including institutional structures, faculty development, and resource allocation. Overcoming challenges like institutional restructuring, establishing new pedagogies, and forming incentives for interdisciplinary research are addressed as well. The paper concludes by highlighting the significant potential of multidisciplinary education and research in India and the need for a concerted, collaborative effort to realize this vision set forth by the National Education Policy 2020.

Keywords: Higher Education, Multidisciplinary Education, National Education Policy 2020, Interdisciplinary Research, Faculty Development, Institutional Barriers.

1. INTRODUCTION

The National Education Policy (NEP) 2020, released by the Government of India, marks a significant

shift in the country's approach to higher education. One of the key focus areas of this policy is the promotion of multidisciplinary education and research in higher educational institutions (Beerannavar & Pancrasius, 2024), aimed at achieving a comprehensive transformation to address the challenges and capitalize on the opportunities in the rapidly evolving global landscape. The policy envisions the need for a holistic, integrated approach to learning, where students are exposed to a diverse range of disciplines and encouraged to explore connections between them. This shift towards multidisciplinarity is driven by the growing recognition that the complex challenges of the 21st century require a more comprehensive and collaborative approach to problem-solving.

The NEP 2020 envisions a sustainable development of the Indian society by ensuring high-quality education for all, while preserving the country's rich cultural heritage. The policy aims to provide a multidisciplinary and interdisciplinary liberal educational approach to prepare capable and equitable citizens. This research paper aims to review the necessity and significance of promoting multidisciplinary education and research in higher educational institutes in India, from the perspective of the NEP 2020. Several studies have examined the potential benefits of a multidisciplinary approach in higher education. These studies emphasize how multidisciplinary education can enhance critical thinking, problem-solving skills, and the ability to navigate complex, real-world challenges. Furthermore, research has shown that cross-disciplinary collaboration can lead to innovative breakthroughs and the emergence of new fields of study (Johari et al., 2012).

2. The Need for Multidisciplinary Education and Research in India

The Indian higher education system has witnessed a remarkable expansion in terms of the number of higher education institutions and enrolments over the past few decades. However, this rapid growth has often been accompanied by concerns regarding the quality, relevance, and competitiveness of higher education in the country. This growth doesn't seem to be qualitative rather quantitative, which warrants urgent attention to compete with global development. The NEP 2020 recognizes the need to address these issues by fostering a more holistic and integrated approach to learning and research.

The Indian higher education system has traditionally been characterized by a siloed, discipline-specific approach, where students often specialize in a single field of study from a young age. However, this narrow focus has been increasingly recognized as a limitation, as it fails to equip students with the diverse skills and perspectives needed to thrive in the modern, interconnected world. It represents a lack of cross-disciplinary collaboration and a disconnect between academic knowledge and real-world problems (Sahney et al., 2010). The need for a more multidisciplinary approach to higher education in India is driven by several factors (Figure 1), like 21st-century challenges, a lack of skilled youth to address the challenges of the 21st century, and evolving entrepreneurship in the fast-changing global scenario.

Complexity of 21st Century Challenges

The problems facing the world today, such as climate change, global health crises, and social inequalities, are inherently complex and multifaceted. Addressing these challenges requires the integration of knowledge and insights from various disciplines, including the sciences, engineering, social sciences, and humanities (Beerannavar & Pancrasius, 2024). A multidisciplinary approach can help students develop the critical thinking, problem-solving, and collaborative skills needed to navigate and tackle these complex, real-world problems and contribute to the sustainable development of the country in parallel with the global pace (Bhattacharya et al., 2017; Sahney et al., 2010).

Changing job market and skill requirements

The job market of the 21st century is rapidly evolving due to the rapidly evolving needs of the economy (Suguku, 2023), with a growing demand for employees who can adapt to change, think creatively, and collaborate well with teammates to work in teams. Moreover, the students should be equipped with all the necessary skills, the ability to think critically and innovate, and the capacity to adapt to dynamic work environments required by the industry to utilize in solving real-world problems of the 21st Century. Studies have shown that employers value skills such as critical thinking, effective communication, and the ability to apply knowledge across different contexts, which can only be fostered through multidisciplinary education (Lata, 2020).

