

Application of Indian Knowledge System into Contemporary Indian Education

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Abstract:

The paper explores the ways National Education Policy 2020 focuses on incorporation of Indian Knowledge Systems into modern curriculum to enrich interdisciplinary, value-based and culturally grounded learning. Casting a glance on recent research and policies in academic field, the paper investigates the historical records, educational implication, pedagogical methods and strategies and practical barriers in the way of Indian Knowledge System. It argues for a synthesis of tradition and innovation to enrich Indian education for empowering future generation.

Keywords: Indigenous Learning, Curriculum, Holistic, Experiential, Pedagogy

Introduction

Rationale for understanding implication of Indian Knowledge System into Modern Education can be seen in culturally sound knowledge enhancing contextual understanding, instilling a sense of pride and identity that is missing in colonized construct.

Indian traditions have viewed knowledge as interconnected aspect like Ayurveda incorporates elements of Biology, Psychology, Ecology, Ethics and Spirituality. Vedic Astronomy blends Maths, Cosmology and Philosophy. Study of Science, Commerce and Humanities in interdisciplinary approach encourages holistic learning, analysis and problem-solving skills essential for 21st century challenges and to dissolve the artificial boundaries between the disciplines.

Indian Knowledge System emphasises on Moral and Ethical Development. We believe in Dharma (righteousness and ancient Indian pedagogy that did not separate knowledge from values), Empathy (karuna, inner discipline), Compassion and Collective Well-being. Philosophical schools like Jainism, Buddhism and Vedanta promote self-awareness, non-violence and ethical reasoning. Align with National Educational Policy 2020, value-based education nurtures citizens harmoniously.

Environmental issues have become global challenge in present time and Indian Knowledge System is practicing eco-conscious living for the ages. Cosmopolitan approach (one world as one family) and usages of agroecology, organic farming, water harvesting and forest preservation are examples to show our connection to our root knowledge of ancient period. Refunction or re-execution of these practices offer practical models as solution in the form

climate resilience, biodiversity conservation and sustainable agriculture for present days issues on environment crisis.

Concurrent education system inspired by Western Pattern follows linear, empirical and materialistic views on the opposite to it Indian Knowledge System advocates epistemic plurality unfolded through alternative ways like intuitive reasoning, experiential learning, cyclical models and metaphysical insights. These various cognitive approaches support critical thinking and make learning inclusive under non-western intellectual tradition.

Objectives:

1. To make scholars aware about the glorious Indian Knowledge System.
2. To make scholars updated about the reason why Indian Knowledge System was decayed by the foreign rulers.
3. To highlight goals of Indian Education policy 2020 that emphasises on interdisciplinary research, combining knowledge with other fields to promote innovative and comprehensive research.

Methodology

The paper reviews the historical trajectory of Indian Knowledge System, its decline during colonial time and its revival through the National Education Policy 2020. The methodology includes examining government policy frameworks, institutional reports and Case Studies of universities and institutes integrating Indian Knowledge System. Comparative analysis with global practices of incorporating indigenous knowledge such as Māori in New Zealand and Native American epistemologies in the US models further strengthens this approach.

• What is Indian Knowledge System

Indian Knowledge System represents a holistic, multidisciplinary framework developed over millennia, deeply rooted in Indian culture, spiritual, scientific and philosophical tradition. These systems are not merely historical artifacts but living traditions, offering rich glimpses for present days learning, innovation and sustainability. Indian Knowledge System integrates intellectual inquiry with experiential learning, promoting harmony among the self, society and nature.

• Salient Features of Indian Knowledge System include:

India made groundbreaking contribution to Mathematics and Astronomy long before various Western developments in these fields. Scholars like Aryabhata 476CE-550CE, Bhaskar acharya in 1114-1185 CE and Brahmagupta 598CE-668CE developed concepts such as Zero, Infinity, Algebra and Trigonometry as well as accurate models for Planetary motions.

Systems like Ayurveda, originated by ancient Maharishis as documented in Vedas later discussed by Charaka Samhita in 2nd century CE, Yoga by Maharishi Patanjali approx. 2000-2500 years ago and later by Swami Vivekanand in 19th century, Siddha theories by Agasthya Rishi approx. 8000 years ago and then by Tamil Siddhas in Tamil language in 500 BC-500 CE, reflect an integrated understanding of body, mind, soul and environment. These traditions emphasize balance in diet and workout, preventive care and natural healing through herbs, as well as global interest for human's holistic health approaches.

