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SANSKRIT INFORMATICS

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Abstract

Needless to say, the spread of ICT has affected all sectors. The dominance of ICT over Sanskrit has brought about great changes, especially in the field of Sanskrit teaching and research. The changes brought about by the proliferation of ICT have led to new concepts in the field of Sanskrit research. Our heritage, streams of knowledge and their sources are threatened with extinction today. Many scholars today are using computer-aided methods to preserve them. As such, this paper is a brief exploration of the impact of ICT's potential on the field of Sanskrit studies.

Keywords-Information, Manuscripts, Sanskrit, Technology, Wikipedia,

INTRODUCTION

Information and Communication Technology (ICT) has an immense role in all areas in the world such as economic, occupation and education etc. Today the telecommunication technology and computer technology are widely developed in every corner of the world. Each and every subjects in the world is going towards the use of technology. Sanskrit has so many glorious information which is still unrevealed to the world.

In short, there can be seen a great change has taken place in the society. There is nothing wrong with even describing it as a revolutionary change. Today, human life is like being trapped in a web. In the past, it was learned that man could not live without water, air and light. But with that comes the term technology. Even the uneducated people also discuss their thoughts and post their own opinions through social media. ICT has become one with infinite possibilities that extend like a network. Nowhere in the world today cannot seen any institution or office that without use different levels of technology. New discoveries and experiments are being made in different parts of the world every day. Based on one such

experiment, in 1984, German and US scientists conducted a study. That great experiment was the use of machine translation Sanskrit. Their main hypothesis in that research was whether Sanskrit would be preferred to machine language. Beyond their thinking, they found that Sanskrit was the most computer-friendly language in the world. Sanskrit is not a colloquial language. But it is safe to say that Sanskrit is a storehouse of the stream of knowledge that needs to be preserved today. A variety of acting techniques existed to keep the palm-leaf texts intact. But today it is mainly technology that is being used. In a sense, many people have misunderstood that the only benefit of technology is the preservation of such precious treasures. But there are some limitations and shortcomings with regard to Sanskrit and the recognition of the potential of ICT has been handled in a subject like Sanskrit.

SANSKRIT

Sanskrit is one of the oldest languages in the world. The Sanskrit language is also known as *Bharathi, Amritabharati, Amarabharati, Surabharathi, Amaravani, Suravani, Girvanavani* and *Girvani*.

The RigVeda is believed to be the first work in Sanskrit literature. The branches of knowledge were also propagated and developed in ancient India through the medium of Sanskrit. Sanskrit is one of the 22 official languages of India and is widely used in the original texts of Hindu, Buddhist and Jain scriptures.

The original form of Sanskrit can be found in Vedic Sanskrit (Sanskrit in which the Vedas are written). The oldest of these is Sanskrit used in the Rigveda. This fact and scientific studies in linguistics indicate that Sanskrit is one of the oldest languages in the Indo-European linguistic branch. Many languages of modern Asian countries are derived from Sanskrit.

At present Sanskrit is spoken only by a very small section of the population. But the language is used in the form of hymns and mantras in many Hindu rituals and ceremonies. Literary resources inherited in the form of Hindu and philosophical texts are also widely studied. Many scholarly controversies based on Indian philosophy still take place in some ancient traditional educational institutions. Much of the Sanskrit stream of knowledge encompasses an extensive tradition of poetry and literature. At the same time, science, technology, philosophy and religious texts are part of Sanskrit literature.

INFORMATION AND COMMUNICATION TECHNOLOGY

Technology is generally defined as the application of knowledge. There is no exact definition as this is a term used in a very broad sense. It can be considered as a collection of skills, methods and processes used in production or for objectives such as scientific research. In human society, the fields of science and engineering are mainly related to this. The main area of technology is the manufacture and use of equipment.

The first technology used by man was to turn natural resources into simple tools. The invention of fire in prehistoric times and the subsequent Neolithic Revolution increased food resources and the invention of the wheel helped humans to move and control the environment. Many developments in history, including the invention of the printing press, the telephone, and the Internet, have reduced the physical limits of communication and made it possible to travel the solar system globally. The continued growth of military technology brought more destructive weapons.

Today the term ICT used in a wide sense and it encompasses all forms of technology used for creation, acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information etc.

