Reviving Indian Knowledge Systems: A Literature Review on Integration Strategies within Contemporary Education Frameworks

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Abstract: Indian Knowledge Systems (IKS) encompass a rich corpus of indigenous philosophies, sciences, and arts that historically underpinned India's holistic educational traditions. In the wake of colonial marginalization and the more recent National Education Policy (NEP) 2020, there is renewed interest in integrating IKS within contemporary curricula to foster cultural relevance, sustainability, and ethical reasoning. This review critically examines peer-reviewed studies, policy documents, and grey literature to address three core objectives: (1) to analyze the conceptual foundations and disciplinary scope of IKS; (2) to map integration strategies and pedagogical innovations across school and higher education; and (3) to identify persistent challenges, institutional barriers, and future research needs. Employing a systematic PRISMA-guided literature review with thematic categorization, the paper is structured around conceptual underpinnings, integration models, critical barriers, and concluding recommendations. Key themes include the epistemological basis of IKS (e.g., pramāņas, guru-śişya model), policy-level interventions (NEP 2020, UGC/AICTE guidelines), curricular and technological innovations (interdisciplinary courses, MOOCs, AR/VR), and capacitybuilding for educators. Findings reveal promising pilot programs and digital platforms alongside systemic obstacles such as curricular rigidity, linguistic decline, and limited empirical evidence. The review highlights the need for standardized materials, longitudinal outcome studies, and inclusive frameworks that engage traditional practitioners. By synthesizing policy trends, pedagogical experiments, and critical gaps, this work offers an evidence-based roadmap for decolonizing education through IKS, suggesting targeted curriculum reform, multilingual resource development, and robust impact assessments to guide future scholarship and practice.

Keywords: Indian Knowledge Systems; curriculum integration; NEP 2020; pedagogical innovation; decolonizing education; sustainability

1. Introduction

Indian Knowledge Systems (IKS) represent a diverse and profound body of traditional knowledge that includes philosophy, medicine, mathematics, art, architecture, and environmental ethics, passed down through generations via oral and written traditions. These systems, rooted in indigenous and culturally specific paradigms, encapsulate holistic and experiential learning methods. Core examples include Ayurveda, Yoga, Vedic Mathematics, Sanskrit, Astronomy, and Epistemology of Dharma (Mahadevan et al., 2022).

Historically, the IKS paradigm was an integral part of education in India, exemplified by centers like Nalanda, Takshashila, and Vikramashila, which thrived on a multidisciplinary and value-based pedagogical framework (Mahesh & Aithal, 2023). These institutions symbolized India's intellectual prowess, emphasizing spiritual, ecological, ethical, and intellectual dimensions in harmony. However, with the onset of colonial rule, Western epistemology and pedagogical norms replaced indigenous systems, relegating IKS to the margins of

mainstream academia (Biswas, 2024). This marginalization was compounded by the Macaulayian education policy, which viewed traditional Indian learning as outdated and irrational.

In recent years, the National Education Policy (NEP) 2020 has revitalized discourse around integrating IKS into formal education. The policy explicitly emphasizes the promotion of Indian heritage, traditional knowledge, and languages in both school and higher education curricula (Thapliyal, 2023). This reflects a global resurgence in valuing indigenous knowledge for its ecological sustainability, cultural relevance, and potential to diversify learning paradigms (Moitra & Madan, 2025). Increasing academic and institutional recognition underscores IKS's role in enriching contemporary education with ethical reasoning, intergenerational learning, and culturally grounded worldviews (Khan & Sharma, 2024).

The convergence of modern education systems with IKS can also enhance educational equity by validating regional epistemologies and empowering local communities. Moreover, as India aspires toward a more resilient and inclusive educational future, the integration of IKS is seen not merely as heritage preservation but as a transformative pedagogical intervention that cultivates global competencies through indigenous roots (Amani, 2024).

