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Research Article

An Ancient Knowledge system and Modern Education based on digital literacy: A comparative Analysis

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ABSTRACT

. It needs an hour of comparison between ancient Knowledge system and Modern era education which is based on digital device.Indian education system since the ancient time period stands for its depth and holistic approach.It's a complete mixture of spirituality , intellectually and culturally developed by the institutions like Gurukuls ,Takshashila and Nalanda. In the texts like the Upanishads,Vedas, and Arthashastra, this system focussed on ethics and critical thinking along with character building. Its approach was interdisciplinary and subjects include life skills and social welfare.

The relationship between teacher and student was based on mutual respect.

In recent times, The New Education Policy 2020 and Indian knowledge system A Viksit Bharat Vision -2047 approach aligns with contemporary requirements for interdisciplinary studies and soft skills. The purpose of the study is how we can incorporate the values and scientific management through our ancient education system. Furthermore,

How can we fulfill the vision of Viksit Bharat by adopting the ancient wisdom with modern technologies? How can the Indian education system cultivate worldwide well-rounded and socially conscious individuals?

The study argues that while IKS embodied many dispositions and capacities now framed as 21st-century skills (critical thinking, creativity, collaborative learning, ethical reasoning), the institutional forms, pedagogies, and socio-cultural aims of ancient education were distinct — approving holistic formation, beliefs responsibilities, and describes communication wisely . In nutshell this paper concludes by proposing a favorable way for contemporary curricula that respect the epistemic integrity of the Indian knowledge system and preparing for the challenges of the modern era.

Keywords: Indian Knowledge System, 21st-century skills, ancient education, National Education Policy 2020, comparative education, curriculum design and pedagogy

Introduction

The moving pace of technological scenario globalization, and complex socio-ecological rigidity has given a loud voice to a global discourse on the competencies which is required in the 21st century. Lots of organizations — from educational aligns like the Partnership for 21st Century Learning to intergovernmental organisations such as UNESCO and national policy bodies — have emerged lists of skills deemed essential for learners: critical thinking, creativity, collaboration, communication, digital literacy, and social-emotional competences, among others (P21, 2009; UNESCO, 2015). On the contrary, there is prolonged academic and policy interest in the Indian Knowledge System (IKS), a wide term enveloping the intellectual traditions, epistemologies, pedagogies, and social formations of India's long educational history. India's National Education Policy (NEP) 2020 explicitly upholders integrating elements of IKS into modern curriculum to forward contextual relevance, cultural enduringness, and ethical base (Ministry of Education, Government of India, 2020).

The study has questions: In the 21st century, to what extent do skills correspond with dispositions, knowledge forms, and outcomes well formed by IKS? What are the confluences and issues between ancient Indian educational practices and the modern capacities demanded by contemporary societies? A comparison between both educational aims, pedagogical strategies, and learning outcomes across historically and contemporary

frameworks, the study offers a layered account that avoids simplistic inclusiveness while recognising practical form to enhance modern education with resources from IKS.

21st-Century Skills: Structure and emphases:

Contemporary structures identify numerous domains of proficiency. The collaboration in 21st Century Learning (P21) groups skills under the "4Cs" — critical thinking, communication, collaboration, and creativity — supplemented by communication, media and technology literacy, life and career growth and cross-cultural skills (P21, 2009). UNESCO's Future of Education reports emphasizes abilities such as learning to grow, learning to do something,learning to live in brotherhood and learning to be — aligning rational abilities with ethical, social, and existential capabilities (UNESCO, 2015). OECD's frameworks focus problem-solving, ICT skills, and integrated learning regarding lifelong practices(OECD, 2018).

There is a shift from narrow content towards transferable, meta-cognitive skills enabling learners to grab, synthesize and act favorable in uncertain contexts. Digital literacies and harmonious problem solving are punctuated, reflecting the labor market and public demands in the 21st century.

The Indian Knowledge System: scope and orienting principles

The Indian Knowledge System (IKS) is not a single inflexible curriculum but an expansive assemblage of epistemic traditions — Vedic, Buddhist, Jain, Śaiva, Śākta, Vaiśeṣika, Nyāya, Sāṅkhya, Yoga, Ayurveda, classical arts, architecture (vāstu), mathematics, and hands crafts — including within cultural, ritual, and social life across centuries. Key features include:

Holistic and integrative knowledge: Classical Indian thought usually resists sharp gulf (e.g., theory/practice; sacred/secular) and points to interrelatedness — for instance, the inclusion of ethical life (dharma), ritual and practical skills.

Guru–śiṣya parampara and pedagogy Personalized mentorship, dialectical instruction, oral transmission, and traineeship characterize classical pedagogies (Basham, 1954).

Focus on internal transformation: Many traditions spotlight self-knowledge (ātma-jñāna), ethical planting, and intellective introspection (e.g., practices in Yoga and Vedāntic inquiry).

Contextual and practical knowledge: Disciplines like Ayurveda or classical structure were empirical, practice-oriented, and oriented toward societal values.

Transmission through various semiotic modes: Oral declamation, mnemonic devices, chronical, ritual enactment, and incorporated techniques were all vehicles of learning.

