A BIRD’S EYE VIEW OF DIGITAL PRESERVATION OF MANUSCRIPTS IN INDIA

Dr. P. Sarasvathy1
Sr. Assistant Librarian
Mysore University Library
MGM-570 006

A. Selvaraja2
Research Scholar
DOS in Library and Information Science
MGM-570 006

D. Giddaiah3
Assistant Librarian
Mysore University Library
MGM – 570 006

Abstract

The paper discusses the digital preservation of manuscripts and their importance, digital preservation requirements, preservation of knowledge in different format, Initiatives in digital preservation of manuscripts in India and also studies the digitisation of manuscripts. Further the paper shows that permanent is major factor to be considered when considering preservation of these rich resources, their loss would be irreparable and irreplaceable. Finally focuses on the benefits of digital preservation of manuscripts.

Keywords- Manuscripts, Digital Preservation, Manuscripts- Digital Preservation, Importance- Manuscripts

1.0 Introduction

Preservation is the most perplexing and unyielding problem confronting the libraries of the world today. Man seems to be worried about the permanence of his writing ever since he attempted to write. Preservation of manuscript is very serious problem for the librarian through the world (Chopra, 1995).

In present age, the rapid development of information technology and communication system has brought revolutionary changes in the organization and management of information. The advance application of information technology has touched each and every activity of library and information centers. Now the information technology brings the unique opportunity to the field of preservation with the digital preservation facility of the non digital documents.
Digital preservation of manuscripts is now given proper importance. Manuscripts are the first hand written documents which reflect our glorious past and tell the story of our forefather. These manuscripts are the basic and primary source of information for the researchers. Due to different reasons, these manuscripts are now in poor and fragile physical conditions and for its proper preservation at present stage for the future; many foundations, universities, and other institutions are now taking initiatives for digital preservation of these valuable manuscripts.

The development of digital collection and the proliferation of such content through the ‘global‘ ‘information explosion’’ are changing the way that information is used and managed (Gilland Miller, 2002). Digital collections have enormous potential for changing the way that information is used, and for developing new ways of preserving, collecting, organizing, propagating and accessing knowledge (Witten and Bainbridge, 2003).

**Manuscripts:**

**Oxford English Dictionary** defines manuscripts as ‘a very old book or document that was written by hand before printing facility was invented.’ Etymologically, the word manuscript has been derived from the Latin word ‘Manus’ that means hand and ‘Scribe’ to write i.e. written by hand. Hand written documents are called manuscripts.

**Importance of Manuscript**

Manuscripts are one of the precious materials of our cultural heritage. They are valuable sources for the reconstruction of the history and culture of a country. Manuscripts are one of the precious materials of our cultural heritage, acting as a valuable source of history and knowledge and offering perspective on contemporary society. Manuscripts can not only be stored and preserved, but also made available to the public.

The manuscripts are the most important materials to help learn the cultural heritage of humankind. The effective utilization of knowledge hidden in manuscripts has recently been recognized as an essential tool to fill in the gaps of our socio-cultural understanding of the tradition. So it is therefore necessary to preserve the manuscripts for current and future use by society.
Long before the modern scientific graphologists began their important contributions, the paleographers had realized that every manuscript has its personality and reveals the personality of the scribe and the characteristics of his milieu. When the manuscript disappears we lose not only fundamental evidence for the textual transmission but also an irreplaceable cultural history. An archetype is the most important of all manuscripts no matter how accurate the transcription, how ingenious the scribe’s emendation, or how learned the commentary. The identification of manuscripts is a major problem and the medieval European manuscripts are typical in that the same work is often ascribed to different authors in different manuscripts or the same work is given different titles. It is the chore of the paleographers to use all possible evidence to make proper identification and description, while leaving literary evaluation to the literary historians, and analysis of illumination to the art historians. The provenance and content of a manuscript as well as the time and place of its production should be thoroughly researched. Even the binding and the physical structure and arrangement of the leaves are pertinent. The nature of the writing material, the ink, the lineation, punctuation, erasures, insertion abbreviations and possible presence of different hands are among the many points to which the paleographer should give attention. Historical studies of both public libraries and private collections are important. Researchers should not depend on a single manuscript of the same text, however clear and uncomplicated the transmission may be. Illegible facsimiles of manuscript collections should not be used to facilitate this type of comparative study. The manuscripts, besides having information (the image data) also have visual information (secondary image data). The information regarding physical form, binding, paper, history of manuscript, source of acquisition, its present market value which is often high, is called physical data. All these are very important in manuscripts.

