

Integration of Indian Knowledge Systems in Education under NEP 2020

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ABSTRACT

The National Education Policy (NEP) 2020 highlights the importance of integrating Indian Knowledge Systems into the Indian education system. Indian Knowledge Systems include traditional knowledge related to philosophy, science, mathematics, medicine, environment, culture, and values developed in India over centuries. The purpose of this paper is to examine how NEP 2020 promotes the integration of Indian Knowledge Systems in education. This paper is based on a qualitative and descriptive approach using secondary sources such as policy documents, research articles, and reports. It discusses the role of Indian Knowledge Systems in curriculum development, teaching–learning processes, and value-based education as suggested in NEP 2020. The paper also highlights the educational significance of Indian Knowledge Systems in promoting holistic development, cultural awareness, ethical values, and sustainable thinking among learners. At the same time, the study identifies key challenges in implementing Indian Knowledge Systems, such as a lack of trained teachers, limited resources, and difficulties in blending traditional knowledge with modern education. The paper concludes by suggesting measures for effective implementation to ensure that the vision of NEP 2020 is successfully translated into educational practice.

Keywords: *Indian Knowledge Systems, NEP 2020, Education, Curriculum, Value-Based Learning*

Indian Knowledge Systems (IKS) refer to the rich body of knowledge developed in India over several centuries. It includes disciplines such as philosophy, mathematics, astronomy, Ayurveda, yoga, arts, governance, and environmental studies. Rooted in ancient texts like the Vedas, Upanishads, Arthashastra, Charaka Samhita, and Sushruta Samhita, IKS presents a holistic approach that integrates knowledge with ethics, spirituality, and harmony with nature (Radhakrishnan, 1953; Kapoor, 2019).

In ancient times, India was recognised as a global centre of learning, with renowned institutions such as Takshashila and Nalanda attracting scholars from different parts of the world. The traditional Guru–Shishya system emphasised experiential learning, moral values, and character development. However, during the colonial period, indigenous education systems were gradually replaced by Western models, leading to the marginalisation of traditional knowledge (Altekar, 2009; Kumar, 2005).

The National Education Policy 2020, introduced by the Ministry of Education, marks a significant shift in reconnecting education with India’s cultural and intellectual heritage. NEP

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Received: March 01, 2026; Revision Received: March 20, 2026; Accepted: March 22, 2026

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NEP 2020 strongly emphasises the integration of Indian Knowledge Systems at all levels of education to promote holistic and multidisciplinary learning. It encourages the inclusion of Indian languages, culture, arts, and traditional scientific knowledge, along with research linking ancient wisdom with modern science (Ministry of Education [MoE], 2020).

The integration of IKS under NEP 2020 is not merely a cultural revival but a strategic approach to developing ethically grounded, culturally aware, and globally competent learners. Studies suggest that integrating indigenous knowledge enhances sustainability, value-based education, and contextualised learning in a globalised world (Sharma & Pandey, 2021). Therefore, examining the integration of Indian Knowledge Systems in education under NEP 2020 is crucial for understanding the evolving educational paradigm in India. This seminar paper seeks to explore the conceptual foundations, policy provisions, implementation strategies, and challenges associated with embedding IKS into mainstream education.

