

Role of Information Technology for Promotion of Indian Knowledge System

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ABSTRACT

Digital technology in education has significantly reshaped pedagogical practices in the world. In India these technologies are very crucial for promotion and revitalization of Indian knowledge system which includes traditional sciences, philosophies and cultural practices. India's cultural and traditional values may be preserved through the use of technologies like satellite-based learning, Internet and interactive television through combining ICT and IKS. Challenges of access, equality, quality and innovation can be addressed. With the conjunction of IKS and ICT fostering of experiential learning, incorporation of ancient wisdom and improvement in literacy can be accomplished through combining contemporary technology and traditional knowledge. But it requires a pool of highly qualified teachers who have intensive training of ICT and how to combine it with IKS. In order to attain a culturally inclined and future ready educational system in India and incorporate a balance between tradition and modernity it is in essential to instigate ICT for promotion of IKS.

Keywords: Indian knowledge system, information technology, education

Information technology has affected every aspect of social life including the relationship of dispersion among people, social, political and global relations. Information technology has transformed the world into a small village. Information technology has created new dimensions of scientific and economic development, as a result of which social changes have become possible in most of the countries of the world. Due to increased interconnection, the use of information and technology is increasing rapidly in all sections of society, due to which important changes are taking place in every aspect of social structure. Growth of digital technologies in recent times has transformed the educational scenario. After covid-19 pandemic a surge of integration of digital tools into education has been observed. And this has also given an unprecedented opportunity for revitalising and promoting the IKS. This research paper will try to examine the role of ICT in promotion of IKS with the help of analysis of empirical studies, comparisons and available literatures. The National Education Policy (NEP)2020 emphasizes to disseminate the Indian way of living and thinking through profound legacy of Indian wisdom and philosophical enquiry comprising JNAN (knowledge), VIGGNAN (scientific understanding) and JEEVAN DARSHAN (life philosophy).

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ICT and Indian Knowledge System (IKS): In ancient times Guru shishya parampara was followed and knowledge was acquired and imparted through Shruti and Smriti. Teachings of values, Shastras, Nitis, and various arts were given to disciples by Guru. Nowadays the way of imparting knowledge has been changed from Shruti, Smriti to through various ICT tools. But need of the hour is to empower today's generation with traditional knowledge, scriptures and indigenous practices through technological tools. Through ICT access to information on any subject, anywhere and anytime can be done. NEP 2020 also encourages the application of ICT to teach and preserve IKS. The paper systematically examines current technological interventions such as digitization projects and AI driven educational tools and assesses their impact on pedagogy, public health frameworks and scientific research ecosystems. The Covid 19 pandemic acted as a catalyst, compelling educational institutions to adopt digital tools for remote learning on an unprecedented scale (Li,2022) [1].

Promotion of indigenous Science and technology through ICT: Indian knowledge system in science and technology includes vedic mathematics advance arithmetic and geometry, traditional astronomical studies (Jyotish) and understanding of planetary movements. In engineering and architecture Vastu Shastra which was known as traditional Indian architecture also includes sanitation and water management systems. Chemistry and material science through the Indian knowledge system explore ancient India's advanced understanding of matter, metallurgy and Alchemy as recorded in vedic literature, Ayurveda and texts like Ras Ratna Samuchchay. ICT acts as a catalyst for deeper understanding and more effective teaching software like Chemdraw, Chem 3D and Jmol are used to visualize 3D molecular structures and reaction mechanisms. The Indian Knowledge System encompasses a wide spectrum of disciplines including Ayurveda, yoga, Astronomy, Mathematics and Linguistics. With rapid advancements in digital technologies, these traditional domains are being systematically preserved, disseminated and repurposed for contemporary relevance (Mamgain, 2025) [2].

