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Bridging the Silos: Multidisciplinary Approach in Indian Education System

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Abstract

The fundamental purpose of education is to introduce individuals to a multidisciplinary & equitable world view, equipping them to contribute meaningfully to society. A multidisciplinary approach in education is a way of learning which gives a major focus on diverse perspectives and different disciplines of learning. By breaking down rigid academic silos as envisaged in the NEP-2020 aims to foster holistic student development i.e. social, physical, intellectual, emotional, and moral capacities of human beings in an integrated manner for better prepare the learners for the 21st century workforce. This aims at developing critical thinking, versatility, adaptability, problem solving, flexibility, and analytical and communication skills in the learners. The opportunities of doing research are enhanced and improved through a holistic and multidisciplinary approach. This study underscores the importance of multidisciplinary education within the contemporary system. Research shows that shifting from rote learning to critical thinking helps fully unlock human potential.

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Introduction

Multi-disciplinary approach involves different subjects of study in one activity. According to Cambridge Dictionary, "The multidisciplinary approach involves specialists from multiple disciplines to redefine problems outside normal boundaries and reach appropriate solutions and encourages collaboration". It enables learners to develop critical thinking skills and presents many "real world" opportunities for growth.

One such example can be a science and history instructor might collaborate to develop a project in which students investigate the scientific and historical facets of a specific event or invention.

It is the one in which illustrate a theme, concept, or any issue. Here the same concept is learned through multiple viewpoints of more than one discipline. This method helps students to see how knowledge is connected, which promotes critical thinking, problem-solving, and the use of knowledge in different contexts. With the help demonstrating how several

fields are connected and how information can be used in various situations, the multi-disciplinary approach strives to make learning more relevant and engaging for students. A flexible curriculum will facilitate creative combinations of various disciplines. Learners will be able to choose from languages and at the same time fields such as Applied Sciences, Mathematics, and Business Studies.

Course categories (U.G.Programmes) as per UGC revised Choice-based credit system (Multidisciplinary Curriculum).

The Multidisciplinary Curriculum Must Consist of:

1. Core courses (Major disciplines), other related Disciplines (Supporting)
2. Electives (discipline specific, Interdisciplinary and/or Trans disciplinary, generic)
3. Ability enhancement compulsory courses (including Value Education, Environmental Studies)
4. Skill enhancement courses (Data Science & Analytics, Sustainability & Innovation and Entrepreneurship)

5. Value added courses (Digital health and telemedicine, biomedical nanotechnology)
6. Summer Internship (urban design, workshop)
7. *Research Project (in case of 4 year Honours degree with research, for 12 credits) *Honours students not undertaking research will do 3 courses for a total of 12 credits in lieu of a research project / Dissertation.

Rationale of the study

- Multidisciplinary Education combining subjects across disciplines i.e. scientific, vocational, professional, humanities, soft skills (like communication, discussion and debate etc).
- It includes all branches of creative human endeavours - science, maths, vocational programmes & soft skills.
- 'Knowledge of many arts' including Liberal Arts.
- STEM & STEAM: Educational approaches that integrate the humanities and arts with science, technology, engineering and mathematics have consistently showed positive LOs, increased innovations, increased critical thinking & problem solving skills, more in depth learning, mastery of curricular across fields.
- Develop well-rounded individuals that make learners more competitive in the global job market.
- Multidisciplinary approach is designed to encourage multiple interests & diverse passion in various professional contexts.

Significance of the Study

The present study holds substantial significance of Multidisciplinary Education at the theoretical, educational, and broader global levels.

Integrating Multidisciplinary Approaches in Teaching facilitates:

- Designing interdisciplinary projects requiring students to apply knowledge from multiple subjects.
- Encouraging collaborative learning environments where students can exchange ideas and perspectives.
- Incorporating experiential learning activities by engaging students intellectually and emotionally.
- Critical Thinking Skills
- Conflict Resolution Skill
- Character Formation
- Healthy Social Skills

Objectives of the Study

1. To study the concept of multidisciplinary education.
2. To identify specific strategies of multidisciplinary approach employed in contemporary education system.
3. To analyse the potential benefits & challenges in implementing multidisciplinary education.
4. To examine how NEP 2020 conceptualizes multidisciplinary education.

