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A Study of Indian Knowledge Systems (IKS): Historical Foundations, Current Challenges and Future Prospects

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Abstract
The Indian Knowledge System (IKS) is a comprehensive framework that integrates traditional wisdom, scientific insights, and cultural practices developed over millennia in India. It encompasses multiple disciplines, including astronomy, mathematics, medicine, architecture, and the arts, which are intricately linked with spiritual and philosophical elements. IKS remains relevant in contemporary times and offers valuable perspectives that can enhance modern educational paradigms. However, it faces challenges in the preservation and integration of contemporary practices due to globalization and modernization. This study presents an overview of IKS, examining its history, components, importance, challenges, and prospects. It highlights the growing interest in integrating IKS within modern frameworks, such as curriculum development for emerging fields like blockchain and Metaverse. IKS offers significant potential in areas such as ethnopharmacology, traditional healing, and cultural heritage conservation using modern technologies. Government and institutional support are essential for the sustainable preservation and promotion of Indian knowledge systems. The integration of IKS with modern educational and technological frameworks presents both opportunities and challenges, necessitating careful consideration of cultural sensitivity, resource disparities, and technical complexities. Further research and collaborative efforts are necessary to fully harness the potential of IKS in the modern context, particularly to address sustainability, healthcare, and cultural preservation.

Introduction

The Indian Knowledge System (IKS) represents a comprehensive amalgamation of traditional wisdom, scientific insights, and cultural practices that have developed over thousands of years. Firmly rooted in ancient texts and philosophies, IKS spans a wide array of disciplines, including astronomy, mathematics, medicine, architecture, and the arts, all of which are intricately linked with spiritual and philosophical elements.The incorporation of traditional practices, such as meditation and yoga, into educational systems exemplifies the synergy between ancient wisdom and modern learning methodologies, which is considered beneficial for holistic development.As globalization progresses, there is growing interest in revisiting and integrating IKS within modern frameworks, such as curriculum development for emerging fields such as blockchain and the Metaverse.This integration presents challenges, including

the necessity for cultural sensitivity and preservation of authenticity, but also offers opportunities for enriching contemporary education.

Literature Review

- Khan and ahmed (2020) examined the indian knowledge system (iks) as a repository of traditional beliefs and practices transmitted through generations via texts like the vedas and upanishads. iks encompasses science, spirituality, art, and literature, and influences indian society and culture. the authors highlight iks's relevance to sustainable development, noting that indigenous practices promote self-sufficiency and environmental harmony. however, they identified challenges in managing and disseminating indigenous knowledge, including limited access and reluctance to share. This study advocates the integration of traditional knowledge into development strategies for sustainable solutions.
- Mahajan (2025) examined the integration of traditional indian wisdom with innovation to advance atmanirbhar bharat. this study focuses on utilizing indian knowledge systems (iks) across sectors for sustainable development and self-reliance. it explores iks's potential to drive economic growth, support msmes, and enhance local communities. this research evaluated indian knowledge paradigms in international contexts, particularly in sustainable development and agriculture. this study demonstrated iks implementation through case studies and explored its role in creating eco-friendly products and promoting a circular economy. it examines iks integration into education and entrepreneurship programs, showing how india can develop sustainable solutions by drawing from traditions in ayurveda, agriculture, and governance.
- kumari (2024) examined the role of the indian knowledge system (iks) in sustainable development. iks is a structured framework for knowledge transmission across generations, based on vedic literature and ancient indian texts. it promotes a holistic view that emphasizes life's interconnectedness and harmony with nature. this paper shows how iks incorporates sustainable practices in education, health, economics, and environmental conservation, exploring four sustainability pillars: human, social, economic, and environmental. it demonstrates iks applications in addressing contemporary challenges such as disaster risk reduction and climate change. this study advocates integrating iks into modern education and policymaking to address global challenges, emphasizing its importance for innovation and economic value in the global knowledge order.
- khare and kumar (2025) investigated the indian knowledge system (iks) within globalization. their study examined traditional indian wisdom's contributions to global challenges in sustainability, health, and education. this research employs a qualitative methodology, reviewing the historical, philosophical, and contemporary aspects of iks. the study focuses on iks components, including philosophical systems, scientific knowledge, and health practices, such as ayurveda and yoga. it analyses iks's integration into global frameworks, particularly in healthcare, education, and sustainability. this study examines the challenges of incorporating iks into modern systems. the findings show that iks provides valuable solutions to global challenges despite integration difficulties. the paper concludes by emphasizing the preservation and integration of iks into modern practices.
- Timane and wandhe (2024) examined the indian knowledge system (iks), its historical context, principles, and significance. iks comprises knowledge, beliefs, and practices developed over millennia in the indian subcontinent, rooted in ancient texts, and shaped by diverse civilizations. it encompasses philosophy, religion, science, mathematics, medicine, astrology, and literature, emphasizing the interconnectedness of all entities through concepts such as 'vasudhaiva kutumbakam'. the system focuses on self-realization through meditation and

