Sanskriti 2.0: Digital Humanities and the Revitalization of the Indian Knowledge System

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Abstract

The Indian Knowledge System (IKS) constitutes a comprehensive repository of wisdom, encompassing diverse fields such as philosophy, politics, sciences, yagyas, mantras, religion, culture, medicine, arts, literature, warfare, linguistics, architecture, and agriculture. This extensive body of knowledge, accrued over millennia, offers a unique perspective that is crucial for addressing contemporary global challenges. Integrating IKS into modern educational frameworks seeks to preserve this rich tradition while leveraging its insights for sustainable development and progress. The corpus of ancient, medieval, and modern Indian texts, including the Vedas, Upanishads, Puranas, and various regional scriptures, embodies timeless wisdom that, if revitalized, can significantly enhance global discourse on sustainability. However, the primary challenge lies in accessing and interpreting these texts, often written in archaic languages and styles.

Digital Humanities (DH) presents a viable solution by employing digital tools to make these texts accessible, comprehensible, and researchable. DH methodologies, such as the creation of digital archives, advanced data visualization, and integration of immersive technologies, can facilitate the incorporation of IKS into contemporary education. This digital approach not only preserves the textual heritage but also fosters interdisciplinary collaboration, enhances scholarly research, and promotes cross-cultural understanding. By digitizing texts and employing natural language processing tools, DH projects can offer profound insights into Indian literary traditions, making them accessible to a global audience and ensuring their relevance in modern academic discourse. Thus, this paper aims to explore the role and scope of Digital Humanities as a viable tool for the study of ancient, medieval and modern Indian literature.

Keywords: Knowledge System, Digital Humanities, Natural Language Processing

Introduction

Over a millennium after its composition, Kalidas' Sanskrit play *Abhijñānasākuntalam* so profoundly influenced renowned German author Goethe that he penned:

Willst du die Blüthe des frühen, die Früchte des späteren Jahres,

Willst du, was reizt und entzückt, willst du, was sättigt und nährt,

Willst du den Himmel, die Erde, mit einem Namen begreifen,

Nenn ich, Shakuntala, dich, und so ist alles gesagt.

(Wouldst thou the young year's blossoms and the fruits of its decline

And all by which the soul is charmed, enraptured, feasted, fed,

Wouldst thou the earth and heaven itself in one sole name combine?

I name thee, O Sakuntala! and all at once is said.)

   —translation by Edward Backhouse Eastwick

Abhijñānasākuntalam was one of the first Sanskrit works to be translated into European languages. Goethe's exposure to this masterpiece opened his eyes to the depth and richness of Indian literature, art and aesthetics. The play's themes and aesthetic qualities influenced the Romantic movement in Europe, of which Goethe was a central figure. It reinforced the Romantic ideals of natural beauty, emotional depth, and the sublime. The themes explored in the play—love, duty, nature, and spirituality—reflect the profound philosophical and spiritual insights of Indian culture. These universal themes, when presented through the rich tapestry of Indian mythology and storytelling, highlight the depth and relevance of Indian knowledge systems.

The Indian Knowledge System (IKS) represents a comprehensive repository of wisdom and understanding, accumulated over the past few millennia. This expansive body of knowledge spans diverse fields such as philosophy, politics, sciences, yagyas, mantras, religion, culture, medicine, arts and literature, warfare, linguistics, architecture, and agriculture. The integration of IKS, theory and practice, into contemporary education, seeks to preserve and utilise this extant tradition of knowledge. By doing so, it offers a distinct Indian perspective to tackle both current and future not only regional but also global challenges. The IKS draws upon the rich heritage of ancient, medieval, and modern Indian texts and literature, embodying invaluable insights and solutions that have withstood the test of time. This ancient wisdom, if revitalised and appropriately disseminated, holds the potential to contribute significantly to the global discourse on sustainability and progress.