Indian philosophical systems such as Vedanta, Nyaya, Samkhya, Buddhism and Jainism engage deeply with questions of logic, epistemology, metaphysics and ethics. These schools foster rational inquiry, inner awareness and non-violence (Ahimsa) offering timeless moral and intellectual frameworks.

Texts like Natyashastra by Bharata Muni approx. 2nd century BC- 2nd century AD forms the foundation of Indian performing arts, including classical music, dance, theatre and visual arts. Indian Knowledge System in the arts emphasizes rasa (emotive essence), storytelling style, spirituality and integrated aesthetic experience with cultural education.

Indian Knowledge System includes sustainable practices in agricultural, water management, forest conservation and animal care. Concepts like 'Vriksha Ayurveda' (plant science), 'Rainwater Harvesting' and 'Community Farming' embody ecological harmony and resource stewardship long before the rise of Environmental Science.

Indian linguistic tradition led by Panini Rishi's (520 BC-460 BC) *Ashta Adhyayi*, laid the foundation for formal grammar and linguistics. Panini's work is one of the earliest known examples of a generative grammar system, influencing both Indian and Modern computational linguistics. Its precise algorithmic 4000 rules empower technical meta- language and produce keywords in modern Python and C++ formulas, preserving Indian cultural and philosophical heritage. Thus, *Ashta Adhyayi* is a foundational blueprint for logic and analytical thought, these are not relics but living traditions with contemporary applications.

- **Indian Knowledge System decayed by foreign rulers**

India's long standing educational traditions from Takshashila (approx. 1000 BC) to Nalanda (approx. 5th to 13th CE) fostered a rich intellectual culture rooted in ethical living, logic, science and creativity. The colonial education model implemented by the British in India deliberately ignored and dismissed Indian Knowledge system for several political, ideological and administrative reasons.

British administrator Thomas Macaulay argued in his 1835 'Minute on education' that 'European Knowledge was superior to Indian tradition' as a result Indian classics in Sanskrit, Persian, Arabic and regional languages were excluded from mainstream education. Colonial authorities replaced Traditional institutions like Gurukuls, Pathshala and Madarsa to Anglicized, exam centric schools. Thus, the holistic system, Vedic Science, Logic to Ethics and Arts were changed to learn English, Arithmetic, Geography and Architecture etc. Indigenous teaching methods (oral, narrative, dialogue) were dismissed and labelled as unscientific and primitive.

Colonial policies withdrew state patronage from traditional systems and diverted funds to English-medium institutions. Temple or community funded schools were taxed, restricted or allowed to deteriorate. The goal of colonial education was not to enlighten Indians but to develop clerks and intermediaries in the British administration. Subjects like Sanskrit, Persian and regional vernaculars were sidelined, English became the language of upwardly mobile Indians, causing decline of traditional knowledge transmission channels. Sacred texts, legal traditions and scientific treatises were discredited in native languages or banned in translations, leading to generational loss of access. Disciplines like Ayurveda, Astronomy, Vedic Math,

Vastu-Shastra and logic were labelled as ‘mythological’ or ‘superstitious’. Indian contributions to Chemistry, Surgery, Metallurgy and Environmental Science were often ignored in colonial textbooks. Colonial historiography framed India as static, mystical and irrational, justifying their ‘civilizing mission’. As a result, Indian intellectual traditions were rarely represented in colonial school books of History, Philosophy and Science curriculum.

Objectives of NEP 2020

National Education Policy 2020 didn’t force ancient Indian knowledge Systems into education in the coercive sense rather, it strongly advocated for reviving and integrating Indian Knowledge into modern curriculum as a corrective measure.

National Education policy 2020 reclaims India’s intellectual traditions and corrects historical academia imbalanced for over 150 years by colonial system. By integrating Indian Knowledge System, learners can connect more deeply with their heritage, language and local knowledge systems, enhancing self-confidence and national pride. Indian Knowledge System is interdisciplinary example: a science student reads Human Values, Indian Constitution and personality Development subjects.

This alignment with National Education Policy emphasises on flexible, cross-discipline education that moves beyond memorization to conceptual and applied knowledge.

National Education Policy sees Indian Knowledge System as not just tradition but innovation, a source of alternative, sustainable solutions in health, agriculture, architecture and climate. For example, Ayurveda, Vriksha Ayurveda, Vastu Shastra and local ecological wisdom are being revisited for modern relevance.

Indian philosophies (Vedanta, Buddhism, Jainism, Nyaya) offer frameworks for value-based education, aligning well with National Education Policy’s goals of ethics, empathy and mindfulness.

