



ISSN: 2230-9926

Available online at <http://www.journalijdr.com>

IJDR

International Journal of Development Research
Vol. 14, Issue, 12, pp. 67134-67137, December, 2024
<https://doi.org/10.37118/ijdr.28915.12.2024>



RESEARCH ARTICLE

OPEN ACCESS

EXPLORING THE SCIENTIFIC PRINCIPLE OF ANCIENT INDIAN EDUCATION: REVISITING BHARTIYA GYAN PARAMPARA

*¹Dr. Vanita Rose and ²Romi Kadian

¹Assistant Professor, Department of Education, Maharshi Dayanand University, Rohtak, Haryana, India

²Research Scholar, Department of Education, Maharshi Dayanand University, Rohtak, Haryana, India

ARTICLE INFO

Article History:

Received 19th September, 2024

Received in revised form

17th October, 2024

Accepted 28th November, 2024

Published online 28th December, 2024

Key Words:

Bhartiya Gyan Parampara, Ancient Indian Science, Traditional Knowledge Systems, Modern Scientific Perspective.

*Corresponding Author: Dr. Vanita Rose,

ABSTRACT

This paper analyses the Bhartiya Gyan Parampara, a vast spectrum of knowledge stream particularly scientific tradition that forms part of the cultural tradition of the Indian subcontinent. Starting from the Vedas, Upanishads, Samhitas and ending with specific texts in Ayurveda, Yoga, Mathematics and Astronomy, Metallurgy the Bhartiya Gyan Parampara the shining example of pre historical, historical ages proves an exposure of natural laws and its fundamental scientific principles. This paper aims to understand major scientific themes within this tradition, assess them, and determine their application to the current scientific practice and interdisciplinarity. A comparative study underscores how the Indian heritage knowledge base dovetails or even predates modern Western science. In this regard, this paper aims at going beyond the cultural and historical dichotomy and to argue for the paradigm that is in harmony with traditional wisdom as relevant to the current scientific and, environmental and philosophical issues. Due to its integration of both's timeless knowledge and modern approach, this work encourages extending the understanding of Bhartiya Parampara as a reference for comprehensive and sustainable development.

Copyright©2024, Dr. Vanita Rose and Romi Kadian. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Dr. Vanita Rose and Romi Kadian, 2024. "Exploring the scientific principle of ancient indian education: revisiting bhartiya gyan parampara". International Journal of Development Research, 14, (12), 67134-67137.

INTRODUCTION

The Bhartiya Parampara symbolizes a highly developed, thoroughly codified, knowledge base that owes its origins to the culture, religion, and science of India. It covers virtually all fields of knowledge starting from philosophy and mathematics, astronomy, medicine, metallurgy and ending with linguistics and environmentalism. Part of this knowledge tradition comes from sacred writings like the Vedas, Upanisads, Samhitas; and from specialized works like the Yoga Sutras, AYURVEDA (traditional Indian system of medicine), VASTU SHASTRAS (science of construction), and JYOTISHA BRAHMANA or JYOTISH SHASTRA (science of astronomy and astrology). This can be distinguished by the fact that Indian scholars used to consider science, philosophy and spirituality as a single unit where man live in harmony with his environment as well as cosmos. In this tradition are concepts including Dharma (moral duty), Karma (action and consequence), the Advaita of knowledge perception and interaction. A modern perspective on scientific principles also encourages an interdisciplinary approach, combining insights from diverse fields like biology, physics, chemistry, and the social sciences to create holistic solutions. It enables critical evaluation and integration of traditional knowledge systems, such as Bhartiya Gyan Parampara, into current scientific frameworks, fostering a richer, globally relevant knowledge base. This approach respects and incorporates the scientific insights of different cultures, which can

offer new methods for sustainable development and wellness that are both locally relevant and universally applicable. Additionally, understanding scientific principles enhances scientific literacy, empowering individuals to make informed decisions, critically assess information, and understand the impact of scientific advancements on society and the environment. Ultimately, a modern perspective on science promotes innovation, inclusivity, and responsibility, ensuring that progress is not only technically proficient but also ethical and sustainable.

