



Role of Multidisciplinary Learning in Enhancing School Education Quality under NEP 2020

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Abstract

Multidisciplinary learning is central to the National Education Policy (NEP) 2020, fostering creativity, lifelong learning, and societal engagement. Analyzing the policy–practice gap reveals pathways toward implementing multidisciplinary policies in schools. Policymakers should align school practices with NEP objectives to improve education quality. In today’s technology-driven world, the traditional separation of subjects is no longer suitable. To thrive, individuals need a blend of knowledge, skills, and values from diverse fields. Mandating multidisciplinary approaches and continuous teacher development for designing projects is crucial. Integrating multidisciplinary learning throughout schooling offers students the chance to tackle real-world issues while achieving curriculum goals. However, the lack of adequate integration in curriculum documents limits the exploration of these approaches. Investigating the policy–practice relationship highlights the need for guidance to implement theories into practice. Emphasizing NEP objectives within varying local contexts provides a targeted approach to improve equity, sustainability, and well-being through multidisciplinary education experiences. (Aithal & Aithal, 2019)

Keywords: Multidisciplinary learning, National Education Policy, School Education Quality.

1. Introduction

The National Education Policy (NEP) 2020 emphasizes multidisciplinary learning to improve education quality in India. This shift recognizes knowledge as interconnected, promoting well-rounded student development. NEP 2020 supports a balanced curriculum that includes humanities, arts, and physical education along with mathematics and science. It highlights the importance of lifelong learning skills, creative problem-solving, ethical reasoning, and addressing societal challenges. Understanding multidisciplinary learning is crucial for effective policy adaptation by innovators and researchers. Multidisciplinary learning differs from related concepts like transdisciplinarity and interdisciplinary learning, focusing on how subjects integrate. NEP 2020

outlines three domains of competencies: cognitive and metacognitive, socio-emotional, and physical and practical. Integration refers to how subjects can be combined in various ways within teaching. NEP 2020 aims for “holistic development” or “holistic education,” which includes synthesizing multidisciplinary, co-scholastic, and life-oriented learning with curricular knowledge and skills, thereby expanding the notion of curricular learning. (Batra, 2021)(Singal et al., 2017)

2. The National Education Policy 2020: Objectives and Framework

The National Education Policy 2020 (NEP 2020) aims for the transformational overhaul of the Indian education system and an urgent need to include multidisciplinary learning (Aithal & Aithal, 2019). The multidisciplinary embodied in NEP 2020 is about making connections between disciplines and encouraging interdisciplinary classrooms. Interdisciplinarity touches different subjects, teaching educators to piece together their functional knowledge to feel and reason about vital problems. Through interdisciplinary teaching, traditional boundaries are removed so students collaborate and utilize various forms of knowledge with a common goal. Young people are staying in school longer than before, not only to acquire pure knowledge but also to prepare them for their place in society and for taking on responsibilities as citizens. Education systems have developed as places where the learning of knowledge and skills takes a prominent role to prepare pupils for intelligent comprehension, constructive judgment, and responsible decision-making. Closer cooperation is therefore vitally needed among the departments responsible for the various levels of different subjects, in how particular themes can be better treated, and how general ideas thought as common or necessary for pupils during their studies throughout all disciplines and levels. Multidisciplinary classroom teaching in any form supports independent or small-group study. Each participant of the group can thus elaborate on his/her subject, and gain a deeper understanding of his/her own discipline.

3. Conceptualizing Multidisciplinary Learning

Multidisciplinary learning constitutes a systematic, situated approach to engaging with and drawing connections between concepts, skills, and practices across curricular subject domains. Such engagement supports the development of cross-cutting competencies that, in turn, enable learners to apply knowledge, skills, and dispositions flexibly to complex problems in an interdependent world (Shafek Atta & A Alzahrani, 2020). NEP 2020 specifies that multidisciplinary learning can be facilitated through the integration of subject domains within school curricula and pedagogies.

