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The Role Of Sanskrit Language In Transmission Of Knowledge

Dr. Varsha Goyal,

Pt. Deendayal Upadhyay Institute of Rural Development, Dr. Bhimrao Ambedkar University, Agra, India

Er. Ritesh Gupta

Delhi Metro Rail Corporation Limited, New Delhi, India

Abstract

Sanskrit, the ancient Indian language, has played a pivotal role in the transmission of knowledge across various disciplines. This paper explores the significance of Sanskrit in the dissemination of knowledge, tracing its historical trajectory, linguistic features, and impact on Indian and global intellectual traditions. By examining the language's role in the preservation and transmission of ancient texts, its influence on the development of various branches of knowledge, and its continued relevance in modern times, this research aims to highlight the enduring legacy of Sanskrit as a vehicle of knowledge transmission.

1. Introduction

Sanskrit, an ancient language of India, plays a crucial role in transmission of knowledge. Sanskrit is serving as the language of religious texts, Philosophical treatises, scientific discoveries, and literary works, preserving and disseminating Indian knowledge systems for centuries. As the liturgical language of Hinduism, Buddhism, and Jainism, Sanskrit encompasses a vast corpus of religious texts, philosophy, literature, and science. Many fundamental science and mathematical concepts were first described in Sanskrit texts. As one of the oldest languages in the world, its significance in linguistic and literature value, embodying the spiritual, philosophical, and intellectual traditions of India. Sanskrit's rich literary corpus, which includes numerous classical texts on science, mathematics, and medicine, serves as a repository of India's ancient wisdom and cultural identity. Sanskrit plays a crucial role to transfer its knowledge and values to worldwide. Sanskrit is the primary language of Hindu scriptures, including Vedas, Upanishads and Puranas. Sanskrit literature flourished by epic and holy books like Ramayana and Mahabharat, mesmerizing dramas like *Abhigyanashakuntalam*, *Meghdut* etc. Sanskrit has also left a beautiful mark on the languages and cultures of Southeast Asia, where it was used as a language of scholarship and diplomacy. The decline in Sanskrit's usage over centuries has sparked concerns about the potential loss of this cultural treasure. Preserving and developing Sanskrit requires a multipronged approach, including government policies by integrating it into education, promoting its use in daily life, and systematic uses in technology to ensure its continued relevance and accessibility for future generations. Recognizing its importance, initiatives such as the National Education Policy 2020 have emphasized the revitalization of Sanskrit education. This policy underscores the need to integrate Sanskrit into modern curriculum, ensuring that future generations can access and appreciate the profound knowledge embedded in ancient texts.

This paper delves into the profound significance of Sanskrit language in transmission the Indian Knowledge. It seeks to answer a central question: How has Sanskrit literature shaped the development and transmission of the Indian Knowledge System? By exploring the diverse genres of Sanskrit literature and their interactions with various branches of knowledge, this research aims to illuminate the profound and enduring influence of this literary tradition on Indian thought and practice.

2. Historical Significance of Sanskrit

The historical context surrounding Sanskrit literature is essential for understanding its immense significance in shaping the Indian knowledge, developing a sound and cultured social personality by transmission of knowledge. Sanskrit often referred to as the language of the gods written in Vedas, Upanishads and Puranas, has a rich and ancient lineage dating back thousands of years. Its origins can be traced to the Proto-Indo-European language family, and it evolved into a sophisticated literary and scholarly language in the Indian subcontinent. Serving as a foundation for many modern languages and influencing various fields like science, medicine and mathematics.

2.1 Ancient Texts and Literature

□ *Vedas (c. 1500 - 500 BCE): The oldest sacred texts of Hinduism, composed in early Vedic Sanskrit.*

The Vedas are considered foundational scriptures in Hinduism offering insights into ancient Indian religious beliefs, practices, and philosophical concepts, and they continue to be a source of spiritual wisdom and guidance.

□ *Upanishads (c. 800 - 200 BCE): Philosophical texts exploring the concepts of Brahman and Atman, composed in late Vedic Sanskrit.*

Upanishads form the philosophical backbone, exploring the nature of reality, the self, and ultimate truth, and are considered the last phase of Vedic revelation, emphasizing spiritual enlightenment over ritualistic practices.

