Journal of Nonlinear Analysis and Optimization

Vol. 16, Issue. 1, No.1: 2025

ISSN: **1906-9685** 



# A COMPREHENSIVE EVOLUTION AND IMPACT OF THE INDIAN EDUCATION SYSTEM: FROM ANCIENT WISDOM TO MODERN INNOVATION

Kalokhe Anil Sopan, Research Scholar, Department of Computer Science, Shivaji University, Kolhapur (MH), India, Email: anil.kalokhe@gmail.com

Kumbhar Vijaykumar Sambhajirao, Research Guide, Department of Computer Science, Shivaji University, Kolhapur(MH), India, Email: vsk csd@unishivaji.ac.in

#### **ABSTRACT:**

The Indian education system has witnessed a profound evolution, transitioning from the holistic and value-driven approaches of ancient times to the structured and technology-driven models of the modern era. Ancient India, with its Gurukul system and esteemed centers like Nalanda and Takshashila, prioritized personalized mentorship, interdisciplinary learning, and moral development. Education was deeply rooted in practical skills, spiritual growth, and societal welfare. With the advent of colonial influences, the system shifted towards standardized curricula, formal examinations, and institutional frameworks, paving the way for modern education. This paper explores the journey of Indian education, analyzing the transformations in pedagogy, accessibility and content. By integrating the strengths of both ancient and contemporary approaches, India's education system has the potential to create a balanced and inclusive model for future generations. **Keywords**, Ancient , Gurukul System, Higher Education , Indian Education System, National Education Policy

## INTRODUCTION:

Sant Dnyaneshwar's perspective on education was deeply spiritual and transformative. He believed that "knowledge is the true wealth, for it is a treasure that no thief can steal," emphasizing the lasting value of education that transcends material possessions. He also stated that "the root of all learning is self-realization and the truth of the soul," suggesting that the ultimate purpose of education is not just the accumulation of information, but the discovery of one's true nature. As quoted by the great Swami Vivekanand, "education is the manifestation of the perfection already in man," implying that the inherent potential within each individual is brought to light through proper education. Education is a cornerstone of societal progress and personal development. In India, education has always been integral to cultural and intellectual advancement. Ancient Indian educationists viewed education as a means of enhancing and uplifting individuals and society. In modern India, education is the process of enabling learning and fostering the acquisition of knowledge, skills, values, beliefs, and habits [1]. The Indian education system has undergone a remarkable evolution, reflecting the nation's rich cultural heritage and adaptability to change. The process of teaching and learning has undergone substantial transformation over time, adjusting to shifts in instructional methods, curriculum changes, technological advancements, societal developments, and evolving educational theories [2]. Education should focus on improving human life not just by enhancing an individual's economic well-being, but also by fostering social, moral, and spiritual growth [3]. India is renowned for its diverse and rich culture and heritage. However, it was particularly admired for its ancient education system, which emphasized the holistic development of an individual, encompassing physical, emotional, and psychological growth [4].

#### LITERATURE REVIEW:

Dr.Ritu Sharma, Dr. P. N. Nemade [1], stated that the changing dynamics in education sector and shifting expectations for the learning environment require universities to examine teaching and learning practices. The forces of change in higher education system seem to be the need of the hour. However, universities are addressing this shifting landscape with a positive outlook. Change is the essence of progress and our education system requires major changes without which we cannot compete in the international market. We have a positive approach and will be able to reach high level of standard in Education.Ms Robin Gupta, Dr Supreet Kaur [2], observed that the rediscovery of ancient educational practices advocates for a paradigm shift in modern education, urging stakeholders to reassess priorities. By merging the wisdom of the past with contemporary needs, a more holistic, inclusive, and effective education system can be crafted, fostering not just academic excellence but also nurturing individuals capable of contributing meaningfully to society.

#### **RESEARCH METHODOLOGY:**

The study is qualitative, with a descriptive research design. The purpose of a comprehensive review is to address specific questions using a clear, organized, and reproducible search approach. Data is categorized and extracted from the selected studies to synthesize findings, highlight any gaps or inconsistencies and provide insights on how to apply the results in practical scenarios.

#### **OBJECTIVE OF THE STUDY:**

The objective of the study is

- 1. To understand to Evolution of education
- 2. To explore key elements of ancient educational practices and institutions.
- 3. To examine aspects of modern education that contributes to effective learning.
- 4. To explore a comparative analysis of the number of schools, colleges, and universities in India for the holistic development of students.

## **RESULT AND DISCUSSION:**

The following outlines a discussion on various ancient educational practices, institutions, and aspects of modern education that should be reintegrated into our education system.

