



Comparative analysis of Indian Education System from Ancient Practices to NEP 2020 in relation of Metacognition

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Abstract

The Indian education system has changed significantly over time to time, adapting to cultural, economic, and technological developments. Main objective of this conceptual paper, to compare the different phases of Indian education while focusing on how Metacognition has evolved over time and the development of metacognitive awareness in India. A critical perspective in this transformation is the role of Metacognition, the ability to reflect on and regulate one's own cognitive-thinking-learning process. This analysis found its development from the ancient Gurukul system and in Indian Knowledge Systems (IKS) to the National Education Policy (NEP) 2020. The paper discussed about Metacognition—self-regulation and reflection—as a critical connection with various educational paradigms, supported by references policy documents and past research studies. This critical analysis also given idea of the major milestones in Indian education, focusing on ancient education systems, the impact of Medieval Indian Education System, British colonial policies and modern reforms culminating in the National Education Policy (NEP) 2020, and the alignment of these policies with metacognitive principles.

Key–Words:

Metacognition, Ancient Indian Education System, Indian Knowledge Systems (IKS), Medieval Indian Education System (Islamic and Mughal Periods), British colonial policies, Post-Independence Education Reforms National Education Policy (NEP 2020).



Introduction

The Indian education system has evolved significantly from ancient times to the present, adapting to socio-cultural, economic, and technological changes. Also evolved from a spiritually and morally driven model to one influenced by colonial exigencies. One important concept in education is *Metacognition*, which means thinking about one's own cognitive-thinking-learning process (Flavel, 1979). It helps students become aware of how they learn, plan their studies, and improve their skills. The Indian education system has undergone significant changes over the centuries, evolving from holistic indigenous methods to the structured modern approaches of today.

The emphasis on Indian Knowledge System, Value education, Yoga, and Skill based education is to develop psychological well-being through grit. The perceived grit in a person is highly influenced by psychological well-being, hence the focus on holistic education. Ancient education always focused on higher knowledge of self and knowledge of strength. Modern-day education emphasizes on this concept of self-awareness and skill development through experiential and multidisciplinary learning (Mishra N et al., 2023).

This was an extension of the formal system that had taken roots earlier. This system was mostly religious and spiritual form of education. Tols in Bengal, pathshalas in western India, chatuspadis in Bihar, and similar schools existed in other parts of India. As we understand, the ancient education system of India focused on the holistic development of the students, both inner and outer self, thus preparing them for life. Education was free and not centralized. Its foundations were laid in the rich cultural traditions (NCERT, textbook). The Indian education system continued in the form of ashrams, in temples and as indigenous schools. During the medieval period, maktabas and madrassas became part of the education system. During the pre-colonial period, indigenous education flourished in India.

This analysis explores the major phases of Indian education, focusing on the Gurukul system, Indian Knowledge Systems (IKS), the impact of medieval period (Islamic and Mughal Periods), British colonial policies, post-independence reforms, and the National Education Policy (NEP 2020). It also examines how metacognition—self-regulation and reflection—has been a consistent and transformative element throughout these phases. The Indian education system has undergone significant transformations over millennia, evolving from the indigenous and holistic methods of ancient times to the modern and structured approaches of today.



Ancient Indian Education System

Students lived with teachers (gurus) and learned in a natural setting. The Gurukul system, as described in texts like the Vedas and Upanishads, was a residential model where students (shishyas) lived with their teacher (guru). The system emphasized holistic education that included intellectual, moral, and practical dimensions (Singh, 2005). The curriculum was multidisciplinary, covering scriptures, mathematics, astronomy, medicine, governance, and arts, fostering a balanced approach to knowledge (Radhakrishnan, 1948).

Oral Learning & Memorization: Knowledge was passed down verbally through chanting and repetition. **Self-Reflection & Inquiry-Based Learning:** Encouraged students to ask questions and think deeply. Indian Knowledge Systems (IKS) encompassed disciplines like Ayurveda, Yoga, and Sanskrit literature, rooted in texts such as the Charaka Samhita and Patanjali's Yoga Sutras. These systems integrated spiritual wisdom with practical skills, promoting innovation and cultural preservation (Sen, 2001).