Fostering innovation and entrepreneurship

The increasingly complex and interconnected nature of global challenges, from climate change and sustainable development to public health and social inequalities, demands a multidisciplinary response (Beerannavar & Pancrasius, 2024) Addressing these issues requires the integration of knowledge and expertise from various fields, such as science, technology, social sciences, and humanities. By nurturing multidisciplinary education and research, the NEP 2020 seeks to equip students with the necessary skills and mindset to tackle complex, real-world problems and contribute to the sustainable development of the country. The multidisciplinary approaches to education have been linked to increased innovation and entrepreneurship, as the intersection of different fields can lead to the generation of new ideas and the development of novel solutions to complex problems. In the Indian context, where the government is actively promoting entrepreneurship and innovation as a key driver of economic growth, the importance of multidisciplinary education becomes even more pronounced.

Preservation of cultural heritage

India's rich cultural heritage, encompassing diverse traditions, languages, and art forms, is an integral part of the country's identity. A multidisciplinary approach to higher education can help students better understand and appreciate this cultural diversity, while also exploring how different disciplines can contribute to the preservation and promotion of India's heritage. In this regard, courses for faculty and students are being designed as part of the Indian Knowledge System (IKS) to explore ancient Indian wisdom and preserve India's rich cultural heritage, offering timeless insights into science, philosophy, and sustainable living. It fosters holistic understanding, blending tradition with modern relevance for global well-being, propagating our ancient wisdom of seeing the world as the global village "Vasudhaiva Kutumbakam (वसुधैव कुटुम्बकम्~)[1]. Indian culture and tradition are filled with thoughts of all-round development, growth, and happiness of mankind. Rigveda emphatically declares that there should complete harmony in the society where everyone should walk together, speak together, and understand the minds of each other.[2] The Mahabharata, in the same spirit, desires that all should be happy and free from illness.[3] Rigveda is also of the view that we, the awakened people, should lead the nation.[4] The kindness towards nature seems reflected when Ishavasyopanishad advises judicious

[1] अयं निजः परो वेति गणना लघुचेतसाम्।
उदारचरितानां तु वसुधैव कुटुम्बकम्॥
- महोपनिषद अध्यायः 4, श्लोकः 71।

[2] संगच्छध्वं संवदध्वं सं वो मनांसि जानताम्। (ऋग. 10.191.02)

[3] सर्वे भवन्तु सुखिन: सर्वे सन्तु निरामया:।

[4] वयं राष्ट्रे जागृयाम पुरोहिता:। (ऋग. 1.8.4)

utilization of natural resources.[5] The Bhagavadgita speaks about hoarding which must be done for the benefits of humans.[6] That is why Mahabharata considers such people elegant who are engaged in charity for all creatures.[7]

3. Multidisciplinary Education and Research in the NEP 2020

The NEP 2020 places a strong emphasis on promoting multidisciplinary education and research in Indian higher educational institutions. Some of the key aspects of the policy in this regard include:

Flexible and Innovative Curricula

The policy calls for the development of flexible and innovative curricula that allow students to pursue a wide range of subjects and disciplines, including the sciences, social sciences, and humanities. This approach is intended to foster a spirit of inquiry and exploration, as well as the development of critical thinking and problem-solving skills. With this respect, the concept of Academic Bank of (ABC) was put forward, which takes care of all the records of students that they achieve during their education, as the credit imparting flexibility to learn various skills and knowledge, encouraging them to explore diverse fields of study.

Multidisciplinary Approach to Teaching and Learning

The policy calls for a shift away from the traditional, siloed approach to teaching and learning, towards a more integrated and interdisciplinary model. This will involve the development of new pedagogical methods, assessments, and learning environments that foster critical thinking, problem-solving, and the ability to synthesize knowledge from different domains to foster holistic learning and innovation. It encourages institutions to eliminate rigid boundaries between disciplines for a well-rounded education (MoE, 2020). It envisions higher education institutions transforming into large multidisciplinary universities, colleges, and knowledge hubs, promoting holistic and integrated education. The policy encourages the removal of rigid separations between academic streams, such as arts, science, and commerce, enabling students to choose subject combinations based on their interests. Multidisciplinary Education and Research Universities (MERUs) will be established to promote research and innovation. This approach aims to nurture critical thinking, creativity, and innovation in students

Institutional Restructuring and Governance

The policy envisions the transformation of higher education institutions into multidisciplinary universities and colleges, where students have the opportunity to engage with a diverse range of disciplines. This flexibility will be supported by a restructuring of higher education institutions, with a focus on creating large, multidisciplinary universities and colleges that can offer a wide range of programs and facilitate cross-disciplinary collaboration among faculty and students (Beerannavar & Pancrasius, 2024). The policy document outlines a vision for the reorganization of higher education institutions to foster a more integrated and flexible academic structure. This includes the merging of existing institutions, the creation of large multidisciplinary universities, and the introduction of new governance models that encourage and support multidisciplinary collaboration