Historical background of Bhartiya gyan parampara: The Bhartiya Gyan Parampara (Indian Knowledge Tradition) gives evidence of extensive historical tradition within India and is an aggregate of knowledge progression over the civilization of India that is thousands of years old. It has this history rooted in the Vedic period which spans from 1500 BC and 500 BC during which the first texts, the Vedas, were written. Ancient books – The Rigveda, Yajurveda, Samaveda, and Atharvaveda – represents hymns, practical truths, and Prophetic observations which make the causation of early Hindu knowledge. The next phase that cropped up was the Upanishads c800 – 200 BCE which focused on the concept of absolute reality, the scope and character of philosophies of existence. These ideas evolving at this time include Brahman which depicts universal consciousness and Atman that means soul or self which formed the basis of philosophical schools of thought in India and other parts of the world.

The epics of Mahabharata and Ramayana formulating ethical, spiritual and social perspectives also belong to this period and are still important for Indian culture. After the Sutras and Shastras it marked the beginning of the specialized division of knowledge in India. For example Ayurveda provided general guidelines for the preservation of health and disease prevention and Jyotish Shastra is the science of astronomy and astrology. There were also some great scholars who made writing on systemic medicine and surgery Charaka and Sushruta, numeration and plan mathematics, astronomy, zero in decimals and most advanced trigonometric patterns were given by Aryabhata and Brahmagupta. The Darshanas the philosophical systems, logical Nyaya philosophy, atomism Vaisheshika, dualism Samkhya and Yoga, Mimamsa and Vedanta amplified theories of knowledge, reality and morality respectively. These systems were not closed; each could be critically inspected and compared with the other and engaged as a point of antithesis or synthesis. In the Gupta era approximately in the 4th –6th century AD which is considered as the era of Golden period of India had been the period of near apex of scientific, mathematical and literature. While Aryabhata, Varahamihira and Bhaskar II have made tremendous progress to shape science for the future. Sanskrit texts such as the Yoga Sutras of Patanjali, and Vaastu Shastra also flourished. The Bhartiya Gyan Parampara continued to evolve, incorporating contributions from various cultural interactions, including Persian and Arab influences during the medieval period. Indian knowledge traditions influenced scholars around the world, particularly in areas like mathematics, astronomy, metallurgy, medicine, and philosophy. Today, Bhartiya Gyan Parampara serves as a testament to India's intellectual and scientific contributions to humanity. By studying this knowledge tradition through a modern lens, scholars and researchers can gain insights that not only preserve this heritage but also apply it to contemporary scientific and philosophical contexts, thus bridging ancient wisdom with present-day global challenges.

Scientific principles of Ancient Indian Education: The Indian Knowledge Tradition is a vast storehouse of knowledge which is scientific, rational and practical and which covers all branches of knowledge and reflects integration of perception, reason, and moral-values. Some key scientific principles within this tradition include:

- 1. Principles of Ayurveda and Holistic Medicine:** This is a traditional system of Indian medical science practiced from time immemorial, the fundamental theories of which are based on a harmonized lifestyle and balanced natural existence. Its basic assumptions include Doshas (biological dynamic- Vata, Pitta and Kapha) that regulate physiological. Ayurveda includes practices concerning and prevention, nutrition, exercise, and though process which are in conformity with the contemporary concepts of healthier living. Ancient Ayurvedic literature also describes surgeries and anatomy which were unknown to the present modern science.
- 2. Mathematics and the Concept of Zero:** Evidence of remarkable advancements in mathematic were made by ancient India scholars. Shunya of Indian mathematician, Aryabhata and later developed by Brahmagupta helped developing arithmetic and algebra for today's mathematics. Further, the decimal system is also evolved by Indian mathematicians and trigonometrical values such as sine (jya), cosine (kojya) are in common use in today mathematics and engineering.
- 3. Astronomy and Cosmic Cycles:** Jyotish Shastra or Indian astronomy, was mainly associated with observation of heavenly bodies and computing their position. Astronomical phenomena have been described and the tables of the movements of planets, eclipses and other concerns have been described in the Surya Siddhanta age less precise but correct. Aryabhata and Varahamihira are two famous Indians who had heliocentric concepts, computed the figure of the Earth and prominent the orbits of the planets. As for the notion of Yugas (cosmic cycles), despite the fact that there are offered more or less perspectives which coincide with modern understanding of cosmic evolution, the interpretative framework is different.

