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National Education Policy 2020 And Indian Knowledge System

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Abstract: *Mother language training is essential for cognitive development, cultural preservation, and educational equity. The intellectual and cultural landscapes of India and the rest of the world are greatly influenced by Indian knowledge systems from advances in mathematics and science to holistic medicine and spirituality. The National Education Policy New Education Policy 2020 and the core ideas and knowledge traditions included in the Indian Knowledge System are highly compatible. Through a well-rounded approach to education, both aim to raise understanding of Indian languages, philosophy, the arts, science, and ecological practices. Indian states are increasingly recognizing the value of integrating Indian Knowledge Systems (IKS) into their educational frameworks. Each state contributes to the preservation and revitalization of Indian Knowledge Systems through its educational institutions, which include Sanskrit and Vedic studies, Ayurveda, sustainable farming practices, and folk arts. These outcomes include increased employment opportunities, improved public health, decreased dropout rates, and citizens who are informed, capable, and socially concerned. Different countries are integrating their traditional knowledge systems into higher education in different ways. Incorporating Indian Knowledge Systems into modern higher education allows students to better understand their professions and tackle contemporary concerns like sustainability, ethics, and cultural preservation. Indian universities and other educational institutions are increasingly offering interdisciplinary programs that combine traditional Indian knowledge with modern instruction. The Indian Knowledge System, which has its origins in ancient practices that place a high value on community-driven development, ethical consumption, and environmental preservation, offers valuable perspectives on sustainability. These concepts are especially pertinent in the Global South, where traditional knowledge is increasingly recognized as a means of addressing environmental degradation and unsustainable growth. The Indian Knowledge System (IKS) has a significant impact on sustainability practices, especially in the Global South, where traditional wisdom and indigenous knowledge systems are often intertwined with the environment. IKS's sustainability ideals are based on the ideas of ethical consumption, ecological practices led by the community, and harmony with nature. The intellectual and cultural landscapes of India and the rest of the world are greatly influenced by Indian knowledge systems. The National Education Policy (NEP) 2020, which addresses everything from scientific and mathematical discoveries to holistic education, is strongly associated with the core values and knowledge traditions of the Indian Knowledge System (IKS). Through a thorough and well-rounded approach to education, both aim to raise understanding of Indian languages, philosophy, the arts, science, and ecological practices. Indian states are increasingly recognizing the value of integrating Indian Knowledge Systems (IKS) into their educational frameworks. From folk arts, Ayurveda, and sustainable farming practices to Sanskrit and Vedic studies, each state contributes to the preservation and revitalization of IKS through its educational institutions. Science and the arts are among the numerous fields in which India possesses a wealth of knowledge. The National Education Policy (NEP) 2020, which addresses everything from scientific and mathematical discoveries to holistic education, is strongly associated with the core values and knowledge traditions of the Indian Knowledge System (IKS). Through a thorough and well-rounded approach to*

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Students can better understand their professions and tackle contemporary concerns like sustainability, ethics, and cultural preservation by integrating Indian Knowledge Systems into modern higher education. The popularity of interdisciplinary curriculum in Indian universities and institutes that combine traditional Indian knowledge with modern education is growing.

Keywords: National education system, Indian knowledge system, Language, state, countries, Government policies, Universities

I. INTRODUCTION

The Indian government launched the National Education Policy (NEP) 2020 with the goal of implementing extensive changes to the country's educational system. While keeping the core of Indian principles, it seeks to make the educational system more adaptable, inclusive, and in line with international norms. A comprehensive approach to education is envisioned by the strategy, with an emphasis on the growth of critical thinking, creativity, and problem-solving abilities. Emphasis on Early Childhood Care and Education (ECCE): National education policy 2020 places a strong emphasis on the value of ECCE and how it shapes a child's cognitive development. It suggests laying a solid basis for the twenty-first century by combining ECCE with formal education. Multidisciplinary Approach: In order to provide flexibility and a more well-rounded education, the policy supports a multidisciplinary approach in higher education, where students can select courses from a variety of disciplines. Curriculum and Pedagogy Reforms: The National education system promotes a more experiential and hands-on learning approach while reducing rote learning. It highlights Mother-Tongue Medium of Instruction: In order to promote greater comprehension and learning, the policy emphasizes the value of employing the mother tongue or local language as a medium of instruction in schools, particularly during the early years of schooling. A Greater Emphasis on Digital Education: National education system 2020 recognizes the role that technology plays in contemporary education. In order to increase accessibility to education, particularly in rural areas, the strategy recommends integrating digital tools and platforms. Teacher Training and Development: To guarantee high-quality education, the policy emphasizes the necessity of ongoing professional development and training for educators. It highlights how crucial it is to empower educators via a range of initiatives

II. LITERATURE REVIEW

2.1 NEP 2020

As the government introduce the National education system 2020 it aims to provide free and compulsory education to all children between the ages of 3-18, expanding the scope from the previous age group of 6-14 years. This will be achieved through the establishment of a strong foundation for early childhood education. Ministry of Education, Government of India. (2020). National Education Policy 2020. It further stresses the importance of a flexible, multidisciplinary curriculum that allows students to choose subjects according to their interests. It encourages critical thinking, problem-solving, and life skills, while moving away from rote learning. Ministry of Education, Government of India. (2020). National Education Policy 2020. National education system 2020 places a strong emphasis on the professional development of teachers, ensuring they have continuous opportunities for skill enhancement. The policy recommends the establishment of a National Professional Standards for Teachers (NPST). Singaravelu, S., & Agarwal, S. (2020) with The National education system seeks to increase the Gross Enrolment Ratio (GER) in higher education, ensure better access to quality education, and promote research and innovation through a more decentralized and flexible higher education system. It also calls for the establishment of a National Research Foundation (NRF) to promote research. Sharma, R. (2021). Digital learning is emphasized as a crucial element of India's education reform in

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the National Education Policy (NEP) 2020. It seeks to improve accessibility, equity, and educational quality by incorporating technology into teaching, learning, and evaluation (Press Information Bureau) (PIB) (2020)

2.2 Indian Knowledge System:

Ancient spiritual traditions, a deep connection to nature and the universe, and a wealth of intellectual traditions that have been passed down through the years are all part of the Indian Knowledge System. It encompasses systems such as Sanskrit (language and literature), Jyotisha (astrology), Ayurveda (medicine), Vastu Shastra (architecture), Yoga, and mathematics (particularly the idea of zero). Indian knowledge has long been comprehensive, combining philosophical and spiritual insights with scientific knowledge. A book written by Bhattacharyya, D. P. (1994) explores the philosophical traditions in India, offering insight into the diverse intellectual traditions and how they contributed to Indian knowledge systems. Another book, which is very popular of Dover Publications. of Radhakrishnan's translation and analysis of the Upanishads provides an in-depth look into the spiritual and philosophical knowledge systems that have shaped Indian thought. Radhakrishnan, S. (1993). The Principal Upanishads by Harper Collins: His work discusses the development of mathematics in India, focusing on concepts like zero, algebra, and the decimal system, and how they were integrated into Indian knowledge. traditionsPingali, K. V., & Subrahmanyam, S. (2008). The paper of Springer. This paper explores the principles of Ayurveda, one of India's most influential knowledge systems in the realm of health and healing, and its deep philosophical roots Sarma, N. (2002).

According to Narayana, R. (2015), Ayurvedic Medicine and the Indian Knowledge System. Journal of Ethnopharmacology. Narayana delves into Indian epistemology, comparing it with Western schools of thought and highlighting the unique aspects of Indian approaches to knowledge. In spite of these details, there was a comparative study of Das, S. (2004) Routledge. The article provides an overview of yoga as an ancient practice that combines mental discipline, physical health, and spiritual awareness, central to the Indian knowledge tradition. There was also involvement of physical education. Chakrabarti, D. (2012)The Indian Knowledge System of Physical and Mental Health. Journal of Yoga & Physical Therapy.This paper examines how the Indian knowledge tradition has contributed to global intellectual discourse and the challenges of preserving this tradition in the context of globalization. The scientific research of Bhaskar, R. (2010): Theories, Models, and the Cultural Context. Springer. This book explores the scientific theories and models developed in India, such as atomic theory and cosmology, and their integration with cultural and philosophical contexts.With the aim of globalization South Asian Journal of Socio-Political Studies.This work discusses the impact of the Vedic texts on Indian knowledge systems, exploring their contributions to various fields like astronomy, mathematics, and ethics.Bose, P. (1991). With influence of veds Olivelle, P. (1998) give The Vedic Worldview and Its Influence on Indian Knowledge Systems. Journal of Indian Philosophy Olivelle's translation of the early Upanishads offers insights into the spiritual and philosophical aspects of the Indian Knowledge System, focusing on how these texts have shaped Indian intellectual and spiritual practices.