There are many libraries in the world where rare manuscripts of Indian origin are preserved and some of them are:

- Copenhagen Royal Library (Denmark);
- Bibliotheque Nationale (France);
- Preussiche States Bibliothek, Universitas Bibliothek, Staats Bibliothek, Bayerische Staats Bibliothek (Germany);
- British Library, Royal Asiatic Society, Bodleian Library, India Institute, Cambridge University Library (United Kingdom);
- Darbar Library (Nepal);
- Punjab University Library (Pakistan);
- Museum Library (Sri Lanka).
In India Manuscripts are maintained usually by universities and research institutes. They are as follows.

**Name of the Institutions and Their Manuscript collection**

<table>
<thead>
<tr>
<th>Name of the Institutions and Their Manuscript Collection</th>
<th>Number of Manuscripts</th>
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<tbody>
<tr>
<td>1 Sampurnanand Sanskrit University, Varanasi</td>
<td>1, 40,000</td>
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<tr>
<td>2 Rajasthan Oriental Research Institute, Jodhpur</td>
<td>1, 16,123</td>
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<tr>
<td>3 Govt. Oriental Manuscript Library Chennai</td>
<td>72,620</td>
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<tr>
<td>4 TSSM Library, Thanjavour</td>
<td>47,625</td>
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<td>5 Adyar Library and Research Centre, Chennai</td>
<td>40,000</td>
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<tr>
<td>6 Orissa State Museum, Bhubaneswar</td>
<td>37,000</td>
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<tr>
<td>7 Asiatic Society, Kolkata</td>
<td>32,000</td>
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<tr>
<td>8 Andhra Pradesh Oriental Main Library</td>
<td>23, 115</td>
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<tr>
<td>9 Khuda Baksh Oriental Public Library, Patna</td>
<td>20,060</td>
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<td>10 Scindia Oriental Research Institute, Ujjain</td>
<td>18,695</td>
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<td>11 Punjab University, Chandigarh</td>
<td>18,395</td>
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<td>12 State Central Library, Hyderabad</td>
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<td>13 Vishwabharati University, Shantiniketan</td>
<td>15,354</td>
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<td>14 Rampur Raza Library, Rampur</td>
<td>15,000</td>
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<td>15 Rajasthan State Archives, Bikaner</td>
<td>14,000</td>
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<td>16 Kameshwar Singh Darbhanga Sanksrit University, Darbhanga</td>
<td>13,000</td>
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<td>17 University of Calcutta, Kolkata</td>
<td>13,000</td>
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<td>18 Aligarh Muslim University, Aligarh</td>
<td>12,000</td>
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<td>19 Govt. Manuscript Library, Allahabad</td>
<td>11,000</td>
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<td>20 Banaras Hindu University, Varanasi</td>
<td>10,500</td>
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<td>21 Safdarjang Museum, Hyderabad</td>
<td>10,000</td>
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<tr>
<td>22 Central Institute of Buddhist Studies, Leh</td>
<td>10,000</td>
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<td>23 Osmania University Library, Hyderabad</td>
<td>6,428</td>
</tr>
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<td>24 Shivaji University Library, Kolhapur</td>
<td>5,673</td>
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<tr>
<td>25 Kurukshetra University, Kurukshetra</td>
<td>5,500</td>
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<tr>
<td>26 Poona University, Poona</td>
<td>4,416</td>
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<tr>
<td>27 Patna University, Patna</td>
<td>3,700</td>
</tr>
<tr>
<td>28 Tamil University, Thanjavur</td>
<td>3,365</td>
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A Survey made by Indian National Trust for Art and Cultural Heritage (INTACH) under National Manuscript Mission in the year 1988-90 found that there were various types of manuscripts.