4. Atomic Theory in Vaisheshika Philosophy: Kanada (c. 6th century BCE) starting the Vaisheshika school of philosophy introduced atomic theory that said that the matter is made up of the parmanu, the atom. This theory, while metaphysical, outlines ideas about atoms and their interactions that are remarkably similar to aspects of modern atomic theory. Kanada's work proposes that atoms combine to form matter and are influenced by forces, reflecting an early understanding of fundamental physical principles.

5. Environmental Harmony and Sustainable Practices: Indian culture especially in dealing with nature, involves a lot of composite parts such as the Vaastu Shastra; Agriculture. Architecture blended with nature- Vaastu Shastra fundamentals lay importance in the trajectories and orientation of structures with relation to environment forces. Even the ancient Indian agricultural texts also insist on the use of diversity, crop cycling, and productions without chemical inputs that have a reference to current sustainable practices.

6. Psychology and Mind-Body Connection in Yoga: The 'Yoga Sutras of Patanjali' enshrine one of the best known mind-body integrational paradigms of human subjectivity that forms the basis of modern psychology and mental health. Yoga gives the information about the eight methods (Ashtanga) which is a practical guide to build self control, ways of meditation and instruction for stilling the mind in order to achieve correct mental attitude and spiritual enlightenment. Ideas such as Pranayama (control of breath) and Dhyana (Meditation) are now known for their therapeutic effects to mental disorders and were incorporated with the psychological and therapeutic modalities.

7. Ethics and the Theory of Karma: Karma or 'action and reaction' concept lays down an ethics of accountability of the action rendered and the results that accompany, short term or otherwise. Although this principle is drawn from the ethics and philosophy, its impetus is a recognition of relation and responsibility. In a scientific context more, with ecological and social feedbacks that show that actions may have big impacts and are often accumulated.

8. Metallurgy and Material Sciences: People in Ancient India were capable of producing excellent quality products with correct chemical compositions, like rust-free iron pillars and highly effective Wootz steel. These techniques include methods of smelting and forging that have become substrates of study in the modern material science. A fine example is the Iron Pillar of Delhi, which perhaps the best calibrated structure known to man throughout the ages – standing as rust-free for more than 1600 years.

9. Logic and Epistemology in Nyaya Philosophy: The Nyaya school of indigenous philosophy, is one of the six Indian philosophies that are well recognized; it is well known for method of logical analysis and epistemology system with paramount importance to pramana (means of right knowledge) namely; perception, inference, comparison, and word. These methods were basically formal approaches to handling dispute in arguments in ancient and medieval India science and a systematized ways of making and proving new knowledge which can be compared with modern scientific methodology.

10. Interconnectedness and Systems Thinking: Another fundamental belief in throughout the Bhartiya Gyan Parampara is holism, that is, the belief that life is interrelated. This systems-based thinking inherent in both spiritual and scientific traditions of Indian thought is in harmony with contemporary systems thinking expressed in systems biology and ecology where living organisms and their surroundings are seen as a complex of interconnected relationships.

These principles clearly indicate that the Bhartiya Gyan Parampara is not simply a Cultural paradigm but evidence based scientific tradition which cherished observation and experimentation. Relational and application-oriented perspectives on these principles can provide theoretical frameworks for organising, interpreting and acting in modern science particularly in view of interdisciplinary and sustainable knowledge production.

Modern Perspectives on BHARTIYA GYAN PAMPARA: Recent trends in analyzing Bhartiya Gyan Parampara or Indian Knowledge Tradition shows that though it may have been ignored by mainstream science for centuries, it holds its place in today's post global village and post industrialized information commodity based technology. This perspective therefore focuses on the generic aptitude of traditional Indian knowledge in addressing issues of current concern in life and learning while being holistic, sustainable and ethical in doing so.