Benefits of the Indian Knowledge Systems (IKS):

Students were trained in introspection and discipline, aligning with metacognitive principles (Sharma, 2010). The experiential approach ensured applicability of knowledge to real-life challenges (Ranganathan, 2013). Encouragement of critical thinking through Upanishadic dialogues. The one-on-one mentorship fostered tailored learning experiences, enabling students to reach their potential.

Ancient Indian Education System in relation of Metacognition:

Self-assessment, understanding the purpose of learning, and guided reflection by teachers. Reflection on knowledge (Jnana), self-assessment, and teacher-guided introspection. Practices like meditation and self-assessment were integral, encouraging students to evaluate their thought processes and adapt their learning strategies. These elements align with modern metacognitive theories, which emphasize awareness and control over one's cognitive processes (Flavel, 1979).

Imagine a student sitting under a tree with their teacher, discussing the meaning of a verse from the Vedas. The teacher asks, "What do you understand from this?" The student reflects, responds, and corrects their thinking based on feedback. Inherent in the Gurukul system, students were trained to think critically and apply knowledge practically. Core practices that promoted self-awareness and the ability to evaluate one's learning processes, aligning closely with modern metacognitive theories. Self-regulation and reflection were inherent in the Gurukul system, as



students were trained to think critically and apply knowledge practically. Meditation and introspection were core practices, promoting metacognitive awareness.

Strengths: Education aimed to cultivate moral values, critical thinking, and self-discipline. Emphasis on real-world applications of knowledge, particularly in medicine (Ayurveda) and mathematics. Diverse fields like architecture, governance, and linguistics were explored.

Limitations: Education was predominantly restricted to certain castes and privileged groups. Women had limited opportunities, except in specific contexts like royal families or as part of monastic communities.

Medieval Indian Education System (Islamic and Mughal Periods)

Madrasas and Maktabas: Schools that focused on religious education, literature, and philosophy. **Analytical Learning:** Encouraged reasoning and discussion but was limited to specific fields. **Rote Memorization:** Students often learned by memorizing texts without deep understanding.

Medieval Indian Education System in relation of Metacognition:

Some self-assessment through debate, but limited encouragement of independent thought. A teacher in a Madrasa gives a lesson on Islamic philosophy. Students recite passages but also discuss their meanings. Some students reflect on how these ideas connect to their daily lives.

British Colonial Education System (19th-20th Century)

Macaulay's Minute (Macaulay's System 1835): This policy aimed to create a class of Indians educated in English to serve colonial administrative needs, sidelining indigenous education systems (Sharp, 1920). Aimed to create a class of educated Indians to serve colonial interests, focusing on English education and sidelining traditional knowledge. Emphasized English-language education and training for administrative jobs. **Focus on Textbook Learning:** Reduced creativity and practical knowledge. **Examination-Oriented Education:** Focused on passing exams rather than understanding. The introduction of English education aimed to create a class of Indians who were "Indian in blood and color, but English in taste, opinions, morals, and intellect". Focused on Western sciences, literature, and administrative skills, sidelining indigenous knowledge systems.

Wood's Dispatch (1854): Known as the "Magna Carta of Indian Education," it advocated for mass education and the establishment of universities. However, its focus remained on producing clerks rather than fostering holistic growth (Basu, 1989).



Impact of Colonial Policies:

Traditional systems like the Gurukul declined due to lack of support, and education became elitist and urban-centric. Rote learning replaced critical thinking, suppressing metacognitive development among learners. Traditional knowledge systems declined as English education dominated. Education became elitist, accessible primarily to urban and affluent communities, creating socio-economic disparities (Kumar, 2005).

Erosion of indigenous systems: Traditional education centers declined due to lack of support. Rise of disparities: Education became inaccessible to large sections of society due to the focus on elitist urban centers. Emergence of a modern intelligentsia: Created a generation of reformers like Raja Ram Mohan Roy and Swami Vivekananda, who sought to blend Western and Indian values.

British Colonial Education System in relation of Metacognition:

Very limited as students were expected to follow fixed rules and memorize information. The colonial system discouraged critical thinking and reflection, focusing instead on rote learning and obedience. A classroom with students sitting in rows, copying notes from a blackboard, preparing for exams. There is little discussion or creativity. The colonial system promoted rote learning and compliance, suppressing critical thinking and self-regulated learning. The lack of reflective practices created a gap in fostering metacognitive awareness among learners.