yoga. this paper traces iks from the vedic period through buddhism and jainism, discussing concepts such as dharma, karma, and moksha. this has influenced mathematics, astronomy, philosophy, and medicine, including ayurveda. this study examines efforts to preserve the iks amid modernization challenges and highlights its role in shaping indian society and addressing contemporary issues.

- kumar and bisht (2024) explored the indian knowledge system (iks) through post-colonialism and globalization frameworks. the study presents iks as a dynamic tradition adapting across history while maintaining core principles, emphasizing concepts like 'vasudhaiva kutumbakam' (the world is one family). this research examines british colonialism's disruption of traditional indian education and initiatives to revive indigenous practices. in the context of globalization, it addresses balancing traditional knowledge preservation with global adaptation. using qualitative methodology and archival research, this study shows that iks encompasses philosophy, astronomy, mathematics, and ayurvedic medicine.

Statement of Problem

The Indian Knowledge System (IKS) faces criticalchallenges in preserving and integrating modern practices. IKS encompasses traditional wisdom in philosophy, medicine, agriculture, and epistemology. Globalization threatens indigenous knowledge systems, as seen in the erosion of agricultural knowledge in Central India.Limited documentation endangers traditional practices and ethnomedicinal knowledge in regions, such as South Sikkim, where indigenous knowledge contributes to local sustainability.In Northeast India, traditional ecological knowledge requires urgent conservation due to urbanization and deforestation.The challenge lies in preserving and integrating IKS within modern systems, which requires efforts to bridge traditional knowledge and scientific paradigms while respecting Indian philosophical wisdom.

Significance of the Study

The Indian knowledge system is rooted in the old texts and traditions. It has greatly shaped a country's spiritual, social, and philosophical ideas and practices. The key concepts in this system are dharma, karma, and moksha. These ideas form the basis of Indian philosophy and the ways of life. They guide personal beliefs and actions and are important in India's social and cultural setup. These ideas are important today, highlighting India's rich spiritual and philosophical history. This paper examines the Indian Indigenous Knowledge system and how it helps India's social and economic growth, with a focus on people. This research will be useful to future scholars and policymakers.

Objective of the Study

The objective of this study is to present a comprehensive overview of the Indian knowledge system, encompassing its various challenges and opportunities

Research Methodology

This study, presented in this paper, utilizes a descriptive research methodology that relies exclusively on secondary data. To evaluate the Indian knowledge system and its various applications within India, secondary data has been collected from a range of published sources, including government and semi-government publications, agency websites, books, journals, and newspapers. The collected data have been systematically processed and analysed to effectively complete the study.

Components of The Indian Knowledge System

The Indian Knowledge System is a rich and varied collection of wisdom. It covers several subjects and cultural practices. It is well known for its significant contributions to areas such as spirituality, health, and sustainable development. The main parts and features of the Indian Knowledge System are as follows.

Traditional Knowledge and Spirituality: This section addresses spiritual and ritualistic practices that have been preserved and transmitted across generations. Traditional healing practices frequently integrate withspirituality, utilizing local plants for medicinal purposes, as observed in regions such as South Sikkim

Traditional Ecological Knowledge: This body of knowledge focuses on sustainable practices and environmental management, encompassing long-standing observations of climatic and environmental conditions as well as the management of natural resources

Integration with Modern Practices: While traditional systems demonstrate robustness, there is a continuous endeavour to integrate them with contemporary scientific practices. This integration is regarded positively for its potential to create comprehensive frameworks that enhance both indigenous and scientific methodologies

Cultural Heritage and Education: The Indian Knowledge System is integral to education and the preservation of cultural heritage. There is a recognized necessity to integrate traditional knowledge into contemporary curricula to sustain cultural heritage

Cultural and Ecological Sustainability: The Indigenous Knowledge Systems (IKS) are intricately linked to both ecological and cultural sustainability. Indigenous practices, particularly in agriculture and food systems, play crucial roles in conserving biodiversity, promoting sustainability, and enhancing resilience to climate change. Addressing challenges such as the rapid loss of knowledge and adverse effects of industrial agriculture through decolonial research methodologies can aid in revitalizing these systems for the benefit of both local and global communities.

