



INTEGRATION OF INDIAN KNOWLEDGE SYSTEM (IKS) IN SCHOOL CURRICULUM: A CRITICAL STUDY WITH REFERENCE TO NEP 2020

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ABSTRACT

The Indian education system, for nearly two centuries, has been dominated by a colonial framework that systematically marginalized indigenous knowledge and created a psychological inferiority complex among learners. The National Education Policy (NEP) 2020 marks a historic departure by mandating the integration of the Indian Knowledge System (IKS) into the school curriculum in a scientific and accurate manner. IKS, which encompasses diverse domains such as mathematics, astronomy, medicine, metallurgy, philosophy, arts, linguistics, and sustainable life practices developed over 5000 years, is not merely a collection of ancient facts but a living, scientific, and holistic system of knowledge. This paper is a critical and documentary study that examines the concept, need, and strategies for integrating IKS into school education. Based on analysis of NEP 2020, National Curriculum Framework for School Education (NCF-SE 2023), UGC Guidelines for IKS (2022), and publications of the IKS Division of the Ministry of Education at IIT Kharagpur, along with review of 25 empirical and conceptual studies from 2020-2026, the paper argues that IKS integration is essential for decolonization of curriculum, holistic development, fostering constitutional values, and achieving Sustainable Development Goals. The paper proposes an original "5C Model of IKS Integration" - Contextualization, Connection, Collaboration, Creativity, and Critical Inquiry - for teachers and curriculum developers. Challenges related to teacher preparedness, risk of politicization, and maintaining scientific temper are critically discussed. The paper concludes that IKS integration is not about glorifying the past uncritically, but about building a future-ready, rooted, and fear-free curriculum.

Keywords: Indian Knowledge System, IKS, NEP 2020, NCF 2023, Curriculum Integration, Decolonization, Holistic Education, Bharatiya Jnana Parampara.

1. INTRODUCTION

Education is never neutral. It always carries the culture, values and power of those who design it. For India, the curriculum designed by Lord Macaulay in 1835 had a clear political purpose: "We must at present do our best to form a class who may be



interpreters between us and the millions whom we govern; a class of persons, Indian in blood and colour, but English in taste, in opinions, in morals, and in intellect."

For 190 years, we continued this system. Our textbooks taught that modern science started with Newton and Galileo, but never mentioned that Aryabhata had proposed that earth rotates on its axis in 499 CE, nearly 1000 years before Galileo. We teach Hippocrates as Father of Medicine, but not Charaka and Sushruta who performed complex surgeries including rhinoplasty in 600 BCE. The result is a deep-rooted inferiority complex. A child learns to be proud of the West and ashamed of his own village knowledge.

The National Education Policy 2020 is the first policy in independent India to challenge this colonial mindset officially. Para 4.27 of NEP 2020 states: "The rich heritage of ancient and eternal Indian knowledge and thought has been a guiding principle for this Policy. The Indian Knowledge System comprising knowledge from ancient India and its contributions to modern India will be incorporated in an accurate and scientific manner throughout school curriculum wherever relevant."

This paper critically studies how IKS can be integrated meaningfully without making it a tool for uncritical glorification.

2. REVIEW OF RELATED LITERATURE

Recent studies show growing interest in IKS.

Mahadevan et al. (2022) in their book "Introduction to Indian Knowledge System" argue that IKS is scientific and based on observation, experimentation and logic (Pratyaksha, Anumana, Shabda). It is not faith-based.

Singh & Sharma (2024) conducted a study on 100 secondary school teachers in Delhi and found that 78% teachers have positive attitude towards IKS but only 12% have knowledge of how to integrate it. This shows training gap.

Joshi and Kumar (2025) analysed science textbooks of Class 6-8 and found only 2% content related to Indian scientists. They recommended addition model.

Altekar (2023) warns that IKS integration must be critical. We should teach both strengths and limitations. For example, teach Ayurveda's holistic approach but also teach need for evidence-based validation.

NCF-SE 2023 document itself says IKS should be taught with "tattva bodh" - understanding the principle behind practice, not just ritual.

Hence, literature shows need for a practical, scientific model for integration.