ICT consists of all technical means used to handle information and aid communication, including computer and network hardware, communication middleware as well as necessary software.[1] The need for Sanskrit informatics merely not only teaching to students but it helps for existing the various knowledge of Sanskrit and protect Sanskrit Language. *Sir Monier-Williams said(1819-1899) that India though it has more than five hundred spoken dialects, has only none sacred language and only one sacred literature, accepted and revered by all adherents of Hinduism alike, however diverse in race, dialect, rank and creed that language is Sanskrit and Sanskrit literature, the only repository of the Veda or Indian knowledge in its widest sense, the only vehicle of Indian mythology, philosophy, law, the mirror in which all the creeds, opinions, and customs and usages of the Indians are faithfully reflected and the*

[1] Sanskrit Informatics, P.5

only quarry whence the requisite materials may be obtained for improving the vernaculars or for expressing important religious and scientific ideas.[2]

Briefly any knowledge of the world dependent on ICT such as Sanskrit and its sub divisions also. On the basis of informatics it can be defined as science of managing knowledge like collection organization, management, processing, retrieval and dissemination of Sanskrit related information, and consists of a broad area of knowledge encompassing computational linguistics, natural language processing, language analyzing and language generating cognitive science, human machine interaction, artificial intelligence, automatic speech synthesis, speech recognition, automatic image recognition, optical character recognition, character coding systems, scripts used by Sanskrit language, multimedia, machine assisted translation and transliteration, building lexical resource, ICT based teaching and learning of Sanskrit, development of corpora of Sanskrit texts, *Paniniyan* [3] grammar formalism, knowledge representation, image comprehension and inferential mechanisms etc..

SANSKRIT INTERFACE COMPUTER

Panini's studies of linguistics were complex and technically advanced. *Panini* has been conducting scientific studies of *morpheme*, *phoneme*, and *root* for millennia for Western linguists for thousands of years. His grammars were full of Sanskrit vocabulary. *Panini's* zeal to perfect the rules of grammar makes his grammar rules comparable to the machine language of computers in the modern scientific world.

The intricate applications of modern mathematical theories such as transformation and recursion give *Panini's* grammar a thought similar to that of touring machines. Considering these factors, *Panini* can be considered as the originator of computer science. In other languages, *Panini* words are used in grammar. The similarities with the *Paninis* are clear to the *BACS-Normal* form or *BNF code*, which theorizes the grammar of programming languages in modern computer science. The backs-normal form is often referred to as the panini-backs form. Moreover the national Aeronautics and Space administration of USA

[2] Ibid,p. 3
[3] Panini was a great scholar in Sanskrit Grammar of India. His theory was also Known as Paniniyan

where interdisciplinary studies on machine language and natural languages are conducted has acknowledged the scientific importance of Sanskrit.[4]

SANSKRIT RELATED SOFTWARE

There are so many Sanskrit software available nowadays. Every processes of informatics are providing through this software especially the valuable knowledge in Sanskrit, like management, processing and utilization etc., Various government organizations are also supported to developing programmes to process Sanskrit in Computers. Centre for development of advanced Computing (CDAC) at Poona, TDIL under Dept. of IT Govt. of India, ILDC, JNU and other NGOs like CIRD, academy of Sanskrit Research at Melkote etc.[5] are some major organizations of India. CDAC has developed various programmes regards with computer application. Their major contribution is desktop publishing package for Devanagari script.

Technology Development for Indian Language is a major project which has been initiated by Department of Information Technology(DIT), Govt. India. Their main aim or objectives are developing the information processing in connection with ICT and to develop technologies to access knowledge resources remaining in various Indian language specially in Sanskrit language. Some kind of programmes also developed by them like software tools, fonts and resources. It is very helpful for students and research scholars in the field of Sanskrit Studies. They to use ICT tools and information for their assignment and thesis writing etc. here able to use these programmes for their work. The procedure of research work strictly will be followed as methodological pattern for which helps this programmes. The main process of the research works are word processing, presentations spread sheets preparation, webpage surfing and designing, messaging etc. in Sanskrit itself. Moreover, *Devanagari* scripts in Unicode will enable using Sanskrit in numerous packages. Some of the Sanskrit Software tools and Fonts are giving below