The objective is not merely to safeguard this intellectual treasure but to actively apply its principles and practices to foster a brighter, more sustainable future for India and the world. The latent potential of IKS lies in its ability to harmoniously blend with modern scientific and technological advancements, thereby offering innovative solutions that are both culturally

rooted and globally relevant. Unearthing and revitalising this treasure trove of knowledge requires concerted efforts to research, document, and disseminate it in a manner that is accessible and practical for contemporary application. The preservation and revitalization of India's rich cultural heritage have been a subject of growing concern in recent years. While efforts have been made to safeguard the tangible aspects of this heritage, the intangible knowledge systems that underpin it have often been neglected. Fortunately, the emergence of digital humanities presents a promising opportunity to address this challenge, as it allows for the leveraging of new media technologies to enhance the accessibility and dissemination of India's invaluable knowledge systems.

Digital Humanities

Digital Humanities (DH) refers to the application of computational methods, digital tools, and technologies to humanities disciplines, including literature, history, philosophy, and cultural studies. This integration of digital approaches with traditional humanities scholarship has opened up new avenues for research, analysis, and interpretation, leading to innovative insights and methodologies in the field of English literature studies. Digital Humanities offers a range of practices, including text analysis, data visualization, digital mapping, archival digitization, and digital storytelling. These practices seek to explore new methodologies and research questions that transcend traditional disciplinary boundaries and engage with the complexities of human culture and expression in the digital age. In the context of literature studies, Digital Humanities has had a profound impact on the way scholars approach literary texts, conduct research, and engage with literary theory and criticism. Key areas of focus include textual analysis, digital archives, interdisciplinary collaboration, and the development of innovative research methodologies.

The corpus of gyan (knowledge), vigyan (science), and jeevan darshan (philosophy of life) embedded in Indian texts is immense. Works such as the Vedas, Upanishads, Puranas, Pali and Sanskrit texts, Sikh and Jain scriptures, tribal texts, and folklore offer a parallel universe to English literature. These texts provide students with access to a wealth of diverse content and thought, as well as exposure to various literary styles, techniques, prosody, grammar, and linguistic strategies. However, the primary challenge lies in the access and interpretation of these texts, which are often written in archaic languages and styles. In an era of rapid digital innovation, teaching and learning platforms must evolve to incorporate these ancient texts

effectively. Digital Humanities (DH) offers the most viable solution to this problem. By leveraging digital tools, DH can make these texts accessible, comprehensible, and researchable, thus ensuring their integration into modern syllabi in a manner that is both relevant and engaging.

Strategies and Methodologies in DH

These are a few strategies and methodologies that are in practice in various DH projects:

1. Creation and preservation of digital archives such as Project Gutenberg
2. Creation of apps, websites and other digital tools for wider accessibility and dissemination of data in the public
3. Creation of a digital platform for merging Indian literature with English literature and other related disciplines like philosophy, psychology etc. to facilitate a comparative and/or advanced interdisciplinary collaboration and research in the field.
4. Advanced data visualization tools such as GIS mapping, historic-cultural mapping, interlinking diagrams and interactive panels.
5. Production of high-quality data and research that can be made available through open-access
6. Transcription of older texts/manuscripts into English and other in-demand languages
7. XML coding of data for advanced research and qualitative reading
8. Compilation of audio-visual databases, 3D artefacts
9. Integration of recent immersive technologies such as 3D virtual reconstructions, AR and virtual environments.
10. Scope for Crowd Sourcing as well as user-generated content
11. Virtual exhibitions and museums
12. Translation, phonetical assistance
13. Corpus linguistics, dialectology, stylometry

Indian Literature and DH

Now in the abovementioned DH framework, any exercise to fit in the body of Indian literature would be a mammoth venture that can be achieved only when the corpus is divided into multiple smaller projects and subsets designed and stratified based on time zone, region, language, genre or reigning periods. Thus, Indian literary fields of poetry, drama, prose and

fiction can be broken down and classified into smaller and attainable segments of DH projects that can digitise the data comprehensively. Apart from these, the categories of scriptures (the *Ramayana* and *Mahabharata*), religious wisdom and codes of conduct (Vedas, Vedangas, Upanishads and Puranas), theoretical and syntactical studies like *Natyashastra* and *Mahabhashya*, non-fiction treatises like *Arthshastra* and *Charaksamhita*, multiple philosophies, folklores, legends and tribal literature can constitute different DH ventures.

Let's take a closer look at the prospects and potential of any digital humanities project dedicated particularly to the achievements of ancient classical Indian literature. Such a project can preserve and promote this rich cultural heritage, enhance educational experiences, support scholarly research, and make these timeless works accessible to a global audience.