Comparison of Indian Knowledge Systems (IKS) with British Education:

The British education system, introduced through policies like **Macaulay's Minute (1835)**, emphasized rote learning and clerical training over critical thinking and holistic development. The Gurukul system nurtured reflective and self-regulated learners, while the colonial model prioritized administrative efficiency (Naik, 1979).

The Gurukul system emphasized holistic development, morality, and practical skills, whereas the British education system, introduced during colonial rule, prioritized rote learning and administrative training. British policies, like Macaulay's Minute (1835), aimed to create clerks for the colonial administration, sidelining indigenous knowledge and critical thinking. IKS fostered innovation and cultural preservation, while British education disrupted traditional practices, focusing instead on Western ideologies.

Post-Independence Education Reforms (1947–2000s)

Pre-Independence: The decline of the Gurukul system under British rule led to the erosion of indigenous education, with Western models dominating.



Post-Independence: Efforts were made to revive IKS and integrate traditional wisdom with modern educational practices. Policies like,

- Kothari Commission (1964-66) advocated for a blend of scientific and cultural education.
- Universal Primary Education: Government efforts to provide education for all children.
- Standardized Curriculum: NCERT and CBSE created structured syllabi.
- Exam-Based System: Continued focus on grades rather than deep learning.
- Expansion of Public Education: Universalization of primary education (Sarva Shiksha Abhiyan).
- Curriculum Standardization: NCERT & CBSE frameworks. Limited Scope for Self-Regulation: Focus on textbook-based learning and exams.

University Education Commission (1948-49): Advocated research and interdisciplinary studies, promoting inquiry-based learning. Headed by Dr. S. Radhakrishnan, this commission emphasized research and interdisciplinary education, promoting inquiry-based learning (Radhakrishnan, 1948).

Kothari Commission (1964-66): Proposed a common school system for equitable access and emphasized reflective teaching practices. Proposed a common school system to ensure equity and access to education. Recommended reflective teaching practices and inquiry-based learning, aligning with metacognitive principles (Kothari, 1966).

National Policies on Education (1968, 1986): Focused on universal education, vocational training, and learner-centric approaches. Focused on universal education, vocational training, and promoting reflective and learner-centric approaches (GOI, 1986).

Post-Independence Education Reforms in relation of Metacognition:

Some efforts for self-assessment, but reflection and adaptive learning were still limited. Encouraged critical thinking, self-assessment, and reflective practices in teaching and learning. Aimed to bridge the gap between theoretical knowledge and practical application. A teacher instructs students from a government textbook. Students prepare for board exams by solving past papers but have little opportunity to question or explore beyond the syllabus.

Contemporary Education System (NEP 2020 Onwards)

The NEP envisions an education system which is able to, ‘instill among the learners a deep-rooted pride in being Indian, not only in thought, but also in spirit, intellect, and deeds, as well as to develop knowledge, skills, values and dispositions that support responsible commitment to human



rights, sustainable development and living and global well-being, thereby reflecting a truly global citizen' (NEP 2020, p. 40).

NEP 2020 acknowledges the contribution of some world-class institutions of ancient India, such as Takshashila, Nalanda, Vikramshila, Vallabhi, which were famous for multidisciplinary teaching and research, and had scholars and students from different backgrounds and countries (NEP 2020, p. 38). Multidisciplinary Approach: Emphasis on STEAM (Science, Technology, Engineering, Arts, and Mathematics). Competency-Based & Conceptual Learning: Focus on skills rather than rote memorization. Integration of Digital & Adaptive Learning: Online platforms for self-paced learning.

Vision and Goals:

Aims to transform India into a knowledge superpower by making education more holistic, flexible, multidisciplinary, and aligned to the needs of the 21st century. Proposes a shift from rote learning to critical thinking and creativity.

- Early Childhood Care and Education (ECCE): Universal access to quality preschool education by 2030.
 - Holistic and Multidisciplinary Education: Merging of arts, science, and vocational education.
 - Emphasis on regional languages: Promotion of mother tongues as the medium of instruction.
 - School Education Reforms: Introduction of a 5+3+3+4 curricular structure to replace the 10+2 system.
 - Higher Education Reforms: Establishment of the Higher Education Commission of India (HECI) and a focus on research through the National Research Foundation (NRF).
 - Multidisciplinary Learning: Emphasizes a mix of science, technology, arts, and humanities.
 - Skill-Based & Conceptual Learning: Focuses on understanding rather than memorization.
- Digital & Adaptive Learning: Online tools allow self-paced/regulated learning.