Major Domains of Indian Knowledge Systems

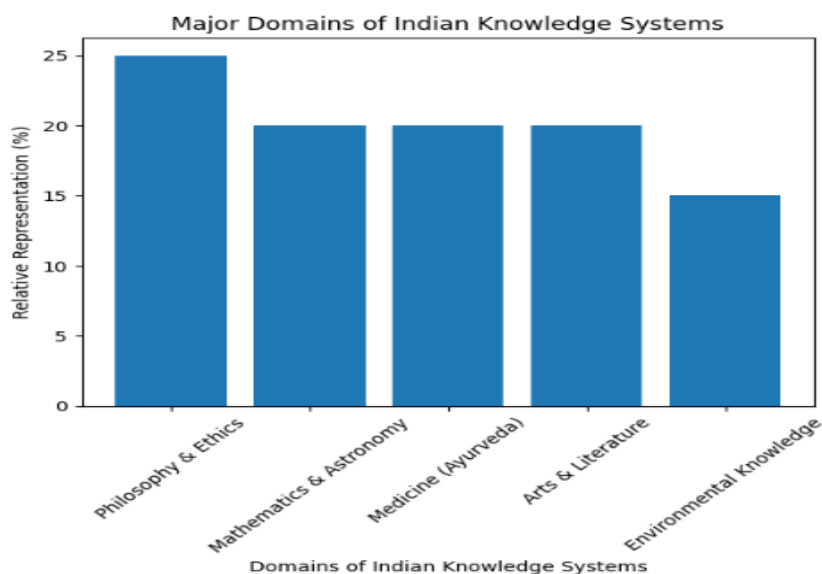


Figure 1: based on literature review (Kapoor, 2019; Radhakrishnan, 1953; Altekar, 2009).

I. Objectives of the Study

- To study how Indian Knowledge Systems (IKS) are being included in education under the National Education Policy (NEP) 2020.
- To understand why integrating IKS is important for promoting holistic development, moral values, and overall personality growth of students.
- To examine how IKS can influence curriculum design, teaching methods, and overall educational development.
- To identify the challenges faced in implementing IKS in schools and higher education, such as a lack of trained teachers, limited study materials, and curriculum overload.

II. Key Provisions of NEP 2020 Related to Indian Knowledge Systems

The National Education Policy 2020 recognises Indian Knowledge Systems (IKS) as an essential part of India's educational vision. It promotes holistic learning, cultural rootedness, multidisciplinary education, and value-based development by integrating India's traditional knowledge into formal education (Ministry of Education [MoE], 2020).

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1. Integration in Curriculum and Pedagogy

NEP 2020 encourages the inclusion of Indian Knowledge Systems across all levels of education. It supports the integration of Indian philosophy, arts, culture, and traditional scientific knowledge into school curricula through experiential and practice-based learning methods such as fieldwork and community engagement (MoE, 2020).

2. Promotion of Indian Languages

The policy emphasises the use of mother tongue or regional languages as the medium of instruction, especially in the early years. It also promotes classical languages like Sanskrit and encourages teaching science and mathematics in Indian languages to strengthen conceptual understanding of indigenous knowledge (MoE, 2020).

3. Multidisciplinary and Holistic Learning

NEP 2020 promotes flexible and multidisciplinary education by integrating arts, sciences, humanities, and languages. This approach reflects traditional Indian education systems, which viewed knowledge as interconnected and aimed at developing critical thinking and creativity (MoE, 2020).

4. Research and Preservation of IKS

The policy stresses the need for research, documentation, and preservation of Indian Knowledge Systems. It supports the establishment of research centres, documentation of indigenous practices, and translation of classical Indian texts for wider academic use (MoE, 2020).

5. Value-Based and Ethical Education

NEP 2020 highlights moral education and ethical reasoning rooted in Indian traditions. It promotes values such as social responsibility, discipline, and moral conduct drawn from Indian philosophical concepts like *Dharma* (MoE, 2020).

6. Traditional Arts and Practices

The policy encourages the inclusion of yoga, classical music, dance, crafts, and heritage activities in education to promote cultural awareness, creativity, and holistic development among learners (MoE, 2020).

Key Provisions of NEP 2020 Related to Indian Knowledge Systems (IKS)

Table 1: Based on National Education Policy 2020 (Ministry of Education, 2020).