Integrated Four-Year Undergraduate Programs

The NEP 2020 proposes the introduction of integrated four-year undergraduate programs, which will

[5] तेन त्यक्तेन भुञ्जीथा। (ईशावास्योपनिषद् 1.1)
[6] लोकसंग्रहमेवापि सम्पश्यन् कर्तुमर्हसि। (गीता 3.20)
[7] परहितं ये रमन्ते ते रम्या:। (महाभारत, शांतिपर्व 167/9)

allow students to explore multiple disciplines before specializing in a particular field. Under NEP 2020, India's 4-year degree offers multidisciplinary learning, multiple entry-exit points, research focus, credit transfer, and Academic Bank of Credits for flexibility and mobility with multiple exit points: 1 year or 40 credits of learning will be awarded with Certificate, 2 year or 80 credits of learning will be awarded with Diploma, 3 year or 120 credits of learning will be awarded with Bachelor's degree, and 4 years or 160 credits of learning will be awarded with Bachelor's degree with Research or Honours (MoE, 2020). Thus, these programs are designed to provide a more holistic and well-rounded education, equipping students with a diverse set of skills and knowledge.

Emphasis on Interdisciplinary and Multidisciplinary Research

The NEP 2020 emphasizes the importance of promoting high-quality, multidisciplinary research in higher educational institutes (MoE, 2020; Tamarkar et.al., 2024). The policy places a strong emphasis on the importance of research, with a focus on interdisciplinary and collaborative research projects. With an emphasis on regional concerns and requirements in relation to the Sustainable Development Goals (SDGs), this aims to promote an innovative and problem-solving culture while advancing the nation's general development. This includes the establishment of new research centres and facilities, funding mechanisms that support interdisciplinary projects, and the creation of incentives for researchers to engage in collaborative, cross-disciplinary work (Newman. 2023). Further, the NEP 2020 emphasizes fostering a strong research culture through initiatives like the National Research Foundation (NRF) to promote multidisciplinary, high-quality research across all academic institutions (NEP 2020, MHRD.

4. Challenges and Issues in Implementing Multidisciplinary Education and Research

While the potential benefits of multidisciplinary education and research are widely recognized, the implementation of this vision in the Indian context faces several challenges and barriers, such as the traditional structure and culture of higher education institutions, current regulatory and governance frameworks in Indian higher education, the unavailability of faculty members, etc., (Figure 2).

Existing Structure and Culture of HEIs

One of the primary challenges is the existing structure and culture of higher education institutions, which have been shaped by decades of discipline-specific approaches. Transitioning to a more integrated, multidisciplinary model requires a significant shift in mindsets, pedagogical approaches, and institutional structures, which can be a slow and difficult process requiring optimum funding and expertise to train the existing pool of faculty members.

Lack of Resources and Infrastructure

The lack of adequate resources and infrastructure to support multidisciplinary initiatives is another important challenge. Many higher education institutions in India, particularly in the public sector, face resource constraints in terms of funding, faculty, and facilities, which can hinder their ability to develop and implement multidisciplinary programs effectively. The NEP 2020 recognizes the challenge of inadequate resources and infrastructure as a barrier to implementing a multidisciplinary approach. It emphasizes the need for significant public investment in education to improve infrastructure, particularly in rural and underfunded institutions. The policy proposes the consolidation of smaller institutions into larger multidisciplinary ones to optimize resource use and enhance learning environments. Establishing Multidisciplinary Education and Research Universities (MERUs) is also intended to address these gaps by providing well-equipped, high-quality institutions that support holistic learning and research (NEP 2020, MHRD).

Probable Dilution of Disciplinary Expertise

There are also concerns about the potential dilution of disciplinary expertise and the risk of students acquiring a superficial understanding of multiple subjects, rather than developing deep expertise in a particular field. Critics argue that without proper curricular balance and faculty expertise, students may receive a superficial understanding across subjects rather than mastering one. NEP 2020 acknowledges the need to maintain rigorous academic standards and proposes careful curriculum design to integrate multidisciplinary learning while preserving disciplinary depth (NEP 2020, MHRD).