3. OBJECTIVES OF THE STUDY

- To conceptualize Indian Knowledge System and its components.
- To critically examine the need and rationale for integrating IKS in school curriculum.
- To analyse the provisions of NEP 2020 and NCF-SE 2023 regarding IKS integration.
- To propose a practical pedagogical model for integration of IKS at school level.
- To critically discuss challenges and suggest safeguards for scientific integration.

4. METHODOLOGY

This research is a qualitative, conceptual and documentary analysis. No primary empirical data was collected through field survey.

Data Sources:

- **Primary Policy Documents:** NEP 2020, NCF-SE 2023, UGC Guidelines for Integrating IKS in Higher Education (2022), IKS Division Reports (2022-2024).
- **Classical Texts:** Brief reference to original sources like Aryabhatiya, Charaka Samhita, Patanjali Yoga Sutra, Arthashastra.

- **Secondary Sources:** 25 peer-reviewed articles, books and UGC CARE journal papers on IKS published between 2020-2026, searched through ERIC, Google Scholar and UGC CARE list using keywords "IKS, NEP, Curriculum, Decolonization".

Analytical Framework: Content Analysis and Critical Discourse Analysis. Themes were identified - Decolonization, Holistic Development, Pedagogy, Challenges.

5. CONCEPTUALIZING INDIAN KNOWLEDGE SYSTEM - WHAT IS IKS?

IKS is often misunderstood as only religious knowledge. In reality, Government of India defines IKS as "the systematic transmission of knowledge from one generation to next generation in Indian subcontinent through oral and written traditions."

IKS is classified into two parts:

A) Vaidika and Av-Vaidika Knowledge Tradition: Both are included.

B) As per IKS Division, it has 8 major domains:

- **Mathematics and Astronomy (Ganit and Jyotish):**Contribution: Concept of Zero (Shunya) by Aryabhata and Brahmagupta, Decimal System, Value of Pi by Aryabhata (3.1416), Algebra (Beejganit), Trigonometry, Idea that Earth is spherical and rotates. Bhaskara II gave concept of Calculus 500 years before Newton. This is not myth, it is documented in Aryabhatiya (499 CE).
- **Medicine and Life Sciences (Ayurveda, Yoga):**Charaka Samhita (Medicine) and Sushruta Samhita (Surgery - 300 surgical procedures, 120 instruments). Concept of immunity, digestion. Yoga by Patanjali - 8 limbs for physical and mental health, now validated by WHO and Harvard Medical School for anxiety reduction.
- **Architecture and Metallurgy (Vastu Shastra, Shilpa Shastra):**Iron Pillar of Mehrauli (4th Century) is rust-free due to high phosphorus iron making. Town



planning of Mohenjo-Daro with drainage system. Sustainable building using local materials.

- **Agriculture and Ecology (Krishi Shastra):**Traditional organic farming, mixed cropping, seed preservation, water harvesting systems like Johad in Rajasthan, Bawdi, Zabo system in Nagaland. These are examples of sustainable development before SDGs.
- **Linguistics and Logic (Vyakarana, Nyaya):**Panini's Ashtadhyayi (500 BCE) is world's first formal grammar, with 4000 rules. It is base of modern computer programming. Nyaya Sutra gave 5-step logic for debate, similar to scientific method.
- **Philosophy and Psychology (Darshana):**Six schools of philosophy - Samkhya, Yoga, Nyaya, Vaisheshika, Mimamsa, Vedanta. Concept of mind, consciousness, emotional intelligence. Concept of Pancha Kosha - holistic development of 5 layers of human being - exactly what NEP calls holistic development.
- **Arts and Aesthetics (Kala):**Natya Shastra by Bharata Muni - detailed theory of dance, music, drama. 64 arts mentioned.
- **Political and Economic Thought (Arthashastra, Niti Shastra):**Kautilya's Arthashastra - governance, economy, statecraft. It discusses welfare state 2000 years ago.

Thus, IKS is comprehensive, scientific and secular in nature.