Provision Area	Description under NEP 2020	Relevance to IKS
Curriculum Integration	Inclusion of Indian knowledge, culture, traditions, and scientific contributions in the curriculum	Promote systematic inclusion of IKS in education
Promotion of Indian Languages	Emphasis on mother tongue/regional language as medium of instruction; support for Sanskrit and classical languages	Preserves and promotes indigenous knowledge traditions
Multidisciplinary Education	Flexible subject choices; integration of arts, sciences, and vocational education	Reflects the holistic and interconnected

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		nature of traditional Indian learning
Research & Documentation	Establishment of research centers; translation and preservation of ancient texts	Encourages academic study and validation of IKS
Value-Based Education	Focus on ethics, constitutional values, and character building	Aligns with the moral and philosophical foundations of IKS
Traditional Arts & Practices	Inclusion of yoga, arts, crafts, and cultural heritage in education	Strengthens cultural identity and experiential learning

III. Awareness of Indian Knowledge Systems (IKS) among Teachers

The effective integration of Indian Knowledge Systems (IKS) under the National Education Policy 2020 largely depends on teachers' awareness, understanding, and preparedness. Teachers play a key role in translating policy goals into classroom practice; therefore, their knowledge and attitude toward IKS directly influence successful implementation.

Studies indicate that while many teachers are familiar with Indian culture and traditions, their systematic understanding of Indian Knowledge Systems, such as traditional sciences, philosophy, indigenous pedagogy, and ecological knowledge, remains limited. As a result, there is a strong need for structured orientation and professional development to enable teachers to apply IKS in an interdisciplinary and practical manner (Sharma & Pandey, 2021).

NEP 2020 highlights continuous professional development and teacher training as essential for curriculum reform. However, challenges such as limited training opportunities, lack of resource materials, and insufficient exposure to authentic sources often restrict effective classroom integration of IKS (Ministry of Education [MoE], 2020). Teacher awareness can be strengthened through faculty development programmes, inclusion of IKS in teacher education curricula, access to research-based learning materials, and collaboration with experts in Indian knowledge traditions. Thus, enhancing teacher awareness and competency is a foundational step for meaningful integration of IKS in education under NEP 2020.

Awareness Levels of Indian Knowledge Systems (IKS) among Teachers

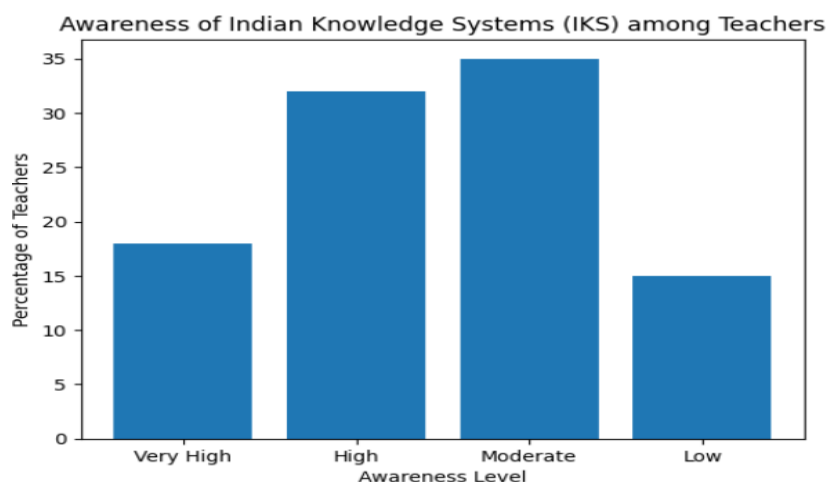


Figure 2: Based on the average awareness score from Joshi & Bansal, 2023

IV. Areas of Indian Knowledge Systems (IKS) Integration in Education

Indian Knowledge Systems (IKS) are being integrated into various areas of education to promote culturally rooted, holistic, and contextual learning, as emphasised by the National Education Policy 2020.

1. Curriculum and Content Integration

NEP 2020 encourages the inclusion of India's traditional knowledge in subjects such as mathematics, astronomy, medicine, metallurgy, and philosophy. It promotes teaching areas like Vedic mathematics, Ayurveda, and Indian philosophical thought within mainstream curricula. The University Grants Commission has also recommended introducing IKS courses at undergraduate and postgraduate levels (Ministry of Education [MoE], 2020; UGC, 2021).