This literature review seeks to critically examine how Indian Knowledge Systems are being integrated into contemporary education frameworks. Drawing upon recent academic literature and policy documentation, the primary objectives of the paper are:

1. To analyze existing literature on IKS and its incorporation within current educational systems. Several models of integration are emerging—ranging from curriculum redesign to institutional initiatives (Kamalakar & Vageeshan, 2024).

2. To identify practical integration strategies and pedagogical frameworks being implemented across various levels of education. For instance, NEP-driven curriculum restructuring and community-engaged teaching methods are gaining ground (Lal et al., 2024).

3. To examine the challenges, policy implications, and best practices associated with such integration. This includes issues like lack of trained faculty, epistemological conflict between Western and Indian paradigms, and insufficient digital infrastructure to support IKS-based content (Moitra & Madan, 2025; Khan & Sharma, 2024).

The overarching aim is to contribute to an informed, evidence-based discussion that supports institutional efforts to bridge traditional wisdom with modern educational aspirations—cultivating a learning environment that is holistic, sustainable, and inclusive.

2. Systematic Research Methodology

To conduct a comprehensive and credible literature review on the integration of Indian Knowledge Systems (IKS) into contemporary education frameworks, a systematic research methodology grounded in PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines was adopted. The objective was to identify, screen, and analyze high-quality peer-reviewed articles, book chapters, policy papers, and grey literature that discuss conceptual foundations, integration strategies, policy frameworks, pedagogical innovations, challenges, and future directions in the context of IKS.

The literature search strategy employed a combination of targeted keywords and Boolean operators across multiple academic databases and platforms. The databases included Google Scholar, Scopus, ResearchGate, Academia.edu, SSRN, ScienceDirect, and institutional repositories such as the National Digital Library of India and Indian Citation Index. The keywords were derived from core themes such as "Indian Knowledge Systems," "IKS and Education," "NEP 2020 and IKS," "integration of traditional knowledge," "indigenous education India," "Ayurveda in education," "IKS pedagogy," and "IKS teacher training." Synonyms and thematic equivalents like "indigenous wisdom," "classical Indian epistemology," "ancient Indian sciences," and "holistic Indian curriculum" were used in successive search iterations to maximize retrieval sensitivity. In total, the initial search yielded 242 records. These included research articles (112), policy papers and white papers (46), book chapters (37), and grey literature like conference proceedings and institutional reports (47).

The publication window was restricted to the most recent seven years to ensure relevance and currency, especially in light of the transformative policy shifts post-NEP 2020.





After the initial screening of titles and abstracts, 129 articles were excluded for not meeting the relevance threshold—either due to a non-educational focus, absence of connection to Indian knowledge systems, or coverage of unrelated indigenous frameworks from outside India. This left 113 full-text articles and documents for further assessment. A stringent inclusion and exclusion criteria matrix was then applied.

The inclusion criteria required that each article or report: (a) explicitly reference Indian Knowledge Systems in an educational or pedagogical context; (b) present original conceptual, empirical, or theoretical insights on integration strategies, policy evolution, or educational reform related to IKS; (c) be written in English or Hindi; and (d) be accessible in full-text format. On the other hand, exclusion criteria disqualified documents that: (a) focused solely on cultural preservation without educational relevance; (b) provided only general overviews without analytical depth; (c) duplicated findings from prior included literature; or (d) lacked academic rigor or citation basis (such as opinion blogs, student essays, or brief news write-ups).

Based on these criteria, 57 documents were shortlisted for methodological and thematic relevance. Of these, 18 were excluded during the quality appraisal phase due to redundancy, insufficient methodological transparency, or an overly narrow scope (e.g., exclusive focus on a single Sanskrit shloka or ritual without curricular linkage). An additional 11 were removed as they provided overlapping insights without distinct theoretical contribution. This brought the total to 28 documents selected for inclusion in the final review.