Creation of a comprehensive digital archive of manuscripts and texts of significant Sanskrit dramas, including works like *Mahabhashya*, *Mrichchakatika*, and plays by other important playwrights such as Ratnavali, Bhavabhuti, Priyadarsika, Nagananda, Vishakhadatta, Bhattanarayan, and Rajshekhara can be done by digitising them. XML coding can be used to encode the structure of texts, such as chapters, sections, paragraphs, and verses, preserving the logical and hierarchical organization of the document. This structured representation facilitates easier navigation and retrieval of specific parts of the text along with the embedding of rich metadata within the text files, including information about authors, publication dates, language, and manuscript sources. Cameras, scanners, and image capture tools can be used to digitize the pages of manuscripts. Further, translations and commentaries can be included in various translations and scholarly commentaries to make the content accessible to a broader audience, including those not proficient in Sanskrit. Audiovisual materials of modern performances and adaptations of the plays, photographs, illustrations, and diagrams related to the staging, costumes, and historical contexts of these dramas can be gathered/created to provide graphic details. Virtual exhibits using AR and VR technologies can offer immersive experiences of ancient theatre settings, providing context to how these dramas were originally performed.

Similarly, a digital humanities project focused on analyzing the poetry of ancient Indian poets such as Kalidasa, Shudraka, Banabhatta, Bhavabhuti, Harisena, Asvaghosha, Jayadeva, and Rajshekhar can significantly enhance our understanding and appreciation of these literary works. Annotation and markup tools can be used for annotating texts with comments on

literary devices, themes, historical context, and linguistic features. Textual mining techniques can be applied to identify patterns, themes, and motifs across different poems. Natural Language Processing (NLP) can be used for analyzing syntactic and semantic structures. Word frequency analysis can be done to figure out word frequency, rhyme patterns, and stylistic elements to study poetic forms and structures. Word clouds, network graphs, cross-referencing, and timeline visualization are other things that can be done to make the works more engaging and explanatory.

Any DH project would be of immense value in the case of doing a comparative study of poets from different Indian languages—such as Assamese, Punjabi, Tamil, Urdu, and Hindi. It can offer profound insights into the diverse literary traditions of India and can enhance our understanding of poetic forms, themes, and stylistic elements across languages, promote cross-cultural appreciation, and engage both scholars and the public in meaningful exploration of these literary treasures. Let's look into it in a little more focused manner.

We have taken Punjabi poet Amrita Pritam (1919–2005) with her notable work "Aj Aakhaan Waris Shah Nu," Tamil poet Subramania Bharati (1882–1921) and his famous work "Thirukkural" and Urdu poet Faiz Ahmed Faiz (1911–1984) with his notable work "Mujh Se Pehli Si Mohabbat Meri Mehboob Na Maang."

For any cross-linguistic comparison to be done here, a framework to compare poetic forms, themes, and stylistic elements across languages shall be developed. It shall examine the themes of love and partition, and the use of language to express personal and collective experiences in Amrita Pritam, study the integration of traditional Tamil poetic forms with modern themes and nationalistic sentiments in Bharati, and analyze themes of political activism and love, and Faiz's influence on Urdu poetry.

Then, after digitization and encoding, we can implement the comparative analysis by using text mining and NLP tools to analyze and compare thematic patterns, stylistic features, and linguistic structures across different languages. For example, these tools can be used to compare the use of metaphors in Bharati's Tamil poetry with Faiz's Urdu metaphors to identify cross-linguistic similarities and differences. Then interactive visualizations can be developed showing the thematic evolution and stylistic variations of each poet. For example, we can create a network graph that illustrates the relationships between themes in the works of Amrita Pritam and Subramania Bharati.