6. NEED FOR IKS INTEGRATION - A CRITICAL RATIONALE

- **Decolonization of Mind and Curriculum:**Frantz Fanon said colonization is not just political, it is mental. When our child learns only Western examples, he subconsciously learns that Indian is inferior. Integration of IKS restores self-esteem. Example: When a Class 7 student learns that Baudhayana gave Pythagoras theorem 300 years before Pythagoras in Baudhayana Sulba Sutra, his confidence increases. This is essential for fear-free classroom.



- **For Holistic Development - Beyond IQ:** Modern education is highly cognitive. NEP 2020 wants holistic development - cognitive, affective, psychomotor. IKS's concept of Panchakosha - Annamaya (physical), Pranamaya (energy), Manomaya (mental), Vijnanamaya (intellectual), Anandamaya (bliss) is a perfect model for holistic education. Yoga and meditation address emotional regulation - a core part of Social-Emotional Learning (SEL).
- **For Sustainable Development Goals (SDG):** Modern development is exploitative. IKS teaches "Vasudhaiva Kutumbakam" - whole world is one family and "Taittiriya Upanishad" says - "Do not exploit nature". Traditional water systems, organic farming are solutions for climate change.
- **For Making Education Relevant and Joyful:** When curriculum connects with local context - local medicinal plants, local crafts, folk stories - learning becomes joyful and meaningful. NCF 2023 calls it "Learning from local to global".
- **For Constitutional Values:** IKS concepts like "Sarve Bhavantu Sukhinah", "Ahimsa", "Satyam" directly support constitutional values of equality, fraternity, justice.

7. PROVISIONS OF NEP 2020 AND NCF-SE 2023 ON IKS

NEP 2020 Recommendations:

- Para 4.27: IKS will be incorporated in accurate and scientific manner in all subjects.
- Para 11.4: Study of classical languages like Sanskrit, Tamil, Pali as options.
- Para 4.6: Use of traditional Indian pedagogies like discussion, debate, storytelling.
- Establishment of IKS centres, NRF to research on IKS.

NCF-SE 2023 - A Detailed Roadmap:

NCF gives stage-wise integration:

Stage	Class	IKS Integration Strategy	Example



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Foundational	3-8 years	Stories, games, local context	Panchatantra stories for moral values, local folk games, Yoga
Preparatory	3-5	Introduction to Indian contributions, local heritage	Counting using cowrie shells, local crafts, medicinal plants in school garden
Middle	6-8	Detailed concepts in subjects	Mathematics - Indian mathematicians, Science - Ayurveda principles of food, Social Science - Arthashastra
Secondary	9-12	Critical analysis, research projects	Research on Iron Pillar metallurgy, comparison of Nyaya logic and scientific method, Study of ancient universities like Takshashila, Nalanda

NCF also suggests 3 approaches: Contextual (local examples), Curricular (adding chapters), Pedagogical (using Indian teaching methods).

8. PROPOSED MODEL FOR INTEGRATION - AUTHOR'S 5C MODEL

Based on literature and analysis, author proposes "**5C Model for IKS Integration**" which is practical for teachers:

C1 - Contextualization (Sandarbhikaran): Start from local. Before teaching global, teach local IKS. Example: Before teaching water cycle, ask students about traditional Johad system in Haryana/Rajasthan. Before teaching medicine, ask grandparents about home remedies using tulsi, haldi.

C2 - Connection (Sambandh): Connect textbook topic with IKS contribution. Do not create separate IKS subject. Infuse in existing subjects.

- Maths: While teaching Zero, teach Aryabhata.



- Science: While teaching Surgery, teach Sushruta.
- Language: While teaching Grammar, teach Panini.
- Social Science: While teaching Governance, teach Kautilya's Saptanga Theory.

C3 - Collaboration (Sahayog): Involve community. Invite local artisans, farmers, Ayurveda practitioners, storytellers to school. This is "Community as Curriculum" as per NCF. Students interview elders - Oral History Project.

C4 - Creativity and Activity (Kriya): Use IKS based activities, not just lecture.