Indian knowledge in health & wellness and application of ICT: Ayurveda is considered as a comprehensive system of medicine and holistic health. Practices of yoga and meditation also boost mental, physical and spiritual well-being. ICT in health and wellness revolutionizes care through electronic medical records, telemedicine and wearable devices improving patient monitoring, reducing costs and increasing access to services. Various health and fitness apps track nutrition, workouts and mental health of the users and patients assisting them in maintaining a healthy lifestyle. These technological advancements in healthcare has enhanced faster and more accurate diagnosis and treatments. it has increased greater reach of healthcare services to remote locations. And it has also reduced need for travel and more efficient resource management. It has empowered individuals to actively manage their own health Matrix and fitness goals. AI-driven tools are increasingly being used to evaluate ayurvedic formulations, providing data backed insights into their therapeutic efficacy and fostering integrative healthcare practices (Kumar 2024) [3]. Wearable devices embedded with features inspired by Indian wellness practices such as breath monitoring, physical activity tracking and mindfulness assessment incorporate yoga and meditation principles to promote holistic health (Khanduja et al., 2021) [4].

Promotion of art and culture through ICT: In India, it has been very rich tradition of art and culture which includes vernacular music dance and art forms. In the form of digital art creation artist use graphics software, 3D modelling and AI to produce new forms of art including computer generated imagery. ICT is used in schools to teach art, allowing students to explore digital photography, video and animation which enhances their creativity. Museums and cultural institutions use digital technology to encourage visitor participation and engagement.

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Social media and online platforms facilitate the sharing and promotion of cultural content making it accessible to a broader audience.

Agriculture and environmental management: In Indian knowledge system agriculture is having a very indigenous method based on ancient knowledge. But with the intervention of ICT in farming production has been increased manifold utilizing GPS, GIS and sensors to monitor soil temperature and moisture labels for optimised irrigation and fertilization. There are various benefits of ICT in agriculture like data driven decisions help to improve crop yields, enhanced efficiency minimizes waste in resources like water and fertilizers, supports environment friendly sustainable farming practices. There are various mobile apps like Kisan suvidha, Pusa krishi and M-Kisan for weather forecast, market prices and other benefits. They are also various ICT tools for environmental monitoring and surveillance like wireless sensor networks enable real time tracking of air, water and soil quality as a as detecting hazardous conditions. Technology driven approaches are increasingly complementing traditional ecological wisdom in promoting responsible resource management. Solutions such as solar panels, wind energy systems and green technologies reflect modern innovations that align with the principles embedded within indigenous knowledge systems (Gupta ,2024) [5]. Historical water conservation methods exemplified by step Wells and rainwater harvesting structures, continue to inspire contemporary efforts towards sustainable water management (Kotyal ,2023) [6].

Governance and polity through ICT: governance through ICT is widely known as e-governance which involves usage of digital tools to enhance the efficiency, transparency, accountability and accessibility of government services. Key aspects of ICT in governance are online delivery of services such as income tax filing, birth and death certificates, caste certificates and pensions. ICT helps in seamless integration between departments for better policy coordination. It also helps in HR management, payrolls and training of employees. various initiatives of digital India mission have been taken like Aadhar Jan dhan mobile Trinity, Digi-locker, my gov app, Bharat -net, Umang app, E- Sanjeevani etc. to achieve excellence in governance and convenience for people. Furthmore increased funding opportunities and collaborative research partnerships underscore a growing institutional commitment to preserving and advancing India's intellectual heritage.

Philosophy and Spirituality: ICT acts as a bridge for preserving, accessing and disseminating philosophical and spiritual knowledge globally. ICT facilitates the digital archiving of ancient texts like Vedas, Upnishadas and make them available globally insuring the survival of traditional spiritual wisdom. Online platforms enable the formation of 'digital Sanghas' or virtual Congregations allowing individuals to engage in worship, prayer and meditation particularly benefiting those who are isolated or unable to attend in person services. Virtual reality is used for immersive, contemplative environments. ICT platforms such as websites and social media like YouTube, Instagram enable the wide spread sharing of spiritual teachings such as Vedantic wisdom to a global audience. Digital tools facilitate online meditation, spiritual discourses and virtual interactive communities for practitioners.