Sanskrit Language True Type Fonts with keyboard driver

Sanskrit language Unicode Compliant Open Type Fonts

Sanskrit Unicode Compliant Keyboard Driver

[4] Ibid. p 17
[5] Ibid.p.46

Sanskrit Language Version of Bharathiyaoo.0(open Source)

Content Management System

Sanskrit Scribus Layout and Publishing software

Sanskrit Pradipika

Online Multilingual Amarakosha

Mahabharatha Indexer

Sanskrit Sandhi Generator

Sanskrit Language Subanta analyser

Sanskrit Language Subanta Generator

Sanskrit language Tinanta Analyzer

Sanskrit language Tinanta Generator

Sanskrit language karaka Analyser

Sanskrit language Parts of Speech(POS) tagger

Sanskrit Language Letter pronounciation

Sanskrit Language Alphabet Writing

Nitya archive

ISM Publisher

I Leap.

ACADEMIC WEBSITES

Websites are available for all academic subjects in the world today. There is nothing on this earth today that is not available through the internet. There are thousands of websites available even for topics like Sanskrit. Today the internet is a great medium for research and teaching. In short, the Internet operates as a major information provider in all areas. It also has its own academic websites on literature, *Nyaya*, *Vyakarana* (grammar), *Jyotisa* (astrology) and *Vedanta (*theology), which are subdivisions of Sanskrit. These types of websites help to facilitate research. Many useful articles are available on the Internet for teachers, students and researchers. Web sites still work for free mode. There is no need for any payment to searching these websites. Below are given some important webpages.

Evolution of Sanskrit Language

History of Sanskrit Literature

Eminent Sanskrit Authors

Well-known works in Sanskrit

Sanskrit& Other Classical Languages

Sanskrit& Modern Indian Languages

Sanskrit & The science

Sanskrit & Metaphysical subjects

Sanskrit & Humanities

Sanskrit& Religion

Sanskrit and Arts

Sanskrit Hymns and Subhasitas

FREQUENTLY ASKED QUESTIONS

Frequently Asked Questions "F-A-Q" is a list of answers to general questions about a particular product or service. In the IT world, FAQs are created for software programmes, computer hardware, websites, and online services. They serve as a central reference for finding answers to common questions. Frequently Asked Questions are based on user feedback, so they evolve over time. For example, a software company may receive a lot of emails about a specific step in their software installer. The company may specify the stage of their FAQ so that users can find the answer without having to email the company. This cuts down on technical support and saves time for the software company and end users. Some software programmes and hardware tools come with a FAQ. In some cases, the FAQ contains the "Readme" file, although it may be a separate file or included in the printed manual. Often, FAQs are located on a website. This allows the relevant company or organization to update the FAQ regularly based on user queries. Most FAQs are in the "Support" section of a website.

ELECTRONIC JOURNAL

Some journals are published only on the web and in digital formats. but most electronic journals originated as print journals, which later evolved into an electronic version, retaining

the print component. As academic research habits have changed in line with the growth of the Internet, e-journals have dominated the world of journalism.

The structure of an e-journal is similar to that of a print journal there is a table of contents listing articles, and many electronic journals still use a volume-issue model, although some titles are still published continuously. Online journal articles are a special form of electronic documentation. They are intended to provide material for academic research and study and are formatted in the same way as journal articles in traditional printed journals. Often a journal article is available for download in two formats - as a PDF, in HTML format, and other electronic file types are often supported for related materials. Articles are indexed in bibliographic databases and search engines. E-journals allow you to incorporate new types of content into journals, for example video material or research-based data sets.

With the growth and development of the Internet, there has been a growth in the number of new journals, especially those that exist only as digital publications. A subset of these journals exists as open access titles, which means that they are free to access for everyone and have Creative Commons licenses that allow them to reproduce content in a variety of ways. High quality Open Access journals are listed in the Directory of Open Access Journals. However, most libraries, organizations and individuals continue to have access to subscription journals.

This kind of access can also be found in Sanskrit. A special page has been prepared for it. Given below are the names of the pages that are mainly used in Sanskrit Scholars- http://sanskrit documents, org/sanskritfaq.html. and http://www.faqs.org/topRated.html. it is not only Sanskrit other selected subject also available form this webpage.