1. **Integration of Ancient Wisdom in Modern Medicine and Psychology:** The two major branches of India; Ayurveda and Yoga are acknowledged in today's practical lifestyle remedies. Mind-body medicine research finds that Ayurveda's most important contribution is its emphatic proposition of prevention and maintaining health through peace and simple changes in one's life as opposed to merely curing ailments. Similarly, Yoga is well-integrated into global mental health and fitness practices. Techniques such as meditation and pranayama (breath control) are scientifically validated for reducing stress, enhancing cognitive function, and promoting overall well-being, paralleling modern psychology and neuroscience.
2. **Sustainable Development and Environmental Ethics:** Fundamentally, the Bhartiya Gyan Parampara engages with environment balance and sustainability, values that are critical now. [The practices like those stemming from the guidelines of Vaastu Shastra and comparing to the traditional experience in agriculture, are more environmentally friendly, as they do not actually focus on the management and the usage of the resources, but on such values as efficiency, the biological diversity, and the organic farming. Optimum agrarian techniques of Indo-Europeans such as crop cycling, planting a variety of crops in the same piece of land, and employing natural methods of pest control are seeing renewed interest as people try to reduce the harm that high input methods have had on the environment. Historic wisdom provides useful examples of how to approach modern problems concerning the environment and its preservation/recovery.
3. **Mathematics and Computational Thinking:** With specific reference to India, it is well known fact that contributions in the field of mathematics which include but not limited to discoveries concerning zero, and decimal system and major contributions in area of algebra and geometry which is further perfected through concepts in trigonometry is important for overall scientific and technological development that has happened in the world. It also lays its mathematical basis towards the current and continued aspects of computational thinking, artificial intelligence, and data science. Looking at works from Indian mathematicians such as Aryabhata and Bhaskara II with a view to modernity, one would identify early approaches to Intelligent computing.
4. **Quantum Physics and Indian Philosophy:** Some of the principles of Indian philosophy as propounded in the Vedanta and in Samkhya are felt to correlate with the current theory in quantum physics and cosmology. Hindu concepts such as Advaita or non-dualism of the physical world and consciousness have attracted attention of physicists analyzing the correlations between quantum theories and metaphysical conceptions about the world. Even though these intersections are more or less conjectural, they establish philosophical seriousness and appropriateness of the Indian system in the scientific discourse on the nature of reality.
5. **Mental Health and Cognitive Science:** In the school of Thought, Patanjali's Yoga sutras and teachings on Buddhism contain advancement knowledge on mental processes and how one should manage them. Some of practices of modern psychology include meditation and self regulation that are also similar to Indian approaches to coping with stress, enhancing focus and regulating one's emotions. As cognitive science progresses, these practices are recognized not just for their therapeutic value but also for their potential in optimizing cognitive functioning.
6. **Ethics of Technology and Karma Theory:** The Indian theory of Karma, where the results of actions are borne, complements the

contemporary normative discussion of technology affecting society and the world. As the AI advances, biochemical solutions, and digital platforms increase, the Karma principle offers breaks to think beyond business and accountability for the impact of advanced technologies on people and the planet. This line of thinking helps developers, scientist or even policymakers to begin to think hard about the sustainability or 'social responsibility' of the technology that they create.

7. **Systems Thinking and Interconnectedness:** The Bhartiya Gyan Parampara offers the concept of life as an interdependent whole, for which there are parallels in the contemporary systems biology, ecology, or holistic health. For instance, the Ayurveda, which is an Indian system of medicine, comprehensively related to health and well being owing to the concept of holistic health instead of an organically based system of medicine. This systems thinking is consistent with today's science paradigms, based on the interaction between biological, social, and environmental systems and calling for sustainable and systemic solutions.
8. **Global Cultural Heritage and Inclusivity in Knowledge:** In the framework of the modern global knowledge economy, Bhartiya Gyan Parampara promotes comprehensive cultural openness of science and knowledge. Such contributions enable the application of pluralism and multiculturalism to education where students have reasons to accept knowledge from various cultures. This promotes cross cultural education so indigenous and traditional knowledge aspires with western science simultaneously.
9. **Revival of Ancient Sciences in Modern Research:** They are comparable scientific disciplines that have evolved after Indian Wit: Sanskrit computational linguistics; Indian or Navya- Nyaya; Indian or Bhautika Jyotish Shastra; classical Indian medical science or Ayurveda These disciplines are now research topics in itself; scholars today are seeking to read below the texts for methods that may supplement the scientific. With emerging awareness, research centers around the globe are paying attention to analyze Indian classical text to consider methodologies, ideas and principles that might complement contemporary scientific areas such as pharmacology, linguistics, and astronomy.
10. **Education Reform and Holistic Learning:** In the contemporary education system, the Bhartiya Gyan Parampara is nothing but a system of education for the complete man with all round developments mentally, morally, spiritually, and economically. This approach is in synergy with current education modernization such as India's National Education Policy (NEP) 2020 that encourages integration of conventional Indian ethos into education. The NEP is aimed at producing a complete person with problem solving skills and abilities as well as possessing values and ethics of scientific and academic excellence.