2. Integration of IKS in STEM

Traditional mathematical techniques, ancient astronomy, indigenous technologies, and metallurgical achievements such as the Iron Pillar of Delhi are being linked with modern STEM education. Research shows that integrating IKS in STEM improves conceptual clarity and cultural relevance among learners (Joshi & Bansal, 2023; MoE, 2020).

3. Value and Ethical Education

Indian philosophical concepts such as *Dharma*, *Ahimsa*, and *Vasudhaiva Kutumbakam* form the foundation of value-based education. NEP 2020 promotes ethical reasoning and moral development rooted in Indian traditions to develop responsible citizens (MoE, 2020).

4. Environmental Sustainability

Traditional ecological practices such as sacred groves, water conservation systems, and sustainable agriculture are integrated into environmental education. These practices align with modern sustainability goals and promote environmental awareness (Sen, 2005; MoE, 2020).

5. Arts, Culture, and Pedagogy

IKS integration includes classical music, dance, architecture, indigenous art forms, and experiential pedagogies inspired by the Gurukul tradition. The policy supports activity-based learning and teacher education reforms to strengthen cultural identity and holistic learning (UGC, 2021; MoE, 2020).

6. Skill Development and Vocational Education

Traditional crafts, local technologies, and indigenous entrepreneurship models are integrated to support skill-based education and *Atmanirbhar Bharat*. NEP 2020 promotes early vocational exposure to connect education with local knowledge systems (MoE, 2020).

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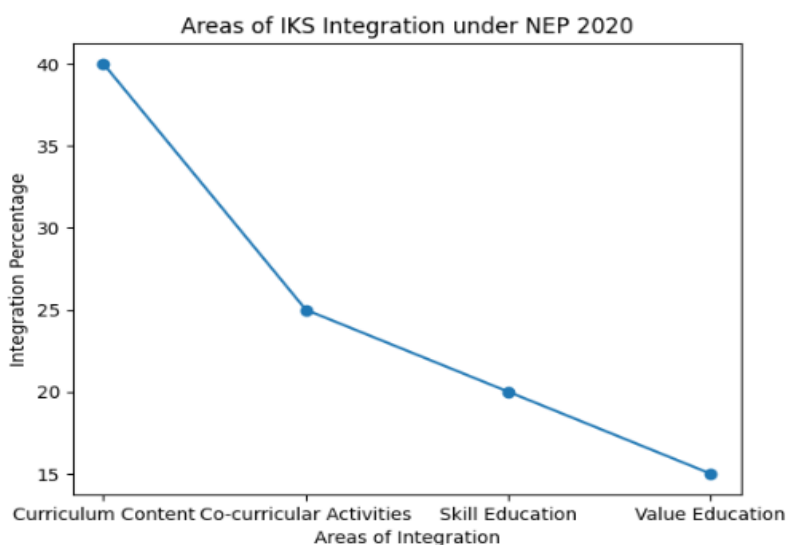


Figure 3: based on National Education Policy 2020 (Ministry of Education, 2020) and UGC IKS Guidelines (2021).

V. Importance of Integrating Indian Knowledge Systems (IKS) in Education

The integration of Indian Knowledge Systems (IKS) into modern education under the National Education Policy (NEP) 2020 is significant for creating a holistic, culturally rooted, and globally competent education system. NEP 2020 emphasises that education should not only impart knowledge but also develop ethical values, critical thinking, creativity, and a strong sense of identity (Ministry of Education [MoE], 2020).

1. Promotes Holistic Development

IKS emphasises the balanced development of body, mind, and spirit. Traditional systems such as Yoga, Ayurveda, and Indian philosophy focus on physical well-being, mental discipline, and moral growth. NEP 2020 aligns with this vision by advocating holistic and multidisciplinary education (MoE, 2020).

2. Strengthens Cultural Identity and Heritage

Integrating IKS helps students understand India's intellectual traditions in mathematics, astronomy, medicine, arts, and philosophy. This strengthens cultural pride and national identity while fostering respect for diversity (UGC, 2021).