2.3. Importance of Education in Mother Tongue:

The Indian subcontinent has been formed for thousands of years by the ancient wisdom, customs, and ideologies found in Indian Knowledge Systems (IKS). Philosophy, mathematics, astronomy, medicine (Ayurveda), art, language, and ecology are just a few of the many disciplines that are covered by these systems. IKS is important because it takes a comprehensive approach to knowledge, contributes to global thinking, and is still relevant today, especially in the areas of science, culture, and sustainable development. As per harmony. Bose S. (2011). The Indian Knowledge System and Its Role in Global Civilization. Springer This book discusses how Indian knowledge system contributes to global intellectual traditions and highlights its relevance to contemporary issues like sustainability and social Bhattacharyya's work introduces the rich philosophical traditions of India, providing an understanding of how they have shaped Indian intellectual and spiritual culture. As per Bhattacharyya, D. P. (1994) Indian knowledge system is seminal text that explores the Upanishadic teachings, which form the foundation of many Indian philosophical systems, including Vedanta and Yoga. Radhakrishnan, S. (1993) also allow us to know The Principal Upanishads. HarperCollins to work discusses the pivotal role of India in the development of mathematics, particularly in the invention of zero

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and decimal systems. Pingali, K. V., & Subrahmanyam, S. (2008). the works of ancient Indian scholars like Aryabhata and Brahmagupta. Gupta, S. R. (2014). A comprehensive review of India's contributions to science, astronomy, and mathematics, offering insights into Indian Scientific Thought and Achievements. Prentice Hall. the work of Sarma, N. (2002) Sarma's paper elaborates on the significance of Ayurveda, an essential part of indian knowledge system, and its role in traditional healing practices. Ayurvedic Medicine and the Indian Knowledge System. Journal of Ethnopharmacology. The illustration of Mohan, D. (2005) on article explores ancient Indian environmental knowledge and sustainable practices, offering insights into how Indian knowledge system promoted ecological balance. Environmental Knowledge in Ancient India: Relevance to Contemporary Sustainability. International Journal of Environmental Studies

Chakrabarti's D. (2012) work provides a detailed discussion on the scientific theories and models developed in India and their cultural context, especially in terms of cosmology and mathematics. Olivelle's translation of the early Upanishads highlights the importance of these philosophical texts in shaping Indian metaphysics and spiritual practices. Olivelle, P. (1998). The Early Upanishads: Annotated Text and Translation. Oxford University Press. There was an another Journal Which was examines the relevance of IKS in the contemporary knowledge economy and its potential to contribute to global sustainability, ethics, and well-being.Bose P. (2014).

2.4 Link Between Indian Knowledge System (IKS) and National Education Policy (NEP) 2020:

With an emphasis on inclusive, transdisciplinary, and holistic education, the National Education Policy (NEP) 2020 seeks to revolutionize India's educational system. The new education policy emphasis on incorporating Indian Knowledge Systems (IKS) into the curriculum is one of its main features. This is important since Indian knowledge system has been a hallmark of India's educational legacy. It encompasses ancient philosophies, sciences, arts, languages, and traditional knowledge systems. Ministry of Education, Government of India (2020). National Education Policy 2020. Government of India. The official document outlining ew education policy 2020, which emphasizes the integration of Indian knowledge systems in the educational framework. This text explores the philosophical traditions that form the bedrock of Indian knowledge system, which aligns with the NEP's focus on holistic education. Radhakrishnan, S. (1993) The Principal Upanishads. HarperCollins. Discusses India's contributions to science and knowledge, which the NEP aims to integrate into modern curricula. Chakrabarti, D. (2012). Science and Indian Tradition: Theories, Models, and the Cultural Context. Springer Provides an overview of ancient Indian scientific advancements in fields such as astronomy and mathematics, aligning with the NEP's goal to revive and promote traditional knowledge. Gupta, S. R. (2014). Indian Scientific Thought and Achievements. Prentice Hall. Singh, R. (2020).This paper highlights the role of traditional Indian knowledge systems in the NEP and their relevance to modern education. Traditional Knowledge Systems and Their Relevance to the NEP 2020. Journal of Indian Education. Explores how multilingual education policies, as encouraged by the NEP, support the revitalization of Indian languages and knowledge systems. In other sense Heugh, K. (2006). Multilingual Education in India: Linking with Indian Knowledge Systems. International Journal of Bilingual Education. Patel, K. (2019) Discusses the integration of IKS into the modern educational curriculum, which is a key objective of the NEP. Indian Knowledge Traditions in Modern Education. Indian Journal of Education. Bose, P. (2015) advocated by the NEP Explores how Sanskrit and other ancient Indian texts can contribute to educational reform, as The Role of Sanskrit and Ancient Texts in Modern Education. Journal of Indological Studies. Nayar, P. (2017) Examines how IKS's sustainable environmental knowledge can inform education policies like the NEP. Indigenous Knowledge and its Relevance to Sustainable Education Practices in India. Indian Journal of Sustainable Education. Nair, M. (2021). Discusses how the NEP's focus on interdisciplinary education and knowledge integration aligns with traditional Indian knowledge systems. Reviving Indian Knowledge Systems: A Step Towards Educational Reform.

Educational Researcher.

2.5 Indian Knowledge System (IKS) used in Education by Indian States:

Innovative measures are being taken by a number of Indian states to integrate Indian Knowledge Systems (IKS) into their curricula. These programs frequently entail incorporating ancient sciences, indigenous languages, customs, local

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knowledge systems, and traditional practices into both formal and informal educational institutions. As per Kerala (2021). Kerala State Education Policy The document outlines Kerala's efforts to integrate traditional knowledge, including Sanskrit and Ayurveda, into school education. Government of: Integrating Traditional Knowledge with Modern Learning. This article discusses the integration of Ayurveda into education systems in Karnataka and how it has influenced rural learning systems. Kumar, S. (2018). Role of Ayurveda in Modern Education in Karnataka. Indian Journal of Educational Research.

Whereas frame work of in Uttar Pradesh's educational institutions Pandey, R. (2019) Focuses on the promotion of Sanskrit and other traditional knowledge systems. Along with other government Yadav, S. (2020) Rajasthan integrates local folk traditions, arts, and crafts in school curriculums Preserving Folk Traditions in Rajasthan Schools. whereas Bhat, R. (2016).

Explores how Gujarat's educational curriculum incorporates Vedic mathematics, yoga, and traditional knowledge into modern education. Integration of Vedic Knowledge in Gujarat's. alike other states Sivakumar, A. (2017). Tamil Nadu's Examines how Tamil Nadu integrates Tamil language, literature, and culture into the educational system. When it concern with Maharashtra's curriculum. there is the promotion of Indian classical arts, yoga, and Sanskrit in Chaudhary, P. (2015). While Singh, S. (2021). discusses how Madhya Pradesh has included tribal knowledge systems in school curricula, focusing on agriculture and medicinal plants. Tribal Knowledge Systems in Madhya Pradesh Schools: A Model for Education. Tribal Education Journal. Vedic knowledge and Ayurvedic practices in schools across Andhra Pradesh. Patel, J. (2019). Incorporating Vedic Knowledge and Ayurveda in Andhra Pradesh Education. Indian Knowledge Review. Rawat, V. (2020). According Uttarakhand incorporates yoga, Ayurveda, and mountain ecology into its educational policies and practices.