Lack of Coordination and collaboration among Faculty Members

Additionally, the implementation of multidisciplinary education and research requires a high degree of collaboration and coordination among faculty members from different disciplines. This can be challenging in a context where academic incentives and reward systems often prioritize individual achievements over collaborative work. The NEP 2020 envisions a multidisciplinary and holistic education system, which requires active coordination and collaboration among faculty across various disciplines. However, the policy acknowledges that existing institutional structures often promote academic silos, where faculty operate independently within their departments. This lack of coordination can hinder the integration of diverse knowledge systems and the development of interdisciplinary programs. NEP 2020 emphasizes the need for institutional reforms that encourage team teaching, joint research, and shared pedagogical practices. It also calls for faculty development programs to foster collaboration skills and interdisciplinary thinking. The success of multidisciplinary education largely depends on creating a culture of cooperation, communication, and mutual respect among faculty members. Effective leadership, institutional support, and incentives for collaborative work are essential to overcome these barriers (NEP 2020, MHRD). Despite these challenges, the potential benefits of multidisciplinary education and research for India's higher education system and broader social and economic development are immense.

5. Significance and Potential of Multidisciplinary Research in India

The NEP 2020 envisions a transformative shift in Indian higher education by fostering multidisciplinary education and research. This approach integrates the sciences, arts, humanities, and vocational studies, aiming to create holistic, well-rounded individuals capable of cr.itical thinking and innovation. This shift towards multidisciplinary education and research in India's higher education system holds significant promise for the country's intellectual and economic development. By breaking down disciplinary silos and encouraging cross-pollination of ideas, multidisciplinary approaches can lead to the emergence of novel solutions to complex problems, foster innovation, and enhance the relevance and impact of academic research (Sahney et. al., 2010). This, in turn, can contribute to the sustainable development of the country, as well as strengthen India's global competitiveness in the knowledge economy. Multidisciplinary learning is significant for several reasons:

- **Holistic Development**: It nurtures creativity, ethics, and emotional intelligence alongside technical and domain knowledge (NEP, 2020).
- **Enhanced Employability**: Students equipped with cross-disciplinary skills are more adaptable to a dynamic job market and industry needs (UGC, 2022).
- **Research Innovation**: It enables complex problem-solving by combining insights from diverse disc iplines, essential for tackling global and societal challenges (NITI Aayog, 2020).
- **Global Competitiveness**: Aligns Indian education with global standards, promoting international

collaboration and academic mobility.

Moreover, multidisciplinary education can better equip students with the skills and mindset needed to navigate the increasingly complex and dynamic job market. Graduates trained in multidisciplinary programs are likely to possess a broader understanding of different domains, enhanced critical thinking and problem-solving abilities, and the capacity to adapt to changing work environments in the country like India which holds enough potential due to large your demographic pool and ambitions to become highly emerging economy together with the promise to providing world-class facility to each household and individual. Thus this model, potentially, can foster India's progress as a knowledge economy by promoting critical research, encouraging innovation ecosystems, and producing graduates who are thinkers, creators, and leaders.

6. Implementation of National Education Policy Guidelines in HEIs in India

The implementation of the NEP 2020 in Indian Higher Education Institutions (HEIs) is underway, though with varied progress (Table 1). Key reforms such as the Academic Bank of Credits (ABC) have been introduced to promote student mobility and flexible learning pathways, yet adoption across institutions remains limited due to technical and administrative challenges (British Council, 2021). Some universities, like Delhi University's School of Open Learning, have initiated multidisciplinary courses integrating traditional Indian knowledge systems, reflecting NEP's holistic vision (Times of India, 2024). Efforts toward digitalization, including the proposed National Digital University, aim to expand online education, though infrastructural disparities hinder equitable access (Wikipedia, 2025). However, major bottlenecks persist. Faculty shortages are severe, with over 30% of teaching posts vacant in central universities, undermining teaching quality and policy execution. Regulatory reforms such as the Higher Education Commission of India are still pending, delaying unified governance (ORF, 2023). Furthermore, institutions in several states suffer from administrative gaps and underfunding, as seen in Rama Devi Women's University, affecting policy rollout (Times of India, 2024). Despite its ambitious scope, NEP - 2020's success depends on addressing these structural issues and ensuring inclusive access across regions and socio-economic groups.

7. Conclusion

The NEP 2020 has placed a strong emphasis on promoting multidisciplinary education and research in higher educational institutions in India. This approach is crucial in addressing the complex challenges facing the country, fostering innovation and creativity, and equipping students with the skills and knowledge needed to thrive in the 21st century. However, the implementation of these initiatives is not without its challenges. Overcoming the existing structural and cultural barriers, ensuring adequate resources and infrastructure, and cultivating a collaborative academic environment will be crucial in realizing the full potential of multidisciplinary education and research in India. By embracing this transformative approach, Indian higher education can play a pivotal role in shaping a more sustainable, equitable, and prosperous future for the country.