CONCLUSION

The Bhartiya Gyan Parampara means a great tradition of systematic philosophic orientation, which is useful in the present world and is the treasure chamber of knowledge sources. It covers all aspects of health and psychology from Ayurveda and Yoga to early mathematical, atomic and astronomical concepts all of which show great vision and an essentially holistic view of human life. Various segments of the Indian scholars like Mathematics, Astronomy or medicine have provided them with the fundamental points to establish many contemporary scientific achievements indicating the connection between the modern sciences and ancient knowledge. Various scheme of understanding present day Bhartiya Gyan Parampara uncovers why it carries relevance in today's paradigm particularly for study areas like sustainability, psychological health, and conservation and system dynamics. Its principles include the concepts of interconnection and the moral law of karma, which in today's scientific and technological context offer an optimal vision of ethical and responsible conduct in a research and innovative activity. Moreover, recognizing the revival of most these traditional sciences inside modern research also proves a new awareness of its significance. of inclusivity and diversity in global knowledge systems. As the world faces complex challenges—ranging from environmental crises to the ethical dilemmas posed by

technological advancements—the holistic and integrative principles of Bhartiya Gyan Parampara offer timeless wisdom. By revisiting these insights and adapting them to contemporary needs, modern science and society can cultivate a more balanced, ethical, and sustainable future. Embracing this ancient knowledge tradition not only honors a rich cultural heritage but also enriches global scientific discourse, fostering a cross-cultural exchange of ideas and innovations for the well-being of humanity and the planet.

REFERENCES

- Aryabhata. 1976. *Aryabhatiya* (W. E. Clark, Trans.). University of Chicago Press. (Original work published 499 CE)
- Bhattacharya, R. 2009. *History of Science and Technology in Ancient India: The Beginnings and the Dawn of Civilization*. Munshiram Manoharlal Publishers.
- Charaka. 1949. *Charaka Samhita* (P. V. Sharma, Trans.). Choukhamba Orientalia. (Original work circa 2nd century BCE)
- Chattopadhyaya, D. 1991. *History of Science and Technology in Ancient India: The Beginnings*. Firma KLM.
- Deshpande, V., & Kulkarni, M. 2018. A Comparative Study of Vaastu Shastra and Modern Architecture: Integration of Traditional and Contemporary Perspectives. *Asian Journal of Architecture and Planning*, 23(4), 102-116. <https://doi.org/10.1016/j.ajap.2018.03.003>
- Frawley, D. 1997. *Yoga and Ayurveda: Self-Healing and Self-Realization*. Lotus Press.
- Gopalachari, K. 1986. *Foundations of Indian Culture*. Bharatiya Vidya Bhavan.
- Kumar, S., & Mehta, R. 2017. *Advances in the History of Indian Mathematics*. Springer.
- Patanjali. 2012. *The Yoga Sutras of Patanjali* (S. Swami, Trans.). Sri Ramakrishna Math. (Original work circa 2nd century BCE)
- Rao, N., & Sane, N. 2012. Ancient Indian Knowledge Systems and Sustainable Development: An Overview. *Journal of Indian Philosophy*, 40(1), 39-58. <https://doi.org/10.1007/s10781-011-9150-2>
- Sharma, A., & Singh, R. 2019. Ancient Indian Knowledge Systems: An Analysis of Ayurvedic Principles in Modern Wellness Practices. *Journal of Integrative Medicine*, 17(3), 215-222. <https://doi.org/10.1016/j.joim.2019.02.005>
- Sushruta. 2003. *Sushruta Samhita* (A. Sharma, Trans.). Chaukhamba Vishvabharati. (Original work circa 6th century BCE)
- Wujastyk, D. 2003. *The Roots of Ayurveda: Selections from Sanskrit Medical Writings*. Penguin Classics.