## **HISTORY OF EDUCATION IN INDIA:**

# **Ancient Education System:**

The traditional education system in India is deeply rooted in its cultural and historical heritage, reflecting a unique blend of philosophy, discipline, and holistic development. In ancient times, education was imparted through the Gurukul system, where students, known as shishyas, lived with their guru in a residential setup. The curriculum included the study of the Vedas, Upanishads, Sanskrit, philosophy, astronomy, medicine, and warfare. This system emphasized not just academic learning but also moral, spiritual, and physical growth, fostering a close bond between the teacher and the student. The traditional education system did not involve written examinations but relied on informal oral assessments, such as recitations and discussions, to evaluate students. Additionally, this system was largely disconnected from the application of science and technology.

This traditional system emphasizes the bond between students and teachers, focusing on a teacher-student-centered approach that prioritizes moral and ethical values [5]. Traditional education, also known as customary or conventional education, primarily aims to transmit essential values, etiquette, skills, and social practices to the next generation, ensuring their ability to thrive and adapt within their community [6]. The traditional Gurukul system fostered well-rounded development by prioritizing moral values, creativity, and critical thinking [7].

In the ancient period, two prominent education systems emerged: the Vedic and the Buddhist. The Vedic system used Sanskrit as its medium of instruction, while the Buddhist system primarily

employed Pali [8]. The Vedic education focused on religious texts, rituals, and spiritual knowledge. The Buddhist education system, on the other hand, emphasized moral values, meditation, and practical skills.

### **Ancient Educational Institutions:**

The Indian educational system is among the oldest in the world. By formalizing it, both secular and religious educations were imparted in an organized and structured way [9]. Today's we have renowned universities, there were popular educational institutions during ancient times as well. In ancient times, the guru (teacher) focused on shaping the character of students, instilling essential human values such as morality, ethics, empathy, leadership and creativity. Education in the Gurukula was not limited to rote memorization of lessons but was deeply connected to nature and everyday life, fostering a holistic learning experience [10].

# Takshashila(Taxila): A Historical Center of Learning:

Takshashila, also known as Taxila, is recognized as one of the earliest centers of higher education in the ancient world, functioning from approximately the 6th century BCE to the 5th century CE. It is located in the Gandhara region, near modern-day Rawalpindi in Pakistan, its strategic position along trade routes facilitated cultural and intellectual exchanges, making it a hub of multidisciplinary studies. Unlike centralized universities, Takshashila consisted of autonomous schools led by individual teachers (gurus), where students lived and studied under their guidance. Admission began around the age of 16 after the completion of basic education, with a curriculum encompassing Vedic studies, mathematics, astronomy, grammar, medicine, military science and the arts. The pedagogical approach included oral transmission, practical training, and rigorous debates to enhance critical thinking.

## Nalanda University:

Nalanda University, situated in present-day Bihar, India, was one of the most renowned educational hubs in ancient India, thriving from the 5th to the 12th century CE. It was established by Kumaragupta I of the Gupta dynasty; it became a major Buddhist monastic university, drawing scholars from across Asia, including China, Korea, Japan, Tibet, and Southeast Asia. Nalanda offered advanced education in Buddhist philosophy, logic, meditation, and other subjects like medicine, astronomy, mathematics, and grammar. With over 10,000 students and 2,000 teachers, it provided a comprehensive curriculum that blended theory with practical knowledge. The university's library, Dharmaganja, housed one of the largest collections of manuscripts in the world. Nalanda played a significant role in fostering intellectual exchange, advancing research, and promoting cultural diplomacy.

# **Methods of Teaching in Ancient Education:**

Ancient teaching methods focused on actively passing down knowledge and skills. Oral transmission was key, with teachers reciting texts, chants, or stories to preserve cultural and religious traditions. Demonstrations and guided practice were common, especially in apprenticeships, where students imitated their teachers. Teachers also fostered critical thinking through dialogues and debates, while providing moral and spiritual guidance. The teacher and student maintained a strong, transparent relationship, with a deep mutual understanding [11].

## **Methods of Learning in Ancient Education:**

Ancient Indian education focused on preserving and enhancing culture, building character, and promoting the growth of noble thoughts [12]. Memorization played a crucial role, especially for texts passed down orally, like the Vedas or Torah. In hands-on learning environments, students observed and imitated their teachers, particularly in trades or crafts. Critical thinking was fostered through debates and discussions, allowing students to actively engage in their intellectual growth. Repetition and practice were key to mastering skills, rituals, and arts. Spiritual and ethical development was nurtured through self-reflection and the internalization of moral lessons, while mnemonic devices like songs and poetry aided in memory retention. Ancient Indian scholars have contributed numerous valuable innovations to the world, including the concept of zero, the decimal system and more [13].