Literature Review

The analysis between 21st-century skills and the Indian Knowledge System (IKS) has risen as a rapidly growing interdisciplinary research theme across education, philosophy, pedagogy, and intellective sciences. A growing body of scholarship highlights that modern competency-based finding is not a breach but an evolution of indigenous knowledge traditions (Kumar & Menon, 2021).

21st-Century Skills and Global Educational Frameworks

The base of 21st-century learning is grounded in the competency perspective, concentrating on problem-solving, innovation, digital literacy, and interpersonal skills (Trilling & Fadel, 2009). UNESCO (2021) emphasizes that education systems must develop global citizenship, media-information literacy, and sustainable ethical values. Similarly, the OECD Learning Framework 2030 student agency, well-being, and lifelong learning (OECD, 2019). However, several scholars caution that without cultural understanding, 21st-century frameworks risk becoming techie gearhead and disconnected from identity (Fullan & Quinn, 2019).

Indian Knowledge System: Testimony from Ancient Education

The work on ancient Indian education finds sophisticated pedagogical models included in Gurukul, Vedic, and Buddhist learning centers.(Chakraborty 2017) notes that the Gurukul system focused on critical reflection (manan), thinking (vichara), experiential learning (anubhav), and mastery of applied knowledge (prayog). Analyses of Nalanda and Takshashila hint at an advanced interdisciplinary curriculum including language, astronomy, medicine, structure, arts, logic, and governance (Dey, 2020). Value-based study was central, integrating ethics (dharma), collectively responsibility, environmental consciousness, and self-discipline (Sharma, 2018).

Bridging IKS and Contemporary Skill-Based Learning

Comparative studies show coincidence across both systems.(Singh and Gupta 2022) find that capability and ability prioritized today — critical thinking, collaboration, leadership, and creativity — were included historically through peer-discussion traditions, gurushishya communication and community-based learning. (Patnaik 2021) suggests that IKS can smartly enhance modern education helping depth in culture, ethics, and holistic well-being.

However, barriers exist. (Bose 2020) argues that contemporary institutions lack pedagogical models enabling IKS integration, resulting in external implementation. Beyond this, teacher learning remains limited. A systematic review by (Rao and Nair 2023) find that less than 12% of teacher training workshops in India implement structured IKS pedagogies notwithstanding
NEP recommendations.

NEP 2020 and Teacher Professional Development

NEP 2020 explicitly points up IKS-based curriculum resurgence, competency-based learning, multidisciplinary education, vocational course, multilingualism, and experiential pedagogy (Government of India, 2020). Studies post-NEP implementation highlight positive alignment between NEP and UNESCO-OECD frameworks for 21st-century competencies (Kumari & Thomas, 2023). Yet, successful implementation depends upon teacher capability. (Sinha 2022) finds that professional development must go beyond content acquaintance to include training in reflective teaching, educational technology, cross-disciplinary pedagogy, and integrated skill facilitation.

Gaps in Existing Literature

The literature shows three critical research gaps:

Gap	Observation
1	There is no direct comparative studies between IKS outcomes and contemporary global skill frameworks
2	A very short empirical research on NEP-2020–based IKS implementation in teacher training
3	Few models demonstrating blended pedagogy (IKS + modern digital learning)

This study pinpoints by addressing these gaps through an assumed comparison and policy-based analysis of IKS learning outcomes and contemporary educational goals.

Methodology:

This paper finds comparative metaphysical and historical analysis. Primary data include classical texts (Upaniṣads, Yoga Sūtras, Nyāya treatises) and historical scholarship on ancient Indian education. Secondary sources contain contemporary policy documents (NEP 2020), international frameworks (P21; UNESCO), and variable studies on educational outcomes wherever found. The comparison is organized across four analytical dimensions: (1) intellectual skills and criticality, (2) creativity and innovation, (3) social-collaborative abilities, and (4) moral values and life skills. For each factor, the work finds how IKS perspective the domain and assesses affinity with contemporary aims.

Comparative Analysis:

Cognitive skills and critical thinking
IKS perspective
Indian metaphysics traditions (e.g., Nyāya, Mīmāṃsā, Buddhist schools) developed sophisticated theories of wisdom, conjuncture and debate. Nyāya logic articulates pramāṇa (means of valid knowledge), rules, and misconceptions — tools that trained practitioners in meticulous argumentation (Radhakrishnan & Moore, 1957). The guru–śiṣya discourses often involved dialectical methods (śāstrārtha) and contested explanation, sharpening analytical faculties.
Pedagogically, retaining was balanced with interpretative exercises. The Upaniṣads encourage inquiry (vicāra) into endless reality; Buddhist koans and māyāra techniques challenge imagination to elicit insight. The focus on logic, debate, and self-inquiry parallels contemporary need of critical thinking and reasoning.