Multidisciplinary integration can occur through a number of selected curricular' different approaches adapted to varying educational needs and contexts, including, among others cross-subject competencies, planning teams interdisciplinary modules co/curricular interrelations project-based thematic inquiry-related. NEP 2020 supports the introduction of integrated and transdisciplinary approaches to education through an Extended Framework for Multidisciplinary Learning. This framework offers accompanying definitions, rationale, and curricular implications

and suggestions for the foundational to secondary stages of school education, guidance on governance and assessment, and additional considerations for equity, teacher development, resource, and broader policy issues.

4. Multidisciplinary Across School Stages

Multidisciplinary is a natural and effective method for school children to learn about the real world. When children enter school, they have questions about the world around them—how things are made, how people interact, how nature works, and much more. Humans learn by asking questions and looking for the answers they want. A child playing a particular game, especially outside, can ask other players how often they play together, how the game works, why it is fun, or who invented it. The questioning behaviour reflects the developing mind, the pursuit of knowledge, and environmental influences that a child is exposed to. Questions can start from any subject, physical, social, or emotional. Multidisciplinary learning accommodates children's natural tendency to integrate knowledge from multiple subjects. Consequently, this pattern continues into the lower grades.

In Middle School, many students experience a major leap forward in development, leading to broader interests and deeper thoughts regarding demographic, historiography and science matters. Therefore, the questions asked become more sophisticated. Some students appear to change career goals and degree preferences many times. It becomes increasingly natural for students to choose study direction and subject groupings. In Secondary School, pupils generally choose advanced elective courses. These choices are affected by the integration of earlier subjects and the choice of routes, and it is, therefore, becomes a natural tendency to choose a theme and carry out multidisciplinary study to meet institutional requirements or personal career wishes (Shafek Atta & A Alzahrani, 2020).

5. Pedagogical Approaches and Curriculum Design

Schooling systems have undergone significant changes over the past century as traditional education, designed for industrial societies, has proven inadequate for today's challenges. Curricula worldwide have been restructured to foster competencies like critical thinking, creativity, collaboration, and self-management. Multidisciplinary has been identified by UNESCO as essential for addressing societal issues, integrating knowledge from various fields, including language and social studies, to develop problem-solving skills. Implementing these reforms requires clarity on their practical application and alignment with India's National Education Policy (NEP) 2020. The NEP seeks to reduce curricular burden, promote vocational education from grade 6, enhance Art Education from grade 1, and establish environments akin to Bal Bhavan. Schools adopting a holistic approach must reframe assessment strategies to align with NEP 2020. Teachers are encouraged to employ a comprehensive pedagogical strategy, utilizing project-based learning as a method for multidisciplinary instruction. Thematic units centered on core concepts engage students and enhance learning. Inquiry-based frameworks can also be integrated, allowing course topics to connect across disciplines. Ultimately, multi-

disciplinary competencies evolve through interactions among different domains, affirming their significance in holistic educational approaches. (Batra, 2021)(Singal et al., 2017)

6. Assessment Practices in a Multidisciplinary Framework

Assessment drives the learning process and can encourage students to grasp concepts at a deeper level (Akubuilu, 2012). The assessment of student understanding in a multidisciplinary framework has to be designed in such a way that it authentically measures student understanding of the learning and projects that have been engaged in and at the same time measures the cross-cutting competencies that have been promoted through the curriculum and everyday teaching practices (JAWAD & WAHAB, 2014). As outlined in the formative assessment framework, discipline-specific practices also play a consolidated role in students' understanding of content regarding the investigations that they are engaged in (Loureiro et al., 2022). It is therefore key to design curricula so that the learning that needs to be assessed at each level across disciplines is clearly depicted to ensure that there is coherence between what the students are expected to learn and what they are expected to demonstrate in their assessments.