## **MEDIEVAL PERIOD (12TH TO 18TH CENTURY CE):**

The Medieval Period in India (12th to 18th century CE) saw the fusion of Islamic and indigenous educational systems. Islamic rulers established madrasas and maktabs, focusing on Islamic studies, Persian, and subjects like science and mathematics. Hindu systems, like the gurukul, continued teaching Vedic knowledge. The Mughal Empire promoted education, encouraging intellectual exchanges between different faiths. However, by the 18th century, British colonialism and the decline of the Mughal Empire shifted education towards Western models.

# Colonial Period (18th to 20th Century CE):

During the Colonial Period (18th to 20th century CE), the British introduced English-based education to serve administrative needs. The Macaulay Minute of 1835 promoted European subjects while diminishing traditional Indian knowledge. Universities were established in 1857 in major cities, offering Western-style education. Social reformers like Raja Ram Mohan Roy advocated for reforms, including women's education. The rise of British rule led to the spread of Western education, while many Indians still lacked access to formal schooling.

# Post-Independence Period (1947–Present):

After independence, India required immediate reforms in its education system, as education is a crucial tool for social change and national progress [14]. The Post-Independence Period (1947–Present) focused on democratizing education in India, ensuring free and compulsory education for all children. The Right to Education Act of 2009 was introduced to make education accessible to every child. India established prestigious institutions like IITs and IIMs, boosting higher education globally. Efforts were made to bridge the rural-urban education gap, though challenges like gender disparity and regional inequalities persist. The focus remains on balancing modern education with India's rich cultural heritage, promoting inclusivity and diversity.

#### **MODERN EDUCATION:**

Education is the process of gaining or attaining organized and structured knowledge [15]. The modern education system in India has evolved significantly since independence, with a focus on providing inclusive and quality education to a diverse population. It is structured into primary, secondary, and higher education, with both public and private institutions offering a wide range of subjects, including science, technology, humanities, and arts. The system emphasizes English as a medium of instruction, alongside regional languages, and aims to prepare students for global challenges while retaining cultural relevance. India's education system is becoming more innovative, with a growing emphasis on technology, vocational training, and skill development to meet the demands of a rapidly changing global economy.

#### **EDUCATIONAL INSTITUTIONS:**

India's education system generally follows a structured approach to subject selection, encompassing multiple stages, from primary education to higher education [16]. In India, the following types of educational institutions provide learning opportunities for students.

## **Schools:**

In India, schools provide foundational education, offering various options through different boards like CBSE, ICSE, and state boards. Private schools tend to offer better infrastructure, while government schools are more affordable. Education from 1st to 10th standard is crucial, with early years (1st to 5th) covering basic subjects like languages, math, and science. From 6th to 8th standard, the curriculum expands to include history and geography. In 9th and 10th standard, students focus on core subjects for the Class 10 board exams, which guide future educational choices. This period also helps students develop key skills such as literacy, problem-solving, and time management.

As of the 2021-22 academic years, India had approximately 1,489,115 schools, according to the Unified District Information System for Education Plus (UDISE+) report. This extensive network

includes various levels of education, such as primary, upper primary, secondary and higher secondary schools. Following table shows the distribution of schools in India by management type.

Management Type	Number of Schools
Government	1,022,386
Government Aided	84,362
Private unaided	337,499
Others	53,277

Table 1: Classification of schools in India by management type Following chart shows statistical distribution of schools in India by management type.

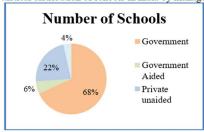


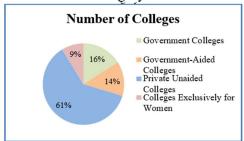
Figure 1: Statistical distribution of schools in India by management type

## **Colleges:**

After completing primary education, students proceed to colleges for secondary education. Colleges in India offer specialized courses and degree programs after 12th standard, including undergraduate (UG) and postgraduate (PG) options in fields like science, commerce, arts, engineering, medicine, law, and business. Some colleges are affiliated with universities, while others are independent institutions. Colleges focus on preparing students for professional careers by providing both theoretical knowledge and practical skills. They also foster personal and intellectual growth, playing a vital role in shaping careers and contributing to socio-economic development. The evolution of information and communication technology in recent decades has revolutionized traditional business models [17].As of the 2022-23 academic year in India, there are a total of 51,094 colleges. These colleges are classified into various categories, including Government Colleges, Government-Aided Colleges, Private Unaided Colleges and Colleges Exclusively for Women. Following table shows detailed classification of colleges in India.