Research questions of the study

1. What is multidisciplinary education?
2. How do educators implement specific strategies of multidisciplinary approach in education system to foster multidisciplinary learning framework?
3. What are the benefits & challenges in implementing the multidisciplinary education?
4. How does NEP 2020 promote multidisciplinary learning within the higher education system?

Literature Review

Langal, R. H., Ghosh, M., Dubey, A., & Shah, S. (2025). Multidisciplinary Education in NEP 2020 explores the transition of India's higher education system from traditional single-discipline silos toward an integrated, flexible, and multidisciplinary model as mandated by the National Education Policy (NEP) 2020. It evaluates the influence of multidisciplinary learning on student cognitive development, academic flexibility, and career readiness. While NEP 2020 offers a forward-thinking blueprint for competency-based education, its success relies heavily on sustained institutional restructuring, comprehensive faculty upskilling, equitable resource distribution, and policy alignment between government bodies and universities.

Nirmal, P. B. (2024). Multidisciplinary Approach of NEP-2020: Transforming Higher Education in India examines the transformative framework of India's National Education Policy 2020 (NEP-2020), specifically evaluating how its focus on a multidisciplinary approach restructures the higher education system. It contrasts traditional, rigid discipline-based structures with the need for flexible, holistic, and integrated learning models designed for 21st-century global demands. This study serves as a conceptual synthesis highlighting how NEP-2020 seeks to align Indian higher education with ancient multidisciplinary models (e.g., Nalanda, Takshashila) while modernizing infrastructure to bridge skill gaps and enhance graduate employability in a knowledge-driven economy.

Sharma, A. (2025). NEP 2020 and Multidisciplinary Institutions: Fostering Innovation and Research critically analyzes the vision of India's National Education Policy (NEP) 2020 regarding the transformation of Higher Education Institutions (HEIs) into multidisciplinary entities. It examines key policy directives aimed at breaking rigid academic silos, outlines major structural and administrative implementation challenges, and provides strategic policy recommendations to foster innovation, research excellence, and holistic learning ecosystems.

Tamrakar, L., Tamrakar, S., & Thakur, V. (2024). Multidisciplinary Education: New Paradigms Under NEP 2020 examines the paradigms introduced under India's National Education Policy (NEP) 2020, specifically analyzing how higher education is shifting from rigid disciplinary silos to a flexible, multidisciplinary, and holistic learning framework. NEP 2020 breaks away from rigid disciplinary boundaries, fostering creativity, adaptability, and knowledge integration needed to address contemporary global issues. Furthermore, by bridging academic instruction with vocational skill development, multidisciplinary frameworks directly enhance student employability.

Walia, P. (2023). Multidisciplinary Education: Strategies for Implementation emphasizes that while NEP 2020 provides a visionary framework for holistic education, its success hinges on strategic institutional coordination, policy updates regarding employment criteria, and substantial infrastructural investment. It also examines the recommendations of India's National Education Policy (NEP) 2020 regarding multidisciplinary higher education and outlines practical operational strategies for its implementation.

Research Methodology

This study employs a qualitative research approach with a described research design to explore the relevance and application of Multidisciplinary Education system in the context of present scenario.

A review of existing literature case studies were conducted to gather insights on how Multidisciplinary perspectives is being integrated into modern education system.

It offers a deep analysis of Multidisciplinary perspectives from the policy documents of NEP 2020, multidisciplinary curriculum frameworks, and academic literature such as review journals, reputable online resources and government publications and previous research on Multidisciplinary Education.

Secondary Data: Academic articles, books, journals, case studies and credible websites.

Analysis & Interpretation

Objective 1: To study the concept of multidisciplinary education.

