

# NEP and Indian Knowledge System: A Journey of Science and Technology

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**Abstract:** The New Education Policy (NEP) 2020 has been created to improve the Indian education system via the holistic development of students. This framework offers a comprehensive and integrated approach to the expansion of the educational system. One of the NEP curriculum's key components is the Indian Knowledge System (IKS). IKS incorporates India's vast and rich legacy knowledge, which spans numerous fields such as science and technology, literature, philosophy, culture, medicine (ayurveda), and yoga. NEP has prioritized multidisciplinary and transdisciplinary knowledge, and it may combine modern information held by IKS to meet present and future concerns. The IKS encompasses knowledge assets from the prehistoric to the contemporary times. NEP encourages the development of linguistic resources and technology to support IKS, recognizing its value in transmitting indigenous knowledge.

**Keywords:** Holistic development, Indian knowledge system, New education policy, Vedic literature.

## I. INTRODUCTION

India has a rich civilisational history reaching back several millennia before the Common Era. Several recent research on the antiquity of Indian culture have uncovered new evidence for indigenous knowledge in a range of domains. Language, the arts, religion, spirituality, culture, astronomy, mathematics, science, technology, city planning, public administration, and health and well-being are a few examples. Despite having such a massive amount of knowledge, these notions have not been incorporated into India's contemporary educational system. Throughout British governance, state policy decided to deemphasize local knowledge systems in favour of an alternative based on Western knowledge. This established the foundation for education in India throughout the previous two centuries. As a result, the contemporary Indian educational system is entirely based on Western sources, which are relatively new. This has resulted in a gap in the Indian knowledge system. However, there has

been a revived interest in Indian society in reconnecting with its history. While the Indian Knowledge System (IKS) has a wealth of information in Sanskrit and other regional languages, it is unsuitable for use in a traditional university degree [5].

### A. The Indian Knowledge System (IKS)

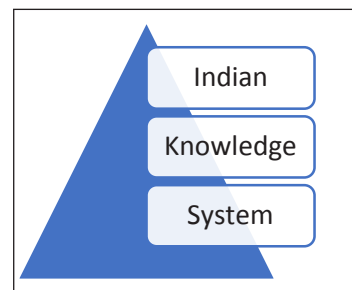
[6] Information is systematically transmitted from one generation to the next through the IKS. Rather than becoming a custom, it is a structured system and a knowledge transmission mechanism. The Vedas, Upanishads, Upvedas, and Vedic literature serve as the base for the Indian Knowledge System. The NEP-2020 has as its guiding premise the rich heritage of ancient and eternal Indian knowledge and thinking. Jnan, Vignan, and Jeevan Darshan are examples of Indian Knowledge Systems that have emerged through experience, observation, experimentation, and rigorous analysis. This legacy of validating and implementing has influenced education, the arts, administration, law, justice, health, manufacturing, and business. This has affected Bharat dialects, even classical ones, which have been transmitted through artistic, oral, and literary traditions. It includes knowledge about historical India, including its achievements and challenges, alongside an understanding of the country's future aspirations in the areas of health, education, the environment, and other facets of life. The Ministry of Education (MoE) has established the IKS cell, an innovative cell at AICTE in New Delhi. It was founded to encourage multidisciplinary study into all areas of IKS, as well as to conserve and distribute IKS for future research and social uses. It will aggressively promote the wonderful legacy of our nation and conventional wisdom in the areas of economics, fundamental sciences, tech and engineering, literature and the arts, architecture, management, and economics, among others. INDIAN civilization has long placed a high emphasis on knowledge, as evidenced by its astonishingly huge corpus of academic works, the world's greatest manuscript repository, and a documented legacy of books, philosophers, and institutes in a wide range of fields of study. Indian disciplines encompass architecture, philosophy, grammar, astronomy, mathematics, sociology (dharma&Ustra), metrics, ethics (nftis'astr), economy

and polity (arthas' a'stra), logic, geography, weaponry, military science, agriculture, trade and commerce, mining, metallurgy, medicine, shipbuilding, poetics, veterinary science and biology. Despite severe loss and historical damage, an extensive and progressively updated collection of texts is provided in each of them [4], [11], [2]. By incorporating IKS into higher education courses, we can maintain India's intellectual history while creating a more comprehensive, culturally grounded, and multifaceted educational approach [1], [2].