Category	Number of Colleges
Government Colleges	8,161
Government-Aided Colleges	6,996
Private Unaided Colleges	31,467
Colleges Exclusively for Women	4,470

Table 2: Classification of Colleges in India Following chart shows distribution of colleges in India category.



https://doi.org/10.36893/JNAO.2025.V16I1.020

Figure 2: Statistical distribution of Colleges in India

#### **Universities:**

Universities play a crucial role in shaping students' futures by offering higher education, specialized knowledge, and research opportunities. They foster intellectual growth, critical thinking, and innovative research. Students develop career-ready skills like communication, problem-solving, and leadership. Universities encourage interdisciplinary learning and social awareness while providing networking, internships, and industry collaborations. They prepare students for diverse careers, contributing to personal development and societal growth. Ultimately, universities drive economic progress and innovation. Now, Universities have their own curriculum framework for students. Due to wide range of courses and specializations offered students can feel overwhelming, causing confusion and difficulty in making decisions about course selection. This problem can be solved by developing a course recommendation System [18].

As of November 14, 2023, India has a total of 1,113 universities. This classification reflects the diverse higher education landscape in India, encompassing institutions established by the central government, state governments, private entities and those granted 'deemed' status. Following table shows detailed classification of universities in India.

University Type	Number of Universities
Central Universities	56
State Universities	478
Deemed Universities	124
Private Universities	455

Table 3: Classification of Universities in India Following chart shows Classification of Universities in India.

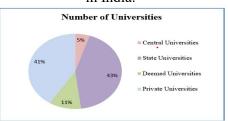


Figure 3: Statistical distribution of Universities in India

Following table shows comparative analysis of total Schools, Colleges and Universities in India as on 2022-23 academic years.

Туре	Total
Schools	1,489,115
Colleges	51,094
Universities	1,113

Table 4: Universities in

Classification of India

Following chart shows comparative analysis of total Schools, Colleges and Universities in India.

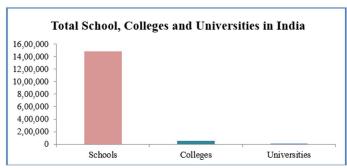


Figure 4: Comparative analysis of total Schools, Colleges and Universities in India

## **CHOICE BASED CREDIT SYSTEM:**

The Choice-Based Credit System (CBCS) was introduced by the University Grants Commission (UGC) in 2009 to offer students more flexibility and autonomy in their education. It allows students to select courses based on their interests and career goals, moving away from a rigid curriculum. CBCS includes core, elective, and ability enhancement courses, offering both compulsory and optional subjects. The system promotes interdisciplinary learning and aligns with international educational standards by enabling credit transfer between institutions. It aims to enhance education quality by fostering critical thinking, skill development and greater student engagement. In CBCS, the educational system's structure is becoming increasingly complex due to the rising number of students and the diverse range of online courses now offered by colleges [19].

#### **NEP 2020**

The National Education Policy (NEP) 2020 aims to reform India's education system, making it more inclusive, flexible, and relevant to modern needs. It emphasizes holistic development, critical thinking, and creativity from an early age. Key reforms include foundational literacy and numeracy by grade 3, a new 5+3+3+4 school structure and the use of mother tongue or regional language up to grade 5. NEP 2020 also integrates technology, promotes vocational education, and enhances access to higher education through multidisciplinary institutions. The National Education Policy 2020 envisions an education system rooted in India's values, aimed at sustainably transforming the nation into an equitable and dynamic knowledge-driven society by ensuring high-quality education for everyone [20].

## **CONCLUSION:**

The Indian education system has evolved from the holistic, value-based approach of ancient times to modern, technology-driven models. Ancient systems like the Gurukul emphasized moral development and creativity, offering valuable insights for today's education. Over the centuries, the system adapted to societal and technological changes. The National Education Policy 2020 and the Choice-Based Credit System promote inclusivity and flexibility. By integrating traditional wisdom with modern methods, India can foster responsible, innovative citizens for a sustainable future. This balanced approach is key to shaping a dynamic education system.

## **REFERENCES:**

1. Dr.Ritu Sharma, Dr. P. N. Nemade, "Changing Faces of Education System from Ancient India to Present Digital Education in India," *IOSR Journal of Engineering (IOSRJEN)*, Volume-8, 08-10, March 2018.