□ *Mahabharata (c. 400 BCE - 400 CE): One of the largest epic poems in the world, detailing the Kurukshetra War and moral dilemmas faced by its characters.*

□ *Ramayana (c. 500 BCE - 100 BCE): An epic narrating the life and adventures of Prince Rama, his wife Sita, and his loyal companion Hanuman.*

□ *Puranas (c. 300 - 1500 CE): A genre of ancient Indian literature encompassing mythological stories, traditions, and legends.*

2.2 Religious Traditions:

□ *Hindu Rituals and Prayers: Sanskrit is the liturgical language for most Hindu ceremonies and prayers.*

□ *Buddhist and Jain Texts: Sanskrit was also used in early Buddhist and Jain texts, contributing to the spread of these religions.*

2.3 Philosophical and Scientific Works:

□ *Aryabhata's "Aryabhatiya" (499 CE): A seminal work on mathematics and astronomy written in Sanskrit.*

□ *Charaka Samhita (c. 100 BCE - 200 CE): An ancient Indian medical text on Ayurveda composed in Sanskrit.*

2.4 Literary and Artistic Contributions:

□ *Kalidasa's Works (c. 4th - 5th century CE): Renowned classical Sanskrit poet and playwright, known for works like "Shakuntala" and "Meghaduta."*

3. Role of Sanskrit in Education

Sanskrit plays a vital role in Indian education by preserving cultural heritage, fostering a deeper understanding of Indian traditions, and enhancing language and cognitive skills as highlighted in the National Education Policy 2020.

3.1 Science and Mathematics

Sanskrit has a beautiful and sound history dating back thousands of years. Sanskrit texts were the first to describe many important scientific and mathematical concepts. Former Indian President Pranab Mukharjee noted in 2016 that many important scientific works were written in Sanskrit and stressed the importance of preserving and promoting this ancient language. For example, the concept of Zero was first described in the Brahmi numerals used in ancient India, which were written in Sanskrit. The decimal system was a major scientific breakthrough in ancient mathematics and is considered by many to be the most revolutionary achievement of the time.

The “Shulva Sutras” provide the earliest known description of the Pythagorean Theorem. Also, the “Aryabhatiya”, written by Aryabhat, provides a clear explanation of the principles of trigonometry. Aryabhat also calculated the value of π as 3.14 and his works were later adopted by the Greeks and the Arabs. Sanskrit also has a long medical tradition. The “Charak Samhita” a Sanskrit medical text, provides a thorough understanding of human anatomy, pathology, and the diagnosis and treatment of various diseases. This text is still studied by Ayurvedic practitioners today and has had an impact on the evolution of modern medical practices.

It is an indictment of our education system that most of these remarkable achievements are never mentioned in our textbooks, both in English and in Indian languages. If we want to gain an accurate understanding of the scientific and technological achievements of Indian civilisation, a knowledge of Sanskrit is essential since virtually all pre-modern Indian scientists such as Caraka, Suśruta, Āryabhaṭa, Varāhamihira, Bhāskara II, and Mādhava composed their scientific treatises in Sanskrit. A sound knowledge of Sanskrit would provide a student with the tools necessary to critically examine claims about Indian intellectual history and arrive at his/her own conclusions. This conclusion would inevitably follow the Buddhist middle-path (Pāli majjhima paṭipadā): ancient Indians made numerous scientific advancements but were neither omniscient nor utterly ignorant. Teaching Sanskrit is the best way to expose students to the richness of the scientific, philosophical, and practical knowledge-systems of Indian civilisation.

3.2 Literature

Many of the foundational stories of Indian civilisation which still delight us today have their roots in Sanskrit literature: the story of Rāma and Sītā in the *Rāmāyana*, the fratricidal tragedy of the *Mahābhārata*, or Kṛṣṇa’s childhood and his love-affairs with *gopīs* in the *Bhāgavatapurāṇa*. If religion and science isn’t your cup of tea, despair not! Most of Sanskrit literature is actually descriptions of beautiful sunrises, terrifying wars, and sweet love-making.

3.3 Linguistic Heritage:

Sanskrit plays a pivotal role in preserving Indian cultural heritage through its linguistic significance and historical importance.

Etymological Roots: Sanskrit serves as the foundational language for many Indian languages, influencing their vocabulary, grammar, and syntax. This linguistic connection highlights the deep-rooted cultural ties across diverse regions of India.

Linguistic Studies: Studying Sanskrit provides insights into the evolution of languages and their historical relationships. It offers a window into ancient texts, philosophical thought, and scientific advancements at form the bedrock of Indian intellectual traditions.

Sanskrit not only serves as a link to India's linguistic past but also enriches understanding of its cultural evolution and heritage. Its preservation and study are crucial for maintaining and revitalizing India's diverse linguistic and cultural landscape.