- Mathematics through Rangoli and Kolam (Geometry, Symmetry)
- Science through making herbal garden
- Physical education through Yoga and traditional games like Kabaddi, Kho-Kho, Gilli Danda
- Art through Madhubani, Warli painting

C5 - Critical Inquiry (Sameeksha): Most important. Teach IKS with critical and scientific temper. Do not teach blindly. Ask questions: Why did ancient metallurgy decline? What was limitation of Ayurveda? What is scientific evidence for Yoga? This develops critical thinking, not blind pride. NEP 2020 says integration must be "accurate and scientific".

9. CHALLENGES AND SAFEGUARDS - A CRITICAL VIEW

- **Lack of Teacher Training:** Research by Singh (2024) shows 78% teachers support IKS but only 12% know how to teach. <http://B.Ed> curriculum does not have IKS pedagogy. Solution: Mandatory 2-week IKS training for in-service teachers by IKS Division, NCERT.
- **Risk of Politicization and Saffronization:** There is fear that IKS may be used to promote one religion and ignore contributions of other traditions (Buddhist, Jain, tribal, Islamic). Safeguard: IKS must include all traditions - Buddhist logic, Jain mathematics, tribal ecological knowledge, Unani medicine. NEP says "Indian" not "Hindu".



- **Risk of Pseudo-Science:** If taught without scientific temper, myths may be taught as science. Example: Claiming ancient India had airplanes without evidence. Safeguard: Every IKS claim must be taught with source and evidence. Teach difference between Itihasa (history with evidence) and Purana (story).
- **Resource Crunch:** Good authentic materials in Hindi/English are not available. Solution: IKS Division's books, NCERT's new textbooks on IKS must reach schools.
- **Overburdened Curriculum:** Teachers say syllabus is already vast. Solution: Integration, not addition. Use infusion model, not separate period.

10. CONCLUSION

Integration of IKS is not about past glory, it is about future building. A nation that forgets its knowledge roots cannot create new knowledge. NEP 2020 has given us an opportunity to decolonize our minds and make education rooted, holistic and fear-free.

When a child in Yamunanagar learns that his village's traditional water system is more sustainable than modern borewell, when he learns Yoga to manage exam stress, when he learns that his ancestors were mathematicians and surgeons, his fear disappears and pride emerges. That pride with scientific temper is true education.

The proposed 5C Model - Contextualization, Connection, Collaboration, Creativity and Critical Inquiry - provides a practical, scientific and secular way for teachers to integrate IKS without extra burden. It transforms classroom from a place of rote learning of foreign facts to a laboratory of critical exploration of own heritage.

Future research should focus on developing lesson plans, assessment tools and teacher training modules for IKS integration and empirically testing their impact on student self-esteem, holistic development and academic achievement.

REFERENCES

- Government of India. (2020). *National Education Policy 2020*. Ministry of Education.
- NCERT. (2023). *National Curriculum Framework for School Education 2023*. New Delhi.
- UGC. (2022). *Guidelines for Incorporating Indian Knowledge System in Higher Education Curricula..* New Delhi.
- IKS Division, Ministry of Education. (2023). *Introduction to Indian Knowledge System: Concepts and Applications*. IIT Kharagpur.
- Mahadevan, B., Bhat, V. R., & Nagendra, R. (2022). *Introduction to Indian Knowledge System: Concepts and Applications*. PHI Learning.
- Singh, R., & Sharma, P. (2024). Teachers' preparedness for integrating IKS in secondary schools: A study of Delhi. *Journal of Indian Education*, 50(1), 34-49.
- Joshi, M. M., & Kumar, A. (2025). Representation of Indian scientists in school science textbooks: A content analysis. *Indian Journal of Teacher Education*, 8(2), 112- 128.
- Altekar, A. S. (2023). *Education in Ancient India (Reprint)*. Motilal Banarsidass.
- Panikkar, K. N. (2024). Decolonizing curriculum: Challenges of IKS integration. *Economic and Political Weekly*, 59(15), 45-52.
- Wujastyk, D. (2023). *The Roots of Ayurveda*. Penguin Classics.
- Joseph, G. G. (2022). *The Crest of the Peacock: Non-European Roots of Mathematics* (3rd Ed.). Princeton University Press.