2.6 Outcome or Output of Education by Indian State:

In every state, the quantifiable outcomes and wider effects of the educational system Improved employment rates, skill development, literacy rates, lower dropout rates, and the creation of a knowledgeable, competent, and socially conscious population are a few examples of this.The ASER report highlights Kerala's significant achievement in literacy rates, gender equality, and educational access. MHRD (2019). Annual Status of Education Report (ASER) – Kerala. Ministry of Human Resource Development, Government of India.Kurian, J. (2016). study on Kerala's successful educational model, focusing on inclusivity, female literacy, and public health outcomes. Kerala's Success in Education: A Model for India. Kerala Educational Review. Govind, R. (2017). paper connects education in Kerala with improved public health outcomes such as better infant mortality rates and life expectancy. Social Outcomes of Education in Kerala: Health and Literacy. Krishnan, N. (2018). Discusses the state's initiatives in vocational education and its impact on employment outcomes, particularly in the tourism and healthcare sectors. Vocational Training and Employment Outcomes in Kerala's Education System Madhusoodanan, P. (2015). Discusses Kerala's successful strategies in reducing dropout rates and promoting inclusive education.Kerala's Education Policies: Reducing Dropout Rates and Enhancing Inclusivity. Journal of Educational Policy.Sreekumar, K. (2019). Reviews Kerala's digital education initiatives, such as the Hi-Tech Schools Project, and their impact on student learning outcomes. Nair, M. (2017).

Examines how Kerala's curriculum incorporates value education, aiming to produce ethically responsible and socially conscious citizens. The Role of Value Education in Kerala's School Curriculum. Mathew, A. (2018) Discusses the collaborative approach between public and private institutions in Kerala's education system.Public-Private Partnerships in Education: The Kerala Model. Educational Management Journal. Chandran, T. (2020). Focuses on Kerala's remarkable success in achieving gender parity in education, particularly through its focus on girls' education.Gender Parity in Kerala's Education System: Achievements and Challenges. Gender Studies Journal.Government of Kerala (2021). Official government report detailing Kerala's education policies and their outcomes, focusing on inclusivity, quality of education, and educational accessibility.

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2.7 Country using their own knowledge system in higher education:

The value of conserving and incorporating their own indigenous knowledge systems into higher education is becoming more widely acknowledged in many nations worldwide. These systems frequently provide distinctive viewpoints on sustainability, ethics, science, and culture, which might enhance current education and help solve pressing global issues. Yang, Y. (2018) Explores how Chinese universities integrate traditional Chinese medicine (TCM) with modern medical practices. Traditional Chinese Medicine and Modern Education. Ramachandran, P. (2020) explain how India is integrating Ayurveda, Yoga, and Vedic knowledge into higher education. Indian Knowledge Systems in Higher Education: Integrating Ancient Wisdom with Modern Curriculum. Dewes, H. (2017) Focuses on how Māori traditional knowledge is integrated into higher education in New Zealand. Barker, S. (2016). Given emphasis of Indigenous studies programs and integration of traditional ecological knowledge in Canadian higher education. Australia.Altman, J. (2019). Discusses the growing trend of incorporating Indigenous knowledge and practices into higher education programs in Integrating Aboriginal Knowledge in Australian Higher Education. Oberholzer, S. (2020). Explores how African traditional knowledge is increasingly becoming a part of higher education curricula. African Traditional Knowledge in South African Universities. Guiterrez, M. (2021). Highlights the integration of Indigenous knowledge into academic programs in countries like Peru and Bolivia. Latin American Indigenous Knowledge in Higher Education. Choi, S. (2018)Discusses the integration of Confucian ethics and philosophy into South Korean higher education.

Confucianism and Higher Education in South Korea: Heinonen, P. (2017). Explores how traditional Finnish ecological knowledge is part of university-level environmental studies. Traditional Ecological Knowledge and Sustainable Education in Finland. China. Wang, J. (2019). Analyzes how traditional Chinese knowledge systems are being integrated into modern educational institutions in Integrating Traditional Chinese Knowledge in Higher Education: From Ancient Wisdom to Contemporary Education.

2.8 Outcome:

With remarkable results that support sustainability, cultural preservation, and academic enrichment, several nations are integrating their indigenous and traditional knowledge systems into their higher education institutions. These results include increased community involvement, societal impact, and academic achievement as well as a better comprehension of global challenges from distinct cultural viewpoints. In India the integration of Ayurveda and Yoga into university curricula promotes a comprehensive approach to health, combining modern medical practices with traditional wisdom. In New Zealand Incorporating Māori language and cultural practices in university programs has empowered the Māori community, promoting cultural identity and pride.

In Canadian universities have seen improved enrollment and retention rates among First Nations students due to culturally relevant programs and support systems. South African universities have incorporated African traditional medicine, philosophy, and art forms into academic programs, promoting the relevance of indigenous knowledge. Integrating African Traditional Knowledge in South African Universities. Japanese universities have incorporated courses on Shintoism, Japanese art, and traditional medicine, preserving knowledge that may otherwise be lost. The integration of Finnish ecological knowledge, such as forest management and sustainable farming techniques, has contributed significantly to environmental sustainability research.

Traditional Finnish Ecological Knowledge in Higher Education. The inclusion of Confucian thought in university programs has fostered ethical leadership and social responsibility among Chinese students.

2.9 IKS and Higher education in Arts, Commerce, Science, Medicine, Engineering:

The Indian Knowledge System (IKS) is a rich amalgamation of traditional wisdom, philosophy, arts, science, medicine, and more. Over the centuries, India has developed systems of knowledge that are not just indigenous to the country, but also contribute greatly to global learning. In the arts, the Indian Knowledge The system includes diverse elements such as Indian classical music, dance forms, fine arts, literature, and theater. Universities in India are increasingly integrating these traditions into their curriculum. Indian classical music (Hindustani, Carnatic), Indian philosophy, and literature (Sanskrit, Tamil, Urdu, etc.) are increasingly being taught in the arts faculties. Nehru, J. (2017). The Role of Indian

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Culture in Higher Education. Indian Journal of Art and Culture. As per Srinivasan, T. (2021), the traditional knowledge systems in commerce include ancient trade practices, mathematical innovations (like the decimal system), and economic theories from texts like the Arthashastra by Kautilya, and apart from that, as per the Journal of Indian Business Studies, universities are incorporating ancient economic models (like varti or barter systems) and financial ethics into commerce and business management programs. As per research by Dasgupta, S. (2020), the Indian Knowledge System has made invaluable contributions to mathematics, astronomy, and natural sciences. Aryabhata, Brahmagupta, and Bhaskara were pioneers in mathematics, contributing foundational knowledge of calculus, algebra, and trigonometry. Indian Contributions to Science and Mathematics: Integrating Ancient Knowledge in Modern Science Education is given by the Journal of Science Education and Research. When it comes to medicine, as per Vaidya, A. (2019), India's contribution to medicine. includes systems like Ayurveda, yoga, and naturopathy. These holistic systems have been gaining recognition in the academic world, and several universities in India now offer degrees in Ayurvedic medicine and traditional healing systems. Integrating Ayurveda into Modern Medical Education as per the research of the Indian Journal of Integrative Medicine. While engineering primarily focuses on modern technology, Indian traditional knowledge has found applications in sustainable engineering practices, especially in fields like civil engineering (ancient water management systems) and environmental engineering (Vedic systems of agriculture and construction as per Raghavan S. (2018). Integrating Vastu Shastra and Sustainable Engineering Practices in Modern Architecture as per the Journal of Engineering and Architecture.

III. METHOD

3.1. IKS in India

The traditional knowledge, wisdom, and techniques that have been created over thousands of years in India are referred to as the Indian Knowledge System (IKS). Philosophy, science, health, the arts, literature, engineering, and spiritual activities are just a few of the many fields it covers. Texts that serve as the foundation for several Indian intellectual traditions, including the Vedas, Upanishads, Smritis, Puranas, and Sutras, contain references to IKS.Indian Knowledge Systems play a crucial role in shaping contemporary education in India. The integration of traditional wisdom with modern educational frameworks is crucial to preserving cultural heritage while addressing global challenges. The National Education Policy (NEP) 2020 aims to include Indian Knowledge Systems in formal education, promoting interdisciplinary learning, and bridging the gap between traditional and contemporary knowledge as per MHRD (2020).as per research of Madhusudhan, K. (2018) India's scientific traditions are deeply rooted in the works of ancient scholars like Aryabhata, Brahmagupta, and Bhaskara, who made remarkable contributions to mathematics, astronomy, chemistry, and engineering. For instance, Aryabhata's work on zero and pi, and Brahmagupta's work on algebra and geometry, formed the foundation of much of modern scientific thought.