### B. NEP 2020

[1] Education is the foundation of societal growth, influencing both people and societies. However, the current Indian education system has frequently been chastised for its reliance on rote learning, which is divorced from the country's rich legacy and different knowledge systems. The National Education Policy (NEP) 2020 aims to remedy this by promoting holistic development via the integration of Indian Knowledge Systems (IKS), which include disciplines like as Ayurveda, Yoga, traditional architecture, astronomy, arithmetic, and literature. [7] With an education system based on Indian values, the (NEP) National Education Policy 2020 aims to revolutionize education and make India, or Bharat, a global knowledge superpower by ensuring high-quality education is available to everyone. The five guiding principles of NEP 2020 are accountability, quality, affordability, equity, and access. Our pupils will be better prepared to handle the many domestic and international problems of both now and in the future thanks to it. NEP 2020 offers insightful analysis and recommendations on a number of topics related to higher education, such as the transition to multidisciplinary and holistic education, institutional autonomy, the development of the National Research Foundation to support high-quality research, ongoing teacher professional development, technology integration, internationalization of higher education, governance and regulatory architecture restructuring, and multidisciplinary education. The policy is projected to have a long-term good influence on the educational infrastructure and turn India into a worldwide powerhouse of skillful labor amidst 'Amrit Kaal', the following 25 years before India became developed in 2047. Putting it into practice, requires the combined efforts of the Centre, States, UTs, HEIs, Regulatory Agencies / Regulatory Bodies, and all other relevant players. [3] The National Education Policy places a strong focus on mother language instruction and is anchored in Indian identity. [1] NEP 2020 is a turning point in India's educational philosophy, acknowledging the importance of embracing indigenous knowledge systems for complete learning. The policy aims to foster a feeling of pride and cultural identification in learners while also providing them with applicable skills for the twenty-first century by advocating for the integration of Indian knowledge systems across disciplines.

### C. Components of Indian Knowledge System



Source: [1]

Fig. 1: Indian Knowledge System Components

*Indian:* The term "Akhanda Bharata" refers to the unified Indian subcontinent. The Himalayas are in the north, and the Indian Ocean is in the south, and it extends from Burma in the east to present-day Afghanistan in the west. At Takshashila University of Ancient India, which is now in Punjab, Pakistan, Chanakya, who contributed to the founding of the Mauran Empire, and Panini, who created Sanskrit grammar, received their education. At famous institutions like Takshashila and Nalanda, 18 Vidya Sthanas, or schools of learning, were taught.

*Knowledge:* Knowledge is the implicit knowledge that people who are interested in learning possess. Personal experiences, observations, and the encounter and resolution of real-world problems are the sources of this knowledge. Both literary and non-literary kinds of knowledge are possible. Through the introduction of novel ideas and frameworks as well as explicit information in the form of literary works, this tacit knowledge is methodically transmitted.

*System:* A systematic approach and categorization method for gaining access to a corpus of knowledge is called a system. The need, desire, and capacity for obtaining intrinsic information of the knowledge seeker define the classification and coding. IKS refers to the methodical passing down of current and historical knowledge from one generation to the next. To address present and upcoming issues, it utilizes historical information from a variety of disciplines [1].

## II. LITERATURE REVIEW

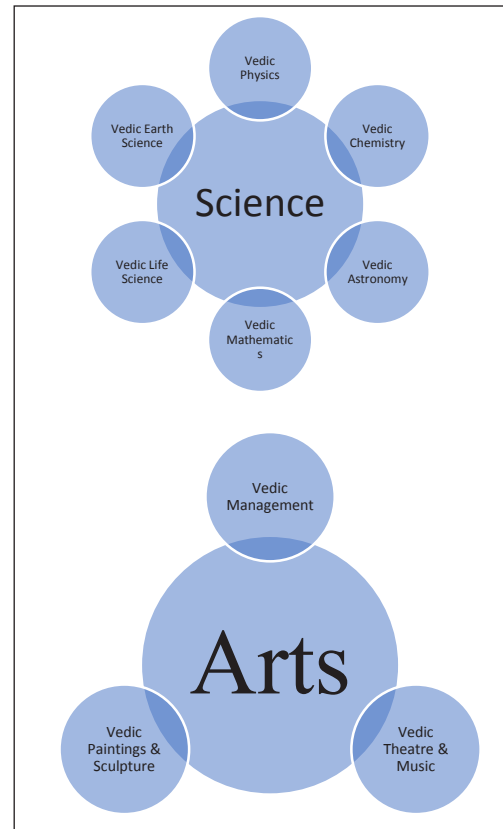
According to [7], In addition to understanding historical India and its influence on contemporary India, "Knowledge of India" will include India's future goals in the areas of healthcare, education, and the environment [10]. The Vedas are ancient scriptures of Indian wisdom and science. The four Vedas, holy volumes of wisdom ranging from 1500 to 800 B.C., are the primary basis for our understanding of Indian philosophy and medicine. Ayurveda is regarded as the Upaveda, or additional