- 2. Ms Robin Gupta, Dr Supreet Kaur, "Rediscovering Ancient Educational Practices for Learning," *International Journal of Education and Science Research Review*, Volume-10, Issue--6, 70-77, Nov-Dec 2023.
- 3. Urmila Yadav, "A Comparative Study of Ancient & Present Education System," *Education, Sustainability and Society (ESS)*, 01-03, 2018, DOI: <a href="http://doi.org/10.26480/ess.01.2018.01.03">http://doi.org/10.26480/ess.01.2018.01.03</a>.
- 4. Sonali Bhandari Jain, Surabhi Choudhary, Joanna Philip, "Revival and Resurgence of Our Lost GEM The Ancient Indian Education System," *Shanlax International Journal of Education*, Vol-9, No-4, 382–88, 2021.
- 5. Anil Sopan Kalokhe, Vijaykumar Sambhajirao Kumbhar, "A Review on Course Recommendation System in Higher Education using Machine Learning," *International Research Journal of Humanities and Interdisciplinary Studies*, 47-55, 13 January 2024.
- 6. Mr. Parikshit Layek, Kumari Shubhra Rani Sil, "A Comparative Study of Ancient and Modern Education System: With Reference to India," *International Journal of Advanced Research*, 427-434, April 2021, DOI:10.21474/IJAR01/12704.
- 7. Abha Pathak, Manisha Bhende, Mr. Arivanantham Thangavelu, "Harmony In Transition- A Comparative Exploration Of Traditional And Modern Education Systems Through The Lens Of Cultural Integrity, Ethical Development, And Global Citizenship," *International Journal of Creative Research Thoughts*, Volume-12, Issue-5, 3-7, May 2024.
- 8. Dr. Anantha Buddappa Goudgeri, "Education In Ancient India," *International Journal of Creative Research Thought*, Volume-10, Issue-2, 374-379, February 2022.
- 9. Tapan Kumar Sau, "Education in India 'Ancient' and 'Modern' Era," *International Journal of Research in Economics and Social Sciences (IJRESS)*, Vol-9 Issue-5, 920-926, May- 2019.
- 10. Satyam Awasthi, Surendra Kumar, "The Education System of India (Ancient to Present)," *International Journal of Research Publication and Reviews*, Vol-5, No-7, 1903-1911, July 2024.
- 11. Nandita Mishra, P. S. Aithal, "Ancient Indian Education: It's Relevance and Importance in the Modern Education System," May 2023, DOI: https://ssrn.com/abstract=4540674.
- 12. Dr. Venkatesha, "Ancient Indian Education System," *Journal of Emerging Technologies and Innovative Research*, Volume-7, Issue-9, 1152-1154, September 2020.
- 13. Dr. Dipak K. Chaudhari, "The Contribution of Ancient Bhartiya Education in Prevalent Bhartiya Education," *International Journal of Research in all Subjects in Multi Languages*, Vol-6, Issue-1, 53-55, January 2018.
- 14. Dr. J. Krishnamoorthy, "A Historical Perspective of Indian Education System," *International Journal of Trend in Research and Development*, ISSN: 2394-9333, 29-32, March 2019.
- 15. Ms. S.Divya, "A Study on Education System In India," *International Journal for Research Trends and Innovation*, Volume-7, Issue-8, 624-625, 2022.
- 16. Kalokhe Anil Sopan, Kumbhar Vijaykumar Sambhajirao, "Intelligent Course Recommendation for Students using Machine Learning Models," *International Journal of All Research Education and Scientific Methods*, Volume-12, Issue-12, 2397-2402, December-2024.
- 17. Amir Narimani, Elena Barberà, "Extracting Course Features and Learner Profiling for Course Recommendation Systems: A Comprehensive Literature Review," *International Review of Research in Open and Distributed Learning*, Volume-25, Number-1, February 2024.
- 18. Kalokhe Anil Sopan, Kumbhar Vijaykumar Sambhajirao, "A Personalized Course Recommendation System for Students Using Machine Learning Techniques," *Journal of Technology*, Volume-12 Issue-12, 903-912, 2024.
- 19. Dr. D. V. Divakara Rao, Dr.P.M.Manohar, A.Venkatesh, A. Lokesh Kumar, Abhinav, "Course Recommendation System using Machine Learning," *Dogo Rangsang Research Journal*, Vol-13, Issue-4, 64-73, April 2023.
- 20. Mudavath Shiva Naik, M.Radhika, "Impact of New Education Policy 2020 on Higher Education," *Journal of Emerging Technologies and Innovative Research*, Volume-9, Issue-8, 16-21, August 2022.