The PRISMA screening and selection process ensured transparency and replicability. The flow was as follows: 242 records were identified; 129 were excluded after abstract review; 113 were assessed for eligibility through full-text screening; 57 passed initial quality and relevance filters; and after final appraisal, 28 documents were retained for synthesis. These selected works spanned journal articles, monographs, policy briefs, and peer-reviewed conference papers from diverse authorship—including educationists, IKS practitioners, policy scholars, and interdisciplinary researchers.

Following selection, the 28 documents were categorized thematically into four broad domains to facilitate structured analysis. First, eight sources focused on the philosophical and conceptual foundations of IKS, detailing epistemology, disciplinary scope, and relevance to contemporary values (e.g., Mahadevan et al., 2022; Nambootthiri & Lakshmanan, 2024). Second, nine papers addressed strategies and models for integration, discussing NEP 2020 frameworks, curricular reform, and interdisciplinary innovations (e.g., Kumar, 2025; Sarkar et al., n.d.). Third, seven works examined challenges, institutional barriers, and critiques,

including epistemological tensions and infrastructural gaps (e.g., Lal et al., 2024; Amani, 2024). Lastly, four sources explored empirical studies and educator perspectives, highlighting faculty training, digital platforms, and assessment gaps (e.g., Bera, 2025).

This systematic process ensured both the breadth and depth necessary for a high-quality literature review. The selected literature collectively offered a rich, multidimensional understanding of how Indian Knowledge Systems are being conceptualized, institutionalized, and challenged within India's evolving educational landscape.

3. Conceptual Foundations of Indian Knowledge Systems (IKS)

3.1 Core Domains and Disciplines of IKS

Indian Knowledge Systems (IKS) are a broad tapestry of civilizational wisdom that spans disciplines such as health, linguistics, governance, philosophy, science, and aesthetics. These domains evolved organically over millennia, often through experiential and oral traditions passed down via guru-shishya parampara (teacher-disciple lineage) (Chandratreya, n.d.).

Ayurveda, or the "science of life," is one of the most structured and foundational domains within IKS. It is not merely a medical system but a holistic philosophy of health that integrates physical, mental, and spiritual well-being (Baig, 2024). Its diagnostic methods rely on tri-doshas (vata, pitta, kapha) and therapeutic modalities include herbs, diet, and lifestyle modifications. The epistemology of Ayurveda, as Brooks (2018) notes, emphasizes sensory-based diagnostics and embodiment, integrating pratyaksa (perception) and anumāna (inference) among its pramāņas (means of knowledge).

Yoga, another pillar, emphasizes mental discipline, ethical living, and physical health through asanas, pranayama, and dhyana. While widely popularized globally, its origins and integration within IKS rest on metaphysical grounding in Sankhya and Vedanta traditions (Mehta & Singh, 2024).

Linguistically, Sanskrit texts such as the Vedas, Upanishads, and Darshanas form the philosophical base for disciplines such as Natyashastra (performing arts), Arthashastra (governance and economics), and Jyotisha (astronomy and astrology). These texts are both scientific and spiritual in scope, combining rigorous logical structures (e.g., Nyaya Sutra) with spiritual practice (Shankar, 1997).

Architecture, particularly Vastu Shastra, exemplifies how space, direction, energy, and function coalesce in Indian thought. Vastu is rooted in cosmology and considers structural harmony with nature and universal principles—akin to sustainability (Moitra & Madan, 2025).

Furthermore, indigenous forms of governance and economics, such as those found in Arthashastra by Kautilya, emphasize ethics, pragmatism, and social welfare as guiding principles for statecraft.

Underlying all these domains is a sophisticated epistemological foundation. The classical systems identify six means of valid knowledge (pramāņas): perception (pratyakṣa), inference (anumāna), comparison (upamāna), postulation (arthāpatti), non-cognition (anupalabdhi), and verbal testimony (śabda) (Nambootthiri & Lakshmanan, 2024). These are embedded within a larger metaphysical and ethical fabric where knowledge is not merely utilitarian but transformative.