**Manuscripts in India**

The manuscript wealth of India is enormous. No one really knows how many manuscripts— in different languages and scripts. On palm leaf, birch bark, cloth, wood, stone and paper—exist, though an Indian National Trust for Art and Cultural Heritage survey in the late 1980s put the figure at 50 lakh. A good number of them have been catalogued, and lie preserved in libraries, museums and institutes, but experts are convinced that a still greater number remain undiscovered and undocumented, in various minor libraries, private collections, and religious institutions.” A vast number of India’s manuscripts have still to be unearthed,” said Sudha Gopalakrishnan, director, National Mission for Manuscripts (NMM). “A bigger number have to be catalogued. Many of them are rapidly decaying, and need to be properly preserved or they will be lost.”

It was with these objectives in mind that the Ministry of Culture set up the NMM with a five-year time frame and a budget of Rs 350 crore. Since then the mission, tying up with various like-minded institutions, has set up 27 Manuscript Resources Centers (MRCs) to carryout surveys and awareness campaigns and 20 Manuscript Conservation Centers (MCCs) to help preserve and, restore valuable manuscripts. A single pilot project last year unearthed 2 lakh manuscripts in UP, 1.5 lakh in Bihar and 2.9 lakh in Orissa.

How valuable are the manuscripts that have turned up? Anything that is handwritten and more than 75 years old qualifies as a manuscript, but Sudha insisted they were very discriminating.” We will not pick up anything and everything,” she said. “Land records, horoscopes or personal records are not what we want. We look for documents of scientific, artistic, historical or spiritual value” (Murkerji, 2005).
During the history extending over 5000 years, India has produced a large wealth of literature. This vast knowledge treasure was written on different kinds of material like birch bark, palm leaf, cloth, wood, and stone and paper etc. India perhaps has one of the oldest and largest collections of manuscripts in the world. They are in the custody of different institutions like libraries, museums, monasteries, mosque and individuals. Many of them have disappeared and a large number are in a state of damage/decay. We already have lost huge manuscript collection in Buddhist monasteries like Nalanda, Taxila & Vikramshila. Taxila at the North West front of India was destroyed by foreign aggression. Nalanda library known as Dharmganj had 3 sections Ratnadodhi, Ratnasagar and Ratna Rajak. Ratnadodhi was a 9 storied library. First Hun king Michirkul damage the library in 450-470 AD. In 1205 AD Bakhtiyar Khilji destroyed it completely and his soldiers use the manuscripts for boiling water. India’s most valuable and precious gift to humanity is its profound and timeless heritage. This heritage encompasses almost every aspect of human enquiry. Today, this heritage is scattered in libraries and in individual possessions. Much of India’s heritage, in its physical form, has unfortunately got mutilated and destroyed through successive invasions, some of which is still being stolen; books manuscripts are decaying. The preservation of “Indian Heritage” presents a great challenge. Fortunately indeed, the merging information technology can offer a solution not only for preservation, but also for enhancement and for its wide scale access. One of the greatest contributions of Indian libraries could be to bring the precious, oriental and timeless Indian Heritage on the Internet.

Manuscripts in India have a long tradition that was produced in all part of our country in different languages and in scripts. These manuscripts were regarded as rare commodities, produced with hard labour and cost. A sense of religious sanctity and reverence were associated with them and they were worshipped like holy relics, which are now stored in different temples, madrasas, museums, universities as well as in personal custody etc.