3.4 Sanskrit Pedagogy:

Sanskrit plays a crucial role in preserving Indian cultural heritage through various educational initiative and policies. But before discussing about the policies i want to ask two practical questions- (i) how should Sanskrit be incorporated into our school curriculum? (ii) How can teachers make Sanskrit learning easier and more enjoyable?

As far as the first question is concerned, National Education Policy (NEP) 2020 hits the nail on the head:

“Sanskrit will thus be offered at all levels of school and higher education as an important, enriching option for students, including as an option in the three-language formula.” (NEP 2020: 14) National Education Policy 2020: This policy underscores the importance of Sanskrit by promoting its inclusion across educational levels. By integrating Sanskrit into school curricula, the policy aims to preserve and promote its study among younger generations. This initiative is seen as a means to foster a deeper understanding of India's cultural heritage and enhance linguistic diversity in educational settings. Though Sanskrit should not be made compulsory as a language, all students should be exposed to Sanskrit literature and knowledge-systems in translation. This will expand the student’s horizon beyond the confines of modern languages.

Traditional Learning Systems: Historically, Sanskrit has been integral to India's traditional learning systems like Gurukuls, where it was not only a language of instruction but also a medium for transmitting philosophical, scientific, and literary knowledge. Today, efforts to revive these traditions often include Sanskrit to reconnect students with their cultural roots and classical wisdom.

As far as Sanskrit pedagogy is concerned, the need of the hour is qualified teachers who can make language learning enjoyable. Too often, learning Sanskrit involves drowning in a sea of meaningless paradigms to be memorised. This approach ends up detracting students who would have otherwise enjoyed reading Sanskrit texts. Like other Indian languages, Sanskrit should be taught using a combination of everyday conversation and textual study. Crucially, teachers should treat Sanskrit as a language of daily life rather than as a dead language of ancient manuscripts. Such an approach will make students internalise and cherish Sanskrit instead of merely treating it as a scoring subject to achieve better grades.

The inclusion of Sanskrit in education is not just about language proficiency but also about nurturing a sense of pride and identity rooted in India's ancient traditions and knowledge systems. Sanskrit education, India seeks to ensure that its cultural heritage continues to flourish in contemporary society.

4. Sanskrit in the Technology world-

Sanskrit is one of the oldest documented languages on the planet, and it has long served as one of the primary channels for the transmission of knowledge and ideas in not only India but also a large part of Asia. Yet, the interesting part is that even after almost three thousand years of its inception, the rules of the language and process of Sanskrit language learning remain same, unlike any other language in the world. On top of it, there exists almost no other language which is as systematic in the syntactic and semantic way, which has made computer scientists around the world curious about the application of information technology in Sanskrit. Very few people know that Sanskrit basics have contributed to a lot of past as well as ongoing research in the area.

4.1 Sanskrit the perfect language to use with computer:

The word Sanskrit itself means "pure or perfect". It is one of the most accurate and well-balanced languages ever devised. The lexicon, phonology, grammar, and syntax of the language are elegant and scientific. For a computer to use a natural language, however, the words, grammatical rules, and sentences - everything must be unambiguous, every statement should be easy to break down into an array of semantic data that would be easy to compile, and the response sentences created should be formed near perfectly in the same language as that of the input with little to no deviation. Sanskrit does all of that, making Sanskrit language learning very easy for even the computer.

Word:

In Sanskrit, every device is defined by a word and these words have been constant through the ages, no new word has been added. Every letter in Sanskrit has a meaning, and each word represents an object's attribute rather than the object itself. Because Sanskrit words are made up of core elements called Dhatus, each of which has a meaning, they provide Data, Information, and Message. In Sanskrit, there are roughly 2200 dhatus from which words are formed. An endless number of words can be created simply by adding prefixes and suffixes to these Dhatus. On top of that, each Sanskrit word also contains information like Gender, Quantity, and tense used. Therefore, the word, as well as the thing it referred to, may be easily understood by any Sanskrit speaker.

Grammar:

Sanskrit grammar was established by Panini in 500 BCE in his book "Ashtadhyayi" and the same grammar is followed till today. He made it in such a way that words and their surroundings guide the language. Each word is aware of its roots and always relates back to the root from which it was derived, resulting in a seamless connection between the word and its meaning. As a result, when each word is correctly employed in a sentence, it delivers an expression without any confusion.