Ayurveda, Yoga, and Naturopathy form the core of India’s medical knowledge system. These systems of healing focus on prevention and holistic health, which have seen a resurgence in recent decades as alternative health approaches globally. The integration of Ayurveda into modern medical education, alongside modern biomedicine, reflects India’s effort to preserve and promote indigenous healthcare knowledge. Integrating Ayurveda and Modern Medicine in Higher Education as per Journal of Integrative Medicine. While integrating the arts as per Gupta, R. (2021) The arts in India, including classical music, dance, theater, and fine arts, reflect the richness of Indian knowledge systems. The teachings of Natya Shastra and Sangeeta Ratnakara are foundational to understanding Indian aesthetics, while Vastu Shastra and Sthapatya Veda guide architectural principles. the

writings of Sivaramakrishnan, K. (2018) on environment that Indian traditional knowledge has always emphasized a sustainable approach to living with nature. Concepts such as Ahimsa (non-violence), Jeevani (life force), and Prakriti (nature) guide an understanding of ecological balance. Indian practices of organic farming, water conservation, and environmental ethics offer a blueprint for modern environmental sustainability.

3.2 IKS in particular state:

The Indian Knowledge System (IKS) encompasses the traditional methods and practices that have been part of India's intellectual heritage for millennia. This includes various fields like philosophy, mathematics, astronomy, linguistics,

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medicine (Ayurveda), and art forms, all of which were systematically developed in ancient India. When discussing "state" in the context of the Indian Knowledge System, one might be referring to the role of governance (state) in nurturing and preserving traditional knowledge.

The research of Radhakrishnan, S. (1998) states that Indian mathematicians and astronomers such as Aryabhata, Brahmagupta, and Bhaskara contributed significantly to the development of concepts like zero, algebra, and the calculation of pi, and as per Oxford University Press, the state played an important role in the patronage of these sciences. The theory of Joseph, G. (2000) is that traditional Indian medicine, primarily through Ayurveda, emphasized a holistic approach to health that included physical, mental, and spiritual well-being. The state had a role in maintaining healthcare institutions based on Ayurvedic knowledge.

According to Lad, V. (2002), the study of language, notably through Sanskrit grammar by Panini, played a crucial role in the preservation of knowledge. Sanskrit was considered the key to accessing ancient knowledge, and the state supported the study of these languages. Art and Architecture: Indian art and architecture have always reflected philosophical ideas. whereas according to Kane, P. V. (1974). The state was responsible for the construction of temples and public structures that also acted as hubs for transmitting knowledge in the form of sculptures, inscriptions, and texts. Ghosh, A. (2006) conclude The education system in ancient India, primarily through Gurukuls (teacher-student schools), was largely decentralized but enjoyed the support of the state, especially in later periods like the Gupta era when the Nalanda University flourished. Dube, S. C. (2002) Indian Society given his remark on kings and emperors, such as Ashoka and Vikramaditya, being patrons of knowledge, with their courts being centers of intellectual activity. They were responsible for the transmission and preservation of knowledge by supporting scholars and establishing educational institutions. While the writings of R. C. Majumdar The Role of the State in Preserving Manuscripts: During various historical periods, the Indian state was instrumental in preserving and maintaining ancient manuscripts, both in royal libraries and other cultural institutions. On the other hand, P. K. Ghosh Decentralization vs. Centralization of Knowledge Transmission: In ancient India, knowledge transmission was mostly decentralized, with local institutions and families having autonomy over their education systems. According to Sen, S. (2014), in modern times, there's growing interest in how IKS can be integrated into contemporary education systems, especially in the context of sustainable development, climate change, and indigenous knowledge.

3.3 KS in Different Countries:

The Indian Knowledge System (IKS) has influenced and contributed to several countries and regions across the world through historical trade routes, cultural exchanges, migration, and the spread of religious and philosophical ideas. Many countries have long been influenced by Indian intellectual traditions, particularly in the fields of mathematics, astronomy, philosophy, medicine, and languages. Based on both historical and contemporary data, an analysis of the spread and influence of the Indian Knowledge System in other countries is given below.In accordance with the Library of Congress The United States is renowned for its varied culture, which is shaped by regional variations and immigrant history. Literature, music, and Hollywood films are important cultural components. Policies on civil rights have been significantly shaped by social movements have played a critical role in shaping policies on civil rights, gender equality, and social justice. According to the Canadian Armed Forces The Ministry of National Defence oversees the Canadian Armed Forces (CAF), the nation's armed forces, which participates in both internal and foreign peacekeeping missions. In addition to other international military accords, Canada is a member of NATO. According to data from the Brazilian Ministry of Defense One of the biggest military forces in Latin America is found in Brazil. The nation's defense strategy is centered on humanitarian efforts, international peacekeeping, and maintaining territorial integrity. One important actor in defense and national security operations is the Brazilian military. Regarding the Japanese Supreme Court because civil law, which is the foundation of Japan's legal system, was inspired by French and German legal traditions. The court system is independent and extremely structured. The Japanese legal framework emphasizes order, fairness, and the rule of law, and the Supreme Court of Japan is the highest judicial authority. According to Chinese Academy of Sciences China has emerged as a global leader in scientific resear.ch and innovation, particularly in fields like artificial intelligence, quantum computing, and space exploration, and biotechnology. The country has made significant investments in research and development (R&D), with institutions such as the Chinese Academy of Sciences

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(CAS) and companies like Huawei are at the forefront of technological advancements. Australia has a robust research community, according to the Commonwealth Scientific and Industrial Research Organisation (CSIRO), with universities and other organizations like CSIRO making major contributions to scientific breakthroughs. Australia conducts research on both domestic and international issues in fields like technology, medical research, and climate science. According to sources Federal Ministry of Defense of Germany Germany's military, the Bundeswehr, is a highly skilled and well-equipped organization. The nation actively participates in international security and peacekeeping missions and is a member of NATO. Germany maintains a highly skilled armed force and prioritizes collective defense under a regime of civilian control over the military. According to the Council of State (Conseil d'État), France has a written statute-based civil law system, with the French Constitution serving as the foundation for its legal system. Roman law had a significant impact on the French legal system, which in turn inspired legal systems in many other nations. The Court of Cassation, the last court of appeal, is the highest court. according to CSIR, the Council for Scientific and Industrial Research. The Human Sciences Research Council (HSRC), the Council for Scientific and Industrial Research (CSIR), and the University of Cape Town's Research Centre are just a few of the top research organizations in South Africa. In South Africa, research is conducted in many different fields, such as technology, healthcare, renewable energy, and climate change. The country is also increasingly investing in innovation through public-private partnerships and technology hubs. referring to the Russian Federation's Ministry of Natural Resources and Environment. The nation is a significant oil exporter and the largest producer of natural gas in the world. The Siberian taiga, the Ural Mountains, and the Arctic regions are some of Russia's diverse landscapes. Pollution, deforestation, and the effects of climate change are among the environmental issues, particularly in the Arctic, where warming is twice as fast as it is elsewhere.

3.4 KS in USA

The United States has a massive knowledge system that spans many different fields, such as government, education, research, technology, and culture. By U.S. Constitution The U.S. operates as a federal republic, with a strong emphasis on democracy, individual rights, and the rule of law. according to the U.S. Department of Education the education system in the U.S. includes primary and secondary education (K-12), higher education (colleges and universities), and vocational training. The system is largely decentralized, with state and local governments having significant authority over public education. As per National Institutes of Health the U.S. has a robust research environment, with public and private sectors contributing to scientific discoveries and technological advances. Institutions like NASA, NIH, and various universities play key roles in fostering innovation. USA has a large dimension in medical with knowledge The U.S. healthcare system is a complex mix of public and private entities. While there is no universal healthcare, programs like Medicare, Medicaid, and the Affordable Care Act provide coverage to specific populations. It is known for high-quality medical research and technology but faces challenges in accessibility and affordability as per U.S. Department of Health and Human Services. Yet the U.S. has a mixed-market economy, with a combination of private and public sector involvement. It is one of the largest economies in the world, with diverse industries such as technology, finance, healthcare, and manufacturing. U.S. Bureau of Economic Analysis .But the U.S. legal system is based on common law, with courts interpreting laws based on precedent. The legal system is organized by state and federal levels, and the Constitution provides the framework for individual rights. U.S. Supreme. On the basis of the The U.S. is known for its diverse culture, which is influenced by immigration. history, and regional differences. Major cultural aspects include music, film (Hollywood) and literature. Social movements have played a critical role in shaping policies on civil rights, gender equality, and social justice. Library of Congress. As per the U.S. is a leader in technology and innovation, with Silicon Valley being a global hub for tech companies like Apple, Google, and Facebook. The country invests heavily in emerging technologies such as artificial intelligence, robotics, and space exploration. TechCrunch In accordance with the U.S. military is one of the most powerful in the world, with a global presence and significant resources. The Department of Defence oversees military strategy, operations, and personnel, and the U.S. has numerous military bases worldwide. U.S. Department of Defence. In line with the U.S. has a diverse geography, including national parks, forests, and wildlife reserves. Environmental policy and conservation Efforts are critical to protecting natural resources, with agencies like the EPA focusing on sustainability and pollution control. Environmental Protection Agency.