topic to the Atharva Veda. An examination of the content in the Vedas indicates that all four Vedas include numerous allusions to medical topics. At the time, deities like Varuna, Indra, Rudra, Agni, and Maruthi were revered as celestial healers. As a result, physicians and an intricate pharmacopoeia were available throughout the Atharva Veda's period. Two medicinal systems are implied by the Atharvan's acclaim as the physician par excellence, superior to all medications provided by other doctors: 1) the charms prescribed by the Atharvan (priest physician), and 2) the medications prescribed by regular medical professionals. [12] Ancient India was home to several scientific and technological breakthroughs. Pakudha Katyayana, a Buddhist guru, taught atomic physics. The Vaisesika Sutras, written by Maharshi Kanaada in the third century B.C., contain an atomic theory. Agni Purana gives lesser magnitudes. [9] Maharshi Bharadvāja, also known as Guru or Bharadvaja Bṛhaspatya, was a revered Vedic teacher in ancient India. Acharya Bharadvaj lived in a hermitage in the holy city of Prayag and was an avid student of Ayurveda and mechanical sciences. He created the "YANTRA SARVASVA," which contains surprising and excellent findings in aviation research, space science, and flying vehicles. Maharshi Agastya is widely regarded as the founder of science, traditional medicine, and a variety of other disciplines. He detailed and provided directions for the manufacture of medications for a variety of fevers, cancer, important therapies, gastrointestinal disorders, brain and eye difficulties, bone problems, and so on. The great Maharshi also emphasised the need of combining chemical molecules in various ways to serve mankind. The Agastya Samhita, also known as the Sankara Samhita, is a part contained inside the Skanda Purana. It is available in several variations and is framed as a dialogue between Skanda and Agastya. The ancient classic Agastya Samhita outlines how to build an electric battery and how water may be separated into oxygen and hydrogen. [8] The fundamental factor for the expansion of human civilization is scientific and technological advancements. India has been making contributions to science and technology since antiquity. Even today, so-called "traditional knowledge" is founded on scientific reasoning. Atoms, molecules, and substances have been known since the Vedic times. Furthermore, the Rig Veda, the ancient Hindu writings from the Vedic period, describes the principles of astronomy, philosophy, and spirituality. [13] There are several popular works on the philosophical implications of modern science, particularly physics. These books frequently have appealing names, such as *The Mind of God: science and the search for ultimate meaning*, *Theories of Everything: the search for ultimate explanation*, *The Matter Myth: Toward 21st-Century Science*, *Unraveling God's Mind: Mysteries at the Frontier of Science*, and so on.

### III. RESEARCH METHODOLOGY AND DATA COLLECTION AND ANALYSIS

This chapter has used a review-based research methodology. The data has been collected from various secondary sources such as the UGC website, PIB report, Journals, newspaper and

magazine articles. The data has been analyzed manually after in-depth study and analysis has been done.



Source: [9]

Fig. 2

### IV. FINDINGS AND CONCLUSION

The National Education Policy 2020 proposes integrating the Indian Knowledge System into the educational system, which has immense potential for the holistic development of people and the nation. IKS-integrated education may contribute to the country's empowerment and change by maintaining and renewing its rich past, encouraging an interdisciplinary approach, and cultivating critical thinking and problem-solving abilities. However, the effective implementation of this integration will need a thorough and collaborative approach that handles the aforementioned obstacles and concerns while continually adjusting to the changing demands of the contemporary world. Throughout history, various physicians and surgeons have made major contributions to Indian medical systems.

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