3.2 Philosophical and Ethical Values in IKS

IKS is distinguished by its strong emphasis on ethics and holistic philosophy. Unlike reductionist epistemologies, it perceives knowledge as integrated with life, nature, and community. The following table presents key philosophical values in IKS with their core meanings and educational implications:

Value/Principle	Meaning in IKS	Example	Philosophical	Implications for
		Domain	Source	Education
Holism	Unity of body,	Ayurveda,	Upanishads,	Interdisciplinary,
	mind, spirit, and	Yoga	Sankhya	learner-centered
	environment			education
Sustainability	Ethical use of	Agriculture,	Atharva Veda,	Eco-literacy and
	resources and	Architecture	Vastu Shastra	environmental
	reverence for			stewardship
	nature			
Interdependence	Relational	Ethics, Health,	Bhagavad Gita,	Social-emotional
	existence between	Cosmology	Vedanta	learning and civic
	self and			responsibility
	others/nature			
Spiritual-Human	Integration of inner	Yoga, Dharma	Patanjali Yoga	Value education,
Integration	growth with outer	traditions	Sutras, Gita	mindfulness in
	action			learning
Harmony with	Cosmic order (rta)	Astronomy,	Vedic	Culturally rooted
Nature	as foundational to	Medicine	cosmology,	sustainability
	life and learning		Jyotisha	education

These values do not exist in abstraction but are embedded in everyday practices and pedagogical forms such as recitation, observation, apprenticeship, and ritualized inquiry. As Shankar (2023) notes, relational ontologies guide practices where healing, architecture, and learning are seen as interconnected expressions of harmony.

3.3 Relevance to Contemporary Educational Values

The relevance of IKS in modern education lies in its alignment with key 21st-century competencies such as critical thinking, creativity, environmental consciousness, ethics, emotional intelligence, and resilience. According to Mishra (n.d.), epistemologies embedded in IKS, such as those found in Nyaya or Ayurveda, offer logic, diagnostics, and reasoning systems that are both rigorous and culturally meaningful.

Critical thinking is a core outcome of disciplines like logic (Nyaya), inference (anumāna), and debate (vāda), which were formalized in ancient Indian intellectual traditions. These practices encourage questioning, hypothesis testing, and dialogic learning, countering the myth that IKS is rote-based or anti-scientific.

Environmental consciousness stems from the fundamental IKS idea that nature (prakriti) is sacred. Ayurveda teaches that human health depends on environmental balance; similarly, agricultural knowledge is premised on respecting seasonal cycles and biodiversity (Porter et al., 2024).

Wellness education, particularly after COVID-19, has embraced Yoga, meditation, and Ayurvedic practices. As Baig (2024) and Mehta and Singh (2024) demonstrate, these systems offer affordable, preventive, and community-based approaches to well-being that align with Sustainable Development Goals (SDGs).

Ethics is central to every IKS domain. Whether in politics (Arthashastra), health (Ayurveda), or education (gurukul ethics), moral integrity is seen as intrinsic to knowledge production and use.

The National Education Policy (NEP) 2020 provides a timely institutional framework to integrate IKS into mainstream education. It promotes holistic education through multilingualism, experiential learning, value-based curricula, and revival of Indian languages and arts (Chandratreya, n.d.). Educational institutions are now offering IKS-based degree programs, collaborating with indigenous practitioners, and embedding IKS in teacher education and research.

Yet, successful integration requires a transformation in both mindset and infrastructure. Educators need to be trained in both traditional content and contemporary pedagogies, and institutions must move from tokenistic inclusion to epistemological pluralism—recognizing IKS as equal and rigorous.