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Together, these fields of study make up the extensive infrastructure, culture, and government framework that characterizes the United States.

3.5. KS in Canada:

The knowledge system of Canada is a sophisticated and interrelated framework that encompasses many facets of the economy, education, healthcare, culture, technology, and governance. As per the Canada, it is constitutional monarchy and a federal parliamentary democracy. The country's political structure includes a monarch (currently Queen Elizabeth II) as the ceremonial head of state, with real power resting in elected representatives at the federal and provincial levels. The government is structured into three branches: Executive, Legislative, and Judicial. Government of Canada—About Canada. On the basis of Canada's education system, it is decentralized, with each province and territory responsible for managing its own educational systems. The country is known for its strong emphasis on public education, including primary, secondary, and higher education, with many Canadian universities consistently ranked among the best globally. Canadian Education Association. The country Canada is home to several world-renowned research institutions and has a strong commitment to innovation in various sectors such as healthcare, energy, and technology. Government agencies like the Canadian Institutes of Health Research (CIHR) and Natural Resources Canada contribute to national and international scientific advancements. Natural Sciences and Engineering Research Council of Canada According to Canada's healthcare system, it is publicly funded and provides universal coverage to all citizens and permanent residents under the Canada Health Act. The healthcare system is provincially managed, but follows national standards for access to medically necessary services. Health Canada. As per Canada government it has a mixed-market economy, rich in natural resources like oil, gas, minerals, and timber. It also has a significant manufacturing sector and is heavily integrated with global trade, particularly with the U.S. under agreements like the United States-Mexico-Canada Agreement (USMCA). Statistics Canada. In the field of Canada's legal system, it is based on British common law, except for the province of Quebec, which uses civil law. The judicial system is independent, and rights and freedoms are protected under the Canadian Charter of Rights and Freedoms. The Supreme Court of Canada is the highest judicial authority. Supreme Court of Canada However, Canada is known for its multiculturalism and inclusivity. The country celebrates diversity through policies like bilingualism (English and French as official languages) and promotes social harmony and individual freedoms. Indigenous cultures also play a key role in shaping the country's identity. Canadian Multiculturalism. As per Canada is at the forefront of technological advancements, particularly in areas like artificial intelligence (AI), clean energy, and biotechnology. Cities like Toronto, Montreal, and Vancouver are important tech hubs as per Canadian Innovation and Technology. The country's military, the Canadian Armed Forces (CAF) operates under the Ministry of National Defence plays a role in both domestic and international peacekeeping operations. Canada is a member of NATO and other international defence agreements. Canadian Armed Forces in the country Canada's vast and diverse landscapes are rich in natural resources, including forests, water bodies, and minerals. The country has a strong environmental protection framework and plays a significant role in global environmental discussions, particularly related to climate change and conservation. Environment and Climate Change Canada. Its avenues for delving deeper into each of these topics, which form the cornerstone of Canada's knowledge system.

3.6 KS in Brazil

A wide range of disciplines, including politics, education, healthcare, the economy, technology, and culture are included in Brazil's extensive and ever-evolving knowledge system. As per Brazil, it is a federal republic, with a presidential system of government. The country has a multi-party system, and its political structure consists of the executive branch (the President), the legislative branch (National Congress), and the judiciary (Supreme Federal Court). Government of Brazil. On the basis of Brazil's The education system is divided into three main levels: basic education (primary and secondary), higher education (universities and technical schools), and postgraduate education. Education is largely managed by state and local governments, although the federal government plays a key role in funding and overseeing educational standards. Ministry of Education (MEC) – Brazil. The country Brazil has a significant research community and strong institutions, such as the Brazilian Institute of Geography and Statistics (IBGE) and the National Institute of Amazonian Research (INPA). The country invests in a variety of scientific and technological fields,

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including biodiversity, space exploration, and renewable energy. National Council for Scientific and Technological Development (CNPq) Still, Brazil operates a universal healthcare system called the Unified Health System (SUS), which provides free medical services to all Brazilian citizens and residents. SUS covers primary, secondary, and tertiary care and has been a key feature of the country's public health strategy. Ministry of Health—Brazil. However, Brazil has the largest economy in South America. with significant industries in agriculture, mining, manufacturing, and services. The economy is characterized by both domestic and international trade, and Brazil is a major exporter of commodities such as soybeans, iron ore, and oil. Brazilian Institute of Geography and Statistics (IBGE). Although Brazil's legal system is based on civil law, and the country has an extensive body of laws covering many areas, including civil, criminal, labour, and environmental law. The judiciary is independent, and the Federal Supreme Court is the highest court in the land. Federal Supreme Court of Brazil It's known as Brazilian. culture is incredibly diverse, reflecting the country's rich history of indigenous, African, European, and immigrant influences. Major cultural Contributions include samba, bossa nova, football (soccer), and carnival. festivals. The country's social system includes a mix of urban and rural populations with significant income inequality. Ministry of Culture—Brazil. As well as Brazil has made considerable strides in technology, particularly in areas like space exploration, biotechnology, and renewable energy. The Brazilian Space Agency (AEB) is involved in research and development in space. technologies, while companies in solar and wind energy sectors are growing rapidly. Brazilian Space Agency (AEB). Also, Brazil has one of the largest military forces in Latin America. The country maintains a defence policy that focuses on territorial integrity, international peacekeeping, and humanitarian missions. The Brazilian military is a key player in national security and defense operations. Ministry of Defence—Brazil That's why Brazil is known for its vast natural resources, including the Amazon. Rainforest, the world's largest tropical forest, and a wide range of biodiversity. The country faces significant environmental challenges. particularly regarding deforestation, but it is also a global leader in renewable energy production, especially biofuels. Ministry of the Environment— Brazil. The references offered enable a more thorough examination of each of these topics, which serve as the foundation of Brazil's knowledge system. The nation's knowledge system is dynamic and constantly changing due to its history, variety, and impact in Latin America.

3.7 KS in Japan

Japan has a complex and comprehensive knowledge system that encompasses culture, technology, healthcare, education, governance, and more. The country Japan is a constitutional monarchy with a parliamentary government. The Emperor is the ceremonial head of state, while the Prime Minister is the head of government. Japan has a bicameral legislature (National Diet), consisting of the House of Representatives and the House of Councillors. The political system emphasizes democracy and rule of law as per Government of Japan. However, Japan has a strong education system, with a rigorous focus on academic excellence, particularly in mathematics, science, and technology. Education is compulsory for children up to the age of 15, and Japan has a high literacy rate. Higher education is provided by a number of prestigious universities, including the University of Tokyo and Kyoto University, Ministry of Education, Culture, Sports, Science, and Technology (MEXT). As per the Japan, it is a global leader in research and innovation. particularly in the fields of technology, robotics, and medicine. Institutions like RIKEN and the Japan Science and Technology Agency (JST) play a central role in advancing scientific knowledge. Japan invests heavily in cutting-edge research, contributing to global advancements in various industries. Japan Science and Technology Agency (JST) As well as Japan's healthcare system provides universal coverage to its citizens, combining public health insurance and private medical care. The system is highly efficient, with an emphasis on preventive care and a long life. expectancy. Japan also leads in healthcare technology and medical research. Ministry of Health, Labour, and Welfare. That's why Japan has the third-largest economy. in the world by nominal GDP. It is a highly developed, industrialized economy. with key sectors in automotive, electronics, robotics, and manufacturing. The country is also a global leader in technological innovation and exports, particularly in electronics and machinery. Ministry of Economy, Trade, and Industry (METI). Due to Japan's legal system being based on civil law, influenced by German and French legal traditions. It is highly structured, and The judicial system is independent. The Japanese legal framework emphasizes order, fairness, and the rule of law, and the Supreme Court of Japan is the highest judicial authority. Supreme Court of Japan All of Japan is known for its rich cultural heritage, which includes traditional arts, tea ceremonies, calligraphy,