Features of Multidisciplinary Education

- Integration of Subjects.
- Flexibility and Choice.
- Flexible Undergraduate Programs.
- Emphasis on Indian Languages and Culture.
- Experiential Learning.
- Focus on Critical Thinking and Problem-Solving.
- Emphasis on Indianness.
- Digital Learning.
- Multiple Entry-Exit System

Importance of Multidisciplinary Education

- Encourages students to make connections across different disciplines to gain a comprehensive understanding of concepts.
- Helps students develop critical thinking, problem-solving, and creativity by approaching issues from multiple perspectives.
- Prepares students for real-world challenges that require a multidimensional approach to problem-solving.
- Establishing Large Multidisciplinary Institutions to provide students with diverse learning opportunities.
- Flexible Curricula to allow students to choose subjects across different disciplines, including arts, sciences, and vocational studies.
- Academic Bank of Credits to help students move between institutions and fields of study.
- Research and Innovation to promote research in multidisciplinary areas through funding and institutional support.

Objective 2: To identify specific strategies of multidisciplinary approach employed in contemporary education system.

Multidisciplinary Approach in Teaching

Multidisciplinary approach to teaching entails combining knowledge, concepts, and methodologies from several disciplines or topic areas as well as in order to produce a more comprehensive and linked learning experience. It is one of the best approaches in teaching.

Multidisciplinary approach encourages teachers to make connections across many disciplines rather than teaching courses in isolation, enabling students to perceive the interconnection of information to get a better understanding of the world around them.

Teaching Strategies in Multidisciplinary Pedagogy

1. **Problem-Based Learning (PBL):** Students learn by solving complex, real-world problems, often requiring knowledge from multiple disciplines. This promotes active learning and the application of theory to practice.
2. **Socratic Dialogue:** Instructors use questions to stimulate critical thinking and dialogue, helping students form their own understanding across disciplines.
3. **Flipped Classroom:** Students review instructional material at home and engage in interactive, hands-on activities during class. This shifts the focus from passive learning to active engagement.
4. **Integration of Emotional and Ethical Learning:** Educators incorporate discussions about personal values, ethics, and social justice into the curriculum to encourage moral and ethical reasoning.
5. **Interdisciplinary Projects:** Assignments or projects that require students to draw on knowledge from multiple subjects, encouraging creativity and a deeper understanding of interconnected issues.

Assessment Strategies for Multidisciplinary Education

- Implementing performance-based assessments that evaluate students' ability to apply knowledge in real-world scenarios.
- Using rubrics that assess not only academic achievements but also social and emotional growth.
- Providing feedback that focuses on holistic development and encourages continuous improvement.

Implementation Strategies of Multidisciplinary Education

- Curriculum Redesign.
- Teacher Training.
- Infrastructure Development.
- Community Engagement.

Objective 3: To analyse the potential benefits & challenges in implementing multidisciplinary education.

Benefits of Multidisciplinary Education

- **All-Round Development:** Students get a complete understanding of complicated issues & challenges.
- **Academic Excellence:** It helps in developing a passion for learning.
- **Preparation for the 21st Century:** Students get a chance to work with teams from various backgrounds.
- **Enhanced Critical Thinking:** Exposure to multiple fields of study fosters complex thinking.
- **Fosters Creativity and Innovation:** The integration of different disciplines can spark innovative thinking by encouraging students to make novel connections.
- **Preparation for Real-World Challenges:** Multidisciplinary learning mirrors real-life situations where solutions often require diverse knowledge and skills.
- **Cognitive and Emotional Development:** Focusing on the whole person helps students develop not only intellectually but also emotionally, making them more resilient and adaptable.
- **Increased Engagement:** A personalized, student-centred approach helps students remain motivated and invested in their education.

Challenges in Implementing Multidisciplinary Education

- **Curriculum Design:** Designing curricula that adequately balance depth in specific subjects with breadth across disciplines can be difficult.
- **Assessment Methods:** Traditional assessment tools, like standardized tests, may not effectively measure the outcomes of holistic or interdisciplinary learning.
- **Teacher Training:** Educators need training in collaborative and interdisciplinary teaching methods, which may not align with traditional approaches.
- **Resource Allocation:** Offering a wide range of interdisciplinary courses and hands-on experiences can require more resources and coordination across departments.

Objective 4: To examine how NEP 2020 conceptualizes multidisciplinary education.

Multidisciplinary Approach & NEP-2020

A multidisciplinary education, as envisaged in the NEP- 2020 aims to develop social, physical, intellectual, emotional, and moral capacities of human beings in an integrated manner. A flexible curriculum will facilitate creative combinations of various disciplines.