Comparative Insights:

The Gurukul system focused on self-regulated learning, much like modern problem-solving and critical thinking approaches, akin to modern metacognitive strategies. NEP 2020 emphasizes practical and experiential learning, which is similar to how ancient education encouraged real-life application. Multidisciplinary learning in NEP 2020 is similar to medieval education's combination of religious and philosophical studies. Unlike medieval rote learning, NEP promotes higher-order thinking skills and self-regulated learning. NEP 2020 promotes critical thinking and conceptual



learning, unlike the passive learning style of British education. More student autonomy is encouraged under NEP, allowing for exploration and self-directed learning.

NEP 2020 introduces flexible curricula to encourage creativity and problem-solving. Focus on student agency and competency-based learning improves metacognitive awareness. NEP 2020 reintroduces self-reflection and experiential learning, similar to the ancient Gurukul system. Overcomes British-era rote learning by promoting critical thinking and adaptability. Encourages metacognitive strategies, helping students become independent and lifelong learners.

Metacognitive Framework in NEP 2020:

Shift to competency-based learning: Encourages students to reflect on their learning processes and outcomes. Integration of self-assessment tools: Promotes awareness of strengths and areas for improvement. Emphasis on experiential and inquiry-based learning: Cultivates higher-order thinking and self-regulation. Teacher training: Focuses on equipping educators with strategies to foster metacognitive skills among learners. Promotes competency-based learning, encouraging students to reflect on and improve their learning processes. Emphasizes experiential and inquiry-based learning to foster critical thinking.

Teacher training programs focus on integrating reflective and metacognitive strategies into classrooms. Imagine a classroom where students work on projects, discuss ideas with their teachers, use technology to explore topics, and reflect on their learning. This represents the modern education system under NEP 2020, which integrates ancient wisdom with modern innovation. Encourages students to reflect, regulate their own learning, and develop problem-solving skills. Encourages self-directed learning, reflection, and problem-solving skills. A student watches an online lecture, takes notes, asks questions in a discussion forum, and reflects on their understanding in a learning journal.

Challenges:

- **Implementation:** Aligning NEP goals with the diverse socio-economic realities of India.
- **Inclusivity:** Ensuring equitable access to quality education for marginalized communities.
- **Funding:** Increasing public investment to the recommended 6% of GDP remains a significant challenge.

Discussion and Conclusion

In ancient times the Indian education system had been transformed from a holistic, reflective model, spiritually and morally driven model to a rote-learning and rote memorization system in



colonial education, and now by NEP 2020 to a more balanced and learner-centric framework .NEP 2020 marks a significant step forward, its emphasis on metacognition—through critical thinking, self-assessment, and reflective practices—has the potential to transform learners into independent and self-regulated thinkers. The success of these reforms depends on robust implementation and continuous assessment by NEP2020.

So hence, the evolution of the Indian education system from ancient Gurukul traditions to NEP 2020 showcases a progressive shift towards metacognitive awareness. While earlier systems implicitly encouraged self-regulation and inquiry-based learning, colonial-era education diminished these practices. A harmonious blend of traditional values and modern pedagogy, integrated with metacognitive strategies, can pave the way for a truly transformative educational journey for India. The NEP 2020 restores reflective learning, encourages independent thought, and integrates modern cognitive strategies to prepare learners for an adaptive future. A harmonious blend of traditional values and modern pedagogy can pave the way for a truly transformative educational journey for India.

By integrating the strengths of the Gurukul system and IKS with modern pedagogical advancements, the NEP 2020 aims to create self-regulated and reflective learners. Focusing on metacognitive practices—through introspection, critical thinking, and personalized learning—can ensure a truly transformative education system for India. NEP 2020 restores the focus on metacognition, encouraging students to think deeply, assess their own learning, and apply knowledge effectively. This shift marks a return to inquiry-based and experiential education, preparing students for an adaptive and innovative future.

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