National Education Policy encourages educational institutions to develop electives-courses, research centres and teacher training programmes promoting Indian Knowledge System.

Globally also indigenous and traditional knowledge systems are being integrated into academia, examples: Māori in New Zealand and Native American epistemologies in the US are noted.

National Education Policy promotes Indian Knowledge System not as ideological imposition, but as a national revival of neglected intellectual wealth. National education policy decolonize education, empowers learners through rootedness, enriches curriculum with alternative paradigms and align with sustainable, ethical and holistic worldviews.

Is Implementation going on?

In science textbooks, there is inclusion of traditional contributions such as Ayurveda, Vriksha Ayurveda (plant science), Rasa shastra (humour and pathos), Metallurgy and Mathematical achievements from ancient scholars like Aryabhata, Brahmagupta and Bhaskara acharya.

In social science, students are exploring Chanakya's (4th century BC-3rd century BC) ancient legal systems, economic practices, governance models and the role of dharma in societal organization.

In language and literature, classical Indian texts as Epics the Ramayana (Maharishi Valmiki wrote this Sanskrit Epic approx. in 7th BC -6th century BC), the Mahabharata (maharishi Ved Vyasa wrote this Sanskrit Epic approx. in 3rd century - 4th century BC) are integrated with regional oral traditions and foster cultural literacy and linguistic diversity. Teachers and writers are the link between the policy and the pedagogy.

Orientation programs and certification courses are designed for in-service teachers to equip students with foundational knowledge of Indian Knowledge System as well as pedagogical strategies for integration.

Centres for Indian Knowledge Studies are established in universities to offer Diploma, PG or Elective Courses to all learners irrespective of discipline. Interaction with traditional practitioners e.g., Artisans, Vaidya, Yog Acharya is encouraged to provide experiential insight into Indian Knowledge domain.

Ministry of Education and institutions such as IITs (Indian Institute of Technology), IGNC (Indira Gandhi National Centre for Arts) and CIIL (Central Institute of Indian Languages) are strengthening different programs on Indian Knowledge domain by providing research funds, academic grants and scholarship for projects, including comparative studies and technological validation. Modern scientists and traditional scholars are also being called together to bridge ancient knowledge with contemporary innovation under interdisciplinary collaboration.

Academic publishing, digitization of manuscripts and translation projects are also encouraged to make classical Indian Knowledge sources widely accessible.

Indian Knowledge is not just theoretical, it is live practice and skill; that's why traditional crafts such as pottery, weaving, metalwork and woodcraft are included as a part of skill-based learning to preserve artisan knowledge and foster economic empowerment.

Wellness based vocational modules like Ayurveda Massage Therapy, Yoga Club, Herbal Medicine Preparation and Siddha or Unani-based practices are introduced in medical education.

Education through performing arts, classical music, dance, storytelling (Katha), puppetry and theatre is introduced that is rooted in Indian tradition such as Natyashastra and Bhakti poetry. The Indian skills are linked to entrepreneurial opportunities, internships and community outreach programs, these are created for making employment ready for graduates.

Due to historical marginalization, epistemological biases and structural limitations, there is perceived irrelevance (misconception) that traditional knowledge is outdated and superstitious. Academic scepticism is due to lack of awareness about contemporary applications of traditional wisdom e.g., Ayurvedic Treatment, Vedic Mathematics, Sustainable Farming or Yogic Therapy etc.

Standardization issues in absence of appropriate teaching material, pedagogies, curriculum, textbooks, teacher manuals, proper State Board (NCERT, CBSE) syllabi, inconsistent representation of institution, are also challenges.

Many Indian Knowledge based texts are in Sanskrit, Pali, Prakrit and in regional languages. Without accurate translation and commentaries in Hindi or English language, Language barrier will be a challenge. There is risk of misinterpretation or oversimplification if texts are adapted without cultural context. Solution for it implies in peer-reviewed publication to impart empirical validation.

Case Studies

These are detailed case studies and best practices illustrating how Indian Knowledge Systems are being successfully integrated into modern education across Engineering Institutes, National Boards, Higher Education and grassroot initiatives.

1. IITs and NITs Introducing Indian Knowledge System Electives

IIT Gandhinagar has been pioneering a semester long course titled ‘Introduction to Indian Knowledge system’ since 2015-16. This course invites eminent traditional scholars and IIT faculty to help students in exploring classical Indian intellectual traditions from an insider’s perspective.