Learners will be able to choose from languages and at the same time fields such as Applied Sciences, Mathematics, and Business Studies. This aims at developing critical thinking, versatility, adaptability, problem solving, flexibility, and analytical and communication skills in the learners.

The opportunities of doing research are enhanced and improved through a holistic and multidisciplinary approach.

The NEP 2020 embraces this concept and seeks to strengthen it at all levels. To this end, the NEP outlines several measures that will help facilitate a multidisciplinary approach in education:

- Standalone institutions will be closed by 2030.
- Multidisciplinary establishments will be publicly accessible.
- Students will have a greater variety of subjects to choose from without the limitations they previously encountered when they were able to study fine arts and sports in addition to subjects from the humanities and sciences.
- With innovative topic combinations, state-of-the-art curricula, adaptable alternatives, and several entry and exit points within the undergraduate programme, students are able to explore their areas of interest and make career decisions.
- Ending Fragmentation
- Imaginative/flexible curriculum
- Credit Based System
- Multiple Entry and Multiple Exit points
- Structure and length of Programmes
- Academic Bank of Credit (ABC)
- Multidisciplinary Education and Research Universities (MERU)

Flexible Curricular Structures & Length of Programmes

Flexible curricular structures in multidisciplinary universities enable creative study combinations, removing rigid boundaries and creating life-long learning opportunities. These graduate-level, master's, and doctoral programs offer research-based specialization and multidisciplinary work opportunities. The preferred option is a 4-year multidisciplinary Bachelor's program, offering holistic education and focusing on chosen majors and minors. HEIs can offer various Master's programs, including a 2-year

program with research, a 1-year Master's program for 4-year Bachelor's programs with research and an integrated 5-year Bachelor's/Master's program. PhD requires either a Master's degree or a 4-year Bachelor's degree with Research. Students may also earn a degree 'with Research' if they complete a rigorous research project in their major area

Multi-disciplinary Universities and Colleges

Large multidisciplinary universities and colleges will offer high-quality holistic education with flexibility, engaging course options, and increased faculty autonomy.

All Higher Education Institutions (HEIs) will establish and strengthen departments in various subjects for a multidisciplinary, stimulating Indian education. These subjects will be included in Bachelor's Degree programs or ODL mode.

Model public universities for holistic and multidisciplinary education, at par with IITs, IIMs, etc., called MERUs (Multidisciplinary Education and Research Universities) will be set up and will aim to attain the highest global standards in quality education. They will also help set the highest standards for multidisciplinary education across India.

Research and Consultancy

Interdisciplinary Research centres: Every University must establish Interdisciplinary Research centres, which include the Faculty Members from different related Disciplines.

While the University provides the basic research facilities, the Research Groups can equip further with advanced facilities through sponsored Research Projects from different Funding Agencies. Through interdisciplinary and trans disciplinary research, the research teams can work on advanced and frontier areas, resulting in original and new knowledge, transcending the Disciplines involved.

Findings of the Study

- A multidisciplinary education is a process of learning from diverse perspectives of different disciplines.
- Same concept is learned through multiple viewpoints of more than one discipline.
- Multidisciplinary learning refers to acquiring knowledge and insights associated with more than one academic discipline (It is a Buzz word in higher education).
- Teachers need more training for effective implementation.
- This approach improves learning quality & provides comprehensive outlook.

Conclusion

Multidisciplinary approach to teaching entails combining knowledge, concepts, and methodologies from several disciplines or topic areas as well as in order to produce a more comprehensive and linked learning experience. It is one of the best approaches in teaching. While facing hurdles The NEP 2020 policy aims to produce innovative, well rounded learners for the modern world, for that Multidisciplinary approach is the need of the hour. It encourages teachers to make connections across many disciplines rather than teaching courses in isolation, enabling students to perceive the interconnection of information to get a better understanding of the world around them. Ultimately, it elevates student engagement & unlocks higher learning outcomes, preparing learners not merely to pass examinations, but to navigate & solve the interconnected challenges of a dynamic global society.

- Educators should try to implement all the principles of Multidisciplinary education in the education sector.
- Collaboration with Research Institutions.
- Raising Awareness & Promoting a Culture of openness.
- Need strong Institutional Support.

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