4. Strategies and Models for Integration in Contemporary Education

4.1 Policy-Level Interventions

The National Education Policy (NEP) 2020 marks a watershed moment in India's educational landscape by formally recognizing the value of Indian Knowledge Systems (IKS) and urging their inclusion across academic curricula. One of the policy's most notable innovations is its emphasis on "rooting education in India's traditions and cultural ethos" while fostering global competencies (Kumar, 2025). According to the Ministry of Education, NEP 2020 underscores the importance of integrating IKS from school to higher education, including teacher education and research programs (Baral, n.d.).

As Sharma (2024) outlines, NEP 2020 mandates that "Indian knowledge systems, including tribal and regional knowledge, should be incorporated at all levels of education to ensure holistic development." It calls for the development of IKS centers at major universities and suggests collaboration with traditional practitioners to bring authentic knowledge into classrooms. Additionally, policies propose curriculum and faculty reforms to ensure that modern pedagogies align with indigenous content.

Frameworks issued by the University Grants Commission (UGC) and All India Council for Technical Education (AICTE) have echoed these goals. In 2021, UGC released guidelines for credit-based IKS electives, while AICTE launched modules such as "AICTE IKS Cell" and "AICTE Vishwakarma Awards", which reward innovation rooted in Indian traditions. Moreover, NCERT has been revising textbooks to integrate traditional sciences and languages, including Vedic mathematics and Sanskrit logic (Sarkar, Adhikary, & Biswas, n.d.).

Despite these advancements, Sharma, Awasthi, and Soni (n.d.) emphasize that only 23% of higher education institutions currently offer some form of IKS integration, indicating a need for broader and more structured implementation mechanisms. Challenges remain in aligning policy intent with ground-level adoption due to a lack of awareness, institutional inertia, and limited teaching resources.

4.2 Curriculum and Pedagogical Innovations

At the institutional level, several universities and schools have pioneered innovative curricular strategies to incorporate IKS meaningfully. A leading example is the Banaras Hindu University (BHU), which has launched a dedicated undergraduate program on Indian Knowledge Systems. The course includes interdisciplinary studies in Ayurveda, Sanskrit, logic (Nyaya), and Indian astronomy. Similarly, Central Sanskrit University and Kavikulaguru Kalidas Sanskrit University have aligned their syllabi with NEP 2020, offering specialized degrees that merge traditional Indian sciences with contemporary subjects (Thapliyal, 2023).

Such programs often integrate interdisciplinary learning, enabling students to explore connections between ancient wisdom and modern disciplines. For instance, studies in Vastu Shastra are linked with environmental science and sustainable architecture. Language revival is another vital area—schools in states like Karnataka and Tamil Nadu have introduced optional Sanskrit and Pali courses under the NEP's trilingual formula (Mandal & Sultana, 2024).

Pedagogical innovation has also taken the form of value education modules rooted in Indian ethics and dharma traditions. Bera (2025) observes that 60% of teacher training colleges under the National Council for Teacher Education (NCTE) have begun integrating value-based curricula inspired by the Bhagavad Gita, Jain Agamas, and Buddhist philosophy.

Case studies also point to improvements in student engagement and identity formation. At Sri Sri University, for example, feedback from over 500 students revealed that integrating Yoga and Sanskrit texts into business and science programs led to enhanced self-awareness, improved well-being, and deeper cultural appreciation (Sarkar et al., n.d.).

4.3 Technology and Digital Platforms in IKS Dissemination

The dissemination of IKS is increasingly being accelerated by digital technologies. Government initiatives such as the Bharatiya Vidya Portal and the BODHI Tree Knowledge Repository have digitized thousands of manuscripts and audio-visual resources covering Vedas, Ayurveda, Upanishads, and regional tribal knowledge systems (Baral, n.d.).

Massive Open Online Courses (MOOCs) have also emerged as effective platforms for scalable IKS education. The SWAYAM platform, run by the Ministry of Education, hosts courses such as "Introduction to Indian Philosophy" and "Foundations of Yoga" by reputed institutions like IITs and IGNOU. According to Kumar (2025), these MOOCs reached over 1.4 million learners by the end of 2023.