3. Enhances Critical and Analytical Thinking

Ancient Indian texts such as the Upanishads and Nyaya philosophy encourage inquiry, debate, and logical reasoning. Research indicates that exposure to indigenous knowledge systems can promote analytical and reflective thinking skills (Rao, 2017).

4. Supports Sustainable Development

Traditional ecological knowledge, including water conservation methods and sustainable agriculture, contributes to environmental education. Indigenous knowledge practices align with contemporary sustainability goals (Sen, 2005).

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5. Encourages Value-Based Education

IKS integrates moral principles such as Dharma (duty), Ahimsa (non-violence), and social responsibility. NEP 2020 emphasises value-based education to nurture ethical and responsible citizens (MoE, 2020).

6. Promotes Research and Innovation

Recognising India's historical contributions to science and technology encourages research and innovation. The establishment of IKS cells and research centers in universities supports documentation and scholarly validation of traditional knowledge (UGC, 2021).

Importance of Integrating IKS in Education

Table 2: based on the Ministry of Education (2020) and the UGC (2021).

Area of Importance	Contribution of IKS	Policy/Scholarly Support
Holistic Development	Integrates physical, mental, and spiritual growth	NEP 2020 (MoE, 2020)
Cultural Identity	Preserves heritage and intellectual traditions	UGC, 2021
Critical Thinking	Encourages debate and inquiry traditions	Rao, 2017
Sustainability	Promotes eco-friendly indigenous practices	Sen, 2005
Value Education	Teaches ethics and moral responsibility	MoE, 2020
Research & Innovation	Encourages scientific exploration of traditional knowledge	UGC, 2021

VI. Challenges in the Implementation of Indian Knowledge Systems (IKS) under NEP 2020

Although the National Education Policy (NEP) 2020 strongly advocates the integration of Indian Knowledge Systems (IKS) into education, several challenges affect its effective implementation.

1. Lack of Trained Teachers

One of the major challenges is the shortage of teachers who are adequately trained in IKS. Many educators are unfamiliar with traditional knowledge systems and lack professional development opportunities to integrate them into classroom teaching (Ministry of Education [MoE], 2020). Without proper training, implementation remains superficial.

2. Limited Academic Resources

There is a scarcity of standardised textbooks, reference materials, and research-based content on IKS. Many traditional texts are either not translated or not easily accessible, creating barriers for curriculum integration (UGC, 2021).

3. Curriculum Overload

Schools and higher education institutions already face extensive syllabus requirements. Adding IKS components without restructuring the curriculum may increase academic burden on both teachers and students (MoE, 2020).

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4. Lack of Research and Documentation

Although India has a rich knowledge tradition, systematic documentation and scientific validation of many indigenous practices are still limited. This affects the credibility and acceptance of IKS in formal education (Joshi & Bansal, 2023).

5. Resistance to Change

Some educators and institutions may resist integrating traditional knowledge due to a preference for Western-centric models of education. Shifting mindset and pedagogical approaches require institutional commitment and awareness programs.

6. Standardisation and Quality Control Issues

Ensuring uniformity and academic rigour while incorporating diverse regional knowledge systems is challenging. There is a need to maintain balance between authenticity and academic standards (UGC, 2021).

7. Language Barriers

Many original IKS texts are written in Sanskrit, Pali, Prakrit, Tamil, or other classical languages. Limited linguistic expertise restricts broader academic engagement.

Challenges in Implementing IKS

Table 3: based on Ministry of Education (2020), UGC (2021), and Joshi & Bansal (2023).