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and martial arts. Japanese society is also deeply rooted in values such as respect, harmony, and discipline. The country's social systems emphasize collectivism, family bonds, and social responsibilities. The Japan Foundation. The country Japan is a world leader in technological advancements, particularly in robotics and artificial intelligence, electronics, and automotive industries. Japan's technological prowess has had a profound impact on global industries, with companies like Sony, Toyota, and Panasonic is shaping modern innovation. Japan External Trade Organization (JETRO). Altogether Japan's Self-Defence Forces (SDF) are tasked with protecting the nation's security and ensuring peace. Japan's military is highly advanced in technology. and operates under strict pacifist principles, as outlined in Article 9 of the Japanese Constitution. The country maintains defence alliances with the U.S. through treaties like the U.S.-Japan Security Treaty. Ministry of Defense of Japan Therefore, Japan has a strong commitment to environmental sustainability and natural resource management. Despite its limited land area and natural resources, Japan is a global leader in energy efficiency and renewable energy. technologies. The country also plays a significant role in international environmental agreements, particularly related to climate change. Ministry of the environment. These fields reflect Japan's comprehensive and integrated knowledge system, which has been molded by a long history of social integration, innovation, and culture. The cited sources illustrate Japan's leadership in a number of industries and provide useful details on each of these areas.

3.8 KS in China:

China's lengthy history, quick development, and merging of traditional customs with state-of-the-art technology has all contributed to the country's extensive, difficult and profoundly impacted knowledge system. The country China is a one-party socialist republic led by the Communist Party of China (CPC). The country's political structure is highly centralized, with the President serving as the head of state and the Premier leading the State Council (the executive branch). The National People's Congress (NPC) is China's legislative body, but Ultimate power rests with the CPC leadership. National People's Congress of China. Most of China has a highly competitive education system with an emphasis on science, technology, engineering, and mathematics (STEM). Education is compulsory for nine years, covering primary and lower secondary education. Higher education is extensive, with a large number of universities and specialized research institutions, such as Tsinghua University and Peking University. Ministry of Education of the People's Republic of China. Therefore, China has emerged as a global leader in scientific research and innovation particularly in fields like artificial intelligence, quantum computing, and space exploration, and biotechnology. The country has made significant investments in research and development (R&D), with institutions such as the Chinese Academy of Sciences (CAS) and companies like Huawei are at the forefront of technological advancements. Chinese Academy of Sciences (http://english.cas.cn). Apart from China, it has a rapidly developing healthcare system that combines public health policies with growing private healthcare services. The country's healthcare system is focused on providing universal health coverage, with the government aiming to modernize rural health services and tackle challenges related to aging populations. National Health Commission of the People's Republic of China. However, China has the second-largest economy in the world. characterized by rapid industrialization, international trade, and the state's active role in guiding the economy. Key sectors include manufacturing, technology, agriculture, and energy. China is a global economic powerhouse with a strong export-driven economy and significant investment in infrastructure development. National Bureau of Statistics of China There is the China's legal system is based on civil law influenced by Soviet and European legal traditions. The system is highly centralized, with the Communist Party playing a significant role in shaping and interpreting the law. While the Constitution guarantees certain rights; the judiciary is not fully independent and decisions can be influenced by party policies. Supreme People's Court of the People's Republic of China. Instead, China's culture is rich in history, philosophy, and traditions, with Confucianism, Taoism, and Buddhism playing significant roles in shaping its social norms. The country's social system emphasizes collectivism, family values, and respect for authority, while contemporary Society is becoming increasingly urbanized and diverse, especially in major cities like Beijing, Shanghai, and Shenzhen. China National Tourism Administration. When China is a global leader in technological advancements, particularly in telecommunications, e-commerce, artificial intelligence, and electric vehicles. Companies like Alibaba, Tencent, and Baidu are major players in the digital economy. The country has also made strides in space exploration with successful lunar and Mars missions and the

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development of the BeiDou Navigation Satellite System. Ministry of Industry and Information Technology of China. About China's military, the People's Liberation Army (PLA), is one of the largest. and most advanced in the world. The PLA is a key component of the Chinese state, with significant investment in modern technology, including cyber warfare, space capabilities, and naval power. China also plays a prominent role. in international security and peacekeeping operations. Ministry of National Defence of the People's Republic of China. Whenever China faces significant environmental challenges, including air pollution, water scarcity, and land degradation, but It has also become a global leader in renewable energy, particularly solar and wind power. The government has committed to reaching carbon neutrality by 2060. and efforts to promote sustainable development and environmental protection are central to policy. Ministry of Ecology and Environment of China. These fields serve as the cornerstone of China's extensive and dynamic knowledge base. The Sources offered make it possible to look deeper into China's policies. successes and difficulties across a range of fields. China is becoming a key role in global innovation and growth due to its fast transition over the past few decades.

3.9 KS in Australia

A wide range of disciplines, including governance, education, healthcare, the economy, technology, and Culture is all part of Australia's varied knowledge system. In the country Australia is a federal parliamentary democracy and a constitutional monarchy. The country's head of state is the British monarch, represented by the Governor-General, while the Prime Minister serves as the head of government. Australia has a bicameral parliament: The House of Representatives and the Senate. The Australian Constitution establishes the separation of powers among the executive, legislative, and judicial branches. Australian Government. Therefore, Australia's education system is divided into primary, secondary, and tertiary levels. Education is compulsory for children aged 6 to 16. Australia is also known for its high-quality higher education institutions, including globally recognized universities such as the University of Melbourne, Australian National University (ANU) and the University of Sydney. Department of Education, Skills, and Employment. That's why Australia has strong research. community, with universities and institutions such as the Commonwealth Scientific and Industrial Research Organization (CSIRO) contributing significantly to scientific advancements. Research in Australia spans areas such as climate science, medical research, and technology, with a focus on both national and global challenges. CSIRO (Commonwealth Scientific and Industrial Research Organisation). Until Australia's healthcare system is a mix of public and private services, with the government funding the public system through Medicare, which provides universal healthcare coverage to all citizens and permanent residents. The healthcare system is known for its accessibility, quality, and efficiency. Department of Health. However, Australia has a developed high-income economy, heavily reliant on services, mining, and agriculture. The country is one of the world's leading exporters of minerals, including coal and iron ore, and also has significant agricultural exports such as wheat, beef, and wool. The Australian economy is characterized by a high degree of integration with the global economy, particularly in Asia. Australian Bureau of Statistics There is the Australia that follows a common law system based on English law, with the High Court of Australia serving as the highest court Australia's legal system upholds the rule of law, individual rights, and freedoms, with the Constitution serving as the foundational legal document. The legal system also includes federal and state law. High Court of Australia. Then Australia is a multicultural society with a rich history shaped by its Indigenous peoples and immigration from around the world. The country's Cultural systems include a vibrant arts scene, with contributions to literature, music, theatre, and film. Social systems focus on inclusivity and equality, with significant efforts made towards reconciliation with Aboriginal and Torres Strait Islander peoples. Australia Council for the Arts. Whenever Australia is involved in numerous technological advancements, particularly in areas like mining technology, healthcare innovations, and digital technologies. Australian Universities and start-ups are at the forefront of developments in artificial intelligence (AI), biotechnology, and renewable energy technologies. Australian Technology Network. On the condition that Australia has a well-developed defence force, the Australian Defence Force (ADF), which consists of the Army, Navy and Air Force.