Mobile applications such as "Samskritam", developed by the Samskrita Bharati foundation, offer gamified lessons in classical Sanskrit, while the "AYUSH Sanjeevani" app promotes Ayurvedic practices for wellness. Such platforms help bridge access gaps, especially for learners in non-metropolitan areas.

Emerging technologies like Augmented Reality (AR) and Virtual Reality (VR) are being piloted to provide immersive learning experiences in subjects like Vedic astronomy and architectural principles. Sharma (2024) notes a pilot project by IIT Kharagpur that developed a VR model of Nalanda University to teach students about ancient educational infrastructure.

Digital libraries, such as the Indira Gandhi National Centre for the Arts (IGNCA) archive, continue to expand the accessibility of source texts, enhancing both research and classroom utility.

4.4 Educator Training and Capacity Building

One of the most critical bottlenecks in IKS integration is the lack of trained educators. NEP 2020 explicitly recommends the establishment of capacity-building workshops and Faculty Development Programs (FDPs) to address this. According to Bora (n.d.), since 2021, over 200 FDPs have been organized nationally on IKS content and pedagogy.

Programs are typically hosted by institutions such as Central Institute of Educational Technology (CIET) and Rashtriya Ayurveda Vidyapeeth, offering short-term modules on how to teach Sanskrit, conduct Yoga-based wellness courses, and contextualize Indian philosophy for contemporary issues.

At the policy level, the Ministry of Education's Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT) has included IKS training as a key agenda. Furthermore, a dedicated IKS division under AICTE has launched an annual "Teacher Fellowship in IKS" that funds pedagogical research and encourages publication in peer-reviewed journals.

Institutional support mechanisms are also growing. For instance, Thapliyal (2023) documents how certain colleges have established IKS Resource Centers with libraries, visiting scholars, and student clubs that engage in debates, recitations, and traditional arts. These environments foster academic legitimacy and community participation, addressing concerns about the marginalization of IKS in formal education.

5. Challenges, Gaps, and Critique

5.1 Structural and Institutional Barriers

Despite the recent momentum to reintegrate Indian Knowledge Systems (IKS) into the educational mainstream, significant structural barriers persist. These include the remnants of a colonial educational mindset, curricular rigidity, and elitist academic norms, which continue to marginalize non-Western knowledge traditions (Mahadevan et al., 2022).

The table below outlines the key structural and institutional obstacles confronting IKS integration:

Barrier Type	Description	Impact on IKS	Example / Data	Citation
Colonial Mindset	Preference for	Devaluation of	Textbook curricula	Mahadevan et
	Western	indigenous knowledge	exclude Vedic	al. (2022)
	epistemology and	in academic spaces	logic, Ayurveda,	
	dismissal of		and Sanskrit	
	traditional systems			
Curricular	Inflexibility in	Inhibits	Limited credit	Kumar (2025)
Rigidity	university syllabi	interdisciplinary	hours for IKS	
	and evaluation	inclusion of IKS	electives in most	
	systems	content	HEIs	
Academic Elitism	Hierarchies in	Delegitimizes oral	Sanskrit-based	Mandavkar
	institutional	traditions and regional	knowledge treated	(2023)
	knowledge	knowledge	as esoteric, not	
	production		empirical	
Lack of	Scarcity of	Prevents widespread	Very few peer-	Khan &
Documentation	standardized	pedagogical adoption	reviewed textbooks	Sharma
	teaching materials	of IKS	on Natyashastra or	(2024)
			Arthashastra	
Institutional	Limited funding and	Hinders sustainable	Few UGC-	Lal et al.
Support Gaps	research support	program development	approved PhD	(2024)
			programs in	
			traditional Indian	
			sciences	

Many universities are ill-equipped to undertake IKS-based programs due to outdated infrastructure, bureaucratic inertia, and a lack of trained faculty (Lal et al., 2024). As Khan and Sharma (2024) note, without the development of standardized resources and curriculum guides, attempts to introduce IKS often result in superficial tokenism rather than genuine pedagogical reform.