**Preservation of knowledge in different formats and forms**

Writing materials included copper plates, trees barks, and palm leaves. These materials have been subject to deterioration and decay due to environmental conditions or through
sudden natural calamity. Traditional methods of preservation like leather were treated with alum and other herbal chemicals during preparation, and then wrapped in a special type of red cloth protected by palm leaves. The process of making paper left some residual chemicals, which later caused deterioration of the paper. With the advent of new technology, preservation of knowledge has acquired a new dimension. It is interesting to note that the technology in the beginning tried to preserve the original format by producing a surrogate copy. Pages of books and journals were photocopied and bound together in the same manner. Scanning makes it possible to copy and store in electronic format manuscripts written on leather, palm leaves, and papyrus.

**What is Digitization?**

Digitization – is the process of creating a digital image and then presenting it on a computer, local area network or on the Internet.

One of the significant aspects of science is the notion of change; that is change in observations, change in experimental set up, change in the methods, change in hypothesizing, change in theorization and the change in the overall perspective as well. Thus change is a ceaseless process; nothing remains stationary or static. In other words we can say that change is eternal and there is a flux. Digital library is a ceaseless change in the total librarianship, is irreversible in its manifestation. For several centuries, paper has been the primary medium for use in the conventional library system, because of its very attractive properties. New information handling techniques, storage and communication facilities have influenced the library system. One of the main reasons for the appearance of these new media is that they offer many types of facilities that paper based storage cannot afford.

There are four basic steps for moving towards digitization.

1. The establishment of a paper based collection.
2. The extension of the basic system to accommodate the use of new publication media (New perspective)
3. The use of computer based methods to manage the system (management perspective)
4. Movement towards a totally electronic (digital) system.
Why digitization?

The principal reason for digitizing materials is in collection is to overcome the twin tyrannies of time and space, the real barriers to the use of library collections. This is a paraphrase of Fred Kilgour often repeated phrase “when and where the user wants it “meaning that the user should be able to choose the time when and place at which some orthodata is accessed. Another reason is that the objective is to reduce the time and effort the user must expend to gain access to orthodata. Libraries have paid little attention to efficiency from the user’s point of view.

The need for accessing the documents is increasing and this demand, in turn increases the risk of damage both gradual and catastrophic, to the documents. Although many types of damages can be repaired, the expenses involved can be considerable. In case of severe damage, particularly with sound and moving image carriers the document is effectively destroyed. By digitizing a document the access needs of the majority of users can be met by using the digitized access copy. In short following are the reasons for digitizing the material:

a. To save space by replacing the printed originals
b. Provision of high resolution research tool with full text searching.

c. A quick overview or browsing tool, an aspect of preservation and conservation.

Digital Preservation Requirements

Digital preservation encompasses a broad range of activities designed to extend the usable life of machine readable computer files and protect them from media failure, physical loss and obsolescence.

Digital preservation will add little values to the research process if it serves only as an alternative form of storage. Preserving digital materials in formats that are reliable and usable will require long term maintenance of structural characteristics, descriptive Meta data, display and computational and analytical capabilities, which demand mass storage and software for retrieval and interpretation. The digital preservation is a process that requires the use of the best available technology, careful thought, administrative policy and procedures.

What is Digital Preservation?
Encyclopedia of Information Technology defines the term digital preservation as “The process of maintaining, in a condition suitable for use, materials produced in digital formats. Problems of physical preservation are compounded by the obsolescence of computer equipment, software, and storage media. Also refers to the practice of digitizing materials originally produced in non digital formats (print, film, etc.) to prevent permanent loss due to deterioration of the physical medium.” Digital preservation has the two dimensions i.e. preservation of materials that are born in digital form and another is digitization for preservation of printed documents and the manuscripts which are touched by the hand of deterioration. Digital preservation facilitates the global accessibility of any form of documents.

**Initiatives in digital preservation of manuscripts in India**

Thinking the importance of digital preservation, in India too, numbers of projects are taken by different organizations for the preservation of these valuable manuscripts in digital format. In July 2000, a pilot project for digitization of rare manuscripts had been initiated by National Archives of India, collaboration with Department of Science and Technology and National Institute of Advanced Studies, Bangalore. Under this project, rare manuscripts, viz. Bhagwadgita, Ramayana, Mahabharata, etc. have been digitized and stored in CD medium.