Challenges to The Indian Knowledge System

The Indian Knowledge System (IKS) has encountered numerous challenges, particularly in its integration with contemporary educational frameworks and digital advancements. These challenges can be broadly classified into technical, cultural, and resources.

Traditional Medicine

India is renowned for its ancient medical systems, including Ayurveda, Siddha, and Unani, which are distinguished by their extensive use of natural products and holistic health approaches. The evaluation of Indian traditional medicine necessitates phytochemical and pharmacological assessments employing instruments such as chromatography and microscopy. Ayurveda, in particular, has garnered global interest owing to its comprehensive understanding of wellness and disease management. The integration of these traditional systems into contemporary healthcare is of paramount importance, and initiatives are underway to incorporate them into national health programmes.

Philosophical Traditions

Indian philosophy, encompassing diverse schools of thought such as Vedanta, Nyaya, and Buddhist philosophies, has made substantial contributions to global philosophical discourse. During the British colonial era, Indian philosophy was articulated in English, leading to a hybrid intellectual tradition integrating classical Indian ideas with Western philosophies.

This period also witnessed the development of a cosmopolitan consciousness that assimilated and adapted global philosophies, thereby cultivating a distinctive Indian philosophical idiom

Cultural Sensitivity and Authenticity

It is imperative to ensure cultural sensitivity and authenticity when incorporating Indigenous Knowledge Systems (IKS) into educational curricula. This involves preserving the integrity of traditional knowledge and presenting it within contemporary technological frameworks. Misrepresentation or superficial integration may lead to loss of meaning and authenticity, thereby diminishing educational effectiveness.

Prospects of the Indian Knowledge System

The Indian Knowledge System (IKS) has significant potential and offers promising opportunities across various domains of contemporary research and education . The potential of the Indian Knowledge System (IKS) is considerable, particularly in its integration into contemporary technological and educational frameworks. A significant trend is the incorporation of IKS into curricula for emerging technologies such as blockchain and the Metaverse. This integration presents a unique opportunity to merge traditional knowledge with advanced innovations, equipping students to address future challenges while preserving India's cultural heritage. Nonetheless, this endeavour also poses challenges, including the necessity for cultural sensitivity, overcoming resistance within conventional educational systems, and addressing disparities in resource access.

Moreover, the integration of Virtual Reality (VR) technology into the conservation of intangible cultural heritage, such as traditional arts, can significantly enhance their preservation and dissemination. This approach not only modernizes the consumption of cultural content but also increases public engagement with these traditions (Zhao & Kim, 2024) [40]. The development of immersive VR systems that present cultural heritage in interactive formats is emerging as an effective strategy for engaging broader audiences and promoting cultural awareness and preservation.

Findings

Based on the provided text, here are the key findings regarding the Indian Knowledge System (IKS):

- The IKS is a comprehensive framework that integrates traditional wisdom, scientific insights, and cultural practices developed over the millennia in India.
- It encompasses multiple disciplines, including astronomy, mathematics, medicine, architecture, and the arts, and is intricately linked with spiritual and philosophical elements.
- IKS remains relevant in contemporary times and offers valuable perspectives that can enhance modern educational paradigms.
- There is growing interest in integrating IKS within modern frameworks, such as curriculum development for emerging fields like blockchain and the Metaverse.
- IKS faces challenges in preserving and integrating contemporary practices due to globalization and modernization.
- Itoffers significant potential in areas such as ethnopharmacology, traditional healing, and cultural heritage conservation using modern technologies.

Conclusion

The Indian Knowledge System (IKS) is a broad framework that combines old wisdom, science, and cultural practices from India. This study examined the history, parts, importance, challenges, and future of IKS. It covers many areas, such as astronomy, math, medicine, architecture, and the

arts, all connected with spiritual and philosophical ideas. Even though it is ancient, IKS remains important today. It offers useful ideas for modern education and addressing global problems. Mixing IKS with modern systems such as blockchain and the Metaverse brings both opportunities and challenges. Therefore, we need to be careful about cultural sensitivity, resource differences, and technical issues. There is a growing need to record, maintain, and combine IKS with modern systems to keep it alive and useful. IKS has great potential in areas such as traditional medicine, sustainable development, and cultural heritage, particularlywhen used with modern technology.

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