5.2 Epistemological and Pedagogical Concerns

One of the central epistemological tensions in IKS integration is the perceived dichotomy between traditional and scientific worldviews. While modern education favors reductionism, objectivity, and quantifiability, Indian epistemology values holism, intuition, and lived experience (Mahadevan et al., 2022; Moitra & Madan, 2025).

This epistemological divergence poses challenges for curriculum designers and educators attempting to reconcile ancient wisdom with scientific rigor. Amani (2024) emphasizes the need for a "culturally contextualized yet critically rigorous pedagogy", one that respects the philosophical premises of IKS while engaging students in critical analysis and empirical inquiry.

Furthermore, traditional pedagogical models like guru-shishya parampara, which rely on experiential transmission of knowledge, often clash with contemporary classroom norms based on standardized testing and syllabus-centric delivery. Kamalakar and Vageeshan (2024) caution against merely embedding IKS topics without adapting pedagogical methods to reflect their foundational values.

Critics also argue that without adequate methodological frameworks, IKS inclusion risks being exoticized or misrepresented. For instance, Vedic Mathematics is often taught in a mechanistic way, detached from its philosophical roots in Vedic logic and cognition (Mahadevan et al., 2022).

Addressing this requires new teacher training models, hybridized assessment tools, and cross-disciplinary collaboration that validates both qualitative and quantitative inquiry.

5.3 Socio-cultural and Linguistic Limitations

Language and cultural disconnects form another major obstacle. The decline of classical languages like Sanskrit, Pali, and Prakrit undermines access to primary IKS texts. Without sufficient linguistic competence, students and teachers must rely on secondary interpretations that may lack depth or nuance (Moitra & Madan, 2025).

This problem is exacerbated by the urban-rural digital and pedagogical divide. Urban schools with access to digital platforms and trained educators are more likely to implement NEP-driven IKS curricula. Rural institutions often lack these capabilities, perpetuating regional disparities in cultural education (Kapur, 2018). Moreover, cultural elitism persists in the way IKS is curated—often privileging Brahmanical traditions while ignoring tribal, Dalit, and regional knowledge forms. Lal et al. (2024) advocate for a democratization of IKS, where diverse communities are recognized as knowledge producers and not merely subjects of study.

Socio-cultural diversity demands a pluralistic IKS model—inclusive of Ayurveda and Siddha, Sanskrit and tribal dialects, Vedic astronomy and regional cosmologies. Without this inclusivity, IKS risks reinforcing the very hierarchies it seeks to dismantle.

5.4 Research Gaps and Lack of Empirical Studies

Despite increasing policy and academic attention, the empirical research base for IKS integration remains limited. There is a notable absence of longitudinal studies assessing the cognitive, affective, and social outcomes of IKS-based education (Lal et al., 2024).

Most existing literature is conceptual or policy-oriented, with little data on student learning outcomes, teacher attitudes, or classroom implementation challenges. Amani (2024) underscores the need for multi-site action research that tests different models of IKS incorporation across educational contexts.

Kamalakar and Vageeshan (2024) point out that only 12% of Indian universities have published empirical work on IKS integration, often relying on anecdotal evidence or small-scale case studies. This gap weakens policy advocacy and hinders scalable interventions.

Furthermore, there are no standardized metrics to evaluate the impact of IKS education. Tools to assess student engagement, cultural competency, ethical reasoning, or holistic development—central to IKS—are underdeveloped. This calls for indigenous assessment frameworks co-designed with scholars, educators, and traditional practitioners.

In sum, while the vision of integrating IKS into contemporary education is aspirational and timely, its realization faces serious challenges—structural, epistemological, cultural, and empirical. Tackling these requires a multi-pronged approach: policy innovation, grassroots participation, interdisciplinary research, and sustained institutional investment.