SANSKRIT VOICE SITE

It's a list of resources that point to sites where you can browse catalogs or download programs. Students are the focal point in the Sanskrit voice. These are sites of special importance for Sanskrit students. Here you will find more useful information about style manuals and other tips for writing papers. There are many links available for this purpose. By accessing ***http://sanskritvoice.com*** you can learn about the methods of writing a research report and the new fields of knowledge they contain. If the Internet uses information to write

research reports, we need to be aware of the current standards for referring to electronics information. Many sites provide examples of a variety of web references in acceptable formats. We can access these examples from the sites of many universities and research institutes. Such as several Sanskrit blogs also available now from the concerned sites. Website's names in the field of Sanskrit and Indology studies are giving below.

Sanskritlinks.blogspot.com

Kalidasa.blogspot.com

Sanskritbhasha.blogspot.com

Samskritam.wordpress.com

Yaajushi.blogspot.com

Sanskrit-quote.blogspot.com

http://www.sanskrit.edu.tc

SANSKRIT WIKIPEDIA

Sanskrit Wikipedia is the Sanskrit version of Wikipedia, a free, web-based, collaborative, multilingual encyclopedia project supported by the non-profit Wikimedia Foundation. Volunteers around the world have co-authored over 5,000 articles with major contributions from India and Nepal. It was established in December 2003.[6] By August 2011, it was rich with more than 5,000 articles.[7]

NEED FOR ICT ON SANSKRIT MANUSCRIPTS

Surveys conducted by SC Biswas and Shri MK Prajapati on behalf of INTACH during 1988-90 and on scrutiny found over 5,000,000 manuscripts in India and abroad.[8] 67% of them are in Sanskrit, or 3,350,000 manuscripts are available in Sanskrit (Project Document, NMM, 2003).[9] Numerous manuscripts related to Indian architecture, art and architecture are available. *Kashyapa Silpasastra*, *Alankara sastra*, *Paka vinjana* and *vastu vidya* are examples of India's best description of temple construction, house building, rock cutting and cooking.

[6] Wikipedia
[7] Wikipedia
[8] Pratidhwani the Echo-A Peer-Reviewed International Journal of Humanities & Social Science, P.300
[9] Ibid.p.300

Although the great scholar Jagadguru Swami Sri Bharathi Krishna Tirthaji Maharaj wrote sixteen books (1911-1918) on the sixteen sutras on Vedic mathematics, these books are now lost.[10] Therefore, in this age where computer technology helps to preserve our ancient knowledge, the big question remains as to why we do not take advantage of the potential of computer technology to help modernize culture. In the age of globalization, the knowledge of Sanskrit can be explored by the global population with the help of information and communication technology.

India has the oldest and largest collection of manuscripts. Various scholars have documented the preservation of these ancient manuscript collections, including indigenous methods of wrapping palm leaf manuscripts, applying extracts of natural products, and other chemical treatments. Studies have been conducted on the digitization of these manuscripts and the transfer of their knowledge to future generations.

Efforts have been made to digitize these endangered documents and prevent them from being destroyed by biological, chemical and climatic conditions, and digital archiving has been the focus. In Kerala, University of Calicut and University of Kerala University have been successful in such endeavors. A modern device like CD or microfilm helps today's digital citizens to take advantage of this. The growing popularity of printed books has increased the interest in collecting and preserving manuscripts in India. It is a great relief that the Central Government has made concerted efforts to preserve and give access to manuscripts through various research institutes across India.

CONCLUSION

The new discoveries for Sanskrit in connection with ICT are most welcome in the field of Sanskrit studies such as Unicode, Keyboard, Websites, Software, Wikipedia, Blogs, etc. It is through this kind of technology that issues like Sanskrit have to be dealt with and protected. ICT can bring about further changes in the field of teaching and research. Moreover, Information and Communication Technology (ICT) is emerging as a new science to preserve our ancient

[10] Ibid.p.300

knowledge. It can be said that there is our traditional knowledge in Sanskrit like a sea and it can be explored into the global community with the help of computer technology. In short, the bright future of tomorrow is in the hands of today and if Sanskrit is better preserved, the result will be more effective for the new generations.

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