Sanskrit grammar is extremely methodical and precise in its application. Sanskrit verbs can be cross linked in one of three ways: first, second, or third person. There are three numerical forms for verbs: singular, dual, and plural. There are ten tenses and three voices for verbs: active, middle, and passive. There are eight cases: nominative, vocative, accusative, instrumental, dative, ablative, genitive, and locative and three genders: masculine, feminine, and neuter.

4.2 The scope of Sanskrit in technology today

The richness of Sanskrit basics originates from the fact that everything in it is predetermined and derivable. if you simply know the formula that is taught in a course of even Sanskrit for beginners. Its fixed structure and this derivability from Sanskrit basics make it an extremely potent language for informatics.

What is NLP?

NLP or Natural Language Processing is the means of interpreting natural languages like speech and text by using software in an automated manner. To elaborate, NLP aims to create machines that interpret text or voice input in the same manner that people do, and respond with text or speech of their own which are intelligible to humans. It enables computer programs to translate text from one language to another, respond to spoken instructions, and quickly summarize vast amounts of material, even in real-time.

How can Sanskrit be used in NLP?

Years of research have shown that because of the highly organised structure and bare minimal ambiguity from a semantic and syntactic point of view, Sanskrit is one of the best languages for using in natural language processing.

1. The Paninian system of understanding speech is very similar to the same for a computer, which makes it simpler for the machines.
2. Also, there are eight predefined vibhaktis (cases) in Sanskrit. The reader receives the right, clear, definite, and explicit meaning of the text when the words in a given sentence fall under any one of these eight cases. Therefore, Sanskrit sentences can be defined easily with classes and objects which makes it simple for a computer to recognize the meaning.
3. With all of its Vibhaktis (cases), the Sanskrit language provides an efficient technique of segmenting sentences into logical constructions for natural language processing. The semantic net models employed in artificial intelligence systems are comparable to the way Sanskrit phrases are broken down.

Various government agencies in India, such as the Centre for Development of Advanced Computing (CDAC) in Poona, TDIL under the Department of Information Technology, ILDC, JNU, IIT Kharagpur, and NGOs such as the CIRD and the Academy of Sanskrit Research in Melkote, are developing computer applications for Sanskrit as well as developing programs to process Sanskrit in computers.

5. Role of Sanskrit in shaping Social personality

Sanskrit, as a language and cultural foundation, shapes personality by fostering a sense of heritage, promoting ethical values, and encouraging intellectual and spiritual growth through its rich literature and traditions. Sanskrit literature stands as a towering testament to the intellectual and cultural heritage of India. Its influence permeates virtually every facet of Indian life, shaping philosophical discourse, scientific exploration, artistic expression, and religious beliefs for millennia.

Sanskrit is the language of ancient Indian texts like the Vedas, Upanishads, Mahabharata, and Ramayana, connecting individuals to their cultural roots and fostering a sense of belonging. These texts delve into metaphysical concepts, ethical teachings, and spiritual insights, offering a profound understanding of Indian philosophical traditions. The preservation of Sanskrit in these contexts not only sustains cultural continuity but also fosters a deeper connection to India's spiritual heritage, providing a philosophical framework that continues to influence various aspects of Indian thought and life.

Sanskrit's grammar and philosophical concepts promote logical thinking, clarity of speech, and deeper understanding of oneself and the world. Its intricate grammar, precise phonetics, and vast vocabulary have made it a subject of fascination and study for linguists worldwide. Sanskrit's influence extends beyond India, as many modern languages, including several European languages, have roots or borrowings from Sanskrit. Sanskrit literature, including the Bhagavad Gita and Manusmriti, emphasizes dharma (righteousness), karma (action and consequence), and moksha (liberation), shaping ethical behaviour and moral values. From the speculative metaphysics of the Upanishads to the practical ethics of the Śrīmadbhāgavad Gītā, Sanskrit literature continues to inspire philosophical inquiry and spiritual reflection, shaping the intellectual landscape of India.

Sanskrit literature is not only renowned for its philosophical and spiritual wisdom but also for its significant contributions to various scientific disciplines. From mathematics and astronomy to medicine and metallurgy, Sanskrit texts contain a wealth of knowledge that reflects the advanced scientific thinking prevalent in ancient India. Sanskrit's precise structure and rich vocabulary enhance communication skills and the ability to express complex ideas.

6. Challenges and Opportunities

6.1 Challenges

6.1.1 Declining Interest:

There has been a noticeable decline in interest among younger generations towards learning Sanskrit. Young generation doesn't understand the value and contribution of Sanskrit language towards science and maths. The decline in Sanskrit's usage over centuries has sparked concerns about the potential loss of this cultural treasure. This trend poses a significant challenge to preserving Sanskrit as a living language. We could get the real values through the Vedas, Upnishad and Stories of Panchtantra but our education system emphasise more on other language rather than Sanskrit. By neglecting the importance of Sanskrit we are leaving our civilization behind.