6. Conclusion and Future Directions

The review of existing literature on the integration of Indian Knowledge Systems (IKS) into contemporary education reveals a landscape of both significant promise and persistent challenges. Over the past few years, a series of deliberate and structured efforts have been initiated at the policy level, particularly with the introduction of the National Education Policy (NEP) 2020. This policy has made strong provisions to embed IKS within the curriculum at all levels of education, thereby recognizing the historical, cultural, and philosophical richness of these systems. From specialized undergraduate and postgraduate programs in Sanskrit, Ayurveda, and Indian philosophy, to school-level value education rooted in Indian ethics, a growing number of institutions are aligning themselves with this transformative educational mandate. In addition, pedagogical innovations—such as interdisciplinary course design, digital dissemination via MOOCs and portals, and the use of immersive technologies like AR and VR—have significantly broadened access to IKS-based learning. Equally important is the emphasis on faculty development and institutional capacity-building to equip educators with the philosophical and practical tools required to meaningfully deliver IKS content. However, alongside these achievements, the literature reflects critical structural voids that continue to hinder the full realization of this vision. Colonial epistemologies still shape institutional hierarchies, perpetuating a curriculum that often marginalizes or exoticizes indigenous knowledge. There exists a troubling lack of

standardized teaching materials, insufficient financial investment in IKS-specific research, and low inclusion of oral and regional knowledge traditions. The rigidity of mainstream syllabi and a lack of interdisciplinary flexibility further restrict the inclusion of traditional knowledge streams. Additionally, epistemological conflicts between modern scientific paradigms and the holistic, experiential nature of IKS continue to challenge educators and curriculum developers. These tensions are amplified by the decline of classical languages and the digital and infrastructural gap between rural and urban educational institutions.

To bridge these gaps, a multilayered strategy must be envisioned. One essential step involves the development of multilingual curricula that can serve diverse linguistic communities and provide equitable access to IKS sources in their original as well as translated forms. National and state-level funding bodies must allocate specific grants for IKS-based research and educational innovation. Community participation should be encouraged not only in knowledge transmission but also in the co-creation of pedagogical tools and assessment frameworks. Traditional knowledge bearers—whether Vedic scholars, tribal healers, or regional artisans—should be actively engaged in academic discourse, breaking the boundary between 'experts' and 'practitioners.' Teacher education must be reformed to include not just content knowledge of IKS, but also pedagogical methodologies rooted in Indian epistemology. Such reforms can be effectively implemented by integrating IKS components in B.Ed. and M.Ed. programs, through a combination of classroom learning, field immersion, and reflective practice.

Another critical area demanding urgent attention is research. While the theoretical arguments for the integration of IKS are compelling and well-articulated, empirical support remains limited. The need for longitudinal studies examining the long-term cognitive, emotional, and ethical impacts of IKS-based education cannot be overstated. Comparative studies across different educational settings—urban and rural, public and private, traditional and modern—can illuminate how best to design context-sensitive IKS integration models. In addition, research should explore student perceptions, teacher readiness, institutional challenges, and societal impact. A robust corpus of evidence will not only inform pedagogical decisions but also enhance the legitimacy of IKS in policy and academic circles.

In conclusion, the integration of Indian Knowledge Systems into modern education is not simply an exercise in cultural preservation—it is a radical epistemological project that seeks to decolonize learning, foster holistic development, and instill ethical consciousness in learners. IKS offers a framework that connects scientific inquiry with moral reasoning, individual growth with social harmony, and ecological sensitivity with spiritual reflection. To realize this potential, systemic change is required—anchored in policy innovation, pedagogical integrity, inclusive participation, and sustained research. If education is to remain relevant in a rapidly changing world, it must draw not only from global paradigms but also from the deep well of indigenous wisdom that traditions like IKS offer.

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