21st-century alignment:

Critical thinking in contemporary frameworks foregrounds proofs, evaluation, argument construction and self-realization reflection.The meticulous Nyāya and the dialectical approach of classical Indian organizations hint at a historical model for these skills. However, conflicts are not over and contemporary critical thinking is usually effectuated towards empirical scientific methods in secular institutional contexts, whereas IKS consolidated metaphysical and ethical goals into reasoning practices.
Creativity in IKS has been seen in arts, architecture, mathematics and other crafts. World famous centers like ancient universities Takṣaśilā, Nālanda were at a high level fostering technical innovation and cross-disciplinary clubs. The learning process in Poetic and rhetorical traditions, imaginary in expression and improvisation.
Most probably innovation was evaluated in a simple and very interesting manner as story , dharmic, or communal frames — beauty proportion and moral use always considered along with purity thought.

Scenario in Contemporary Era:
In the contemporary era innovation focuses on design thinking, flare up strengthening, and collaboration with all fields . Wherever ancient knowledge structures, apprenticeship models, and cross-fertilization between theory and practice resound with contemporary innovation pedagogy. The barrier is that IKS studies were often localized and included in sponsorship systems and scaling mass industrial innovation as demanded by the Market in modern economies and posed them challenges also. In ancient times,the guru–śiṣya relationship and social learning environments awareness interpersonal skills based on critical thinking, collaboration and truthfulness.
Moreover, ancient learning placed pupils within social networks where responsibilities and values were taught and trained learners to be members of a moral community. Modern frameworks highlight teamwork, intercultural proficiency, and communication across different contexts. When we move towards Ethical

formation and life skills in IKSperspective- Ethical values inserted through thoughtful practices like yoga and growing of virtues (e.g., satya, ahimsa, tidbits) were central points in most institutions . The purpose of the education was holistic formation and self-discipline along with social responsibility and very closely with contemporary challenges.
On the other side, modern calls for wide citizenship, The difference shows lies in the orientation IKS emphasis on inner freedom or social order informed by religion globally, while modern civic education is moved toward multiple democratic participation and secular ethics. Understanding learning outcomes depends on institutional methods.Ancient Indian education was given in residential schooling which extended trainee-ship in gurukulas through everyday life and practice.There was enough time for learning.Oral learning focused on memorization with deep devices ensured high values . Vedic texts preserved knowledge across generations.Practical skills model proportionate to modern vocational training.Nālanda and Takṣaśilā institutions served as operating hubs for debate, discussion, research, and intellectual exchange.
In recent periods, school fix— mass, standardized, and curriculum-driven keep prioritizes extensibility, assessability, and content broadly.This allows wider access, deep mentorship and incorporated practices.The result was that many scholars, specialists, physicians, architects, poets, and administrators were well trained in specific fields.At present times ,seeing the market values education and learning practice inserting. Mentorship fosters deeper learning and metacognition while remaining compatible with mass schooling.

Embodied practices and contemplative pedagogy:
Incorporate practices from Yoga and classical contemplative techniques as tools for attention, stress regulation, and emotional learning. Evidence from contemporary SEL research supports mindfulness-based interventions for improved concentration and well-being (Tang, Hölzel, & Posner, 2015). Adaptations must be secular, inclusive, and pedagogically transparent.Dialogical and debate cultures. Revitalize dialectical practices (śāstrārtha) through classroom debates, Socratic seminars, and logic modules that teach argumentation and epistemic humility. Teaching classical methods of inference (adapted from Nyāya) could enrich critical thinking curricula.Contextualized project-based learningIKS exemplifies learning embedded in real projects (e.g., building architecture, composing music). Project-based learning that draws on local knowledge, crafts, and community problems can develop 21st-century problem-solving while honoring indigenous practices.Ethical and civic formation
Design curricula that integrate ethical reasoning derived from Indian philosophical traditions — for instance, debates on duty, rights, and environmental stewardship — alongside pluralistic civic education.

Challenges and Cautions :
There challenges and hurdles are not less Indian Knowledge Systems with modern education like linguistic barriers, institutional resistance mostly (Western bias), lack of standardized curricula and insufficient teacher resources/ training. Modern education's hurdles include outdated methods and overwhelming focus on exams, making holistic integration without balancing tradition in modern science, and critical thinking for holistic student development is not easy.
A vocational stream partnering with craft social order to teach traditional arts (e.g., textile weaving) using project-based assessments combined design thinking with heritage techniques.In current scenario, university mentorship programs modelled on guru-like supervision for research traineeship — small cohorts, long-term supervision, and integrative seminars.
Integrative SEL curriculum which adapts non-sectarian yogic breathing and attention practices for classroom use to much better regulation and concentration.

Conclusion :

The findings of the study several essential elements of IKS that demonstrate its relevance in current educational practices and so many initiatives taken by the Indian Government for its promotion, the best role and responsibilities of teachers providing a transformative structure for cultural continuity and academic innovation.The Indian Knowledge System (IKS) offers a value-based, holistic, interdisciplinary approach focusing on mind-body soul unity, ethics, and sustainability (Yoga, Ayurveda), collaboration with modern education's often fragmented, subject-compartmentalized framework emphasizing STEM, critical thinking, and globalized skills, although modern systems now seek IKS integration for cultural relevance and very deep understanding of holistic well-being, bridging ancient knowledge with contemporary needs.

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