7. Teacher Professional Development and Collaboration

Teacher professional development supports multifaceted understandings of curricular arrangements, pedagogical practices, and ongoing assessment forms. School systems typically adopt a topic-based or subject-centered pedagogical and curricular arrangement with yearly segmentation into disciplines spanning approximately 35 to 50 weeks per year (Kumar, 2014). Formal training in multidisciplinary education indicates effective methods for generating initial awareness; multidisciplinary constitutes a relatively radical departure from conventional, monodisciplinary approaches. Teacher collaboration enhances collective knowledge-sharing, strengthens commitment, and raises awareness of epistemologies that support subject-centered, integrated curricular models (Burton, 2015). Tightly linked, three pedagogical constructs—curricular arrangement, pedagogical practice, and assessment context—precede and foreshadow multidisciplinary. Curricular reform is more readily embraced when practical and pedagogical experiences reinforce desired shifts. Periodic after-school workshops or more comprehensive schemes such as formalized coaching, collaborative-action teams and professional-development schools allow dissemination of comprehensible, topic-based and problem-based examples of sector transitional arrangements.

Schools adopt either topic-based or subject-centered approaches; each entails distinctive methods of assessment. Topic-centered arrangements cohere with project pedagogies that produce authentic, extra-scholastic products on themes drawn from adolescents' lived adjacent contexts (Aimah et al., 2018). Subject-centered models remain feasible within either input-style arrangement. Additional coaching support can assist category shifts from topic to problem or project presentation options. Transition models span fixed-entry, free-choice, choice-concircular, and fully-observational implementation types; pedagogically significant participant-category combinations link small-group cooperatives and partially-fixed whole-class sequences

under problem-centered topics, with individual free-choice integration plus outside-expert experience-presentations.

8. Equity, Inclusion, and Access in Multidisciplinary Education

Learning and teaching practices are seldom an exact, one-size-fits-all replication of policy intent. NEP 2020 therefore recognizes the need for contextualization when implementing its vision for multidisciplinary education. This is especially true in nations as diverse as India, where educational environments and needs differ widely between urban and rural communities, between wealthy and impoverished regions. For a conceptual and analytical framework to underpin and guide its recommendations, it turns to a yet broader priority: the universal provision of equitable access to quality education for all students, regardless of their backgrounds, personal attributes, or circumstances. (Ainscow, 2016).

This focus on equity, inclusion, and access, NEP 2020 argues, is essential not only to the central, lifelong-learning opportunity pursued by each individual student—a productive life that contributes to the well-being of society as a whole—but also to the vitality and sustainability of the population as a whole. Investment in multidisciplinary learning may thus pay substantial social dividends in terms of belonging, resilience, and agency in democratic, civil, and deliberative citizenship as well as in political, social, and economic leadership. Supporting diverse learners, including students with disabilities, students who speak multiple languages, and those from socially or economically marginalized backgrounds, can therefore be accomplished through four general strategies—promoting alternative representation, encouraging co-construction, reinforcing relevance, and ensuring universal design for learning.

9. Resource Allocation, Infrastructure, and Implementation Challenges

Diversion of funds from education to leverage it for manufacturing affects the policies necessary for education improvement (Aithal & Aithal, 2019). To protect every child's right to education, adequate funds for residential facilities, toilets, computers, teachers, etc. are urgently needed; otherwise, the policies will remain only on paper. The change in policies alone is not sufficient for the demanding situation of education improvement.

Multidisciplinary education requires material, tool, and navigational support. A smart classroom with sufficient funds for digital material development, teacher training, and guidance coupled with administrative support will facilitate successful implementation. Ideally, funds for material development, time, space, school-complex administrative support, and digital tools for smart classrooms will make multidisciplinary education campaigns a success. With higher education remaining in the concurrent list since independence, the National Higher Education Mission as an umbrella scheme arising from the above mission can be implemented in partnership with states.