Current Status of DH in India:

The merger of digital humanities with Indian literature is an emerging field that combines computational methods with traditional humanities disciplines. In India, this integration began with projects like 'Project Madurai' and 'Bichitra,' which digitized Tamil classics and Tagore's works respectively. The field has since expanded, with universities and organizations engaging in digital library, archive, and database projects. Project 'Muktabodha Digital Library' has focused on preserving ancient Indian scriptures, particularly those related to the Shaiva Siddhanta tradition. 'The Indira Gandhi National Centre for the Arts (IGNCA) Digital Initiatives' and 'National Mission for Manuscripts' have aimed to document, preserve, and disseminate the vast manuscript heritage of India through digital means. Gradually, digital humanities is transforming the study and analysis of literary texts, offering new opportunities for interdisciplinary collaboration and innovative scholarship. However, challenges in infrastructure and resources persist in India, impeding the full utilization of computational techniques. The Digital Humanities Alliance of India (DHAI) has emerged to support research in this area. Additionally, efforts are being made to integrate digital humanities components into Library and Information Science curricula in Indian universities.

While the pace of digital humanities in India is progressing, it can be considered moderate given the potential and need. There have been commendable efforts and successes, but consistent and scalable growth requires addressing the challenges mentioned above. the pace of digital humanities in India needs to be accelerated by increasing funding, building expertise by offering specialized training fostering collaborations between humanities scholars and technologists, and raising awareness about the potential of digital humanities through workshops, conferences, and publications.

A Sample DH Project Overview:

Creating a digital humanities project focused on the promotion and propagation of Indian storytelling techniques like Harikatha, Dastangoi, Pandavani, and Yakshagaan:

1. Project Scope and Objectives

- Scope: Identification of the specific storytelling techniques and narratives to be focused on.

- Objectives: Objectives could include preserving these traditions, making them accessible to a wider audience, or providing educational resources.

2. Research on Materials

- Primary Sources: recordings, transcripts, and written narratives of Harikatha, Dastangoi, Pandavani, and Yakshagaan performances.

- Secondary Sources: academic papers, books, and articles analyzing these storytelling forms.

3. Digitize and Archive

- Digitization: Conversion of physical recordings and written materials into digital formats.

- Metadata: Creation of detailed metadata for each item, including performer names, dates, locations, and contextual information about the stories.

4. Creation of a Digital Platform

- Website Development: Development of a user-friendly website or digital archive. This platform should allow users to access, search, and explore the materials.

- Interactive Elements: Incorporation of interactive elements like maps showing the geographical origins of the stories, timelines, and glossaries of terms.

5. Multimedia Integration

- Audio and Video: Integration of audio and video recordings of performances. options for subtitles and translations.

- Textual Analysis: transcriptions and translations of the narratives including annotations to explain cultural and historical contexts.

6. Educational Resources

- Courses and Workshops: Development of online courses and workshops to teach about these storytelling techniques including video lectures, reading materials, and interactive activities.

- Lesson Plans: Creation of lesson plans for teachers to use in classrooms, focusing on the narratives and techniques.

7. Community Engagement

- Interviews: interviews with contemporary performers and practitioners of these storytelling forms.

- Forums: Creation of forums or discussion boards where enthusiasts and scholars can discuss and share insights.

8. Promotion and Outreach

- Social Media: Utilization of social media platforms to promote the project by sharing snippets of performances, interesting facts, and upcoming events.

- Collaborations: Partnering with cultural organizations, universities, and storytelling festivals to reach a broader audience.

9. Preservation and Sustainability

- Backup: Ensuring regular backups of all digital materials to prevent data loss.

- Funding: Seeking funds and grants to support the ongoing maintenance and development of the project.

Conclusion:

English literature, with its extensive canon, offers another lens through which human experience and thought have been explored. Incorporating contextual studies that place English literary works within the framework of Indian cultural, historical, and philosophical contexts can foster a deeper understanding of global cultural narratives, enriching both traditions. Translations of Indian classical texts into English, and vice versa, can open up new

avenues for literary appreciation and critique. Transcreation, which involves adapting texts to preserve their original essence while making them accessible to new audiences, can also play a crucial role. By comparing themes, motifs, and literary techniques found in both English and Indian literature, scholars can gain deeper insights into universal human experiences and cultural specificities. For instance, the epic narratives of the *Mahabharata* and *Ramayana* can be studied alongside works like *The Iliad* or *Paradise Lost* to explore themes of heroism, morality, and cosmology.

In conclusion, it can be said that the convergence of Digital Humanities and English literature studies presents promising opportunities for the future of humanities scholarship. Utilizing digital tools and technologies, scholars can uncover fresh perspectives on literary texts, reach wider audiences, and foster a more inclusive and accessible approach to studying literature in the digital era.

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