8. Acknowledgement

Authors are thankful to the Principal, S. S. College, Jehanabad.

References

1. Beerannavar, C. R., & Pancrasius, S. (2017). National Education Policy 2020. In Advances in educational marketing, administration, and leadership book series (p. 138). IGI Globa l. https://doi.org/10.4018/979-8-3693-1614-6.ch008
2. Beerannavar, C. R., & Pancrasius, S. (2024). National education policy 2020. Advances in Educational Marketing, Administration, and Leadership, 138-158. https://doi.org/10.4018/979-8-3693-1614-6.ch008
3. Bhattacharya, S., Deb, S., Nair, H., Shukla, T., & Yadav, A. (2017). Critical perspectives on the national policy on education 2016. Higher Education for the Future, 4(2), 129-146. https://doi.org/10.1177/2347631117706261
4. Education 2030. (2023). Right to Education Initiative. https://www.right-to-education.org/issue-page/education-2030
5. Johari, M. H., Zaini, R. M., & Zain, M. F. (2012). Factors for cross-disciplinary research collaboration: Experiences of researchers at the faculty of engineering and built environment, UKM. Asian Social Science, 8(16). https://doi.org/10.5539/ass.v8n16p122
6. Lata, P. (2020). Capacity building through cross cultural skills among engineering graduates of India: A case study of cross cultural skills course at BITS Pilani. Sustainable Production, Life Cycle Engineering and Management, 215-221. https://doi.org/10.1007/978-3-030-44248-4_21
7. Medhi, B., Bansal, S., Mahendiratta, S., Kumar, S., Sarma, P., & Prakash, A. (2019). Collaborative research in the modern era: Need and challenges. Indian Journal of Pharmacology, 51(3), 137. https://doi.org/10.4103/ijp.ijp_394_19
8. MHRD. (2023). Major Initiatives | Government of India, Ministry of Education. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
9. Nagar, P. K., & Nagar, S. (2020). Need for quality education and research in India. International Journal of Current Microbiology and Applied Sciences, 9(9), 782-785. https://doi.org/10.20546/ijcmas.2020.909.098
10. PIB. (2023). Salient features of NEP, 2020. Press Information Bur eau. https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1847066
11. Sahney, S., Banwet, D., & Karunes, S. (2010). Quality framework in education through application of interpretive structural modeling. The TQM Journal, 22(1), 56-71. https://doi.org/10.1108/17542731011009621
12. Shalini, & Tewari, A. (2020). Sustainable education in India through artificial intelligence: Challenges and opportunities. 12th ACM Conference on Web Science Companion, 41-47. https://doi.org/10.1145/3394332.3402828
13. Suguku, D. (2023). Pillar of internationalization in higher education: The contribution of international collaborations and online delivery approaches to internationalization in HEIS. SHS Web of Conferences, 156, 05004. https://doi.org/10.1051/shsconf/202315605004
14. Velaskar, P. (2010). Quality and inequality in Indian education. Contemporary Education Dialogue, 7(1), 58-93. https://doi.org/10.1177/0973184913411200
15. AG Horizon Pvt Ltd. (2023). Analysis of Reports on NEP-2020. https://aggrp.in/wp-content/uploads/2023/09/Analysis-Report-On-New-Education-Policy-2020-August-2023.pdf
16. AISHE final report. (2024, 19). AISHE | India. https://aishe.gov.in/aishe-final-report/
17. Moe, National Institute ranking framework (NIRF). (2023). MoE, National Institutional Ranking

Framework (NIRF). https://www.nirfindia.org/Rankings/2023/OverallRanking.html
18. Banerjee, D. (2024). National education policy (NEP) 2025: What's changed and what's yet to come? |. The Times of India. https://timesofindia.indiatimes.com/education/news/national-education-policy-nep-2025-whats-changed-and-whats-yet-to-come/articleshow/116804466.cms
19. British Council. (2021). Google. https://www.britishcouncil.in/sites/default/files/india-report2021-25jan2022.pdf
20. FOUNDATION, O. R. (2022). Implementation of the new national education policy 2020: An assessment. orfonline.org. https://www.orfonline.org/expert-speak/implementation-of-the-new-national-education-policy-2020
21. National education policy 2020. (2024, February 23). Wikipedia, the free encyclopedia. Retrieved June 3, 2025, from https://en.wikipedia.org/wiki/National_Education_Policy_2020