10. Case Studies and Evidence from Policy to Practice

The National Education Policy (NEP) 2020 is the policy framework, designed to upgrade the education system so that India can attain its vision of a new India to become a US\$5 trillion

economy and address the challenges posed by globalisation (Ministry of Human Resource Development, 2020a). One of the necessary interventions is the incorporation of multidisciplinary components into the core curriculum provided at the school education level, which will in turn enhance the quality of education being imparted through the curriculum and thus the quality of school education system as a whole (Ministry of Human Resource Development, 2020a). Multidisciplinary learning is an instructional approach that enhances the understanding of the core concepts of and relationships among the disciplines, assists students in applying interdisciplinary concepts to the problems of life, and reduces the fragmentation of knowledge throughout the entire curriculum (Singal et al., 2017). Under the NEP 2020, the broad aims envisaged are improving engagement of students in the learning process, reduction in rote learning, nurturing creativity, promoting critical thinking, bridging the gap between what students learn and what they actually need to know for real-life situations, and proper integration of skills development across the curriculum (K. Dhungana, 2012). The existing approach in the country will be assessed to identify the gaps, challenge areas, and the milestones already achieved.

11. Policy Implications and Recommendations

The National Education Policy (NEP) 2020 recognises the importance of multidisciplinary learning for students, and the resulting quality of education at all levels. Accordingly, it aims to foster multidisciplinary learning at the foundational, pre-primary stage for children aged 3–8 years, and emphasises that flexibility in pedagogy and curriculum choice regarding the subjects is essential for enabling students to learn with enjoyment, and thereby promotes such learning as a means of achieving educational quality (Aithal & Aithal, 2019).

Multidisciplinary learning enables educational interactions and activities across subjects. To ensure the desired quality of such education, the Government of India is requested to invest effort in several specific areas, establishing coherent and robust quality indicators with which multidisciplinary learning activities at schools can be validated throughout. Engagement with the following indicators is hence invited through the National Educational Technology Forum (NEP, 2020).

The appropriate colour of books enhances the quality of learning. Co-curricular activities are essential for maintaining a balance between academic and non-academic engagement, and the compulsory attendance of such sessions is recommended. The colour of writing material also plays a crucial role in ensuring quality learning. These factors should be considered for students across all stages of schooling, especially at the foundational level, as they have a substantial influence on engagement, comfort, focus, and thereby learning.

12. Conclusion

The findings presented contribute to a more nuanced understanding of NEP 2020's ambition to improve educational quality through multidisciplinary learning. After synthesizing the policy's objectives, defining its key terms, and mapping theoretical rationales, the analysis demonstrates

that the NEP 2020 vision of an interconnected, multidisciplinary education aligns closely with established goals of lifelong learning, creativity, and equity. It also indicates that achieving these aims requires significant changes to classroom practices, governance, and assessment—yet that multidisciplinary learning can facilitate such changes rather than being merely a parallel initiative.

The review identifies and classifies models of multidisciplinary learning that can be implemented at varying grades and from multiple subject combinations, illustrating these options with concrete examples. It outlines implementation pathways tailored to foundational, primary, middle, and secondary stages, specifying appropriate entry points, progression trajectories, and scope-and-sequence concepts. The study then details relevant pedagogies and curriculum-design strategies, with a particular focus on project-based approaches, thematic units, inquiry cycles, and collaborative planning frameworks that foster agency and responsibility.

Assessment practices capable of authentically measuring understanding and transferability are described, together with formative and summative strategies, performance tasks, portfolios, rubrics, and indicators of cross-cutting competencies. Structures that facilitate professional development and collaboration—collaborative planning, professional learning communities, coaching, and leadership support—are also examined, alongside recommendations to safeguard equity, inclusion, and access throughout the multidisciplinary framework. Finally, the analysis addresses resource requirements and implementation obstacles, documenting the materials, time, space, digital tools, and administrative supports necessary for adoption, as well as concomitant cost challenges that raise questions of scalability.

Case studies from policy to practice chart the landscape of multidisciplinary implementation and illuminate its impact and obstacles. Evidence from pilot programs, state-level initiatives, and international systems enriches the examination and signals the approximate transferability of insights. Building on this empirical foundation, the study distils actionable policy implications and specific recommendations for national, state, and school stakeholders covering governance, funding, preparation, standards, and monitoring. In conclusion, it presents a concise synthesis of findings, limitations, and future-research avenues, highlighting key insights and underscoring the contribution to NEP 2020 discourse.

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