One of the major functions of the National Library of a country is to collect and preserve nation’s intellectual and cultural heritage. Therefore National Library has taken several steps to preserve this heritage as well as to increase the accessibility and awareness of these records. National Library of India, Kolkata is the apex body of library services India. This National Library has about 3600 rare and historically important manuscripts in different languages. These manuscripts are preserved separately in the Rare Books Division. This library has initiated a digitization programme, known as ‘Down the Memory Lane’, to digitize these manuscripts along with other rare books and documents, from its collection. These scanned documents are archiving on CDs. Between the year 1999 and 2001 approximately 6601 books and manuscripts containing 2.5 million pages were scanned and archived in 548 CD-ROMs.

Established in 2001, Nanakshahi is a registered trust at Punjab for creating a comprehensive Digital Sikh Reference Library. This trust introduced a Project named Virsa under which one hundred fifty manuscripts of Sri Guru Granth Sahib and other manuscripts
available in the Government Museum and Art Gallery, Chandigarh and Kurukshetra University are digitized. In February 2003, the Department of Culture, Ministry of Tourism and Culture, Government of India launched a national level mission for the preservation of the manuscripts; India’s real treasure of culture. The Mission has laid emphasis on digital preservation of rare manuscripts all over India and already completed a numbers of manuscripts are captured in digital form. Indira Gandhi National Centre for Arts (IGNCA) was launched on 19th November, 1985 by the late Prime Minister of India Shri Rajiv Gandhi and registered at New Delhi on 24th March 1987. This Center has taken a nationwide project for digital preservation of manuscripts .This Center is digitizing a number of manuscripts in Assam also.

Khuda Bakhsh Oriental Public Library located in Patna, Bihar has taken a Pilot Project of Digitization of manuscripts in October, 2005, which has a mighty collection of about 21,000 manuscripts in Arabic, Persian, Urdu, Turkish, Hindi and Sanskrit written on Palm-Leaves.

**Preservation of Manuscripts in India**

Even under the best possible conditions, the physical preservation of manuscripts is a difficult task. The cultural heritage of India, in the form of manuscripts has to be conserved, preserved and documented. With this motivation, from ancient times preservation of manuscripts is done by indigenous methods like wrapping the manuscripts in silk cloth. Sometimes oil extracts of some natural products, sandal wood powder, black pepper, clove oil etc. are used for preserving palm leave manuscripts. Chemical treatments like, fumigation chambers and Thymol, Chloromate solution are also used to protect the manuscripts.

The Photographic methods, like microfiche, microfilming, photocopying are very important techniques of preservation and access. This method not only may damage the originals but preserve them only for a few decades.

The invention of Scanners has revolutionized the input of data to computer media, which can also damage the manuscripts. Then high-definition film scanner is used to digitize the manuscript as image, which is an expensive method. Before 1998, digital cameras were used, which could copy only a few pages and turns out to be quite expensive.
From 1999, improved still cameras are used to meet the needs of in-house digital copying. National Institute of Advanced Studies (NIAS) used this method by digitizing Bhagavad Gita into two CD-ROMs.

The availability of Bhagavad Gita in digital form and its inclusion in computer database has rendered its access through Internet.

NIAS started a new method of preservation called NiDAC, to share the rare manuscripts via the Internet or CDs, for educational and research purposes. Instead of using a scanner to digitize each page as a computer graphic, the NiDAC procedure begins with the DV video format. The DV video format simply records everything in binary code onto a mini DV tape. The Camcorder connects to high end computers via an IEEE1394 cable and card. The digital image can be manipulated as a graphic or converted into alphanumerical list. Images will be compressed into JPEG image formats and the computerization is completed with various forms of storage like rewritable media, CDs etc. The NiDAC also used a megapixel digital still camera with extra large memory cards and this method is one of the cost effective methods and it is ten times faster than downloading via a parallel or serial cable. This method is superior to the DV digitization and also works for extended field trips to archives, if a laptop or a computer with adequate storage is available. The NiDAC procedure allows in house copying of acid paper books such as yellowed and crumbled books. In the NiDAC procedure, DV (Digital Video) video format simply records everything as binary code on to a mini DV tape. DV digitizing method can be utilized for work in remote archives for extended times with no computer access and uncertain power supply etc.