Preservation and Documentation of Indian Knowledge System through ICT: Indian knowledge of ancient arts, sciences, medicine and philosophy are being preserved and documented through ICT via digitization, AI and digital repositories. To preserve the ongoing loss of ancient manuscripts and textual records is a big challenge in sustaining IKS. At a large scale digitization of these materials is very important to conserve India's rich repository of traditional wisdom. Projects like National Digital Library of India and initiative like National

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Mission for Manuscripts have really helped to conserve vulnerable ancient paper based and oral records into stable digital formats to prevent loss and make this traditional knowledge accessible for modern research. AI technologies are being utilized for analysing, translating and classifying ancient texts. These technology aid in interpreting ancient knowledge and connecting it to modern scientific context such as in ayurvedic medicine or traditional environment practices. Through multisensory experiences, users can virtually engage with ancient narratives and structures, depending their understanding and appreciation of India's cultural and philosophical legacy (Aziz et al., 2024) [7].

Digital platforms of ICT: PDFs- conversion of puranas and upnishadas in PDF and making it available for students, researchers and teachers will be a great help for them. It can be easily readable on their mobile and laptops .PDF is a very basic tool in ICT and one of the advantages of using PDF is that no one can change or modify it. **YouTube and Videos-**it is a very well known and used platform where anyone can upload and publish their videos. This can be a very useful tool for dissemination of information related with Indian knowledge systems. these platforms empower researchers, educators and enthusiasts to collaborate, exchange insights and advance collective understanding of IKS through participatory digital environments (Majhi, 2024) [8]. **Websites-**other ways of popularisation of IKS through ICT are through making user friendly websites for different areas of IKS. **SWAYAM/NPTEL/MOOCs-**these platforms might be very useful in making courses on various aspects of IKS and in imparting indepth knowledge among researchers, students and teachers. The success of digital initiatives for IKS promotion depends on robust technological platforms and supportive innovation ecosystems. National digital platforms can serve as aggregators and distributors of IKS content, integrating open educational resources, learning analytics and community features. Misra and Wilson (2023) [9]. **Social media-**There are many popular social media platforms among youth like Facebook, WhatsApp, Instagram, Telegram where information regarding IKS can be shared, discussed in very interesting way. Furthermore, hybrid models that integrate traditional and digital pedagogies may offer synergistic benefits, particularly for complex, culturally embedded knowledge systems like IKS (Kandukoori et al.,2024) [10].

CONCLUSION

The incorporation of ICT tools in dissemination of IKS is very imperative in these days when it comes to impart, revive and contextualize the diverse domains such as linguistics, Ayurveda, yoga, astronomy etc. The promotion of IKS is formally acknowledged under National Education Policy 2020. Technological intervention is very much essential to ensure its long-term preservation, relevance and integration into modern frameworks. National digital library of India (NDLI) plays a pivotal role in safeguarding the ancient textual Heritage in the form of manuscript digitisation and insuring accessibility for future researchers. Translation and semantic analysis of Sanskrit and other classical text can also be done through AI powered tools. While blockchain technology offers transformative benefits primarily centred on enhanced security, superior transparency and increased efficiency by creating and immutable decentralized and encrypted ledger. It eliminates intermediaries, reducing costs and transaction times while insuring Data integrity, traceability and trust across various industries such as finance, supply chain and healthcare. e-Learning platforms such as SWAYAM, DIKSHA, IKS Division and NPTEL also play important role by delivering structured courses on IKS, Indian culture, philosophy, traditional sciences, Arthshastra, Sidha medicine, scientific heritage, astronomy and various other topics. Virtual reality and augmented reality help the gap between theory and practice, facilitating learning by doing. These technologies convert classrooms into immersive, experimental environments addressing challenges in student engagement and

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retention. Integrating Indian Knowledge System with information and communication technology enhances education by combining ancient wisdom with modern personalized and interactive digital tools. This synergy improves accessibility to traditional knowledge, promotes sustainable practices, preserves cultural heritage via digital archiving and facilitates global collaborative learning.

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Conflict of Interest

The author declared no conflict of interest.

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