Challenge	Description	Supporting Source
Lack of Trained Teachers	Insufficient teacher preparation and orientation	MoE, 2020
Limited Resources	Inadequate textbooks and research materials	UGC, 2021
Curriculum Overload	Existing heavy syllabus structure	MoE, 2020
Research Gaps	Need for scientific validation	Joshi & Bansal, 2023
Resistance to Change	Institutional and mindset barriers	UGC, 2021
Language Barriers	Classical language limitations	MoE, 2020

VII. Opportunities in the Integration of Indian Knowledge Systems (IKS) under NEP 2020

The National Education Policy (NEP) 2020 provides significant opportunities for integrating Indian Knowledge Systems (IKS) into mainstream education. The policy envisions an education system rooted in Indian ethos while remaining globally relevant (Ministry of Education [MoE], 2020).

1. Curriculum Reform and Multidisciplinary Education

NEP 2020 promotes multidisciplinary and holistic education, creating space for integrating IKS across subjects such as science, humanities, arts, and vocational studies. Universities are encouraged to design credit-based IKS courses (MoE, 2020; UGC, 2021).

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2. Establishment of IKS Cells and Research Centers

The University Grants Commission (UGC) has initiated IKS Cells in Higher Education Institutions (HEIs) to promote research, curriculum development, and faculty training in Indian Knowledge Systems (UGC, 2021). This provides institutional support for systematic implementation.

3. Promotion of Indigenous Research and Innovation

Recognising India's traditional contributions to mathematics, medicine, astronomy, and metallurgy opens new research pathways. Integration of traditional knowledge with modern science can foster innovation and intellectual property development (MoE, 2020).

4. Global Academic Recognition

There is growing international interest in Yoga, Ayurveda, sustainable agriculture, and Indian philosophy. Integrating IKS can enhance India's soft power and academic collaboration globally (Sen, 2005).

5. Digital Documentation and Preservation

Digital platforms and online repositories provide opportunities to document, translate, and disseminate classical texts and indigenous knowledge widely. Technology can bridge accessibility gaps (UGC, 2021).

6. Skill Development and Atmanirbhar Bharat

IKS integration supports vocational education through traditional crafts, indigenous technologies, and local entrepreneurship models. This aligns with the vision of a self-reliant India (MoE, 2020).

7. Environmental Sustainability and Climate Education

Traditional ecological practices such as water harvesting, biodiversity conservation, and sustainable farming provide opportunities to integrate IKS into environmental education and sustainable development goals (MoE, 2020).

Opportunities in Implementing IKS

Table 4: Based on Ministry of Education (2020), UGC (2021), and Sen (2005).

Opportunity Area	Potential Benefit	Policy/Scholarly Support
Curriculum Reform	Multidisciplinary integration of IKS subjects	MoE, 2020
IKS Cells & Research Centers	Institutional support and funding	UGC, 2021
Indigenous Research	Innovation and knowledge validation	MoE, 2020
Global Recognition	Academic collaboration & soft power	Sen, 2005
Digital Documentation	Wider access and preservation	UGC, 2021
Skill Development	Promotion of local crafts & entrepreneurship	MoE, 2020
Environmental Education	Sustainable development alignment	MoE, 2020

CONCLUSION

The integration of Indian Knowledge Systems (IKS) under the National Education Policy 2020 marks an important step toward culturally rooted and holistic education. By incorporating traditional knowledge in areas such as science, mathematics, philosophy, arts, ethics, and sustainability, NEP 2020 aims to connect learners with India's intellectual heritage while maintaining global relevance (Ministry of Education [MoE], 2020).

Despite challenges such as limited teacher preparedness, lack of resources, and implementation gaps, initiatives like curriculum reforms and the establishment of IKS Cells in higher education institutions provide promising opportunities for effective integration (University Grants Commission [UGC], 2021). Successful implementation requires continuous teacher training, interdisciplinary research, and strong institutional support. When implemented effectively, IKS integration can promote value-based education, critical thinking, innovation, and sustainable development, contributing to the vision of a self-reliant and knowledge-driven India.

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Acknowledgments

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author declared no conflict of interest.

How to cite this article: Shukla, A. (2026) Integration of Indian Knowledge Systems in Education under NEP 2020. *International Journal of Social Impact*, 11(1), 7-16. DIP: 18.02.1002/20261101, DOI: 10.25215/2455/11011002