**Digitization of Manuscripts**

India has one of the largest and oldest collections of manuscripts in the world. Today the Palm leaf books, paper manuscripts, birch bark texts, drawings, paintings, art and sculpture etc. are either scanned or converted into analogue material and are preserved on long lasting digital media for the use of future generations. The most important benefits of digital preservation are:

*Preservation:* Digital reproductions are virtually immortal in the sense, by reproducing Multiple Digital copies and by putting them for use the originals can be protected. By digitizing the manuscripts, the information can be preserved for a long time on digital media.
The paintings and photos etc. of rare manuscripts can be enlarged and reproduction in the colorful environment is possible with digital technology or image technology..

**Dissemination of Information:** Most of these manuscripts are stored in museums, libraries, temples and Mutts etc. With a restriction to use them. The digital preservation is not only safeguarding the original documents, but also providing these documents for information dissemination and research purpose via internet and CD-ROM etc.

**Transcend Originals:** Digital imaging promises to generate a product that can be used for purposes that are impossible to achieve with original resources. It uses special lighting to draw out details obscured by aging, use, and environmental damage. Imaging, this makes use of specialized photographic intermediaries or by imaging at high resolution the study of art factual characteristics has become possible.

**Collection Management:** Digital preservation provides assistance in retrospective cataloguing, researching, assistance with curatorial functions, managing material movement etc.

**New Revenue Streams:** By making available the digital reproductions at lower resolution to Scholars as a paid service, sale of high quality posters to art patrons around the world via an ecommerce web site it is possible to generate some revenue.

**Conclusion**

Manuscripts are one of the precious materials of our cultural heritage. Manuscripts can not only be stored and preserved, but also made available to the public. The effective utilization of knowledge hidden in manuscripts has recently been recognized as an essential tool to fill in the gaps of our socio-cultural understanding of the tradition. So it is therefore necessary to preserve the manuscripts for current and future use by society. When the manuscript disappears we lose not only fundamental evidence for the textual transmission but also an irreplaceable cultural history. The preservation of “Indian Heritage” presents a great challenge. Fortunately indeed, the merging information technology can offer a solution not only for preservation, but also for enhancement and for its wide scale access. One of the greatest contributions of Indian libraries could be to bring the precious, oriental and timeless Indian Heritage on the Internet. For several centuries, paper has been the primary medium for use in the conventional library system, because of its very attractive properties. New information
Handling techniques, storage and communication facilities have influenced the library system. One of the main reasons for the appearance of these new media is that they offer many types of facilities that paper based storage cannot afford. By digitizing a document, the access needs of the majority of users can be met by saving time, space and accessing reliable and relevant information without causing damage to original manuscript or document.

References:


Debashish Murkerji. Leaf, Bark & stone Preserving India’s enormous manuscript wealth By Debashish Murkerji “Heritage, The week, May 1, 2005 pp: 64-66


Subject: Thank You!

From: "JSS Conference" <jssconference2011@gmail.com> Thu, 22 Dec '11 10:42p

To: You

Dear Sarasvathy, P,

Thank you for contributing the article and speaking at the national conference on “Managing College Libraries: Issues and Trends” of JSS College for Arts, Commerce and Science, Ooty Road, Mysore held during December 16 & 17, 2011. Your presentation was very well received by our conference audience during the technical session. We hope that you enjoyed meeting the academic and professional community of Library and Information Science.

Please visit the conference webpage http://www.sdmimd.ac.in/jssconf2011 for the conference photo gallery, news clips and the report of the conference.

Thank you again for taking the time to support this academic endeavor. We look forward for similar support from you in future also.

Sincerely,

M.C. Siddalingaswamy
Organizing Secretary