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3.10 KS in Germany:

The knowledge systems in Germany are quite advanced and integrated in many areas. such as technology, healthcare, education, research, governance, and the economy. As well as Germany, it is a federal parliamentary republic. The country has a Chancellor as the head of government and a President as the head of state. It operates under a constitution called the Basic Law (Grundgesetz). The legislative branch consists of a bicameral system with the Bundestag (Federal Diet) and the Bundesrat (Federal Council). Germany's political system emphasizes democracy, human rights, and the rule of law. Bundeszentrale für politische Bildung (Federal Agency for Civic Education). In case of the education system Germany has a well-established education being compulsory for children aged 6 to 18. The system includes primary education, secondary education (with different tracks such as gymnasium, real-schule, and hauptschule), and tertiary education. Germany is also home to world-renowned universities, such as Ludwig Maximilian University of Munich and the University of Heidelberg. Federal Ministry of Education and Research (BMBF). Rather, Germany is a global leader in scientific research and technological innovation, particularly in fields such as engineering, automotive technology, renewable energy, and medicine. The country's research institutions, such as the Max Planck Society and the Fraunhofer Society play a central role in advancing knowledge. Germany is known for its strong collaboration between academia, industry, and government. Max Planck Society for the Advancement of Science. While there is a country, Germany, that has a universal healthcare system that is based on a dual system of public and private health insurance. The public system, known as statutory health insurance (Gesetzliche Krankenversicherung), covers the majority of the population, while private Health insurance is available for higher-income individuals and certain professionals. Germany's healthcare system is known for its quality and efficiency. Federal Ministry of Health (BMG). Whether or not Germany is Europe's largest economy and the fourth-largest in the world by nominal GDP. The country's economy is based on a strong industrial sector, especially in automotive manufacturing (Volkswagen, BMW, Daimler), engineering, and chemicals. Germany is also a leader in renewable energy and technology. innovations. The economy is characterized by a high degree of export orientation. and a focus on the "Mittelstand" (small and medium-sized enterprises). Federal Ministry for Economic Affairs and Energy (BMWi). Thus, Germany has a civil law. system based on written statutes, and its legal framework is primarily derived from the Basic Law (Grundgesetz) and the German Civil Code (Bürgerliches Gesetzbuch, BGB). The country's legal system emphasizes individual rights, the separation of powers, and an independent judiciary. The Federal Constitution The court (Bundesverfassungsgericht) is the highest authority in interpreting the Constitution. Federal Constitutional Court of Germany. The cultural heritage of Germany has a rich and deep history in arts. literature, music, and philosophy. The country is home to renowned philosophers. such as Kant, Nietzsche, and Hegel, and composers like Beethoven and Bach. Germany also promotes a strong social welfare system, with policies supporting families, social security, unemployment benefits, and pension systems. Germany is a global leader in technological innovations, particularly in engineering, automation, artificial intelligence (AI), and environmental technologies. The country's The "Industry 4.0" initiative focuses on the digitalization of manufacturing, and Germany is home to some of the world's most advanced companies in robotics and automation.

3.11 KS in France:

In terms of administration, education, research, economy, culture, and technology, France has a complex and intricate knowledge system. As per the country of France is a semi-presidential republic, where the President is the head of state, and the Prime Minister is the head of government. The French political system operates under the Constitution of the Fifth Republic. France has a multi-party system, and its legislature consists of the National Assembly and the Senate. The country is a founding member of the European Union and plays a leading role in international organizations. Meanwhile France has a comprehensive education system that includes primary, secondary, and higher education. Education is compulsory from ages 3 to 16. France is home to some of the world's top universities and grandes écoles, including the University of Paris and École Normale Supérieure. Higher education emphasizes both academic research and professional training. On the condition of country France is a leader in scientific research, particularly in fields such as nuclear energy, aerospace, medicine, and environmental science. Institutions like the National Centre for Scientific Research (CNRS) and the French Atomic Energy Commission (CEA) are central to French innovation. France has

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invested heavily in research and development (R&D), making it one of the top countries for scientific output. CNRS (National Centre for Scientific Research). Whether France has a highly regarded universal healthcare system, which is funded through a mix of public health insurance and government funding. The system provides comprehensive coverage, including hospital care, physician services, and pharmaceuticals. France's healthcare system is known for its high standards and access to medical care for all citizens. In the world France has seventh-largest economy and is one of the largest in Europe. The French economy is diverse, with key sectors such as manufacturing (automobiles, aerospace, and machinery), luxury goods, tourism, and agriculture. France is a global economic power and a key member of the European Union, the Organization for Economic Cooperation and Development (OECD), and the World Trade Organization (WTO). According to the France operates under a civil law system based on written statutes, and the French Constitution forms the basis for its legal framework. The French legal system is heavily influenced by Roman law and has shaped legal systems across many countries. The highest court is the Court of Cassation, which serves as the final court of appeal. Council of State (Conseil d'État) As per the France has a rich cultural heritage, including contributions to philosophy, literature, art, fashion, and cuisine. The French cultural system emphasizes individual expression, intellectualism, and creativity. France's commitment to preserving cultural heritage is reflected in its many museums, theatres, and cultural institutions, such as the Louvre Museum and the Comédie-Française. In the fields of France the forefront of technological innovation, particularly in fields like aerospace, artificial intelligence, and sustainable technologies. France is home to major aerospace companies like Airbus and Dassault Aviation, and it has strong research institutions working on AI, quantum computing, and other cutting-edge technologies. One of the most capable and technologically in France has been advanced military forces in the world. The French Armed Forces (Armée française) includes the Army, Navy, Air Force, and National Gendarmerie. France is a nuclear power and plays a significant role in NATO and European defense initiatives.

3.12 KS in South Africa:

Research, healthcare, education, technology, governance, and the economy are all included in South Africa's knowledge system. Even if South Africa is a democratic republic with a parliamentary system. The country's political system is defined by its Constitution, which is one of the most progressive in the world. The President serves as both the head of state and head of government, and the legislative system includes a bicameral Parliament, consisting of the National Assembly and the National Council of Provinces. The Constitution guarantees human rights, democracy, and the rule of law. Since South Africa has a dual education system, comprising public and private schools. Education is compulsory for children aged 7 to 15. The country has a strong higher education system, with universities such as the University of Cape Town, University of Witwatersrand, and Stellenbosch University being internationally recognized. However, access to quality education remains a challenge, especially for rural and disadvantaged communities. As well as South Africa is home to several leading research institutions, such as the Council for Scientific and Industrial Research (CSIR), the Human Sciences Research Council (HSRC), and the University of Cape Town's Research Centre. Research in South Africa spans a wide range of disciplines, including healthcare, climate change, renewable energy, and technology. The country is also increasingly investing in innovation through public-private partnerships and technology hubs. Council for Scientific and Industrial Research (CSIR). Due to South Africa's healthcare system being a mix of public and private services. The public system is managed by the Department of Health and is designed to provide healthcare for all South Africans, although it faces challenges such as underfunding, inequality, and resource shortages. The private healthcare sector is well-developed but often inaccessible to low-income populations. South Africa is a leader in medical research, particularly in HIV/AIDS and tuberculosis treatment. The most developed economies in South Africa are characterized by a diverse industrial base, including mining (gold, platinum, and diamonds), manufacturing, agriculture, and services. The country is a member of the BRICS group (Brazil, Russia, India, China, and South Africa) and plays a key role in African and global trade. However, South Africa faces economic challenges, such as high unemployment, poverty, and inequality. Though South Africa has a mixed legal system that incorporates both civil law and common law, derived from its colonial history under British and Dutch rule. The Constitution of South Africa is the supreme law of the land, and the country has an independent judiciary. The Constitutional Court is

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the highest court in South Africa and plays a crucial role in interpreting the Constitution and protecting citizens' rights. Constitutional Court of South Africa South Africa is known for its rich cultural diversity, with 11 official languages and numerous ethnic groups. The country has a complex social system shaped by its history of apartheid and colonialism. The government has implemented policies aimed at promoting social cohesion, reconciliation, and equal access to resources. Cultural practices, music, dance, and arts are integral to South African society. The significance of South Africa has been strides in technology, particularly in the fields of renewable energy, space research, and information technology. The country is home to the South African National Space Agency (SANSA) and has developed innovations such as solar power technology. Johannesburg and Cape Town are becoming major tech hubs, fostering innovation and startup ecosystems. Under the South Africa has a well-equipped and professional military, known as the South African National Defence Force (SANDF). The SANDF includes the Army, Navy, Air Force, and Military Health Service. The country plays an active role in African peacekeeping missions and contributes to international security efforts.