AICTE and IIT Madras have established specialized centres, for example, IIT Madras offers offline courses such as ‘Indian Aesthetic Thought: Introduction to Classical Literature in Sanskrit and Carnatic Music’ under its Centre for Indian Knowledge System.

IIT Dharwad (Global Centre for Excellence in Indian Knowledge system) promotes interdisciplinary research and courses on Traditional Science, Sanskrit NLP Tools, Neurophysiology of Meditation and Economic Thought drawn from ancient shastras.

CBSE and several School Boards now include Yoga and selective modules like Vedic Mathematics in textbooks and value-added courses as encouraged by NEP 2020.

2. School of Open Learning (SOL) of University of Delhi has added two Sanskrit papers, ‘Dharma Shastra Studies’ (minor) and ‘Readings from the Vedas’ (major) since 2022 under ‘Undergraduate Curriculum Framework and NEP Directives’. Other electives include ‘Yoga: Philosophy and Practice’ and ‘Punch Kosha: Holistic Development’.

3. In India, Higher Education Institutions, Offering Sanskrit and Ayurveda Programs:

Shree Somnath Sanskrit University provides Certificates, Diplomas, BA, MA, and PhD degrees in fields like Vedic Mathematics, Yoga, Astrology, Jyotisha, Vyakarana and Ayurveda, that are taught through mediums like Sanskrit, Hindi, Gujarati and English.

Universities like Uttarakhand Sanskrit University, Sanskrit Department of Banaras Hindu University and Sree Shankaracharya university of Sanskrit (Banaras) offer extensive Undergraduate, Postgraduate and Diploma programs in Traditional Studies, Siddha-Unani Sanskrit Language, Jyotisha, Darshana and Yoga.

NITI Aayog’s AICTE/IIT network supports curriculum development projects on Sanskrit based knowledge, Maths and Science integration and creation of resource materials for Secondary and University levels.

Ayush University, Uttar Pradesh, launched in July 2025, unifies Ayurveda, Unani, Homeopathy, Yoga and Siddha under one framework, offering BAMS/BUMS/BHMS and postgraduate Ayurveda courses at scale.

Nevertheless, digitization of manuscripts and oral traditions, policies like scholarship, fellowships, in support of Indian Knowledge system, are the formal academic pathways. Public engagement via media, exhibition and outreach programs, collaborative research with traditional scholars as Pandits, Vaidya, Astrologers and artisans are the informal academic pathways for learners and researchers to engage with Indian Knowledge System.

4. Local initiatives in Schools and Communities

While mainstream coverage is limited online, local initiatives are aligning schools and colleges with indigenous farming techniques, sustainable agriculture and eco-awareness. These programmes have been widely in practice, School-led biodiversity gardens (based on traditional ecological wisdom) are good examples. Youth clubs revive rainwater harvesting and do community farming in rural and peri-urban schools, supported by NGOs. Vocational training centres are teaching Ayurvedic wellness practices and classical arts alongside school education as practised by Mahayogi Guru Gorakhnath Ayush University, Uttar Pradesh.

Results

The above findings indicate that Indian Knowledge System is being systematically integrated into the Indian Education System at multiple levels. Policy documents such as NEP 2020 actively promote its adoption in schools, colleges and universities. Institutions like IITs, AICTE and Ayush have initiated specialized courses, research centres and vocational training programs. Students are exposed to both theoretical foundations (e.g., Vedic Maths, Ayurveda, Vedanta) and practical applications (e.g., sustainable farming, ecological models, performing arts). The results also reveal challenges in terms of translation, curriculum design and scepticism about the scientific validity of traditional knowledge.

Unique-Contribution

The research paper contributes uniquely by synthesizing traditional Indian knowledge with modern educational reforms. It highlights the fact that NEP 2020 bridges the gap between indigenous wisdom and contemporary academic structures. Unlike conventional policy reviews, the paper contextualizes Indian Knowledge System within global movements of decolonizing education, showing its relevance to sustainability, ethics and holistic learning. Furthermore, the work demonstrates that Indian Knowledge System is not merely a revivalist agenda but a progressive step towards integrating diverse epistemologies for the 21st century.

Conclusion

The incorporation of Indian Knowledge System into education is a progression towards inclusive, enriched learning experience. It invites learners to think critically, act ethically and engage globally while staying rooted in India's civilizational ethos. The future of Indian education lies in harmonizing its ancient wisdom with modern innovation, creating knowledge that is not only informative but-also-transformative.

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