6.1.2 Lack of Resources:

Insufficient funding and resources allocated to Sanskrit education contribute to its marginalization within the educational system. This limits access to quality teaching and learning materials. Sanskrit is one of the 22 official languages in India but there are a few states where Sanskrit is include in their education curriculum. Most of the Government don't issue the budget for making more qualitative the education of Sanskrit or don't pay attention because of lack of interest of new generation towards this language. This is because a majority of students are enrolled in English medium school where other non-language subjects are taught in English.

6.1.3 Perception Challenges: Sanskrit is often perceived as archaic or irrelevant in modern contexts, which further diminishes its appeal among students and educators alike. Many people seems Sanskrit as a complex subject because of its rich grammatical structure, including intricate verb conjugations, noun declensions, and a sophisticated system of prefixes and suffixes. Its grammar making is a challenging but rewarding language to learn.

6.2 Opportunities:

6.2.1 Preservation of Sanskrit: The transmission and preservation of Sanskrit literature represent a remarkable feat of cultural continuity and scholarly tradition spanning thousands of years. From the ancient oral recitation of Vedic hymns to the contemporary digitization of manuscripts, Sanskrit literature has been meticulously safeguarded and transmitted across generations through various mechanisms. Sanskrit literature stands as a towering testament to the intellectual and cultural heritage of India. Its influence permeates virtually every facet of Indian life, shaping philosophical discourse, scientific exploration, artistic expression, and religious beliefs for millennia.

6.2.2 Global legacy: Sanskrit literature holds a profound global legacy that extends beyond the borders of the Indian subcontinent, influencing diverse cultures, languages, and intellectual traditions around the world. Its timeless wisdom, philosophical insights, and artistic expressions have transcended geographical boundaries, fostered cross-cultural exchange and enriching human civilization.

6.2.3 Sanskrit Studies and Academic Research: The academic study and research of Sanskrit literature and language has been flourished in universities and research institutions not only in India but worldwide, fostering interdisciplinary research in fields such as linguistics, philology, religious studies. Scholars from diverse cultural backgrounds contribute to the understanding and interpretation of Sanskrit texts, promoting cross-cultural dialogue and scholarly exchange.

6.2.4 Educational Initiatives: The new education policy (NEP) 2020 emphasises the importance of Sanskrit and other Indian languages, including mainstreaming Sanskrit as an option in the three-language formula and strengthening Sanskrit and Indian language institutes and departments.

7. Conclusion

Sanskrit language plays a crucial role in transmission of knowledge and India's rich cultural heritage by serving as a linguistic bridge to ancient texts, philosophies, and traditions. The language embodies profound spiritual and philosophical insights encapsulated in texts like the Vedas, Upanishads, and epics such as the Mahabharata and Ramayana. These texts are not mere repositories of religious beliefs but also encompass a vast spectrum of knowledge encompassing philosophy, mathematics, astronomy, medicine, and more. Sanskrit holds immense historical significance as the sacred language of Hinduism, the language of classical Hindu philosophy, and the language of historical texts of Buddhism and Jainism, serving as a foundation for many Indian languages and cultures. Sanskrit lays a vital role in Indian education by preserving cultural heritage, fostering cognitive development and providing access to ancient knowledge systems, as

emphasized by the National Education Policy 2020. Sanskrit is seen as a key to understanding India's rich literary, philosophical and scientific traditions. Sanskrit has been integral to traditional Indian learning system like Gurukuls, where it served as a language of instruction and a medium for transmitting knowledge. Sanskrit has made a significant impact on modern technology. In modern times Sanskrit consider as Programming Language because of its principles of Sanskrit grammar. As we discussed earlier Panini's grammar which is a set of rules for Sanskrit grammar, has been used to develop natural language processing (NLP) systems that can analyze and understand human language. It has been used as a source language for machine translation systems, which can translate text from Sanskrit to other languages. Sanskrit has played a significant role in shaping social personality in various ways.

In conclusion, Sanskrit language unveils not only the enduring legacy of these ancient texts written in Sanskrit but also its timeless relevance in transmission of knowledge to youth. As we continue to delve into the depths of Sanskrit texts, we are reminded of the profound wisdom, cultural richness and intellectual heritage that they perpetuate this invaluable legacy for generations to come.

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