3.13 KS in Russia

Russia's knowledge system encompasses a wide range of fields, including technology, culture, education, research, governance, and the economy. The country in Russia is a federal semi-presidential republic with a centralized political system. The President is the head of state, while the Prime Minister is the head of government. The Federal Assembly consists of two chambers: the State Duma and the Federation Council. Russia operates under the Constitution of the Russian Federation, and the country has a strong executive branch. On the basis of Russia's education system, it is centralized and divided into primary, secondary, and higher education. Education is compulsory until the age of 15. The country is home to several prestigious universities, such as Moscow State University and St. Petersburg State University. Russian universities are known for strong programs in engineering, physics, and mathematics. However, challenges remain in terms of quality and accessibility, especially in rural areas. Ministry of Education and Science of the Russian Federation. As mentioned, Russia has a long history of scientific research, particularly in the fields of space exploration, nuclear physics, and engineering. The Russian Academy of Sciences (RAS) is the leading scientific institution. Russia continues to be a global player in space exploration, with Roscosmos being a key agency. The country also invests in innovation, though its research output has decreased in recent years compared to other major nations. Russian Academy of Sciences. However, Russia's healthcare system is publicly funded, with the government providing basic healthcare services to citizens through the state healthcare system. While Russia has made strides in healthcare reforms, the system faces challenges, including regional disparities in access to medical care, the aging population, and funding shortages. The quality of care varies, with urban areas generally having better access to services than rural areas. As per the Russia, it has a mixed economy with state ownership in strategic areas of the economy, including energy, defense, and natural resources. The country is one of the largest producers of oil and natural gas in the world. Russia also has significant industries in manufacturing, agriculture, and technology. However, the country faces challenges such as sanctions, corruption, and reliance on energy exports. The country Russia operates under a civil law system based on codified statutes. The legal system has undergone significant reforms since the collapse of the Soviet Union, but issues remain, particularly in terms of rule of law, human rights, and judicial independence. The Constitutional Court of Russia is the highest authority in interpreting the Russian Constitution. Constitutional Court of the Russian Federation. Although Russia has a rich cultural history, with contributions to literature, music, ballet, and art. Writers like Tolstoy and Dostoevsky, composers like Tchaikovsky, and artists like Kandinsky have shaped global culture. Russian society is diverse, with numerous ethnic groups and languages. Social systems emphasize communal values and state support for arts and culture, although there are ongoing challenges with inequality and social welfare. Ministry of Culture of the Russian Federation. On the basis of Russia, it has made significant advances in areas such as space technology, nuclear power, and defense systems. The country is home to Roscosmos, one of the oldest space agencies in the world, and has been a key player in space exploration, including the launch of Sputnik and the first human in space, Yuri Gagarin. Russia also invests heavily in military technology and has developed sophisticated defence systems. Roscosmos—State Corporation for Space Activities. Still Russia has one of the largest and most powerful militaries in the world.

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IV. FINDINGS

The Indian Knowledge System (IKS) is a key component of the National Education Policy (NEP) 2020, which advocates for significant reforms to the Indian educational system. Despite the potential benefits of this integration, there are drawbacks as well. Below is a list of this integration's advantages and disadvantages, along with resources for additional reading on each subject.

Pros:

By incorporating IKS, we can assist kids develop a sense of pride and identity while also preserving and promoting India's rich cultural history. IKS provides an interdisciplinary approach that promotes the blending of disciplines like philosophy, physics, and the arts, resulting in a more thorough educational experience. Additionally, traditional Indian teachings frequently place a strong emphasis on moral and ethical principles, which helps pupils build their character. IKS includes environmental stewardship and sustainable living knowledge, which might be helpful in tackling today's ecological issues. Improved Analytical and critical thinking abilities can be developed through studying ancient literature and philosophy. Students' physical and mental health can be improved by using ancient practices like yoga and ayurveda. Modern scientific research and invention can be influenced by the mathematical and astronomical advances made by ancient Indians. In order to improve linguistic proficiency and comprehension of ancient literature, IKS promotes the study of classical languages like Sanskrit. Community-based learning is a common component of traditional knowledge systems, which promote cooperation and social cohesiveness. Emphasizing India's historical achievements can raise the nation's scholarly profile internationally and spark interest from other countries.

Cons:

It may be challenging to implement IKS consistently across many educational institutions since it necessitates a great deal of preparation, resources, and teacher training. Effective implementation may be hampered by limited availability to reliable teachers and legitimate IKS materials. Traditional knowledge systems may be resisted by teachers and students used to traditional curricula. It could be necessary to create new evaluation instruments and procedures in order to gauge students' mastery of IKS subjects. Maintaining a balanced curriculum requires that IKS content enhances rather than overtakes current disciplines.

Complex conventional concepts run the risk of being misunderstood or oversimplified in the absence of appropriate supervision. There may be issues with upholding secularism in education because certain IKS content is entwined with religious ideologies. Critics contend that certain of IKS's ideas could not be consistent with current scientific knowledge, which could encourage the spread of pseudoscience. IKS content may be difficult for students from non-Indian cultural backgrounds or geographical areas to relate to, which could have an impact on inclusivity. Due to differing interpretations and teaching strategies, it can be difficult to maintain consistent quality in IKS education across different institutions.

V. DISCUSSION AND CONCLUSIONS

Mother language training is essential for cognitive development, cultural preservation, and educational equity. The intellectual and cultural landscapes of India and the rest of the world are greatly influenced by Indian knowledge systems from advances in mathematics and science to holistic medicine and spirituality. The National Education Policy (NEP2020) and the core ideas and knowledge traditions included in the Indian Knowledge System (IKS) are highly compatible. Through a well-rounded approach to education, both aim to raise understanding of Indian languages, philosophy, the arts, science, and ecological practices. Indian states are increasingly recognizing the value of integrating Indian Knowledge Systems (IKS) into their educational frameworks.

Each state contributes to the preservation and revitalization of IKS through its educational institutions, which include Sanskrit and Vedic studies, Ayurveda, sustainable farming practices, and folk arts. These outcomes include increased employment opportunities, improved public health, decreased dropout rates, and citizens who are informed, capable, and socially concerned.

Different countries are integrating their traditional knowledge systems into higher education in different ways. Incorporating Indian Knowledge Systems into modern higher education allows students to better understand their professions and tackle contemporary concerns like sustainability, ethics, and cultural preservation. Indian universities

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and other educational institutions are increasingly offering interdisciplinary programs that combine traditional Indian knowledge with modern instruction. The Indian Knowledge System, which has its origins in ancient practices that place a high value on community-driven development, ethical consumption, and environmental preservation, offers valuable perspectives on sustainability. These concepts are especially pertinent in the Global South, where traditional knowledge is increasingly recognized as a means of addressing environmental degradation and unsustainable growth. The Indian Knowledge System (IKS) has a significant impact on sustainability practices, especially in the Global South, where traditional wisdom and indigenous knowledge systems are often intertwined with the environment. IKS's sustainability ideals are based on the ideas of ethical consumption, ecological practices led by the community, and harmony with nature. The intellectual and cultural landscapes of India and the rest of the world are greatly influenced by Indian knowledge systems. The National Education Policy (NEP) 2020, which addresses everything from scientific and mathematical discoveries to holistic education, is strongly associated with the core values and knowledge traditions of the Indian Knowledge System (IKS). Through a thorough and well-rounded approach to education, both aim to raise understanding of Indian languages, philosophy, the arts, science, and ecological practices. Indian states are increasingly recognizing the value of integrating Indian Knowledge Systems (IKS) into their educational frameworks. From folk arts, Ayurveda, and sustainable farming practices to Sanskrit and Vedic studies, each state contributes to the preservation and revitalization of IKS through its educational institutions. Science and the arts are among the numerous fields in which India possesses a wealth of knowledge. The National Education Policy (NEP) 2020, which addresses everything from scientific and mathematical discoveries to holistic education, is strongly associated with the core values and knowledge traditions of the Indian Knowledge System (IKS). Through a thorough and well-rounded approach to education, both aim to raise understanding of Indian languages, philosophy, the arts, science, and ecological practices. Indian states are increasingly recognizing the value of integrating Indian Knowledge Systems (IKS) into their educational frameworks. From folk arts, Ayurveda, and sustainable farming practices to Sanskrit and Vedic studies, each state contributes to the preservation and revitalization of IKS through its educational institutions. Science and the arts are among the numerous fields in which India possesses a wealth of knowledge. Students can better understand their professions and tackle contemporary concerns like sustainability, ethics, and cultural preservation by integrating Indian Knowledge Systems into modern higher education. The popularity of interdisciplinary curriculum in Indian universities and institutes that combine traditional Indian knowledge with modern education is growing.

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